

## DOCKETED

<b>Docket Number:</b>	86-AFC-01C
<b>Project Title:</b>	Compliance - Application for Certification for the (ACE) Argus Cogeneration Expansion AFC
<b>TN #:</b>	203376
<b>Document Title:</b>	ACE Decommissioning Plan
<b>Description:</b>	Document
<b>Filer:</b>	Dale Rundquist
<b>Organization:</b>	Ace Cogeneration Company
<b>Submitter Role:</b>	Applicant
<b>Submission Date:</b>	11/25/2014 3:43:34 PM
<b>Docketed Date:</b>	11/25/2014



**ACE  
Cogeneration  
Company**

*Trona Operating Partners*

November 25, 2014

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California Energy Commission  
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**Subject: ACE Project Decommissioning Plan, Docket No. 86-AFC-1C**

Dear Mr. Rundquist,

ACE Cogeneration Company, LP (ACC) hereby submits a Petition for Decommissioning the Argus Cogeneration Expansion (ACE) project. ACE is a coal-fired circulating fluidized bed cogeneration project approved by the Energy Commission in 1988 (Docket No. 86-AFC-1) that has been dependably providing power to Southern California Edison (SCE) and steam to the adjacent Searles Valley Minerals (SVM) facility in Trona, CA. ACC's existing Power Purchase Agreement with SCE will expire in November 2015 and under California's greenhouse gas emissions requirements, the ACE project will no longer be economically viable once the power purchase agreement expires. ACC is consequently seeking to decommission the project under the provisions of the license issued by the Commission.

The enclosed Decommissioning Plan describes ACC's proposed decommissioning activities, assesses conformance of those activities with applicable laws, ordinances, regulations and standards (LORS) and potential for significant adverse impacts, and discusses the alternatives considered to decommissioning and the reasons of selecting the proposed alternative.

As discussed in this Petition, the decommissioning can be completed within six months, conform with applicable LORS and not pose any significant adverse impacts with the existing conditions of certification and additional decommissioning conditions we propose.

We thank you for your attention and look forward to working with you on review of the Decommissioning Plan.

Sincerely,

Glen Casanova  
General Manager ACE Cogeneration Company, LP  
Managing Director, Trona Operating Partners, GP

# **ACE Project Decommissioning Plan**

Submitted to the

**California Energy Commission**

Prepared by

**ACE Cogeneration Company**

With Assistance from

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**DCO Energy**

**Raven Energy Consulting**

**Clean Power Consulting Partners**

**AECOM Technical Service, Inc.**

**November 25, 2014**

**Docket No. 86-AFC-1C**

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## 1.0 Executive Summary

### 1.1 Project Overview and Decommissioning Requirement

The Argus Cogeneration Expansion (ACE) project is an existing coal-fired circulating fluidized bed power plant located on the northwest side of Searles Lake in Trona, San Bernardino County, California. Until recently, it supplied steam to Searles Valley Minerals (SVM) and electricity to Southern California Edison (SCE). The project was permitted by the California Energy Commission (CEC) on January 8, 1988 and began commercial operation in January 1991. The ACE project is currently owned and operated by the ACE Cogeneration Company, LP (ACC), a partnership ultimately composed of ArcLight Capital Partners, DCO Energy, and Northern Star Generation.

ACC's existing Power Purchase Agreement with SCE will expire in November 2015. Under California's greenhouse gas emissions requirements, the project will no longer be economically viable using coal as a fuel once the power purchase agreement expires. To reduce greenhouse gas emissions within the SCE service territory, ACC signed an agreement with SCE to terminate operation of the ACE project in December 2014. The plant ceased operations as of October 2, 2014, has been placed in an outage condition. Upon approval of the activities described in this Decommissioning Plan, the power plant and other facilities will be demolished and removed and the license terminated.

On November 24, 2014, ACC reached an agreement to transfer the ground lease for the ACE site and sell some of the equipment and structures, as well as the property occupied by the ash landfill, to Sabco Inc., a California corporation. While ACC intends to sell the landfill site, lease, and related facilities, ACC will continue to hold the CEC license and be responsible for compliance with the CEC's conditions of certification until decommissioning is completed and ACC surrenders the license to the CEC. ACC will be responsible for implementing the decommissioning plan and complying with any conditions required by the CEC until decommissioning is completed and the license is surrendered. Based on the intended future use of the site, Sabco, Inc. will obtain any required land use and environmental permits from the appropriate local or state agencies.

The Commission's Decision<sup>1</sup> on the ACE project requires ACC to prepare and submit a Decommissioning Plan for review and approval. The objectives of the Decommissioning Plan are to:

- "...ensure that decommissioning will have no significant adverse impact on public health and safety or the environment..." and

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<sup>1</sup> CEC, Commission Decision Application for Certification for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988

- Make "...reasonable efforts...to ensure such action is in compliance with the laws, ordinances, regulations, standards and local and/or regional plan applicable at that time."

## **1.2 Decommissioning Proposal**

When the ACE plant ceased operations in early October 2014, the plant was placed into a long-term outage mode to secure the facility and minimize environmental hazards while the Commission reviews and approves the Decommissioning Plan. Prior to the outage, all remaining coal and limestone stored on-site was consumed. During the outage all of the remaining ash is being disposed of in the plant's ash land fill and the land fill is being closed except for a small portion to be used for later disposal of the refractory lining; draining and either returning or disposing all fluids including ammonia for the air emission control system; de-energizing the plant; and isolating the appropriate plant interconnections to off-site services.

Decommissioning of ACE involves selling easily removed tools and equipment of no interest to Sabco, dismantling/demolishing the power plant and any other facilities not retained by Sabco, recycling components and materials to the extent possible, hauling off and disposing of the remaining waste, remediating portions of the site if necessary, and cleaning-up the site. The demolition and site clean-up activities will take approximately six months. Following decommissioning, any equipment and facilities shared with SVM and not to be used by Sabco, such as the coal unloading facility and storage barn, will be turned over to SVM according to separate agreements. The ACE site including the administration building, water tanks, cooling tower, petroleum coke handling and storage facility, and ash landfill will be transferred to Sabco for future industrial use.

## **1.3 Environmental Considerations**

Prior to construction of the ACE project, the project site was highly disturbed. In its biological assessment in the Final Staff Assessment (FSA), the CEC Staff stated that "the area...is relatively devoid of native vegetation" and "most of this area has to some degree been disturbed through grading, vehicular traffic, or other activities related to development the of the Argus facility"<sup>2</sup>. The cultural resource analysis in the FSA concluded that: "The plant site was found to have undergone substantial disturbance in the recent past during construction of the existing facilities. The entire surface has been removed to an unknown depth and additional disturbance is evident to a greater depth"<sup>3</sup>.

The ACE site and its surroundings are currently heavily disturbed and have been used for industrial purposes including power generation, mineral extraction, coal storage, and

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<sup>2</sup> CEC, Final Staff Assessment for Kerr-McGee Chemical Corporation's Argus Cogeneration Expansion (ACE) Project, March 1987, page 22-7

<sup>3</sup> CEC, Final Staff Assessment for Kerr-McGee Chemical Corporation's Argus Cogeneration Expansion (ACE) Project, March 1987, page 26-6

ash landfills. Decommissioning of the ACE project will remove these uses related to coal-fired power generation from the ACE site and their accompanying emission and environmental impacts. Analysis of the decommissioning proposal shows that the planned activities will comply with all applicable laws, ordinances, regulations and standards (LORS) and will not result in any adverse environmental impacts.

Table ES-1 provides a summary of the environmental considerations associated with decommissioning and recommended conditions.

**Table ES-1 Summary of Environmental Considerations**

<b>Technical Area</b>	<b>Complies with Existing Applicable LORS?</b>	<b>Potential for Significant Adverse Impacts?</b>	<b>Proposed Conditions</b>
Air Quality and Greenhouse Gases	Complies with all applicable air quality LORS. There are no applicable greenhouse gas emission LORS specific to demolition.	There are no potential impacts. Emissions during demolition are significantly lower than during operation for criteria air pollutants and greenhouse gases.	Conditions proposed for portable equipment registrations and emissions, dust emissions, and preparation of a dust control plan.
Public Health	Complies with all applicable public health LORS. No new permits are required.	There are no potential impacts. Emissions during demolition are significantly lower than during operation for criteria air pollutants and there are no toxic substances.	No additional conditions are proposed.
Hazardous Materials Management	Demolition activities will require specific County permits and will comply with all applicable LORS.	Implementation of the conditions will ensure there are no potential impacts.	Conditions proposed to update Hazardous Materials Business Plan and obtain all required permits.
Waste Management	All LORS will be complied with. No new permits are required but existing permits will remain open until demolition activities are complete.	There are no toxic materials on site and there will be no impacts from demolition. There is sufficient capacity in existing landfills to accommodate demolition waste.	Existing programs will remain in place during decommissioning. A condition is proposed to ensure hazardous wastes are sent to a Class I landfill and records are submitted to the CPM.
Worker Safety and Fire Protection	LORS applicable to construction and operation of the facility also apply to decommissioning and will be complied with through implementing the worker	Implementation of the conditions will ensure there are no potential impacts.	ACC will ensure the demolition contractor implements a worker safety program in compliance with applicable LORS.

<b>Technical Area</b>	<b>Complies with Existing Applicable LORS?</b>	<b>Potential for Significant Adverse Impacts?</b>	<b>Proposed Conditions</b>
	safety programs and plans prepared by the demolition contractor.		
Cultural Resources	All LORS will be complied with. No new permits are required but existing permits will remain open until demolition activities are complete.	There will be no significant impacts because no off-site or underground work is anticipated.	Existing programs will remain in place during decommissioning. No new conditions are proposed.
Biological Resources	All LORS will be complied with. No new permits are required but existing permits will remain open until demolition activities are complete.	There will be no significant impacts because no off-site or underground work is anticipated.	Existing programs will remain in place during decommissioning. No new conditions are proposed.
Paleontology	All LORS will be complied with. No new permits are required but existing permits will remain open until demolition activities are complete.	There will be no significant impacts because no off-site or underground work is anticipated.	Existing programs will remain in place during decommissioning. No new conditions are proposed.
Geologic Hazards and Soil Resources	All LORS will be complied with. No new permits are required.	Since there will not be any off-site activities and minimal movement of soil on-site, there will be no effect on soil and geologic resources.	No new conditions are proposed.
Water Resources	All LORS will be complied with. No new permits are required.	Decommissioning will eliminate use of ground-water and discharge of waste water. Existing waste discharge requirements (WDRs) will be sufficient to continue to protect groundwater related to closure of the on-site landfill.	No new conditions are proposed.
Land Use	The decommissioning activities are consistent with current land use designations, plans, and goals except for Policy ED 10.2 of the Economic Development Element that	There are no land use impacts other than the loss of business and job opportunities.	No new conditions are proposed.

<b>Technical Area</b>	<b>Complies with Existing Applicable LORS?</b>	<b>Potential for Significant Adverse Impacts?</b>	<b>Proposed Conditions</b>
	encourages business development and retention.		
Noise	Demolition will comply with applicable noise LORS.	There will not be a substantial increase in ambient noise levels, even during implosion, and hence demolition will not cause a significant impact from noise.	Existing programs will remain in place during decommissioning. No new conditions are proposed.
Socioeconomics	Demolition will comply with applicable socioeconomic LORS.	The socioeconomic impact from closure of the ACE project will be minor since few employees live in Trona and past local expenditures have been minimal. Continued industrial use or future industrial development at the site will retain jobs and create new jobs.	No new conditions are proposed.
Traffic and Transportation	Demolition will comply with applicable traffic and transportation LORS.	There will be a decrease in traffic during demolition compared to operation and hence demolition will not cause a significant impact on traffic and transportation.	No new conditions are proposed.
Visual Resources	Demolition will comply with all applicable LORS. Some night-time lighting will be used for site security during the decommissioning and will be in accordance with local lighting and shielding requirements.	There will be no visual impact from decommissioning. Since other industrial facilities dominate the project area landscape, the visual character of the project area will remain substantially unchanged.	Existing programs will remain in place during decommissioning. No new conditions are proposed.

## **1.4 Alternatives**

The ACE project owners looked extensively at several alternatives for replacing the ACE coal-fired cogeneration unit with a combined heat and power (CHP) project that would continue to support SVM using solar thermal, natural gas-fired, or hybrid natural gas/solar thermal technologies. ACC was able to successfully negotiate a Power Purchase Agreement (PPA) and an interconnection agreement with SCE for a new natural gas-fired CHP plant, but was unable to conclude a steam sales agreement with Searles Valley Minerals. Since the PPA is contingent on the ACE project operating as a combined heat and power project, the only available alternative is decommissioning and removal of the facility.

In light of there being no viable CHP alternative with SVM, ACC was also open to other entities that might have an interest in the site given its industrial setting. As part of the decommissioning plan, ACC will restore the site to its pre-existing condition by transferring all jointly owned and operated equipment to SVM's ownership and control, removing all above ground facilities and equipment not desired by Sabco, closing and covering the ash landfill, and cleaning up the site. These actions will allow the site to be used by Sabco for future industrial activities.

ACC evaluated the alternative of restoring the site to a natural state, but is not proposing to do so since the site has been sold contingent on ACC's completion of the decommissioning plan approved by the CEC. The land and any facilities that are not removed will be used for future industrial purposes.

## **2.0 Introduction and Overview**

### **2.1 Introduction**

The Argus Cogeneration Expansion (ACE) project is an existing coal-fired circulating fluidized bed power plant located on the northwest side of Searles Lake in Trona, San Bernardino County, California. It is a cogeneration facility that supplied steam to Searles Valley Minerals (SVM) and electricity to Southern California Edison (SCE). The project was permitted by the California Energy Commission on January 8, 1988 and began commercial operation in January 1991. The ACE project is currently owned and operated by the ACE Cogeneration Company, LP (ACC), a partnership ultimately composed of ArcLight Capital Partners, DCO Energy, and Northern Star Generation.

ACC's existing Power Purchase Agreement with SCE will expire in November 2015. Under California's greenhouse gas emissions requirements, the project will no longer be economically viable using coal as a fuel once the power purchase agreement expires. Consequently, the ACE project must either be repowered to use natural gas, solar thermal, or a combination of fuel sources or be shut down. Under any of these options, all or part of the existing ACE facility must be decommissioned. Although ACC had obtained a new power purchase agreement from SCE that was linked to the construction of a new, gas-fired combined-cycle gas turbine (CCGT) combined heat and power (CHP) facility, it was not able to obtain a new steam sales agreement from SVM. Consequently, ACC signed an agreement with SCE to terminate operation of the ACE project December 2014. This agreement allowed the facility to help meet summer electricity demands but stop generating a year before its power purchase agreement ends in order to reduce greenhouse gas emissions within the SCE service territory.

The plant ceased operations on October 2, 2014 and was placed in a long-term outage mode. Upon approval of the activities described in this Decommissioning Plan, the power plant and other facilities will be demolished and removed and the license terminated.

In November 2014, ACE reached agreement with Sabco, Inc., a California corporation, to transfer the ground lease for the ACE site and sell some of the equipment and structures and the property occupied by the ash landfill to Sabco. While ACC intends to sell the landfill site, lease, and related facilities, ACC will continue to hold the CEC license and be responsible for compliance with the CEC's conditions of certification until decommissioning is completed and ACC surrenders the license to the CEC. ACC will be responsible for implementing the decommissioning plan and complying with any conditions required by the CEC until decommissioning is completed and the license is surrendered. When ACC completes decommissioning activities, the site and ash landfill, administration building, switchyard, cooling tower, water tanks, and petroleum coke unloading facilities and storage silo (which is located on land controlled under a



reciprocal easement agreement) will be turned over to Sabco for industrial use. Any equipment and facilities shared with SVM and not to be used by Sabco, such as the coal unloading facility and storage barn, will be turned over to SVM. Depending on the future use of the site, Sabco will obtain any required land use and environmental permits from the appropriate local or state agencies.

## **2.2 Project History**

The ACE project was originally proposed and permitted by the Kerr-McGee Chemical Corporation (KMCC), the corporate predecessor to the company now called SVM, who also owned and operated the adjacent Argus chemical production plant. The ACE project was self-developed by KMCC to reduce its energy costs, provide steam to the Argus chemical plant, and generate electricity for sale. KMCC later transferred ownership of the ACE project to ACC and sold the Argus plant and other mining and mineral processing facilities.

The California Energy Commission (CEC) permitted the ACE cogeneration unit as a demonstration project on January 6, 1988 (Docket No. 86-AFC-1). The project was to demonstrate the “technological and economic feasibility of using a circulating fluidized bed (CFB) combustion system” to produce electricity and steam from solid fuels under California’s stringent air emission standards<sup>4</sup>. The CEC approved the conclusion of demonstration activities on June 8, 1994.

The CEC approved three additional amendments to the ACE Decision:

- Increase the generating capacity of the facility to 100 megawatts (MW)<sup>5</sup>
- Allow the plant to use petroleum coke as a fuel
- Increase the allowable number of solid fuel truck deliveries to 40 per day<sup>6</sup>

In addition to its permit from the CEC to build and operate the cogeneration facility, ACC also has the following permits:

- Lahontan Regional Water Quality Control Board – permit to operate, close, and cap the ash landfill adjacent to the plant
- Mojave Desert Air Quality Management District - Authority to Construct and Permit to Operate the ACE facility

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<sup>4</sup> CEC, Commission Decision Application for Certification for Kerr McGee Chemical Corporation’s Argus Cogeneration Expansion Project, January 1988, page 1

<sup>5</sup> CEC, Agenda Input Form for Amendment Request by ACE Cogeneration Company to increase electrical generation from the ACE Boiler from 96 MW to 100 MW per year, April 6, 1993

<sup>6</sup> CEC, Staff Analysis of the Petition to Amend the Decision for the Argus Cogeneration Expansion Project, Docket No. 86-AFC-1C, July 1999

### 2.3 ACE Decommissioning Requirements

The Commission's Decision on the ACE project established specific Conditions of Certification describing the objectives, process, and requirements for decommissioning the ACE project<sup>7</sup>. The objectives of decommissioning as stated in the ACE Decision are to:

- "...ensure that decommissioning will have no significant adverse impact on public health and safety or the environment..." and
- Make "...reasonable efforts...to ensure such action is in compliance with the laws, ordinances, regulations, standards and local and/or regional plan applicable at that time."

The process established in the ACE Decision for developing, reviewing, and implementing the ACE Decommissioning Plan is:

1. The project owner and CEC staff hold a pre-filing workshop for the purpose of determining the specific contents of a Decommissioning Plan.<sup>8</sup>
2. The project owner develops and submits a Decommissioning Plan to the CEC Compliance Project Manager (CPM).
3. The CEC will consider and potentially approve the Decommissioning Plan.
4. The project owner may then initiate decommissioning activities.

According to the ACE Decision, the Decommissioning Plan must:

1. "Identify and discuss the proposed decommissioning activities and schedule for the power plant site, transmission corridor, and all other appurtenant facilities.
2. Identify all applicable laws, ordinances, regulations and standards (LORS) applicable at the time of decommissioning.
3. Discuss how the specific decommissioning activities will comply with those LORS and local/regional plans.
4. Contain an analysis of all decommissioning alternatives considered, including restoration of the site to a natural state.
5. Discuss reasons for selecting the proposed alternative."<sup>9</sup>

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<sup>7</sup> CEC, Commission Decision Application for Certification for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, January 1988, pages 135 and 136

<sup>8</sup> ACC has held several meetings with CEC staff regarding the decommissioning of the ACE project as well as the potential for developing a replacement project. Meetings with the CEC staff were held on February 28, 2012, April 27, 2012, June 8, 2012, August 24, 2012, October 16, 2012, June 6, 2013, June 17, 2014, and October 2, 2014. CEC staff participated in a site visit on November 8, 2012.

## **2.4 ACE Decommissioning Plan Organization and Contents**

This Decommissioning Plan responds to the requirements identified in the Commission's Decision for the ACE project. It recognizes that decommissioning is a temporary activity resulting in the removal, rather than the creation, of long-term impacts.

This Decommissioning Plan presents:

- The existing site and project (Chapter 3)
- The proposed decommissioning activities (Chapter 4)
- An assessment of conformance with applicable LORS and the potential for any significant adverse impacts (Chapter 5).
- The alternatives considered and reasons for selecting the proposed alternative (Chapter 6)

Although the California Environmental Quality Act (CEQA) is one of the applicable LORS, the environmental analysis presented in this document is not a CEQA impact assessment. The CEQA analysis was performed during the Application for Certification (AFC) process when the CEC made its discretionary approval of the whole of the project – construction, operation, and decommissioning. This environmental analysis specifically addresses whether the activities associated with decommissioning will result in unanticipated adverse impacts not contemplated by the CEC Decision.

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<sup>9</sup> CEC, Commission Decision Application for Certification for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, January 1988, pages 135 and 136

## **3.0 Existing Project Description**

### **3.1 Introduction**

ACE Cogeneration Company, LP (ACC or Project Owner) currently owns and historically operated the Argus Cogeneration Expansion (ACE) power plant, a nominal 100 MW coal-fired facility that provided electricity to Southern California Edison (SCE) and process steam, on an as-needed basis, to the adjacent Searles Valley Minerals (SVM) minerals processing facility.

### **3.2 Location of Facilities**

The ACE project is located in Trona, California on an 89.6 acre parcel at 12801 Mariposa Street, Trona, CA 93562. Trona is an unincorporated community located in San Bernardino County, along Highway 178 and the western edge of Searles Lake, a dry lakebed in Searles Valley (see Figure 3-1). The Searles Valley is bordered by the Argus Mountain Range on the west, Panamint Valley on the north, Slate Mountain Range on the east, and Mojave Desert to the south. The border of the China Lake Naval Weapons Center is located about two miles west of the project, and the town of Ridgecrest, CA is located about 17 miles to the southwest. The project is about 170 miles northeast of Los Angeles, CA and 160 miles southwest of Las Vegas, NV.

### **3.3 Site Description**

Prior to construction of the ACE project, the project site was highly disturbed. In its biological assessment in the Final Staff Assessment (FSA), the CEC Staff stated that “the area...is relatively devoid of native vegetation” and “most of this area has to some degree been disturbed through grading, vehicular traffic, or other activities related to the development the of the Argus facility”<sup>10</sup>. The cultural resource analysis in the FSA concluded that: “The plant site was found to have undergone substantial disturbance in the recent past during construction of the existing facilities. The entire surface has been removed to an unknown depth and additional disturbance is evident to a greater depth”<sup>11</sup>.

In addition to being heavily disturbed, the ACE site is now an industrial site (see Figure 3-2) occupied by the power plant, steam generation facilities, administration building, cooling tower, and ash disposal landfill.

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<sup>10</sup> CEC, Final Staff Assessment for Kerr-McGee Chemical Corporation’s Argus Cogeneration Expansion (ACE) Project, March 1987, page 22-7

<sup>11</sup> CEC, Final Staff Assessment for Kerr-McGee Chemical Corporation’s Argus Cogeneration Expansion (ACE) Project, March 1987, page 26-6

The area adjacent to the ACE site is also heavily disturbed and used for industrial purposes. The land to the southeast, immediately adjacent to the ACE power plant, is occupied by SVM's Argus mineral processing facility. Land to the north, west, and southwest of the site is currently, or has previously been, used for the disposal of coal ash by other companies. Most of these disposal sites have been closed and are no longer in operation. The only open disposal sites are operated by SVM for ash disposal from their industrial operations and a small portion of cell #5 of the ACE disposal site that will be used for disposing of the refractory<sup>12</sup> lining once demolition is completed.

Immediately west of the ACE project site is SCE's existing McGen electrical switchyard, the termination of SCE's transmission lines and point of delivery for electric power from the ACE cogeneration unit to the SCE electrical grid. To the south and east are the existing SVM mineral processing facilities and other structures, the enclosed coal storage building and conveying system, and the Trona Railroad rail line.

The town of Trona is located east of the plant site. A flood control channel is located to the north, and the Trona Dump is to the southwest.

Primary access to the ACE power plant is by way of Highway 178 (Trona Road), left onto 1<sup>st</sup> Street, right onto Plant Access Road, and then left onto Athol Street that connects at the southwest corner of the parcel.

### **3.4 Ownership and Site Control**

The only portion of the existing site owned by ACC is the 65-acre ash landfill. The remainder of the site is leased to ACC as a Ground Lease parcel (see Figure 3-2). Along with the site lease are a number of easements for utilities and roadways. These leases are controlled by ACC but subject to covenants and conditions contained in the various land use agreements. ACC will retain control of its owned properties following the demolition of the ACE project and may sell them in the future.

### **3.5 Power Generating Facility**

The ACE project is a coal-fired, combined heat and power (CHP) plant that provided electricity to SCE for sale, and steam to the SVM facility for use in its industrial processes. The plant is of a typical Rankine Cycle configuration and consists of a single, coal-fired boiler; a single 108 MW steam turbine generator (STG); and a complete balance of plant. It used a circulating fluidized bed (CFB) technology and was permitted by the CEC in 1988. The unit also was equipped for supplementary natural gas firing for startup.

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<sup>12</sup> This disposal is consistent with the previous practice of placing refractory waste material generated during maintenance activities in the landfill.

### **3.6 Fuel Supply System**

#### **3.6.1 Coal**

The ACE fuel supply system was largely located on-site, with a portion off-site in several locations. Coal was the primary fuel source, though the plant was permitted to also utilize petroleum coke. The coal fuel was brought to the SVM site by rail, unloaded into the shared coal terminal building (see Figure 3-2), and stored in either the terminal building or outside depending on required inventory levels. The coal was reclaimed and transported by a conveyor system to the ACE fuel handling system for feed to the boiler.

Boiler fly ash and bottom ash generated by the boiler was directed to a conveyor system for disposal in the ACE ash disposal pit located on ACC property or trucked offsite for beneficial use. The boiler flue gas passed through a baghouse where the fine ash and particulate matter were removed and collected in hoppers for off-site disposal.

#### **3.6.2 Natural Gas**

A supplementary natural gas supply was included for startup. The fuel gas was provided by Pacific Gas & Electric (PG&E) from their gas metering station located approximately one mile south of the ACE site at 1<sup>st</sup> Street. The fuel gas was then transported by a ten inch, underground pipeline to the ACE project where it was used directly as required.

The Project Owner owns the underground gas transmission line from PG&E's metering station to the ACE plant and leases the pipeline easement from SVM.

#### **3.6.3 Diesel Fuel**

The ACE project includes one 500 gallon above ground diesel fuel storage tank. A containment berm is located around the tank.

### **3.7 Electric Transmission Interconnection**

Electric power was generated at the ACE project by a single steam turbine generator at 13.8 kV and fed to a single generator step-up transformer where it was transformed to 115 kV. The 115 kV power continued on overhead lines to the McGen switchyard that is owned by SCE on land leased from SVM. From the McGen switchyard, the power was delivered to the SCE system on the west side of the ACE site.

### **3.8 Thermal Host Interconnection**

SVM's adjacent Argus chemical production plant was the thermal host for steam produced by the ACE project. SVM took up to 300,000 pounds per hour of 460 psig, 650 degree Fahrenheit process steam for use in its facility and returned condensate for reuse in the ACE plant systems. The SVM process steam supply was taken from an extraction port on the ACE plant steam turbine generator (STG). The remainder of the steam was used by the STG to produce electric power and was condensed in the ACE condenser and condensate system.

Condensate was returned from SVM on a pound for pound basis. The return condensate was processed through a condensate polishing system to insure condensate quality water.

### **3.9 Water Supply**

The ACE project used both brackish and potable water and obtained this water from SVM. Brackish water was provided by SVM and obtained through their mineral extraction process. It was partially evaporated in the cooling towers, with small amounts of air-borne drift discharged with the cooling tower fan airflow. In addition, blowdown from the cooling tower basin was discharged to the wastewater system to maintain water quality as required.

When operating, the ACE project obtained potable water from SVM. The source of their water is from the Indian Wells Valley ground water basin and was used untreated for steam process makeup water, facility utility water, and for general potable water usage within the facility.

### **3.10 Limestone Supply**

Limestone was used in the ACE plant boiler fluidized bed as part of the emissions control process. The limestone came from a quarry located 45 miles from the ACE project site in the Panamint Valley at 11500 Nadeau Road. A short-term limestone supply was stored on site. ACC purchased the quarry from North American Chemical Company in 1997. It is not included as a related facility in the CEC permit. The County of Inyo regulates operation of the quarry. ACC sold the quarry and no longer uses the limestone.

### **3.11 Wastewater and Waste Management**

The ACE project's wastewater consisted primarily of the following:

- Cooling tower blowdown – The makeup water was fed to the cooling tower basin and concentrated normally to five cycles of concentration to minimize the blowdown wastewater flow. The cooling tower water was treated with approved water treatment additives to mitigate scaling and buildup of suspended solids and biological growth. The cooling tower blowdown was returned to SVM wash water system or to AOL discharge line.
- Circulating water treatment – Circulating water treatment wastewater consisted of sand filter backwash. The sand filter backwash was relatively high in suspended solids. Small amounts of approved water treatment chemical were used as additives to enhance the system performance.
- Boiler blowdown – The boiler blowdown consisted of steam cycle, process water from the boiler continuous steam drum blowdown and periodic mud drum blowdown. Those flows were intended to control the buildup of dissolved solids in the boiler process water.

- Process makeup water demineralizer system regeneration and back flush water, chemical spills and laboratory drains – The process makeup water makeup was potable water treated by a process consisting of an activated carbon filter; primary cation and anion exchangers; forced draft degasifier; secondary cation and anion exchangers; and polishing cation and anion exchangers. The demineralized water system used approved water treatment additives to regenerate the various exchanges and to control pH and other elements of potential contamination. Demineralizer regeneration water and miscellaneous chemical, sample, laboratory battery room and safety shower drains were collected, treated to a neutral pH level and, if of acceptable quality, pumped to the circulating water system for cooling tower makeup or otherwise discharged to the wastewater system.
- Condensate polishing system regeneration – The condensate return from SVM was cooled and polished using a condensate polishing exchanger system. The twin polishers were regenerated in a separate resin regeneration vessels. The resin was regenerated using approved chemicals and backwashed for final rinse. The system wastewater was discharged to the demineralizer system wastewater neutralization sump for further treatment and reuse as required.
- System leakage, occasional draining of systems for maintenance purposes and wash down – System leakage, drain and wash down wastewater effluent were clean process water. The combined wastewater flow was directed to an on-site sump. Drains from the turbine building areas were directed to an oil-water separator prior to flowing to the collection sump. The oil-water separator was used to remove any entrained oil based products that may be present. The wastewater was then sent to the AOL line.
- Sanitary wastewater – A small amount of occupied space sanitary effluent is discharged to an approved, on-site septic tank system.

The ACE ash disposal site is located immediately northwest of the plant site and encompasses 65 acres of land. The disposal site contains bottom and fly ash produced by the ACE project since it began operations in 1988. The ash disposal site was included in the original permit issued by the CEC and also has a waste disposal permit issued by the Lahontan Regional Water Quality Control Board (RWQCB).

The ash disposal site consists of five cells (see Figure 3-3). Prior to the 2014 operating season, cells 1 to 4 had been closed and cells 1, 2, and 4 had been capped and allowed to revegetate. Cell 3 was not capped because it was covered with excess soil to be used for capping cell 5. Cell 5 had approximately 228,379 cubic yards or 207,494 tons of capacity remaining at that time.

As part of the permanent shutdown of the ACE project, all but approximately 20% of cell 5 has been filled with ash produced during the 2014 operating season and closed in accordance with the existing RWQCB waste discharge requirements (WDRs). When the refractory lining has been disposed in the open area of cell 5 following demolition, it will be capped and allowed to revegetate.



Bottom and fly ash from the project has been tested and has been determined to be non-hazardous (see Section 5.5, Waste Management and Appendix D).

### **3.12 Workforce**

During operation the ACE workforce was relatively small with a normal staff of about 25 for plant operation and maintenance. The plant was staffed on 24 hours per day, seven days per week. The work force was augmented by part-time workers and periodically increased during maintenance and repair events.

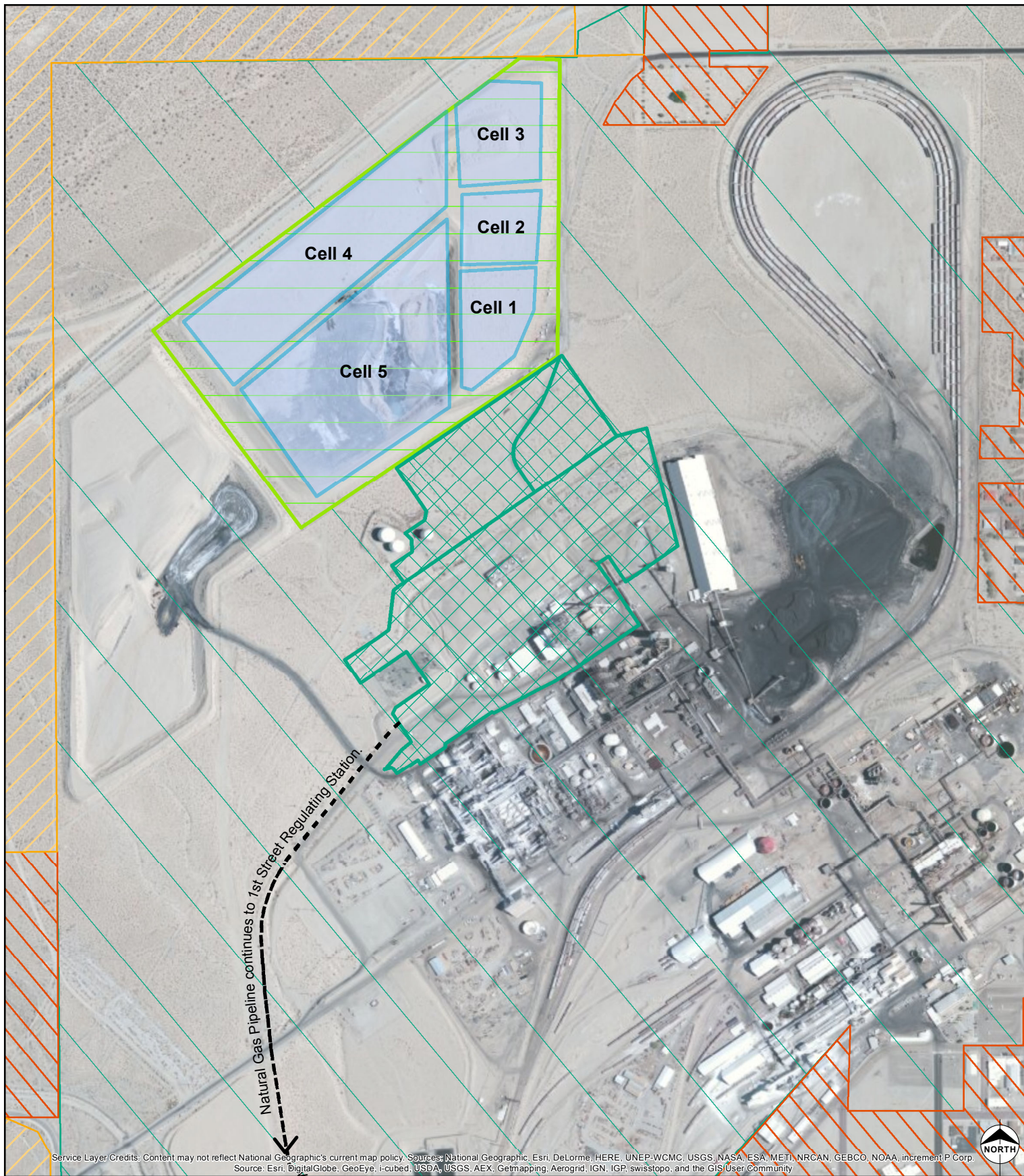
The staffing level as of November 2014 is four full time equivalents, which is the approximate staffing level expected during decommissioning.

Most of the ACE project employees did not live in Trona. The staff commuted by car daily to the ACE project site and parked on-site.









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 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



**Legend**

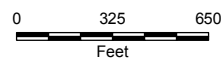
**Land Ownership**

- ACC
- SVM
- Leased from SVM by ACC for the Cogeneration Facility
- Other
- BLM

  Ash Landfill Cell

Scale 1:7,800

1 inch = 650 feet



ACE Cogeneration Company

**ACE Project Vicinity  
Property Ownership**

Date: 11/20/2014 Project: 60327917

**AECOM**

**Figure 3-2**







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**Legend**

-  Ash Landfill Cell
-  Ash Landfill Boundary

Scale 1:3,600

1 inch = 300 feet



ACE Cogeneration Company

# **ACE Project Ash Landfill Configuration**

Date: 11/14/2014

Project: 60327917



**Figure 3-3**

## **4.0 Decommissioning Plan**

### **4.1 Objectives**

The overall objectives of decommissioning are to demolish and remove, in a manner that is safe, protects the environment, and complies with all applicable LORS, all structures and equipment that will not be retained by the new site owners or SVM.

In summary, the planned disposition of the current ACE facilities is as follows:

- Easily removed tools and equipment not purchased by Sabco will be sold.
- The power plant and any associated facilities not transferred to Sabco will be dismantled or demolished and removed.
- The administration building, switchyard, cooling towers, water tanks, and on-site truck unloading and storage facilities will be retained for use by Sabco.
- The ash landfill will be closed and covered in accordance with its permit from the Lahontan Regional Water Quality Control Board and the site turned over to Sabco.
- The rail transport system, coal unloading facilities, and coal barn has been transferred to SVM
- The water treatment system will be retained for use by Sabco
- The limestone quarry, not permitted as an appurtenant facility by the CEC, has been sold

### **4.2 Overview**

Upon the cessation of plant operations at the ACE project, the plant was placed in a long-term outage condition to secure the facility and minimize environmental hazards. This process began with consuming all remaining fuel stock; disposing of all remaining ash in the ash land fill and closing cell 5 except for the portion to be used for disposal of the refractory lining; draining and either returning or disposing all fluids including ammonia for the air emission control system; de-energizing the plant; and isolating the plant interconnections to off-site services.

Following completion of placing the plant into an outage mode, easily removed tools and equipment were made available for sale. Any equipment or facilities whose removal will require demolition will be removed after CEC approval of the Decommissioning Plan.

Decommissioning involves demolition and dismantling the power generation facility, recycling components and materials to the extent possible, hauling off and disposing of the remaining waste, remediating portions of the site if necessary, and cleaning-up the site. All equipment and industrial facilities purchased by the new owner or shared with SVM will be retained.

The decommissioning activities are summarized in Table 4.2-1 and discussed in greater detail in the sections that follow. Figure 4-1 presents an aerial view of the site and identifies those facilities and structures that will be either retained for use by the new owner or transferred to SVM.

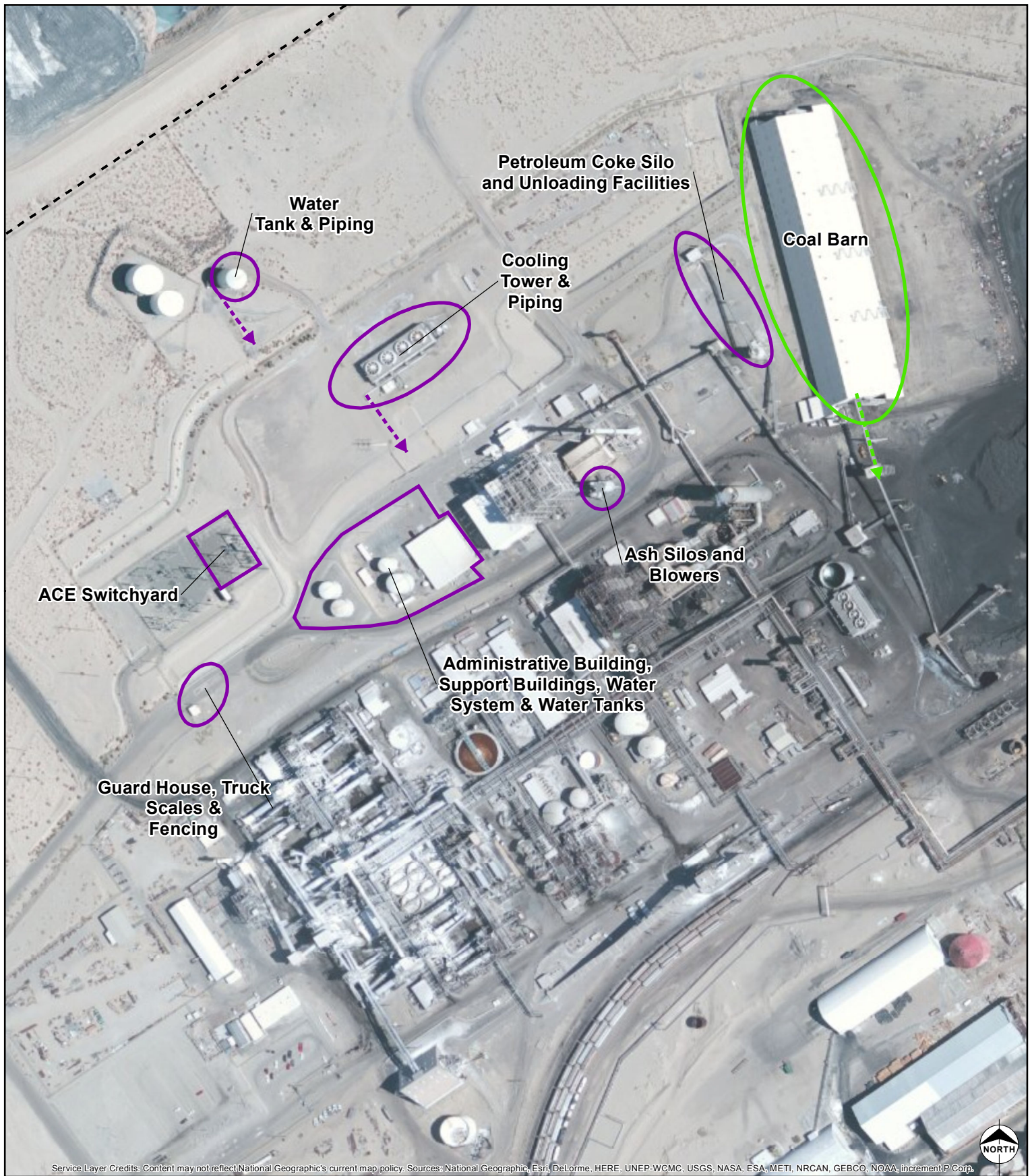
**Table 4.2-1 Summary of ACE Dismantling and Disposal Approach**

ITEM	PRIMARY APPROACH	ALTERNATIVE APPROACH
<b>Major Equipment and Structures</b>		
Boiler	<ul style="list-style-type: none"> <li>Remove fluidized bed</li> <li>Remove insulation</li> <li>Implode boiler and structure</li> <li>Remove for scrap and recycling</li> </ul>	
Steam Turbine	<ul style="list-style-type: none"> <li>Remove lubricating oil for disposal</li> <li>Remove insulation</li> <li>Removed for scrap and recycling</li> </ul>	<ul style="list-style-type: none"> <li>Remove lubricating oil for disposal</li> <li>Offer for sale and remove by purchaser</li> </ul>
Condenser	<ul style="list-style-type: none"> <li>Remove for scrap and recycling</li> </ul>	<ul style="list-style-type: none"> <li>Offer for sale, remove by purchaser</li> </ul>
Feedwater Heaters	<ul style="list-style-type: none"> <li>Remove for scrap and recycling</li> </ul>	<ul style="list-style-type: none"> <li>Offer for sale, remove by purchaser</li> </ul>
Cooling Tower and Piping	<ul style="list-style-type: none"> <li>Retain cooling tower and piping for use by new owner</li> <li>Circulating water piping to the turbine building will be cut and capped away from the existing turbine building.</li> </ul>	
Major Pumps and Motors	<ul style="list-style-type: none"> <li>Remove lubricating oil for disposal</li> <li>Remove pumps and motors as scrap for recycling</li> </ul>	<ul style="list-style-type: none"> <li>Remove lubricating oil for disposal</li> <li>Offer pumps and motors for sale, remove by purchaser</li> </ul>
Above Ground Diesel Fuel Tank	<ul style="list-style-type: none"> <li>Remove for scrap and recycling</li> </ul>	
ACE Switchyard	<ul style="list-style-type: none"> <li>Retain for use by new owner</li> </ul>	
GSU Transformer	<ul style="list-style-type: none"> <li>Retain for use by new owner</li> </ul>	
Administration Building	<ul style="list-style-type: none"> <li>Retain for use by new owner</li> </ul>	
Control System Cabinets	<ul style="list-style-type: none"> <li>Remove as scrap for recycling</li> </ul>	
Auxiliary Transformer	<ul style="list-style-type: none"> <li>Retain for use by new owner</li> </ul>	
Water Treatment Equipment	<ul style="list-style-type: none"> <li>Retain for use by new owner</li> </ul>	
Guard Shack and Fencing	<ul style="list-style-type: none"> <li>Retained for use by new owner</li> </ul>	

**Table 4.2-1 Summary of ACE Dismantling and Disposal Approach**

ITEM	PRIMARY APPROACH	ALTERNATIVE APPROACH
Truck Scales	<ul style="list-style-type: none"> <li>Retained for use by new owner</li> </ul>	
<b>Interconnections</b>		
Electricity	<ul style="list-style-type: none"> <li>Retain for use by new owner</li> </ul>	
Natural Gas	<ul style="list-style-type: none"> <li>Isolate service at PG&amp;E meter station and purge the line</li> <li>Leave underground portions in place</li> </ul>	
Water Tank and Piping	<ul style="list-style-type: none"> <li>Retain for use by new owner</li> </ul>	
Waste Water	<ul style="list-style-type: none"> <li>Retain for use by new owner</li> </ul>	
<b>Fuel</b>		
Coal	<ul style="list-style-type: none"> <li>All coal was consumed in final days of operation</li> </ul>	
Coal Unloading and Storage Facilities	<ul style="list-style-type: none"> <li>Control transferred to SVM for their continued use</li> </ul>	
Ash Silos and Blowers	<ul style="list-style-type: none"> <li>Retained for use by new owners</li> </ul>	
Petroleum Coke Unloading and Storage Facilities	<ul style="list-style-type: none"> <li>Retained for use by new owner</li> </ul>	
Limestone	<ul style="list-style-type: none"> <li>Consumed in final days of operation and remaining quantities returned to the quarry</li> <li>The quarry has been sold</li> </ul>	
<b>Bulk Materials</b>		
Piping and Supports	<ul style="list-style-type: none"> <li>Remove insulation</li> <li>Remove metal for scrap and recycling</li> </ul>	
Conduits, Cable Tray, and Cable	<ul style="list-style-type: none"> <li>Remove for scrap and recycling</li> </ul>	
Field Devices	<ul style="list-style-type: none"> <li>Remove for scrap and recycling</li> </ul>	
Concrete	<ul style="list-style-type: none"> <li>Remove to tops of foundations not being retained by new owner</li> <li>Other foundations remain exposed for future use</li> </ul>	





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#### Legend

##### Facility

- Retained for use by new owner
- Left for Use by SVM

Scale 1:3,600

1 inch = 300 feet

0 75 150 300  
Feet

ACE Cogeneration Company

### ACE Facilities Remaining In Place

Date: 11/20/2014 Project: 60327917

**AECOM**

Figure 4-1



### **4.3 Power Generation Facility**

At the end of plant operations, the power generation facility was placed in a long-term outage condition. This action placed the ACE plant in a safe condition for demolition and removal of the plant to begin if the Plan is approved by the Commission. Major activities required for the long-term outage condition included:

- Drain all fluid systems and the contents collected to ensure public health and safety and to protect the environment.
- If possible, sell unused chemicals back to the suppliers or other purchasers.
- Open all drains and vents.
- Remove all manway covers
- Remove all spare parts for sale or re-use.

Once the Decommissioning Plan is approved, all power generation facilities and structures will be demolished and removed:

- The boiler and supporting steel structure will be demolished and removed.
- The Turbine Building, the enclosed steam turbine generator, and other related equipment will be removed.

### **4.4 Fuel Supply System**

#### **4.4.1 Coal**

The coal inventory was depleted during the final days of operation. Control of the coal barn, transfer equipment, and delivery equipment will be transferred to SVM for their continued use.

#### **4.4.2 Petroleum Coke**

The petroleum coke unloading facility and storage silos will be left on-site for use by the new owner.

#### **4.4.3 Natural Gas**

ACC will work closely with PG&E to ensure a safe and coordinated disconnect of the ACE project from PG&E's natural gas supply system. The natural gas service will be terminated with PG&E and the isolation valves at the meter station closed and locked. The underground natural gas pipeline from PG&E's meter station to the ACE plant will be purged, capped and abandoned in place.

### **4.5 Electric Transmission Interconnection**

ACC will work closely with SCE to ensure a safe and coordinated disconnection of the ACE project from the SCE transmission system. The electrical breakers and switches at SCE's McGen switchyard that serve the ACE plant will be opened. The ACE switchyard

will remain in place for potential future use by the new owner. SCE's McGen switchyard will remain in place since it is an integral part of SCE's transmission system.

#### **4.6 Thermal Host Interconnection**

ACC will work closely with SVM to ensure a safe and coordinated disconnection of the ACE project from the adjacent industrial facilities. The steam and water pipelines between the ACE plant and SVM will be cut and capped at locations that are suitable for SVM's continued operation of their facilities and portions of these systems. Above ground portions of the steam and water pipelines that are not required for SVM operations, along with their supports, will be removed. Underground portions of the steam and water pipelines that are not required for SVM operations will be abandoned in place.

#### **4.7 Water Supply**

The water pipelines, water storage tanks, and cooling tower will be left in place for use by the new owner. The water treatment and processing equipment, tanks, and facilities will also be left in place.

#### **4.8 Limestone Supply**

On site inventory was substantially depleted in the final days of operation. Remaining inventory was returned to limestone quarry in accordance with the quarry remediation plan.

#### **4.9 Wastewater and Waste Management**

##### **4.9.1 Wastewater**

The waste water pipelines will be retained for use by the new owner. The water treatment and processing equipment, tanks, and facilities will also be retained.

##### **4.9.2 Coal Ash Disposal**

The one open coal ash cell that was being used by the ACE plant has mostly been closed. Once the refractory material had been disposed of, the remaining area will be closed and permanently capped in accordance with requirements of the Lahontan Regional Water Quality Control Board.

##### **4.9.3 Other Waste**

All non-hazardous wastes will be collected and disposed of in appropriate landfills or waste collection facilities.

All hazardous wastes will be disposed of according to all applicable LORS.

Any hazardous or toxic materials discovered on site will be remediated in the appropriate fashion and to the degree required.

#### 4.10 Workforce

Long-term shut down activities will be performed by the existing ACE plant work force. Demolition, removal, and final grading work will be performed by outside contractors with the appropriate expertise and licensing. The maximum demolition workforce including both ACE employees and demolition contractors is expected to be no more than 30 workers.

#### 4.11 Equipment Requirements

Equipment expected to be used for the demolition and removal activities is listed in Table 4.11-1. The equipment is anticipated to operate 10 hours per day, five days per week.

**Table 4.11-1 Demolition and Removal Equipment Use**

Equipment Type	Horsepower	Number
Bobcat	70	1
Excavator	175	1
Excavator	450	1
Excavator	530	1
Track Loader	600	1
Man Lift	30	1
Generator	5	1

All materials including equipment sold, scrap and recycled material, and waste material will be hauled off the site on trucks. There will be approximately 6,000 tons of scrap and waste to be removed from the site requiring an estimated 350 truck trips. There will be an estimated 400 total truck trips to and from the site during the six-month demolition and removal period.

During demolition, the boiler, baghouse, and conveyor structures will be imploded to facilitate removal from the site. Actual implosion will occur during the course of one day to minimize noise and other impacts.

#### 4.12 Roads

The paved roads will be left in place for use by the new owner.

#### 4.13 Site Clean-up

Once all the above ground portions of the ACE plant are demolished and removed, the site will be cleaned up for future use by the new owner.

#### **4.14 Security**

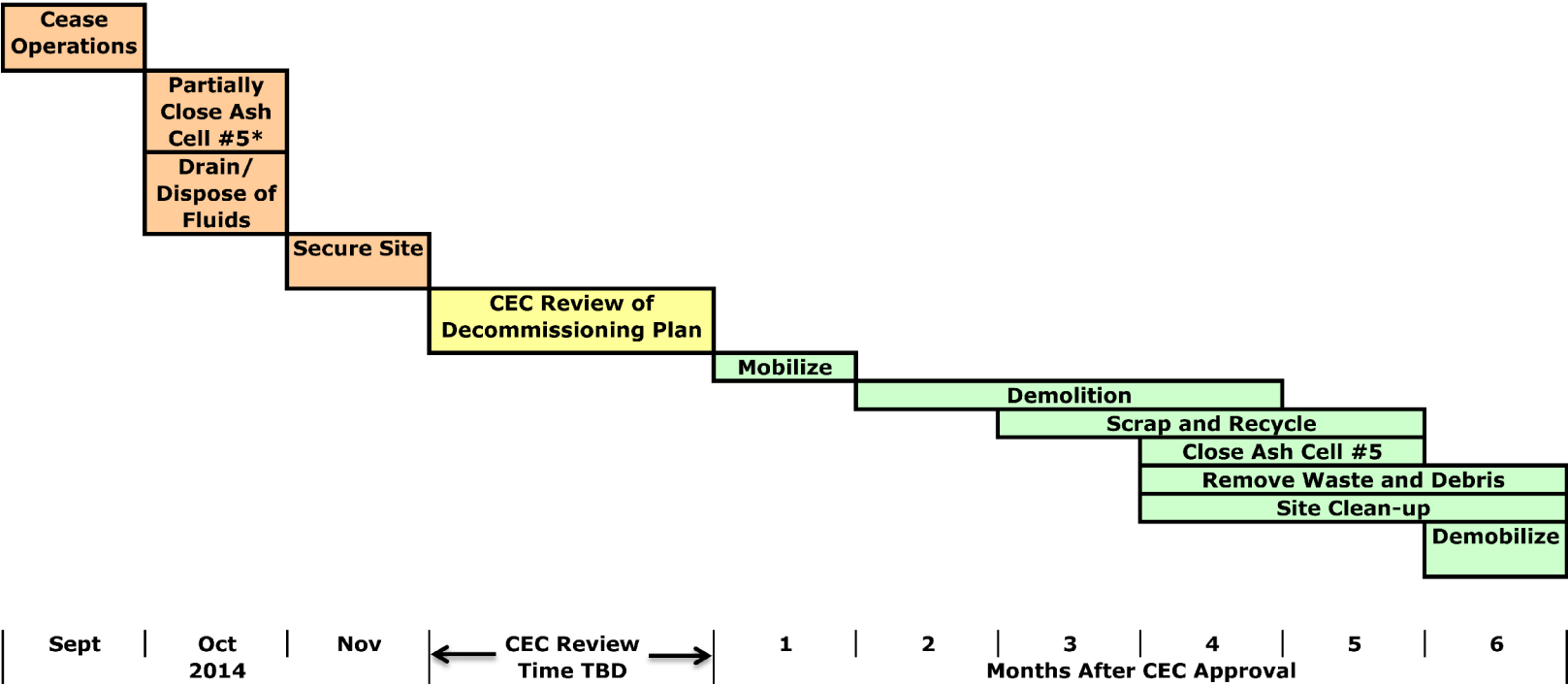
The site will be secured 24 hours per day during long-term outage and later during decommissioning activities. Upon completion of decommissioning, the site will be turned over to the new owners.

#### **4.15 Schedule**

Operations at ACE ceased and outage preparations began on October 2, 2014. Actual demolition and removal work will begin once the Decommissioning Plan is approved by the CEC. Demolition, removal, and site cleaning is expected to last approximately six months. The majority of the work will occur during normal work hours.

The expected schedule is shown in Figure 4-2.

# Proposed Schedule for ACE Cessation of Operations, Decommissioning Review, and Decommissioning



**NOTES:**  
 \* Leave open a portion of cell 5 for disposal of refractory lining.

**KEY:**

Orange box	Cease Operations/Outage
Yellow box	Decommissioning Plan Review
Green box	Demolition

## 5.0 LORS Conformance and Impact Assessment

### 5.1 Introduction to the Environmental Resource Sections

The following Sections in Chapter 5 analyze each environmental resource that could be affected by decommissioning of the ACE facilities. Each Section is divided into the four subsections that provide:

- 1) A summary of the conclusions from the Commission's Decision on the ACE project<sup>13</sup> related to the specific resource including any specific decommissioning requirements.
- 2) A response to the questions of whether there are there any applicable LORS for decommissioning of the ACE facilities and any additional permits required for decommissioning? <sup>14</sup>
- 3) A discussion on how decommissioning will conform with all applicable LORS.
- 4) Any additional conditions required for mitigation of the expected activities, if proposed.

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<sup>13</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988

<sup>14</sup> Note: LORS applicable to the operation of the ACE Project are not included, only additional LORS that are considered to be applicable to the decommissioning activities. Where no additional LORS have been identified, a LORS table is not provided or a table is provided with a comment column to provide the reasoning for the determination.

## **5.2 Air Quality and Greenhouse Gases**

This section presents an analysis of LORS compliance and potential environmental impacts and benefits related to air quality and greenhouse gas emissions that may result from the decommissioning of the ACE project. With the cessation of ACE operations, there is a very substantial reduction in emissions which are temporarily replaced with short-term emissions related to decommissioning of a much lesser magnitude.

### **5.2.1 Background**

The Commission's Decision for the ACE project concluded:

“If operated according to the Conditions of Certification, the ACE project will comply with the Determination of Compliance and the standards, ordinances and laws set forth in the Air Quality section of Appendix A of this Report.”<sup>15</sup>

The Decision did not identify any specific decommissioning conditions related to air quality or greenhouse gases.

As a requirement of the air permitting for the ACE project, the SVM facility provided emissions reductions from their existing boilers as offsets. SVM has been required to provide periodic reports of their boiler operation to the CEC in order to demonstrate compliance with the emission reductions commitment. Once the ACE project is decommissioned and its permits withdrawn, SVM will no longer be required to provide these emissions and operations reports.

### **5.2.2 Applicable LORS and Required Permits**

As indicated in Table 5.2-1, most of the LORS applicable to air quality during demolition are Mojave Desert Air Quality Management District (MDAQMD) rules. There are no specific LORS applicable to greenhouse gases during decommissioning.

No MDAQMD permits related to air quality or greenhouse gases will be required for the decommissioning activities. If permits for portable equipment used for the decommissioning activities are needed, those equipment will be registered by the demolition contractor through the California Air Resources Board (ARB) Portable Equipment Registration Program (PERP).

### **5.2.3 LORS Conformance and Impact Assessment**

Table 5.2-1 shows how the decommissioning activities will conform with LORS applicable to air quality.

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<sup>15</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, page 10

**Table 5.2-1 LORS Applicable to Air Quality**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>Federal</b>		
40 Code of Federal Regulations (CFR) Part 60 – NSPS, Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Establishes emission standards for compression ignition internal combustion engines, including emergency fire water pump and generator engines over a specific size.	All the stationary engines operated as part of the power plant will be shut down, drained of fluids (fuel and lube), and potentially sold off, before the start of demolition.  If internal combustion engines, such as fire water pumps and generators are used during demolition, ACC intends that they will be supplied and registered as portable equipment under the CARB PERP by the demolition contractor.
<b>State</b>		
Title 17 California Code of Regulations (CCR), Section 93115, Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines	Establishes emission limits, operating limits, fuel use restrictions, monitoring and recordkeeping requirements for large (>50 hp) compression ignition engines, including emergency fire water pump and generator engines.	Not applicable because ACC intends any portable equipment to be supplied and registered through the PERP by the demolition contractor
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance.	
California H&SC §2451, et seq. (Portable Equipment Registration Program – PERP)	Allows the permitting of portable equipment under a statewide registration program	ACC intends any portable equipment to be supplied and registered through the PERP by the demolition contractor
<b>Local (MDAQMD)</b>		
Rule 201 – Permit to Construct, Regulation XII – Federal Operating Permits and Regulation XIII – New Source Review	Rule 201 requires that a permit be obtained for any equipment that emits air contaminants. Regulations XII and XIII apply to major sources	Not applicable because ACC intends any portable equipment to be supplied and registered through the PERP by the demolition contractor



**Table 5.2-1 LORS Applicable to Air Quality**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
Rule 401 – Visible Emissions	Limits visible emissions from applicable equipment or processes to values no darker than Ringelmann #1 for periods greater than 3 minutes in any hour.	The demolition contractor will maintain all equipment in proper operating condition to avoid visible emissions darker than Ringelmann #1 for periods greater than 3 minutes in any hour.
Rule 402 – Nuisance	Prohibits emissions in quantities that would adversely affect public health, other businesses, or property.	
Rule 403 – Fugitive Dust	Limits fugitive PM emissions from transport, construction, handling and storage activities.	ACC will use appropriate dust suppression mitigation to limit fugitive PM emissions.
Rule 403.1 – Fugitive Dust Control for the Searles Valley Planning Area (SVPA)	Ensures that the NAAQS for PM <sub>10</sub> will not be exceeded due to anthropogenic sources within the San Bernardino County portion of the SVPA and implements the control measures contained in the Searles Valley PM <sub>10</sub> State Implementation Plan (SIP). Requires preparation of a District-approved Dust Control Plan for construction/demolition sources.	ACC will use appropriate dust suppression mitigation to limit fugitive PM emissions. ACC will prepare and submit a Dust Control Plan to the MDAQMD for approval.
Rule 404 – Particulate Matter Concentration	Limits PM emissions from combustion sources.	Only applicable to stationary or portable equipment permitted by the MDAQMD. If internal combustion engines, such as fire water pumps and generators are used during demolition, ACC intends that they will be supplied and registered as portable equipment by the demolition contractor.
Rule 405 – Particulate Matter Weight	Limits PM emissions based on process weight	Only applicable to stationary or portable equipment permitted by the MDAQMD. If internal combustion engines, such as fire water pumps and generators are used during demolition, ACC intends that they will be supplied and registered as portable equipment by the demolition contractor.

**Table 5.2-1 LORS Applicable to Air Quality**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
Rule 406 – Specific Contaminants	Limits SO <sub>2</sub> emissions from stationary sources.	Only applicable to stationary or portable equipment permitted by the MDAQMD. If internal combustion engines, such as fire water pumps and generators are used during demolition, ACC intends that they will be supplied and registered as portable equipment by the demolition contractor.
Rule 407 – Liquid and Gaseous Contaminants	Limits CO emissions from combustion sources.	Only applicable to stationary or portable equipment permitted by the MDAQMD. If internal combustion engines, such as fire water pumps and generators are used during demolition, ACC intends that they will be supplied and registered as portable equipment by the demolition contractor.
Rule 409 – Combustion Contaminants	Limits emissions of combustion contaminants	Only applicable to stationary or portable equipment permitted by the MDAQMD. If internal combustion engines, such as fire water pumps and generators are used during demolition, ACC intends that they will be supplied and registered as portable equipment by the demolition contractor.
Rule 431 – Sulfur Content of Fuels	Limits sulfur content of liquid and solid fuels	Only applicable to stationary or portable equipment permitted by the MDAQMD. If internal combustion engines, such as fire water pumps and generators are used during demolition, ACC intends that they will be supplied and registered as portable equipment by the demolition contractor.

The decommissioning activities will conform with these LORS by:

- Requiring that portable equipment used by the demolition contractor be registered through the ARB PERP;
- Requiring that all equipment used during decommissioning be maintained in proper operating condition to avoid visible emissions darker than Ringlemann #1 for periods greater than 3 minutes in any hour;
- Using appropriate dust suppression mitigation to limit fugitive particulate matter emissions; and
- Preparing and submitting a Dust Control Plan to the MDAQMD for approval.

#### **5.2.3.1 Criteria Pollutant Emissions**

Demolition activities will generate emissions of criteria pollutants (volatile organic compounds [VOC], carbon monoxide [CO], nitrogen oxides [NO<sub>x</sub>], sulfur oxides [SO<sub>x</sub>], respirable particulate matter [PM<sub>10</sub>] and fine particulate matter [PM<sub>2.5</sub>]). These pollutants were also produced during operation of the ACE power plant in much larger quantities. Criteria pollutant emissions anticipated to occur during demolition activities were estimated and compared with actual and calculated emissions during operation of the facility to evaluate the potential for the demolition activities to increase potential impacts from criteria pollutant emissions.

Criteria pollutant emissions from the following sources during demolition were calculated:

- Off-road equipment exhaust;
- On-site motor vehicle exhaust;
- On-site motor vehicle fugitive particulate matter (PM) emissions from entrained dust;
- Off-site motor vehicle exhaust; and
- Off-site motor vehicle fugitive PM emissions from entrained dust.

Fugitive PM emissions from earth moving activities, such as excavation and grading, will be negligible because demolition is not expected to involve substantial earth moving activities.

During demolition activities, the main exhaust stack, the boiler, the baghouse, and conveyor structures will be imploded during a single day to facilitate removal from the site. The implosion of these structures will generate emissions of gaseous criteria pollutants from the explosives as well as fugitive particulate matter emissions from the demolition of the structures.

Off-road equipment exhaust emissions were estimated by multiplying total operating hours for each piece of equipment by equipment-specific emission factors. A demolition

contractor provided estimates of the types, number, horsepower rating and operating hours for the equipment that would be anticipated to be used. Emission factors were from the California ARB OFFROAD2011 emissions model.

On-site and off-site motor vehicles exhaust emissions were estimated by multiplying total on-site and off-site vehicle miles traveled for each type of motor vehicle used by vehicle-specific emission factors. A demolition contractor provided estimates of the types, number and vehicle miles traveled for the motor vehicles that were anticipated to be used. Emission factors were from the California ARB EMFAC2011 emissions model.

Motor vehicle fugitive PM emissions were estimated by multiplying total on-site and off-site vehicle miles traveled for each type of motor vehicle used by vehicle-specific emission factors. Emission factors were calculated using equations from the U.S. Environmental Protection Agency's (EPA's) Compilation of Air Pollutant Emission Factors (AP-42).

Methods for calculating emissions from implosion of structures have not been developed, so the emissions could not be estimated. However as will be seen in the table below, the operating plant emissions were significantly larger than the estimated demolition emissions exclusive of implosion emissions. If emissions from the implosion are included, we believe it is a reasonable assertion that the demolition emissions would still be well below the prior operating emissions.

Total criteria pollutant emissions over the six-month demolition period are summarized in Table 5.2-2. Estimated emissions calculations are provided in Appendix C.

Criteria pollutant emissions were obtained from measurements, fuel use, or calculations for the following sources that generated emissions during operation of the facility:

- On-site stationary sources (primarily coal combustion);
- Off-site motor vehicle exhaust (primarily delivery trucks);
- Off-site motor vehicle fugitive PM emissions from entrained dust; and
- Off-site locomotive exhaust (from trains delivering coal).

Emissions were estimated for calendar year 2013, which is the most recent complete year of operation.

**Table 5.2-2 Comparison of Decommissioning Criteria Pollutant Emissions with Operations**

Source	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Emissions during Decommissioning (pounds over 6-month period)</b>						
<b>On-site</b>						
Equipment Exhaust	677	7,200	7,666	10	297	274
Motor Vehicle Exhaust	1	9	17	0	0	0
Motor Vehicle Fugitive PM	0	0	0	0	1,193	119
<b>Total On-site</b>	678	7,209	7,683	10	1,490	393
<b>Off-site</b>						
Motor Vehicle Exhaust	189	2,597	5,055	0	102	93
Motor Vehicle Fugitive PM	0	0	0	0	1,117	274
<b>Total Off-site</b>	189	2,597	5,055	0	1,219	367
<b>Total Emissions (lb/6 mos.)</b>	867	9,806	12,738	10	2,709	760
<b>Total Emissions (tons/6 mos.)</b>	0.43	4.90	6.37	0.01	1.35	0.38
<b>Emissions during Operations in 2013 (pounds [lb] per year)</b>						
<b>On-site</b>						
Stationary Sources	2,000	184,000	296,000	216,000	40,000	23,000
Motor Vehicle Exhaust	0	0	0	0	0	0
Motor Vehicle Fugitive PM	0	0	0	0	0	0
<b>Total On-site</b>	2,000	184,000	296,000	216,000	40,000	23,000
<b>Off-site</b>						
Motor Vehicle Exhaust	526	5,084	9,769	0	91	84
Motor Vehicle Fugitive PM	0	0	0	0	3,872	950
Locomotive Exhaust	518	1,365	2,268	193	75	75
<b>Total Off-site</b>	1,044	6,449	12,037	193	4,038	1,109
<b>Total Emissions (lb/year)</b>	3,044	190,449	308,037	216,193	44,038	24,109
<b>Total Emissions (tons/year)</b>	1.5	95	154	108	22	12
<b>Emissions Reduction (Decommissioning - Operations, tons)</b>						
	-1	-90	-148	-108	-20	-12

ACC provided estimates of emissions from on-site stationary sources, primarily calculated from records of the amount of coal combusted. Exhaust and fugitive PM emissions from off-site motor vehicles were calculated using the same approaches that were used to estimate emissions from these sources during the demolition activities. ACC provided estimates of the number and vehicle miles traveled for off-site motor vehicles.

Emissions from locomotive exhaust were calculated by multiplying estimated locomotive fuel use by emission factors for locomotives reported by EPA. Locomotive fuel use was estimated by multiplying ton-miles of coal and coal cars hauled by locomotives by fuel use per ton-mile. Freight ton-miles were calculated from estimates from ACC of the amount of coal delivered and the locomotive travel distances inside California.

Total criteria pollutant emissions from facility operations during 2013 are summarized in Table 5.2-2. Estimated emission calculations are provided in Appendix C. The differences between emissions during decommissioning and emissions from operations during 2013 are also listed in Table 5.2-2. As seen in Table 5.2-2, criteria pollutant emissions during decommissioning are estimated to be substantially lower than emissions during the demolition activities. Therefore, impacts from criteria pollutant emissions during decommissioning will be substantially less than impacts during facility operations.

#### **5.2.3.2 Greenhouse Gas Emissions**

Fuel combustion during decommissioning activities will also generate emissions of greenhouse gases (GHG) (carbon dioxide [CO<sub>2</sub>], methane [CH<sub>4</sub>] and nitrous oxide [N<sub>2</sub>O]). Fuel combustion during operation of the facility to generate electricity and steam also generated emissions of these pollutants. GHG emissions anticipated to occur during demolition activities were estimated and compared with estimated emissions during operation of the facility to evaluate the potential for the demolition activities to increase potential impacts from GHG emissions.

GHG emissions were estimated from the following sources during decommissioning:

- Off-road equipment exhaust;
- On-site motor vehicle exhaust; and
- Off-site motor vehicle exhaust.

Off-road equipment exhaust emissions were calculated by multiplying total fuel use for each piece of equipment by equipment-specific emission factors. Total fuel use for each type of equipment was estimated by multiplying total horsepower-hours produced by the equipment engine by the engine brake-specific fuel consumption from the OFFROAD2011 model. Emission factors were from the Climate Registry 2014 Default Emission Factors.

On-site and off-site motor vehicles exhaust GHG emissions were calculated by multiplying total on-site and off-site vehicle fuel consumption for each type of motor vehicle by vehicle-specific emission factors. Total fuel use for each type of vehicle was estimated by multiplying total vehicle miles traveled by vehicle fuel consumption per mile estimated from the EMFAC2011 model. Emission factors were from the Climate Registry 2014 Default Emission Factors.

Total GHG emissions over the 6-month demolition period are summarized in Table 5.2-3. Estimated GHG emissions calculations are provided in Appendix C.

GHG emissions from the following sources that generated emissions during operation of the facility were estimated:

- On-site stationary sources (primarily coal combustion);
- Off-site motor vehicle exhaust (primarily delivery trucks); and
- Off-site locomotive exhaust (from trains delivering coal).

Emissions were estimated for calendar year 2013, which is the most recent complete year of operation.

ACC provided estimates of emissions from on-site stationary sources calculated from records of the amount of fuel combusted. Exhaust emissions from off-site motor vehicles were estimated using the same approaches that were used to estimate emissions from these sources during the demolition activities.

Emissions from locomotive exhaust were estimated by multiplying estimated locomotive fuel use by emission factors for locomotives from the Climate Registry 2014 Default Emission Factors.

Total GHG emissions from facility operations during 2013 are summarized in Table 5.2-3. Emission estimate calculations are in Appendix C. The differences between emissions during the demolition activities and emissions from operations during 2013 are also listed in Table 5.2-3. As seen in Table 5.2-3, GHG emissions during demolition activities are estimated to be substantially lower than emissions during facility operations. Therefore, impacts from GHG emissions during decommissioning will be substantially less than impacts during facility operations.

**Table 5.2-3 Comparison of Decommissioning Greenhouse Gas Emissions with Operations**

Source	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e <sup>a</sup>
<b>Emissions during Decommissioning (pounds over 6-month period)</b>				
<b>On-site</b>				
Equipment Exhaust	1,041,908	60	27	1,051,469
Motor Vehicle Exhaust	2,128	0	0	2,134
<b>Total On-site</b>	<b>1,044,036</b>	<b>60</b>	<b>27</b>	<b>1,053,603</b>
<b>Off-site</b>				
Motor Vehicle Exhaust	1,167,760	11	6	1,169,796
<b>Total Off-site</b>	<b>1,167,760</b>	<b>11</b>	<b>6</b>	<b>1,169,796</b>
<b>Total Emissions (lb/6 mos.)</b>	<b>2,211,796</b>	<b>71</b>	<b>33</b>	<b>2,223,399</b>
<b>Total Emissions (tons/6 mos.)</b>	<b>1,106</b>	<b>~0</b>	<b>~0</b>	<b>1,112</b>
<b>Emissions during Operations in 2013 (pounds [lb] per year)</b>				
<b>On-site</b>				
Stationary Sources	711,827,601	98,054	14,259	718,528,133
Motor Vehicle Exhaust	0	0	0	0
<b>Total On-site</b>	<b>711,827,601</b>	<b>98,054</b>	<b>14,259</b>	<b>718,528,133</b>
<b>Off-site</b>				
Motor Vehicle Exhaust	1,851,303	27	19	1,857,628
Locomotive Exhaust	499,317	40	13	504,174
<b>Total Off-site</b>	<b>2,350,620</b>	<b>67</b>	<b>32</b>	<b>2,361,803</b>
<b>Total Emissions (lb/year)</b>	<b>714,178,221</b>	<b>98,121</b>	<b>14,291</b>	<b>720,889,936</b>
<b>Total Emissions (tons/year)</b>	<b>357,089</b>	<b>49</b>	<b>7</b>	<b>360,445</b>
<b>Emissions Reduction (Decommissioning - Operations, tons)</b>				
	<b>-355,983</b>	<b>-49</b>	<b>-7</b>	<b>-359,333</b>
Notes: <sup>a</sup> CO <sub>2</sub> e = carbon dioxide-equivalent emissions, calculated as the sum of CO <sub>2</sub> emissions and CH <sub>4</sub> and N <sub>2</sub> O emissions multiplied by their global warming potentials relative to CO <sub>2</sub> .				



#### 5.2.4 Proposed Conditions of Decommissioning

As noted above, the SVM facility provided emissions reductions from their existing boilers as offsets in order to permit the ACE project. SVM has been required to provide periodic reports of their boiler operation to the CEC in order to demonstrate compliance with the emission reductions commitment. Once the ACE project is decommissioned and its permits are withdrawn, ACC requests that SVM will no longer be required to provide these emissions and operations reports.

The following conditions are proposed during decommissioning to ensure that decommissioning activities conform with applicable LORS:

**AQ-1**           The project owner shall ensure that all applicable portable equipment used by the demolition contractor shall be registered through the ARB Portable Equipment Registration Program (PERP).

**Verification:**   The project owner will maintain on site records of equipment that is brought on-site. The project owner will furnish the records to the CPM upon request.

**AQ-2:**           The project owner shall ensure that equipment used during decommissioning is maintained in proper operating condition to avoid visible emissions darker than Ringlemann #1 for periods greater than 3 minutes in any hour.

**Verification:**   The project owner or their contractor shall maintain records of equipment maintenance activities are maintained on-site and furnished to the CPM upon request.

**AQ-3:**           The project owner shall ensure a Dust Control Plan for decommissioning is prepared and submitted to the MDAQMD for approval.

**Verification:**   The project owner or their contractor shall submit the Dust Control Plan to the MDAQMD at least 30 days prior to the commencement of demolition activities with a copy provided to the CPM. The project owner shall submit a copy of the MDAQMD's written approval of the Dust Control Plan to the CPM within seven days of receipt of the approval.

## 5.3 Public Health

This section presents an analysis of LORS compliance and potential environmental impacts to public health that may result from the proposed decommissioning of the ACE project.

### 5.3.1 Background

The Commission's Decision for the ACE project concluded:

"The ACE project, if constructed and operated in compliance with the Conditions of Certification below and those contained in the "Air Quality" portion of this Report, will comply with applicable laws, ordinances, regulations and standards reflected in the Public Health section of Appendix A of this Report."<sup>16</sup>

No specific decommissioning requirements related to this technical area were included in the ACE Decision<sup>17</sup>.

### 5.3.2 Applicable LORS and Required Permits

There are no specific LORS applicable to public health during decommissioning. The general LORS included in the Commission Decision for the ACE project apply.

No permits related to public health will be required for the decommissioning activities.

### 5.3.3 LORS Conformance and Impact Assessment

Diesel-fueled construction equipment and motor vehicles will emit diesel particulate matter (DPM), which is a carcinogenic toxic air contaminant (TAC), during demolition activities. However, cancer risks from exposure to TACs are generally only estimated for exposure periods of nine years or more. The demolition activities will only occur over a six-month period, which is much less than the nine years. Furthermore, the emissions of DPM and other TACs will be much lower during demolition than during operation of the ACE facility, which includes vehicles and locomotives in addition to the CFB boiler and other sources. Therefore, exposure to DPM emitted during demolition activities is not anticipated to cause a significant public health impact.

Risks to public health could also occur if toxic substances are contained in the structures to be demolished and are emitted during the demolition process. No toxic substances, such as asbestos or lead-based paint, however, were used during construction of the facility. Additionally, a sample of the refractory lining inside the facility exhaust stack has

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<sup>16</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, page 68

<sup>17</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 67 to 69

been analyzed chemically. Most results were below detection limits, and all results were below Total Threshold Limit Concentrations (TTLC) specified in Title 22, Chapter 11, Article 3, §66261.24 of the California Code of Regulations (CCR), which specifies regulatory limits for the classification of materials as hazardous wastes (see Appendix D). Therefore, toxic substances will not be emitted during demolition of the facility structures and no impacts to public health are anticipated to occur.

#### **5.3.4 Proposed Conditions of Decommissioning**

No additional conditions related to public health are required for decommissioning.

## **5.4 Hazardous Materials Management**

This section describes the systems and procedures that will be implemented to minimize the potential impacts from storage and use of hazardous materials during decommissioning activities. Waste management procedures and LORS compliance are discussed in Section 5.5, Waste Management.

### **5.4.1 Background**

The ACE project is an existing coal-fired circulating fluidized bed power plant that began commercial operation in 1991. The ACE facility has established hazardous materials programs designed to minimize the impact on workers, the community, and the environment.

The Commission's Decision for the ACE project concluded:

“With the implementation of the Conditions of Certification, the proposed project will be in compliance with the applicable laws, ordinances, regulations and standards identified in the “Waste Management” section of Appendix A of this Report...” and “...the potential for adverse environmental impacts from hazardous and nonhazardous wastes generated by the proposed project will be adequately minimized.”<sup>18</sup>

No specific decommissioning requirements related to hazardous materials management were included in the ACE Decision<sup>19</sup>.

### **5.4.2 Applicable LORS and Required Permits**

The LORS applicable to decommissioning are briefly summarized in Table 5.4-1.

The facility has existing above ground storage tanks (ASTs) that are permitted through San Bernardino County Fire Department (SBCFD), Hazardous Materials Division, which is the Certified Unified Permitting Agency (CUPA). The CUPA will be contacted prior to the end of decommissioning to arrange for final inspection and close out of applicable permits for the ASTs that will be removed.

Based on the anticipated implosion that will occur during decommissioning, the explosives permits identified in Table 5.4-2 must be obtained.

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<sup>18</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, page 71

<sup>19</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 70 to 73

**Table 5.4-1 LORS Applicable to Hazardous Materials**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>Federal</b>		
None		
<b>State</b>		
California H&SC §§ 25500 to §§ 25543; 19 CCR §§ 2720 – 2734.	Requires facilities using hazardous materials to prepare and update a Hazardous Material Business Plan.	All materials located on site during operation are being handled and will be removed according to approved plans prior to dismantling the plant. The only hazardous materials used during demolition activities are diesel fuel and lubricating oils.
CCR 19, Division 1, Chapter 10 and §§ 3301.1 California Fire Code.	Possession, handling, storage, and use of explosives and explosive materials.	Applicable since explosives or explosives materials will be used during demolition.
California Uniform Building Code	Requirements regarding the storage and handling of hazardous materials.	All materials located on site during operation are being handled and will be removed according to approved plans prior to dismantling the plant. The only hazardous materials used during demolition activities are diesel fuel and lubricating oils.
<b>Local</b>		
San Bernardino Ordinance MC-1259 (Resolution 08-149)	Adopts the 2010 California Fire Code CCR, Title 24, Part 9 into San Bernardino County regulations.	
San Bernardino County Code of Ordinance, Title 2, Division 3	Fire protection and explosives and hazardous materials ordinances	Applicable since explosives will be used during demolition.
San Bernardino County Code of Ordinance, Title 4, Division 5, Permit Regulations for Explosives	The San Bernardino County Fire Department explosives regulations including the issuance of permits.	Applicable since explosives will be used during demolition.
<b>Industry Codes and Standards</b>		
California Fire Code, Chapters 27, 34, and others	Sets forth requirements for the storage and handling of hazardous materials.	Any hazardous materials currently on the site will be removed prior to dismantling the plant. The only hazardous materials used during demolition activities are diesel fuel and lubricating oils.

**Table 5.4-2 Required Permits**

<b>Permit or Approval</b>	<b>Issuing Agency</b>	<b>Requirements</b>	<b>Schedule</b>
Explosives Permit	San Bernardino County Fire Protection District	Submit requested information to the Fire Protection District, which may set additional requirements for the safety and security of the public.	Consult with San Bernardino County Fire Protection District
Explosives Permit	San Bernardino County Sheriff Department	Submit requested information to the Sheriff's Department, which may set additional requirements for the safety and security of the public. The Sheriff's Department generally shall notify the Fire Protection District, as soon as practical, when any application has been made for an explosives permit for a specific location and purpose.	Consult with San Bernardino County Sheriff Department and San Bernardino County Fire Protection District

### 5.4.3 LORS Conformance and Impact Assessment

Hazardous materials that are anticipated to be supplied and used by the demolition contractor during ACE project decommissioning include gasoline, diesel fuel, oil, lubricants, welding gases (e.g., acetylene) and small quantities of solvents. Additionally, explosives will be used to demolish the on-site boiler. The contractor will be responsible for verifying that the use, storage, and handling of these materials are in compliance with applicable federal, state, and local requirements, including licensing, personnel training, accumulation limits, reporting requirements, and recordkeeping.

A summary of hazardous materials anticipated during decommissioning is provided in Table 5.4.3. No acutely hazardous substances will be used or stored during ACE plant decommissioning.

Most of the operational hazardous materials, such as anhydrous ammonia, were removed once the plant ceased operation to reduce worker safety and public health risks. Some hazardous materials, such as transformer oil may remain in the transformers until sold and other hazardous materials, such as oily rags, will be present until the final day of decommissioning. A summary of hazardous materials used during operation that either have been or will be removed prior to the start of demolition is provided in Table 5.4-4.

Several plans will be updated or closed as the facility transitions from operation through decommissioning. The facility Hazardous Materials Business Plan (HMBP) outlines hazardous materials handling, storage, spill response, and reporting procedures that will be updated as materials are removed and tanks are decommissioned. The existing Risk Management Plan will be closed after the hazardous materials (e.g., anhydrous ammonia) are removed and the tanks are demolished. The existing Spill Prevention

Control and Countermeasure (SPCC) Plan will be closed after decommissioning activities are complete and no potential for spillage remains.

A licensed demolition contractor will be used to transport, install, and detonate explosives to implode the boiler. Other than during the set-up and completion of the detonation, explosives will not be stored on the project site. As outlined in Section 5.6, Worker Safety, an Explosives Plan will be developed to assist with the management and use of explosives and will cover safe transport, inventory control, proper handling, and removal protocols that are in accordance with local, State, and Federal requirements and regulations.

Most hazardous materials were removed from the site in October and November. During decommissioning, if necessary, hazardous materials will be stored on site in storage tanks, vessels, or other containers specifically designed for the characteristics of the materials being stored. The existing 500 gallon diesel AST will be retained on-site for use by the contractor and will be removed once decommissioning is complete.

Small quantities of spilled fuel oil and grease drippings from equipment may occur during demolition. Such materials generally have a low relative risk to human health and the environment. If there is a large spill, the spill area will be bermed or controlled as quickly as is practical to minimize the footprint of the spill. Contaminated soil and materials produced during cleanup of a spill will be placed into drums for offsite disposal as a hazardous waste at a permitted hazardous waste transfer, storage, and disposal facility. If a spill or leak into the environment involves hazardous materials equal to or greater than the specific reportable quantity, Federal, State, and local reporting requirements will be adhered to.

#### **5.4.4 Proposed Conditions of Decommissioning**

ACC will implement the various hazardous materials management programs, plans, and procedures during decommissioning and will comply with the applicable regulatory requirements. The project will not have significant impacts due to hazardous materials; however, the following conditions are proposed.

**HM-1** The project owner shall update the Hazardous Materials Business Plan as needed to reflect the use of hazardous materials during decommissioning that have not been previously used at the site.

**Verification:** If hazardous materials that have not previously been used at this site are needed, the project owner or their contractor shall prepare and submit a revised HMBP to the CPM and Fire Department within one week of determination.

**HM-2** The project owner shall ensure that explosives permits are obtained prior to bringing explosives on-site for decommissioning.

**Verification:** The project owner or their contractor obtain the appropriate explosives permits from the San Bernardino County Fire Protection District and Sheriff's Department and shall furnish them to the CPM within 7 days of receipt and prior to explosives being brought on site for decommissioning.

**Table 5.4-3 Hazardous Materials Present During Decommissioning Activities**

<b>Material</b>	<b>CAS No.</b>	<b>Application</b>	<b>Hazardous Characteristics</b>	<b>Maximum Quantity On Site</b>
Acetylene gas	74-86-2	Welding gas	Health: moderate toxicity Physical: combustible, flammable Hazard class: Toxic	600 cubic feet
Argon gas	7440-37-1	Welding gas	Health: low toxicity Physical: non-flammable gas	600 cubic feet
Batteries (Lead Acid)	7439-92-1	Equipment	Health: N/A Physical: N/A	60 each
Diesel fuel	68476-34-6	Equipment fuel	Health: low toxicity Physical: combustible liquid	3,600 gallons
Explosives (TNT based)	118-96-7	Boiler demolition	Health: low toxicity Physical: mass explosion hazard	No long-term on-site storage, used immediately <sup>2</sup>
Hydraulic fluid	64741-89-5	Equipment (e.g., drive units)	Health: low to moderate toxicity Physical: Class IIIB combustible liquid	20 gallons per tracker drive unit, maintenance inventory of 55 gallons
Lube Oil	64742-65-0	Lubricate rotating equipment	Health: low toxicity Physical: N/A	Maintenance inventory in 55-gallon drums
Oxygen	7782-44-7	Welding gas	Health: low toxicity Physical: oxidizer	600 cubic feet
R-22 (refrigerant)	75-45-6	Refrigeration unit	Health: moderate toxicity Physical: low flammability	<30 gallons
<sup>1</sup> Reportable quantities for a pure chemical, per the CERCLA				
<sup>2</sup> Quantity and form disclosed to San Bernardino County Sheriff's Department				



**Table 5.4-4 Operational Hazardous Materials Removed Prior to Demolition**

<b>Waste Stream and Classification<sup>1</sup></b>	<b>Origin and Composition</b>	<b>Estimated Amount</b>
Ammonia (anhydrous)	Aboveground storage tank	61,688 pounds
Ammonia Traced (19 ppm) Nitrogen Gas	Compressed gas cylinder	540 cubic feet
Anion Resin (Amberlite)	Containers – water treatment	1,380 gallon
Argon Gas	Compressed gas cylinder	3,696 cubic feet
Carbon Dioxide Gas	Compressed gas cylinder	2,744 cubic feet
Carbon Dioxide in Argon Gas	Compressed gas cylinder	980 cubic feet
Cation Resin (Amberlite)	Containers – water treatment	1,870 gallon
ChemTreat BL-1283	Processing tank	110 gallon
ChemTreat BL-1558	Processing tank	700 gallon
ChemTreat BL-4896	Processing tank	2,200 gallon
ChemTreat BL-6033	Processing tank	110 gallon
Hydrogen Gas	Compressed gas cylinders	60 pounds
Nitric Oxide and Sulfur Dioxide in Nitrogen Gas	Compressed gas cylinders	540 cubic feet
Nitrogen Gas	Compressed gas cylinders	1,176 cubic feet
Oxygen in Nitrogen Gas	Compressed gas cylinders	1,494 cubic feet
Oxygen in Nitrogen Gas – Trace Carbon Dioxide	Compressed gas cylinders	1,494 cubic feet
PULSA lube oil #1	Equipment	116 gallon
R-22 (refrigerant)	Equipment	<30 gallons
Rotella Oil 50W	Equipment	116 gallons
Safety-Kleen Solvent	Equipment	68 gallons
Shell Omala 220 Oil	Drums	110 gallons
Shell Rotella 15W-40	Equipment	116 gallons
Sodium Hydroxide, 50% solution <sup>1</sup>	Aboveground storage tank	<2,000 gallons
Sodium Hypochlorite Solution, 120/o Chlorine	Aboveground storage tank	2,400 gallons
Sulfur Dioxide, Carbon Dioxide in Nitrogen Gas	Compressed gas cylinder	1,494 cubic feet
Sulfur Hexafluoride	Compressed gas cylinder	220 cubic feet
Sulfuric Acid <sup>1</sup>	Aboveground storage tank	<2,000 gallons

**Table 5.4-4 Operational Hazardous Materials Removed Prior to Demolition**

<b>Waste Stream and Classification<sup>1</sup></b>	<b>Origin and Composition</b>	<b>Estimated Amount</b>
Tellus Oil 46	Drum	55 gallons
Turbine 32 Oil	Aboveground storage tanks	11,000 gallons
Turbo Oil (cooper)	Drum	55 gallons
Turbo Oil 68	Equipment	171 gallons
Trisodium Phosphate	Container – water treatment	200 pounds
Disodium Phosphate	Container – water treatment	150 pounds
Visolite Tracer	Equipment	3,000 pounds
Lab Chemical Waste (Molybdat Reagent)	Laboratory	55 gallons
Used Oil	Aboveground storage tank	500 gallons
<sup>1</sup> Sodium Hydroxide and Sulfuric Acid are part of the currently functioning Demineralized Water treatment system. System to remain in place for future use by new Owners. Existing quantities of these chemicals will remain in system tanks.		

## 5.5 Waste Management

This section presents an analysis of the potential adverse environmental impacts and LORS compliance related to the wastes that will be generated during the decommissioning of the ACE project. Management and discharge of wastewater is addressed in Section 5.11, Water Resources, of this Plan. Additional information related to waste management is also provided in the Worker Safety and Fire Protection (Section 5.6) and Hazardous Materials (Section 5.4) sections of this Plan.

### 5.5.1 Background

The ACE project is an existing coal-fired circulating fluidized bed (CFB) power plant that began commercial operation in 1991. Prior to the plant ceasing operations, ACC sold fly ash for beneficial use (e.g., road bed material) and disposed remaining ash from coal combustion in on-site landfill pits at the ACE facility. Unsold fly ash and all bottom ash from the CFB combustor was mixed with wastewater to form a slurry prior to disposal. The natural pozzolan and calcium oxide concentration in the ash, when combined with water, resulted in chemical stabilization and solidification of the fly ash and bottom ash mixture. Because the ash mixture is fixated, additional treatment of the waste has not been necessary. Furthermore, the ash has been tested and was determined to be non-hazardous by the RWQCB (see letter in Appendix D). Three of the five cells (cells 1, 2, and 4) in the ash landfill have been closed in compliance with the Preliminary Closure and Post-Closure Maintenance Plan, A.C.E. Ash (Water Board Order No. 6-90-5a) dated April 11, 1990. Cell 3 is filled and capped and requires that it be stabilized for natural revegetation to complete closure, which will occur once Cell 5 is closed. Cell 5 is 90% filled and will be capped and closed during demolition (see Figure 3-3).

The ACE facility has several existing waste management programs to minimize the impacts on the environment. These programs will be revised as necessary as the facility transitions from operation to closure.

The Commission's Decision on the ACE project concluded:

“With the implementation of the Conditions of Certification, the proposed project will be in compliance with the applicable laws, ordinances, regulations and standards identified in the “Waste Management” section of Appendix A of this Report...” and “...the potential for adverse environmental impacts from hazardous and nonhazardous wastes generated by the proposed project will be adequately minimized.”<sup>20</sup>

No specific decommissioning requirements related to waste management were included in the ACE Decision<sup>20</sup>.

### 5.5.2 Applicable LORS and Required Permits

The applicable LORS are briefly discussed and summarized in Table 5.5-1.

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<sup>20</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 70 to 73

**Table 5.5-1 LORS Applicable to Waste Management**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>Federal</b>		
Solid Wastes: Title 40, CFR, Chapter I, Subchapter I	Establishes the criteria for characterizing hazardous waste, hazardous waste generator requirements, and management of oil and universal waste.	
Hazardous Materials: Title 49, CFR, Chapter I, Subchapter C	Establishes standards for the transportation of hazardous wastes.	
Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act (RCRA) of 1976, et al) and subsequently amended in 1978, 1980 and 1984: Title 42, USC, §§ 6901, et seq.	Provides the basic framework for Federal regulation of nonhazardous and hazardous waste.	
Comprehensive Environmental Response, Compensation and Liability Act: (Superfund) Title 42, USC, §§ 9601, et seq.	Establishes mechanisms for the cleanup of accidental spills or releases of pollutants into the environment.	
<b>State</b>		
California Integrated Waste Management Act of 1989: PRC, Division 30, §§ 40000, et seq.	Establishes mandates and standards for management of solid waste including recycling of demolition debris.	
California Integrated Waste Management Board: Title 14, CCR, Division 7	Establishes minimum standards for solid waste handling and disposal.	
California Fire Code	Controls the storage of hazardous materials and wastes.	Applicable only if chemicals different from the ones currently in use are needed for decommissioning
<b>Local</b>		
San Bernardino County Code of Ordinances, Title 3, Division 3, Chapter 8	Establishes requirements for the use, generation, storage, and disposal of hazardous materials and wastes within the County.	
County of San Bernardino 2007 General Plan, Chapter III, Subchapter D3, Solid Waste	Requires safe, efficient, and economical and integrated solid waste management system including waste reduction and recycling.	

No new permits will be required during decommissioning; however, some existing permits will be required to remain open until decommissioning is completed. During decommissioning, ACC will use the existing EPA identification number and Hazardous Materials Handler and Hazardous Waste Generator permit from San the Bernardino County Fire Department (SBCFD), Hazardous Materials Division, which is the Certified Unified Permitting Agency (CUPA). The facility has existing used oil above ground storage tanks (ASTs) that are permitted through SBCFD. Waste ASTs will be used during decommissioning activities and each AST permit will be closed upon removal.

As a CUPA, SBCFD manages six hazardous material and hazardous waste programs. To close out the AST permits, Hazardous Materials Business Plan (HMBP), hazardous waste generation, and hazardous materials management plans and inventory statements, the CUPA will be contacted to arrange for an exit inspection. The CUPA will then close the above permits and the ACC California Environmental Reporting System (CERS) account.

Existing ACE facility permits related to waste management are shown in Table 5.5-2.

**Table 5.5.2 Required Permits for Waste Management**

Permit	Issuing Agency	Requirement	Schedule
EPA ID number	EPA	Must have an EPA ID number to ship hazardous waste	N/A – will use existing facility EPA ID number through decommissioning
Hazardous Materials Handler and Hazardous Waste Generator permit	San the Bernardino County Fire Department (SBCFD), Hazardous Materials Division	Required to store hazardous materials and generate hazardous waste within the County	N/A – will use the existing permit through decommissioning
Aboveground Storage Tank permit	SBCFD, Hazardous Materials Division	Required to store hazardous materials in a storage tank	N/A – will use existing permits through decommissioning

### 5.5.3 LORS Conformance and Impact Assessment

Prior to decommissioning, the facility used all hazardous and non-hazardous materials to the extent possible to minimize waste generation and truck trips. Any remaining fluids and gasses will be drained and either returned to the vendor, sold, or disposed of in a permitted waste disposal facility. All materials, including equipment sold, scrap and recycling material and waste, are estimated at 6,000 tons. Table 5.5-3 summarizes the anticipated waste streams generated during decommissioning activities, along with appropriate management methods for treatment, recycling, or disposal.

**Table 5.5-3 Summary of Decommissioning Waste Streams and Management Methods**

Waste Stream and Classification <sup>1</sup>	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				On-site	Off-site
Acetylene Gas	Compressed gas cylinder	2,790 cubic feet	One time	None	Return to vendor
Demolition Waste - Hazardous	Empty hazardous material containers	1 cubic yard per week (cy/wk)	Intermittent	None. Accumulate on-site for <90 days	Return to vendor or dispose in a permitted waste disposal facility
Demolition waste - Hazardous	Solvents, used oil and lubricants	175 gallons	Every 90 days	None. Accumulate on-site for <90 days	Recycle or use for energy recovery
Demolition waste - Nonhazardous	Scrap wood, concrete, steel, glass, plastic, paper	40 cy/wk	Intermittent	None	Recycle wherever possible, otherwise dispose to Class III landfill
Oxygen Gas – excess	Compressed gas cylinders	1,494 cubic feet	One time	None	Return to vendor
Sanitary waste – Non-hazardous	Portable chemical toilets – sanitary waste	200 gallons / day	Periodically pumped to tanker truck by licensed contractors	None	Ship to sanitary wastewater treatment plant
Diesel Fuel – excess	Above ground storage tanks – fire pump and refueling	100 gallons	One time	None	Evacuate and utilize in vehicles
Non-RCRA hazardous waste	Used Oily Rags, Pig Blankets	300 pounds	Intermittent	None	Recycle or dispose off-site
<sup>1</sup> Classification under Title 22, CCR § 66261.20 et seq.					

### 5.5.3.1 Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) of the ACE project site was prepared in March 2012 in conformance with the general scope and limitations of ASTM Standard Practice E 1527-05 (see Executive Summary of the Phase I ESA in Appendix E<sup>21</sup>).

Historical research indicated that the ACE site was undeveloped land until the power generation facility was constructed beginning in 1986. Adjacent properties were developed either simultaneous or much earlier than the ACE plant. The first known development of the Searles Valley Minerals (SVM) property to the south, southeast and southwest is believed to be pre-1900.

A search of environmental databases found that the project property is listed in a number of databases. None of the listings was judged to be an indicator of an unresolved release or threatened release of a petroleum product. The database search did not identify any adjacent or nearby properties likely to have a material impact on the ACE project property.

The site visit in conjunction with the Phase I ESA; the review of governmental environmental databases, files, and historical documents; and interviews conducted during the Phase I ESA process did not identify any recognized environmental conditions (RECs) within the ACE project boundaries.

### 5.5.3.2 Non-Hazardous Solid Waste Generation and Disposal

During and following cessation of operations, non-hazardous fly ash was disposed in the on-site landfill (see Section 5.5.1, Background, above). Approximately 90% of the last cell of the landfill was been filled as of October 1, 2014. The final portion of that cell will be used for disposal of the refractory lining and then closed under its existing permit. Although this final restoration activity will occur during decommissioning, no additional approvals or permits are needed since it will be done in compliance with existing conditions and permits. During decommissioning, the following non-hazardous wastes will be generated:

- *Universal Waste:* Information on universal wastes anticipated to be generated during decommissioning is provided in Table 5.5-3. Universal wastes and unusable materials will be handled, stored, and managed per California Universal Waste requirements.

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<sup>21</sup> The Phase I Environmental Site Assessment is voluminous, with almost 400 pages of EDR reports, and includes an assessment of the limestone quarry which is not part of this project. Rather than duplicate the entire document, we have included the Executive Summary that contains the essential conclusions. The only findings noted were related to the quarry.

**Table 5.5-4 Solid and Hazardous Waste Disposal Facilities**

<b>Waste Disposal Site</b>	<b>Title 23 Class</b>	<b>Maximum Permitted Capacity</b>	<b>Current Operating Capacity<sup>1</sup></b>	<b>Remaining Capacity</b>	<b>Estimated Closure Date</b>	<b>Enforcement Action Taken</b>
Barstow Sanitary Landfill 32553 Barstow Road, Barstow, CA	Class III	80,354,500 cubic yards	1,500 tons/day	924,401 cubic yards	5/1/2071	No
Victorville Sanitary Landfill 18600 Stoddard Wells Road, Victorville, CA	Class III	83,200,000 cubic yards	3,000 tons/day	81,510,000	10/1/2047	No
California Street Landfill 2151 Nevada Street, Redlands, CA	Class III	10,000,000 cubic yards	829 tons/day	6,800,000 cubic yards	1/1/2042	Yes
Mid Valley Sanitary Landfill 2390 N Alder Ave, Rialto, CA	Class III	101,300,000 cubic yards	7,500 tons/day	67,520,000 cubic yards	4/1/2033	No
Landers Sanitary Landfill 59200 Winters Rd, Landers, CA 92285	Class III	3,083,500 cubic yards	1,200 tons/day	765,098 cubic yards	8/1/2018	No
Victor Valley Materials Recovery Facility 1700 Abby Road, Victorville, CA	N/A	N/A	600 tons/day	N/A	Not available	No
McKittrick Waste Treatment Site 56533 Hwy 58, McKittrick, CA	Class II	2,091,800 cubic yards	1,180 tons/day	841,498 cubic yards	12/31/2029	No
DeMenno/Kerdoon 2000 N. Alameda Street, Compton, CA	N/A	84.1 million gallons per year of oily water and 123 million gallons/year of waste oil	Approximately 30 million gallons/year	N/A	N/A	No <sup>2</sup>
Kettleman Hills – B18 Nonhaz Codisposal Landfill 35251 Old Skyline Road, Kettleman City, CA	Class I, II	10,700,000 cubic yards	8,000 tons/day	6,000,000 cubic yards	Not Available	No
Clean Harbors Buttonwillow Landfill 2500 West Lokern Road, Buttonwillow, CA	Class I	14,300,000 cubic yards	10,500 tons/day	Not Available	1/1/2040	No
Source: CIWMB/SWIS, September 2014 <sup>2</sup> Source: ENVIROSTOR, October 2014 <sup>1</sup> Maximum Permitted						



- *Non-Hazardous Solid Waste:* Solid waste generated from project decommissioning activities will include lumber, plastic, metal, glass, concrete, and empty non-hazardous containers. Management and disposal of these wastes will be the responsibility of the decommissioning contractor(s). Typical management practices for this material include mainly recycling, proper storage of waste to prevent wind dispersion, and routine pick-up and disposal of waste to approved local Class III landfills. Solid wastes from ACE project decommissioning are not expected to significantly impact the capacity of the Class III landfills in San Bernardino County.
- *Wastewater:* Wastewater generated will include sanitary wastes, dust suppression drainage, and equipment wash water. Sanitary wastes, collected in portable self-contained chemical toilets, will be pumped periodically. Potentially contaminated equipment wash water will be contained at designated wash areas and transported to a wastewater treatment facility via a licensed hauler.

Non-hazardous solid waste generated at the ACE project site during decommissioning will be taken off-site for recycling or disposal to a permitted Class III landfill. There are five class III landfills located in San Bernardino County within approximately 100 miles of the project site: Barstow, Victorville, California Street, Mid Valley and Landers landfills. The Victor Valley Materials Recovery Facility (MRF) accepts mixed materials for recycling. The maximum landfill capacity, daily operating capacity, and remaining capacity of each landfill are listed in Table 5.5-4. A comparison of the potential waste generation in Table 5.5-3 to the landfill capacities shown in Table 5.5-4 demonstrate that there is sufficient off-site landfill capacity for ACE project wastes generated during decommissioning.

#### **5.5.3.3 Hazardous Waste Generation and Disposal**

The expected generation of hazardous waste associated with decommissioning is provided in Table 5.5-3. Most of the hazardous waste generated during project decommissioning, such as solvents and vehicle and equipment maintenance-related materials, can and will be recycled. Empty containers (i.e., drums and totes) will be returned to the appropriate vendor, if possible. Any hazardous waste generated during decommissioning that cannot be recycled will be taken offsite by a licensed and permitted hazardous waste transporter to a permitted treatment, storage, and disposal facility (i.e., Class I landfill).

There are two major operating hazardous waste (Class I) landfills in California:

- Clean Harbors Buttonwillow Landfill (Kern County) accepts Class I solid wastes and Class II solid and liquid wastes.
- Chemical Waste Management Landfill located in Kettleman Hills (Kings County) accepts Class I solid wastes.

The permitted, operating, and remaining capacities of these two landfills are described in Table 5.5-4. It is expected that hazardous wastes generated during the decommissioning will be disposed at the Buttonwillow landfill. For select liquid wastes, DeMenno/Kerdoon, located in Compton (Los Angeles County), is a permitted Part B Treatment, Storage, and Disposal Facility (TSDF) that recycles used oil, wastewater, and antifreeze.

The small quantities of hazardous waste that cannot be recycled are not expected to significantly impact the capacity of the Class I landfills located in California.

In the unlikely event that contaminated soil is encountered during excavation activities, the soil will be segregated, sampled, and tested to determine appropriate disposal and treatment options. If the soil is classified as hazardous, San Bernardino County Fire Department will be notified and the soil will be hauled to a Class I landfill or other appropriate soil treatment and recycling facility.

#### **5.5.4 Proposed Conditions of Decommissioning**

The project will continue to implement the various waste management programs and procedures in place for operations during decommissioning and will comply with the applicable regulatory requirements. Waste generation during decommissioning will not have significant impacts on waste management; in order to ensure compliance with LORS, the following condition is proposed.

**WM-1**            The project owner shall ensure its contractor ships all hazardous waste, as defined under the applicable regulations, resulting from decommissioning to a Class I or II facility.

**Verification:**    The project owner or their contractor will submit records of the types and volumes of waste generated during decommissioning and the disposition of the waste to the CPM upon completion of decommissioning.

## 5.6 Worker Safety and Fire Protection

This section describes the systems and procedures that will be implemented to provide occupational safety and health protection for ACE workers and decommissioning contractors in accordance with applicable requirements, and includes descriptions of the health and safety programs that will be used during decommissioning. Control of the site will be turned over to the demolition Contractor upon approval of the Decommissioning Plan and commencement of the demolition activities. ACE staff will be reduced to a minimum oversight team and will operate under the approved Safety and Health Plan provided by the demolition Contractor. The section also provides information on the project's planned fire prevention and protection program.

### 5.6.1 Background

The ACE project is an existing coal-fired circulating fluidized bed power plant that began commercial operation in 1991. The ACE facility has several existing worker safety programs to protect the public or facility workers from safety hazards.

The California Voluntary Protection Program Star (Cal/VPP Star) is designed to recognize employers and their employees who have implemented safety and health programs that effectively prevent and control occupational hazards. These programs go beyond minimal Cal/OSHA standards and provide the best feasible protection at the site. The ACE project is a Cal/VPP Star designated facility.

The Commission's Decision for the ACE project concluded:

"The proposed project, if constructed and operated in accordance with the Conditions of Certification, will not create safety hazards to the public or to project workers..." and "...will be in compliance with the applicable laws, ordinances, regulations and standards identified in the "Safety" portion of Appendix A of this Report."<sup>22</sup>

No specific decommissioning requirements related to this technical area were included in the ACE Decision<sup>23</sup>.

As the project transitions from operation to demolition, the existing worker safety programs will be amended if needed to reflect this transition and the applicable requirements to protect human health and safety.

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<sup>22</sup> California Energy Commission Decision for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, page 75

<sup>23</sup> California Energy Commission Decision for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 60 to 62

### 5.6.2 Applicable LORS and Required Permits

To ensure a safe and healthy workplace, decommissioning activities will be performed in accordance with the applicable LORS. The applicable LORS are briefly discussed and summarized in Table 5.6-1.

**Table 5.6-1 LORS Applicable to Worker Safety and Fire Protection**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>Federal</b>		
Department of Labor, Safety and Health Regulations for Construction Promulgated Under Section 333 of the contract Work Hours and Safety Standards Act, 40 USC 327 et seq.	Meet employee health and safety standards for construction activities.	
<b>State</b>		
California Occupational Safety and Health Act, 1973	Establishes minimum safety and health standards for construction activities and industrial facilities in California.	These sections provide federal approval of California's plan for enforcement of its own safety and health requirements, in lieu of most of the federal requirements found in 29 CFR §1910.1 to 1910.1500.
California H&SC, Section 12000 – 12401	Explosives and their permitting, use, handling, storage, misuse, and penalties.	Explosives will be used during demolition. Contractor will comply with applicable requirements.
<b>Local</b>		
San Bernardino County Code of Ordinances, Title 2, Division 3	Adopts California Fire Code and adopts State requirements and guidelines as governing hazardous materials release response plans and inventories.	Applicable only if demolition would introduce new hazardous materials to the project site. All materials located on site during operation are being handled and will be removed according to approved plans.
San Bernardino County Code of Ordinances, Title 6, Division 3	Adopts national standards such as Uniform Building Code and National Electrical Code.	

**Table 5.6-1 LORS Applicable to Worker Safety and Fire Protection**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
County of San Bernardino 2007 General Plan, Chapter VIII Safety Element	The purpose of the Safety Element is to reduce the potential risk of death, injuries, property damage, and economic and social dislocation resulting from fires, floods, and other hazards.	
<b>Industry Codes and Standards</b>		
ANSI A10.6-1983	Safety requirements for demolition operations.	
California Fire Code, Chapters 27, 34, and Others	Addresses prevention, control and mitigation of dangerous conditions related to storage, dispensing, uses, and handling of various hazardous materials. Also identifies information needed by emergency response personnel.	Applicable only if demolition would introduce new hazardous materials to the project site. All materials located on site during operation are being handled and will be removed according to approved plans.
National Fire Protection Association (NFPA)	Standards needed to establish reasonable level of safety and property protection from hazards created by fire and explosion.	All materials located on site during operation are being handled and will be removed according to approved plans. Existing fire protection plans will be maintained until all flammables are removed and structures no longer occupied.

Required permits regarding worker health and safety for ACE project decommissioning are identified in Table 5.6-2. As identified in Table 5.6-2, a construction activities permit is required and includes a safety permit conference appointment at a Cal/OSHA district office. During this conference, ACE or its contractor will identify the potential safety and health risks with respect to decommissioning activities and present the specific measures that will be taken to minimize the risks to employees. Such risks would include evaluation and measures to be taken during implosion of the boiler, such as preparation and implementation of an Explosive Plan, as discussed below.

**Table 5.6-2 Decommissioning Permit Requirements**

<b>Permit or Approval</b>	<b>Issuing Agency</b>	<b>Requirements</b>	<b>Schedule</b>
Construction Activity (includes demolition)	Cal/OSHA	Permits are required for the following operations: <ul style="list-style-type: none"> <li>• Trenches and excavations of more than five feet below ground surface where personnel are required to enter.</li> <li>• Construction of buildings, structures, scaffolding, or false work that are more than three stories high.</li> <li>• Demolition of any building, structure, or the dismantling of scaffolding or false work that are more than three stories high.</li> </ul>	Submit completed permit application to Cal/OSHA office and receive a permit within 24 hours.
Erection of a Fixed Tower Crane Permit	Cal/OSHA	Permits are required for the following operations: <ul style="list-style-type: none"> <li>• Erection, climbing, and dismantling of fixed tower cranes.</li> <li>• Additionally, notifications to the Cal/OSHA must be made at least 24 hours prior to the initiation of the following activities:</li> <li>• Completion of erection and commencement of operation</li> <li>• Climbing of the tower crane</li> <li>• Dismantling of the tower crane</li> </ul>	Submit completed permit application to Cal/OSHA and receive a permit within 24 hours.

### 5.6.3 LORS Conformance

In order to ensure compliance with LORS specifically during demolition, the existing operations Safety and Health Program for the ACE project will be replaced by an approved Demolition Safety and Health Plan provided by the demolition contractor. The Program will be designed to address the LORS provided in Table 5.6-1 as discussed below.

#### 5.6.3.1 Federal Regulations

Construction health and safety regulations are provided in 29 CFR Section 1926. Part 1926 addresses several types of construction activities, such as general safety and health provisions (Subpart C); occupational health and environmental controls (Subpart D); personal protective and lifesaving equipment (Subpart E); fire protection and prevention (Subpart F); material handling, storage, use, and disposal (Subpart H); welding and cutting activities (Subpart J); electrical work (Subpart K); scaffolding (Subpart L) and fall protection (Subpart M); cranes, derricks, hoists, elevators, and conveyors (Subpart N); motor vehicles and mechanized equipment (Subpart O);

excavations (Subpart P); demolition (Subpart T); power transmission and distribution (Subpart V); rollover protection structures and overhead protection (Subpart W); stairways and ladders (Subpart X); and toxic and hazardous substances (Subpart Z). Federal safety and health regulations for construction also are provided in 40 U.S. Code (USC) 327 et seq.; these requirements are addressed in Title 8, California Code of Regulations (CCR), Chapter 4, Subchapter 4, General Construction Safety Orders.

#### **5.6.3.2 State Regulations**

Construction safety orders are published in Title 8 of the California Code of Regulations, sections 1502, et seq., and are made public by Cal/OSHA. These requirements apply to demolition and will be addressed in the Demolition Safety and Health Program which will include the following elements:

- Demolition Injury and Illness Prevention Plan;
- Demolition Personal Protective Equipment Program;
- Demolition Exposure Monitoring Program;
- Demolition Heat Stress Protection Plan;
- Demolition Emergency Action Plan; and
- Demolition Fire Prevention and Protection Plan.

Additional programs required under General Industry Safety Orders (8 CCR §§ 3200 to 6184), Electrical Safety Orders (8 CCR §§ 2299 to 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§ 450 to 544) will be in place during demolition and part of the Demolition Safety and Health Program.

#### **5.6.3.3 Local Regulations and Ordinances**

The San Bernardino County Code of Ordinances includes many county-specific ordinances on topics including fire regulations, hazardous materials, and waste management. In addition, the County Code also adopts and integrates by inclusion into County law several State and Federal codes and standards. In cases of adoption of State or Federal codes, San Bernardino County may have made modifications or additional changes or standards to tailor the code to the local climatic, geographical and topographical distinctiveness of the County.

#### **5.6.3.4 Industry Codes and Standards**

The National Fire Protection Association (NFPA), the American National Standards Institute (ANSI), the American Society of Mechanical Engineers (ASME), the American Welding Society, the Instrument Society of America, and a few other private and industrial organizations have established internal standards regarding the design and operation of industrial facilities and equipment. Many of these standards have been incorporated into Federal and State regulations and into building codes.

### 5.6.3.5 Hazard Analysis

Workers may be exposed to hazards during demolition of the ACE project. Implementation of appropriate engineering and administrative controls and use of personal protective equipment can minimize impacts to workers. Existing health and safety programs designed to mitigate hazards and comply with applicable LORS for the operation of ACE will be replaced by an approved Demolition Safety and Health Plan provided by the demolition contractor. This Plan will be implemented to protect worker health and safety during decommissioning, including demolition and site cleaning activities.

A hazard analysis of the expected activities during demolition and site clean-up is summarized in Table 5.6-3. This table lists work activities and associated hazards and shows programs designed to reduce the occurrence of each exposure, work place, or occupational hazard. In order to ensure that the types of work activities, associated hazards and hazard control approaches are appropriate for demolition and site clean-up activities, ACC will update the analyses of hazards and the specifics of control strategies as the ACE demolition and site clean-up proceeds.

**Table 5.6-3 Demolition and Site Clean-up Hazard Analysis**

Activity	Hazard	Control
Construction Vehicles	Collisions resulting in injury and/or equipment damage.	Demolition contractor will implement a Heavy Equipment Safety Program.
Industrial Trucks	Similar to motor vehicle and heavy equipment use.	Demolition contractor will implement a Forklift Operator Training Program.
Demolition of Boiler –explosives use	Injury during the handling of explosives and injury during detonation due to flying objects.	Demolition contractor will implement an Explosives Plan.
Elevated Heights	Injury due to falls from elevated heights or struck by falling objects.	Demolition contractor will implement a Fall Protection Program and Scaffolding Safety Program.
Trenching and Excavation	Injury and/or property damage from unsafe trenches and excavations.	Demolition contractor will implement a Trenching and Excavation Safety Program and Confined Space Permit Program.
Use of Cranes or Derricks	Equipment and property damage from falling loads and injuries to workers.	Demolition contractor will implement Crane Permits per Cal/OSHA requirements and Hoisting and Rigging Safety Program.
Plant Systems and General Decommissioning Activities	Injury and property damage from contact with hazardous energy sources (e.g., heat sources, electrical, tools, and mechanical equipment)	Demolition contractor will implement procedures to control energy sources (e.g., Lockout/ Tagout Program and Hot Work Permits)



Flammable and Combustible Liquids	Danger of fire or explosion resulting in damage to property and injury to workers.	Demolition contractor will implement a Hazardous Materials Handling Program; Fire Prevention Program; and Proper Housekeeping Program.
Hot Work	Injury and/or property due to a fire. Employee exposure to toxic fumes and eye injury due to exposure to ultraviolet and infrared radiation during cutting and welding.	Demolition contractor will implement a Respiratory Protection Program, Hot Work Program, Exposure Monitoring Program, and Proper Housekeeping Program.
Electrical Equipment and Systems	Injury and equipment damage from flashovers or contact with electrical sources.	Demolition contractor will implement an Electrical Safety Program, Personal Protective Equipment Program, and Hazardous Energy Control Program.
Hand Tools	Injury from hand and portable power tools.	Demolition contractor will implement a Hand and Portable Power Tool Safety Program, Personal Protective Equipment Program, and Tool Inspection Program.
Confined Spaces	Injury from working in spaces with poor ventilation or oxygen depleted atmosphere.	Demolition contractor will implement a Confined Space Entry Program
Ingress and Egress	Injury and/or property damage from inadequate walking and working surfaces.	Demolition contractor will implement a Proper Housekeeping Program
Hearing Conservation	Injury from overexposure or inadequate hearing protection.	Demolition contractor will implement a Hearing Conservation Program and a Personal Protective Equipment Program
Lifting	Injury from improper carrying or lifting of materials and equipment.	Demolition contractor will implement a Safe Lifting Program and Personal Protective Equipment Program.
Industrial Hygiene	Injury due to exposure or overexposure to hazardous gases, vapors, dusts, and fumes	Demolition contractor will implement a Hazard Communication Program, Respiratory Protection Program, Personal Protective Equipment Program, and Exposure Monitoring Program.
High Pressure Systems	Injury and/or property damage from sudden or unexpected release of high pressure steam or air.	Demolition contractor will implement a Relief Valve Testing Plan and Lockout/Tagout Program

### **5.6.3.6 Health and Safety Plan**

ACC will ensure the following components are addressed by the demolition contractor's Safety and Health Plan.

- **Demolition Injury and Illness Prevention Plan (IIPP)**

The demolition contractor will provide a Demolition IIPP, which is required by Title 8 CCR Section 3203. The Demolition IIPP will meet Cal/OSHA Injury and Illness Prevention Program requirements.

- **Demolition Personal Protective Equipment (PPE) Program**

The demolition contractor will perform demolition related activities in accordance with its PPE Program. The Demolition PPE Program will meet Cal/OSHA PPE Program requirements.

- **Demolition Exposure Monitoring Program (EMP)**

The demolition contractor's Safety and Health Plan will address regulated exposures that maybe encountered during demolition and site clean-up.

- **Demolition Heat Stress Protection Program (HSPP)**

ACC has in place a HSPP that has served ACC well during years of operating and maintaining ACE under high desert heat conditions. This HSPP will be adapted for use during demolition and through the use of existing onsite training materials, appropriate local best practices, and lessons-learned conveyed to the demolition contractor for adaption in its HSPP.

- **Demolition Emergency Action Program (EAP)**

The demolition contractor will provide an EAP. The Demolition EAP will include regulatory requirements such as emergency procedures for the protection of personnel, equipment, the environment, and materials during demolition, an update of the fire and emergency reporting procedures, and response actions for accidents involving personnel and/or property.

### **5.6.3.7 Decommissioning Fire Protection and Prevention Program**

The existing on-site fire protection systems will be relied upon for as long as buildings remain occupied during decommissioning, at which time the off-site fire protection services (San Bernardino County Fire Department) will be relied on. The permanent facility fire suppression system will remain in service as long as practicable. Prior to removal of the facility's permanent fire suppression system, fire extinguishers and other portable firefighting equipment will be available onsite. These fire extinguishers will be maintained for the full decommissioning duration, in accordance with Cal/OSHA requirements pertinent to a shut down industrial facility.

Locations of portable fire extinguishers will include portable office spaces, hot work areas, flammable chemical storage areas, and mobile equipment (e.g., passenger vehicles and earthmoving equipment). Fire-fighting equipment will be located to allow for unobstructed access to the equipment and will be conspicuously marked. Portable firefighting equipment will be routinely inspected per regulatory requirements and replaced immediately, if defective, or if in need of recharge.

Construction fire prevention regulations in Title 8 CCR § 1920 et seq. will be followed, as necessary, to prevent fires during decommissioning activities.

Special attention will be given to operations involving explosives and open flames, such as implosion of the boiler, welding, cutting, and the use of flammable liquids and gases. Personnel involved in such operations will have appropriate licensing to use explosives in structural demolition. A fire watch, utilizing the appropriate class of extinguishers or other equipment, will be maintained during hazardous or hot work operations. Site personnel will not be expected to fight fires past the incipient stage.

Equipment refueling will be done by delivery truck as required. No fuel will be stored on site during demolition.

#### **5.6.3.8 Explosives Plan**

Part of the demolition will include implosion of the facility boiler. The demolition contractor will develop an Explosives Plan as part of the Fire Prevention and Protection Program to cover the health and safety precautions that will be implemented during the deliberate collapse of the boiler. Explosive charges will be deployed in key locations of the boiler and several upfront planning, implementation and post detonation requirements will be documented within the Explosives Plan. The Explosives Plan<sup>24</sup> will include the following elements:

- Complete a blasting survey and identify requirements for site preparation
- Develop fire precautions to ensure fires or sparks do not occur near explosive materials
- Contractor selection
- Identify the vehicular safety for transporting explosives
- Develop the inventory handling and safe handling procedures for the control of explosive materials and reporting process
- Develop procedures for the proper use of explosives
- Develop procedures for the inspection of the area after the blast
- Develop procedures for the disposal of deteriorated or damaged explosives

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<sup>24</sup> United States Department of Labor, Occupational Safety and Health Administration, Demolition, <https://www.osha.gov/doc/outreachtraining/htmlfiles/demolit.html>

### 5.6.3.9 Safety Training Program

The demolition contractor's Demolition Safety Training Program, will address the training requirements for the specific work activities occurring during demolition in accordance with Cal OSHA and all other applicable regulations. Table 5.6-4 lists the typical training courses along with the employees who are required to be trained.

### 5.6.4 Proposed Conditions of Decommissioning

The project will not have significant impacts on worker safety; however, the demolition contractor's Demolition Safety and Health Program will comply with applicable Cal-OSHA requirements.

**WS-1** The project owner shall require its demolition contractor to prepare as necessary Health and Safety Plans (IIPP, PPE, EMP, HSPP, EAP) to reflect the activities expected during decommissioning.

**Verification:** The project owner or its contractor shall maintain the decommissioning Health and Safety Plans on-site and furnish to the CPM upon request.

**WS-2** The project owner shall require its demolition contractor to prepare as appropriate a decommissioning Fire Protection and Prevention Program (FPPP) to reflect the activities expected during decommissioning. The project owner shall require its demolition contractor to prepare an Explosives Plan as part of the FPPP.

**Verification:** The project owner or its contractor shall maintain on-site the decommissioning Fire Protection and Prevention Program, including an Explosives Plan and furnish it to the CPM upon request.

**WS-3** The project owner shall ensure that all ACC employees, demolition contractor workers, and visitors that will be on-site during demolition receive safety training specific to the decommissioning activities.

**Verification:** The project owner or its contractor shall maintain on-site records showing that all on-site employees, workers and visitors present during demolition activities have received and understand the Safety Training Program. The project owner or its contractor shall furnish the records to the CPM upon request.

**Table 5.6-4 Typical Safety Training Courses**

<b>Training Requirement</b>	<b>Target Employees</b>
Demolition Injury and Illness Prevention Training	All
Demolition Emergency Action Plan Training	All
Demolition PPE Program Training	All
Heavy Equipment Safety Training	Employees working on, near, or with heavy equipment.
Forklift Operation Training	Employees working with forklifts.
Excavation and Trenching Safety Training	Employees involved with trenching or excavation operations.
Fall Protection Training	All
Scaffolding and Ladder Safety Training	Employees required to erect or to use scaffolding and employees using ladders.
Hoist and Rigging Program	Employees and supervisors responsible for conducting hoists and rigging operations.
Crane Safety Training	Employees supervising, crane operators, and employees involved in crane operations.
Demolition Fire Protection and Prevention Training	All
Confined Space Entry Program	All
Blood Borne Pathogens Training	First Responders
Hazard Communication Training	All
Electrical Safety Training	Employees performing work with electrical systems, equipment, or electrical extension cords. Additionally, employees working with lock out/ tag out activities.
Hand and Portable Power Tool Safety Training	All
Heat Stress and Cold Stress Safety Training	All
Hearing Conservation Training	All
Back Injury Prevention Training	All
Safe Driving Training	All
Pressure Vessel and Pipeline Safety Training	Employees supervising or working on pressurized vessel, pipes, or equipment.
Respiratory Protection Training	All employees required to wear respiratory protection equipment.
Hot Work Training	All employees working with welding, heating, or other equipment that generates ignition sources.

## 5.7 Biological Resources

This section presents an analysis of the LORS compliance related to biological resources that might be impacted during the decommissioning of the ACE project.

### 5.7.1 Background

According to the CEC's Final Staff Assessment (FSA)<sup>25</sup> on the ACE project, the Searles Valley is an extremely arid basin with predominantly hot temperatures during most of the year and occasional freezing temperatures in the winter. Precipitation at Trona occurs mostly during the winter months averaging about 4 inches per year, with recorded extremes ranging from 1.0 to 11.5 inches per year.

Due to this inhospitable climate, no State or Federal listed plant species were known or expected to exist in this area<sup>26</sup>. Three State and/or Federal listed (threatened or endangered) wildlife species were known to occur regionally, and included Least Bell's vireo, Inyo brown towhee, and Mohave ground squirrel (MGS). Desert tortoise was not fully listed at the time of the ACE project FSA. Although desert tortoise sign (e.g., burrows and scat) were found during surveys of the plant site and pipeline alignments done for the ACE project at that time, all the signs were relatively old at the time<sup>2</sup>. One MGS was trapped during a survey at a location near the northern edge of the ACE landfill. In order to mitigate to potential impacts to desert tortoise and MGS, off-site compensation lands were required to be obtained prior to construction of the ACE project.

Biological surveys were performed in 2012 and 2013 on the plant site and surrounding area<sup>27</sup>. These surveys concluded that there are no habitats or legally protected species found on or immediately adjacent to the ACE site.

The Commission's Decision on the ACE project concluded:

"As the proposed plant site has been previously disturbed due to the development of the existing Argus facility, and as no sensitive species have been detected at the site, the loss of wildlife habitat from construction of the ACE plant will not have a significant impact on biological resources (March FSA 22-7, 22-14)" and "With the

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<sup>25</sup> CEC, Final Staff Assessment for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, March 1987, page 20-2

<sup>26</sup> CEC, Final Staff Assessment for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, March 1987, pages 22-5 through 22-12

<sup>27</sup> These surveys were performed for the Phoenix project, initially a solar and natural gas-fired power project, and later a natural gas only replacement project for ACE, and a new natural gas pipeline. The surveys were performed with guidance from the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and CEC. The results were submitted to the CEC staff on June 1 and July 30, 2012.

implementation of the Conditions of Certification, the biological resources impacts of the ACE project will be adequately mitigated” and will be in compliance with the laws, ordinances, regulations and standards set forth in the “Biological Resources” portion of Appendix A of this Report.”<sup>28</sup>

Regarding decommissioning, the Biology section of the ACE Decision required: “Prior to the time the cogeneration plant and transmission line are due to be deactivated, KMCC will prepare a decommissioning plan which includes biological resource elements.”<sup>29</sup>

### **5.7.2 Applicable LORS and Required Permits**

LORS potentially applicable to the ACE project relative to decommissioning are discussed in Table 5.7-1.

No new impacts to streambeds or listed or sensitive species are expected due to demolition activities, therefore no additional biological resources permits or approvals are needed.

### **5.7.3 LORS Conformance and Impact Assessment**

Decommissioning activities will be limited to the ACE project site. Because the project site is industrialized and does not contain habitat (see Section 5.7.1), no impacts to biological resources as a result of demolition or site clean-up activities are expected.

Noise associated with demolition and site clean-up, including implosion of the boiler, is not expected to have any impact on biological resources that may be found in the vicinity of the site. Section 5.13, Noise and Vibration, concluded that the planned implosion would be brief (typically less than 8 seconds) and that the noise during demolition activities would not be significant, i.e., below the USFWS’ threshold of 60 dB on an hourly average basis at the nearest habitat areas.

Decommissioning of the ACE project will comply with all applicable LORS.

As discussed in Section 5.11, Water Resources, the remaining on-site landfill calls will be closed and capped in compliance with RWQCB requirements. Re-vegetation of the landfill was evaluated, but is considered impracticable due to the lack of rainfall in the area. Consequently, ACC does not recommend the project site be re-vegetated following site clean-up.

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<sup>28</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation’s Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 34 and 35

<sup>29</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation’s Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, page 39

**Table 5.7-1 LORS Applicable to Biological Resources**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>Federal</b>		
Migratory Bird Treaty Act (MBTA): 16 USC Sections 703-721	Prohibits the take of protected migratory birds.	Although no wildlife habitat is found on the ACE project site, Searles Lake, located 1.5 miles east, provides suitable habitat for migratory birds. To minimize impacts to birds from ongoing mining operations in the lake bed, SVM has implemented a bird hazing program using 22 air cannons. If an implosion is used, elevated noise levels (120 – 135 dB) would be brief (less than 8 seconds) such that the hourly average would be near background on the plant site. The lack of habitat, bird hazing program and ongoing industrial activities on the adjacent SVM property are expected to preclude impacts to migratory birds from demolition activities, including a potential implosion.
<b>State</b>		
Streambed Alteration Agreement (SAA): CFGC Section 1600 et seq.	Requires California Department of Fish and Wildlife (CDFW) to review project impacts to waters of the State (bed, banks, channel, or associated riparian areas), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.	Not applicable because demolition activities will be restricted to the ACE power plant site.

**5.7.4 Proposed Conditions of Decommissioning**

No additional biological resources conditions are proposed related to decommissioning.



## 5.8 Cultural Resources

This section presents an analysis of LORS compliance and potential impacts related to cultural resources that may result from the decommissioning of the ACE project.

### 5.8.1 Background

According to the CEC's Final Staff Assessment (FSA)<sup>30</sup> on the ACE project, during the 1860's and 1870's, gold discoveries in nearby areas to the north and east led to marginal use of the Searles Lake area. While prospecting in the Slate Range in 1862, John Searles discovered borax at the Searles Lake. In 1873, he formed the San Bernardino Borax Mining Company and built a borax processing plant at Searles Lake. The works at Searles Lake closed by 1887, and it was not until 1914 that the operations resumed, and a processing plant was built in Boroslovay. The town of Trona was begun in 1916 when buildings were constructed for the American Potash and Chemical Corporation, as well as homes for the employees. Additional detail on the pre-history, history, and ethnography of the area can be found in the FSA<sup>29</sup>.

The ACE project began commercial operation in 1991. The Commission's Decision on the ACE project concluded:

"A records search, literature review and archaeological survey revealed four prehistoric archaeological sites and one isolated artifact in the project area. Three of these sites are the remains of small temporary camps and are located near the proposed brackish water pipeline. These sites have been disturbed by heavy equipment traffic, probably due to the construction of a nearby flood control levee. Currently unrecorded remains are unlikely because of the substantial disturbance of the area during construction of the existing facilities (March FSA 26-6, 26-8)."

"The project impact area contains no known historic resources."

"With the implementation of the Conditions of Certification, the proposed project will be in compliance with the applicable laws, ordinances, regulations and standards identified in the "Cultural Resources" portion of Appendix A of this Report."<sup>31</sup>

No specific decommissioning requirements related to cultural resources were included in the ACE Decision.<sup>31</sup>

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<sup>30</sup> CEC, Final Staff Assessment for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, March 1987, pages 26-1 through 26-5

<sup>31</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 49 through 51

### 5.8.2 Applicable LORS and Required Permits

LORS potentially applicable to cultural resources during decommissioning are discussed in Table 5.8-1. No other LORS related to cultural resources are applicable because no off-site or underground work is anticipated.

No new or revised permits are required related to cultural resources.

**Table 5.8-1 LORS Applicable to Cultural Resources**

LORS	Applicability	Comments
<b>State</b>		
PRC Sections 5024.1 and 21084.1	Provides a definition of historical resources, and states that a project's substantial adverse change to a historic resource may define a significant environmental impact	According to the ACE Final Staff Assessment, there are structures or other features within half a mile of the ACE plant that are more than 50 years old. The CEC determined that construction and operation of the ACE project would not have an adverse impact on these structures.

### 5.8.3 LORS Conformance and Impact Assessment

As noted in the ACE Decision, the site was substantially disturbed prior to the construction of the project and was further disturbed by project construction and almost 35 years of active use. No cultural resources were identified during construction of the ACE project. Demolition activities will be limited to the project site and will not have any subsurface disturbance. Underground facilities such as foundations will be left in place, the natural gas pipeline will be drained and left in place, underground water pipelines that are also used by SVM will be left as is and continue to be available, and no substantial earthmoving is planned related to decommissioning. Therefore, no significant adverse impact to cultural resources will occur during demolition of the ACE power plant and related facilities.

Although some historical resources are located in the nearby town, no substantial impacts to built historical resources were found to occur in the AFC or Commission's Decision. Project demolition activities will be temporary and confined to the project site. They will not directly or indirectly impact any historical resources in the vicinity of the ACE project site.

The decommissioning activities will comply with all LORS as concluded in the AFC Decision.

### 5.8.4 Proposed Conditions of Decommissioning

No additional cultural resources conditions are proposed related to decommissioning.

## 5.9 Geologic Hazards and Soil Resources

This section presents an analysis of LORS compliance and potential impacts related to geologic hazards and impacts to soil resources that may result from the decommissioning of the ACE project.

### 5.9.1 Background

The Commission's Decision for the ACE project concluded:

"The proposed project will have no significant impacts on geologic resources."

"With the implementation of the Conditions of Certification, the project will be constructed in accordance with the applicable laws, ordinances, and standards identified in the Engineering Geology section of Appendix A of this Report."

"With the implementation of the Conditions of Certification, impacts to the project due to geologic hazards will be minimized."

"Considering the low annual rainfall and minimal slope in the area, the proposed flood control channels, drainage ditches and diversion berms will adequately control water erosion during construction (March FSA 21-5, 21-6, 21-9)."

"With the implementation of the conditions of certification, the construction and operation of the ACE project will create no significant impacts to area soils."

"With the implementation of the conditions of certification, the construction and operation of the proposed project will comply with the applicable laws, ordinances, regulations and standards identified in the Soil Conservation portion of Appendix A of this Report."<sup>32</sup>

No specific decommissioning requirements related to either geology or soils were included in the ACE Decision.<sup>33</sup>

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<sup>32</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 46, 47, and 82

<sup>33</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 49 to 51 and 81 to 84

### 5.9.2 Applicable LORS and Required Permits

The LORS related to geologic hazards are briefly summarized in Table 5.9-1. The LORS related to storm water control and potential soil erosion are discussed in Section 5.11, Water Resources.

No new or revised permits are required related to geologic hazards or soil resources.

**Table 5.9.1 LORS Applicable to Geological Resources and Hazards**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>State</b>		
California Building Code (2013)	The CBC, 2013, includes a series of standards used in project investigation, design, and construction (including grading and erosion control).	Existing site grading will be maintained. If site grading is permanently affected by dismantling the plant, a new grading plan will be prepared to comply with CBC 2013.
<b>Local</b>		
San Bernardino County Code of Ordinances, Title 15	Governs all grading and on-site improvement plans, requirements and processes for the form, content and fees for the preparation and approval of a grading plan.	Existing site grading will be maintained. If site grading is permanently affected by dismantling the plant, a new grading plan will be developed and submitted to the County for review.

### 5.9.3 LORS Conformance and Impact Assessment

Demolition activities will be confined to the ACE site. Since there will not be any excavation during demolition and minimal movement of soil, demolition will not have any effect on soil and geologic resources. Consequently, the conclusions contained in the ACE Decision regarding geologic hazards and soils apply to decommissioning as they did to project construction and remain unchanged.

### 5.9.4 Proposed Conditions of Decommissioning

No additional conditions related to geologic hazards and soils, other than the conditions proposed in Water Resources Section 5.11.9.4, are proposed for decommissioning.

## 5.10 Paleontology

This section presents an analysis of the LORS compliance and potential impacts related to paleontological resources that may result from decommissioning of the ACE project.

### 5.10.1 Background

The Commission's Decision on the ACE project concluded:

"No paleontological resources were discovered in the project area. Due to extensive disturbance by previous construction, there is a low probability the site contains fossil remains of paleontological importance (March FSA 26-5, 26-8)."

"The site proposed for construction of the Argus project has no known paleontological resources."<sup>34</sup>

No specific decommissioning requirements related to paleontological resources were included in the ACE Decision.<sup>34</sup>

### 5.10.2 Applicable LORS and Required Permits

No additional LORS related to the decommissioning activities are applicable because no off-site or underground work is anticipated.

### 5.10.3 LORS Conformance and Impact Assessment

As noted in the ACE Decision, the site was substantially disturbed prior to the construction of the project and was further disturbed by project construction and almost 35 years of active use. No paleontological resources were identified during construction of the ACE project. Demolition activities will be limited to the project site and will not have any subsurface disturbance. Underground facilities such as foundations will be left in place, the natural gas pipeline will be drained and left in place, underground water pipelines that are also used by SVM will be left as is and continue to be available, and no substantial earthmoving is planned related to decommissioning. Therefore, the potential for adverse impacts to paleontological resources during decommissioning of the ACE facilities is extremely unlikely.

The decommissioning activities will comply with all LORS as concluded in the AFC Decision.

### 5.10.4 Proposed Conditions of Decommissioning

No additional paleontological resources conditions are necessary during decommissioning.

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<sup>34</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 49 to 51

## 5.11 Water Resources

This section presents an analysis of LORS compliance and potential impacts related to water supply, hydrology, and water quality that may result from the decommissioning of the ACE project.

### 5.11.1 Background

The ACE project started operation in 1991. The ACE project utilized a coal-fired CFB cogeneration unit. Prior to ceasing operations, the ACE facility used both brackish and potable water obtained from SVM. Brackish water is produced by SVM through their mineral extraction process. This water was partially evaporated in the cooling towers, and blowdown from the cooling tower basin was discharged to the wastewater system to maintain water quality as required. Potable water for the ACE project was also obtained from SVM. The source of SVM's water is from the Indian Wells Valley ground water basin and used untreated for steam process makeup water, facility utility water, and for general potable water usage within the ACE facility.

Non-hazardous wastes, including fly ash and bottom ash from the coal burned in the CFB unit, cooling tower blowdown/brackish water, and inert refractory/boiler wastes are allowed to be disposed of in an on-site 65 acre landfill on property owned by ACC. Historically, much of the fly ash has been sold for beneficial uses such as roadbed material, rather than being landfilled. This landfill is divided into five compartments or cells (see Figure 3-3). Four of the five cells have previously been closed and capped. Soil for capping cell 5 remains on cell 3, and cell 3 will be allowed to revegetate as soon as cell 5 is also closed. A small portion (about 10%) of cell 5 will remain open during demolition to accept allowed wastes such as the refractory materials<sup>35</sup> from the CFB unit. This last cell will be closed and capped consistent with LORS and Lahontan Regional Water Quality Control Board requirements for the protection of groundwater.

The Regional Water Quality Control Board (RWQCB), Lahontan District, issued revised waste discharge requirements (WDRs) under order 6-00-92 for the ACE Solid Waste Landfill. This order allows up to 72,200 cubic yards per year of ash from the ACE project to be commingled with brackish water into the 65-acre landfill. It also allows the inclusion of non-hazardous waste refractory material into the waste stream which may be discharged into the landfill. The RWQCB issued order 60-01-16 for discharge of boiler blowdown water and other industrial wastewater to a manhole junction where it is combined with the SVM discharge. In addition, brackish water is used for dust suppression on area roads in compliance with MDAQMD requirements.

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<sup>35</sup> This disposal is consistent with the previous practice of placing refractory waste material generated during maintenance activities in the landfill.

The Commission's Decision on the ACE project concluded:

"The proper disposal of wastes generated during operation of the proposed ACE project will ensure the protection of area water quality."

"Impacts to water quality due to construction related erosion are expected to be minor as the area has been previously disturbed and is subject to only infrequent rainfall. Construction wastes will be disposed of properly in approved facilities to avoid significant adverse impacts to water quality (March FSA 20-15 – 20-16)."

"With the implementation of the Conditions of Certification, the ACE project will comply with the applicable laws, ordinances and standards identified in the Water Resources section of Appendix A of this Report."

"With the implementation of the Conditions of Certification, there will be no significant adverse impacts on water resources from the construction and operation of the ACE project."<sup>36</sup>

No specific decommissioning requirements related to hydrology, water resources, or water quality were included in the ACE Decision.<sup>37</sup>

#### **5.11.2 Applicable LORS and Required Permits**

Water Resources LORS potentially applicable to decommissioning the ACE project are provided in Table 5.11-1.

The existing waste discharge requirements (WDRs) will be sufficient to continue to protect groundwater related to closure of the remaining cell of the on-site landfill.

#### **5.11.3 LORS Conformance and Impact Assessment**

The conclusions contained in the ACE Decision for water supply, hydrology, and water quality apply to decommissioning as they did to project construction and operation and remain unchanged.

Following demolition, the brackish water line that serves the plant will be left in place since it also serves SVM and the site's new owner. The potable water line will also be left in place for use by the new owner.

The potential for impacts to water quality from storm water and erosion will be minimized during decommissioning. Some facilities and foundations will be left in place, existing

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<sup>36</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 35, 41, and 42

<sup>37</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 41 to 45

roads will be used, underground pipelines will remain in the ground, either evacuated and capped or left for continued use by the site's new owner, and earthmoving during decommissioning will be minimized. ACC will continue to follow its existing approved Storm Water Pollution Prevention Plan (SWPPP) and implement Best Management Practices (BMPs) as described in the Plan.

The 65-acre landfill will remain on site and will be transferred to the new owner upon completion of all decommissioning activities. As described above, the remaining cell will be closed and capped consistent with LORS and the WDRs. The landfill contains non-hazardous material. Consistent with the closure plan, land use over the landfill will be limited to open space unless permits for other uses are obtained from the appropriate state or local agency.

**Table 5.11-1 LORS Applicable to Water Resources**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>Local</b>		
Federal Clean Water Act (CWA), implemented by the State of California - California Storm Water Permitting Program: California Construction Storm Water Program, California Industrial Storm Water Program	Decommissioning activities that disturb one acre or more are required to obtain coverage under California's General Construction Permit, which requires the development and implementation of a SWPPP.	As a condition of decommissioning, ACC will prepare and implement a SWPPP for the demolition and any grading activities.
The Porter-Cologne Water Quality Control Act: California Water Code Section 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) to adopt water quality criteria to protect State waters, including identification of beneficial uses, definition of narrative and numerical water quality criteria, and implementation procedures.	This Act remains applicable to the landfill which is permitted, but is not applicable to the expected demolition activities since those will be restricted to the power plant site.

#### **5.11.4 Proposed Conditions of Decommissioning**

Under the current LORS (specifically Title 23 CCR Division 3, Chapter 9, Chapter 15), a land use covenant or notice in deed is required to notify future landowners that waste has been disposed in the site landfill. The ash landfill has been sold to Sabco and the property will be transferred upon completion of decommissioning. The required notice has been included in the deed. No additional conditions are necessary.



## 5.12 Land Use

This section presents an analysis of LORS compliance and potential environmental impacts to land use that may result from the proposed decommissioning of the ACE project.

### 5.12.1 Background

Since 1991, the ACE project has been commercially operating as a coal-fired circulating fluidized bed power plant. The ACE project analyzed in the 1986 AFC submitted to the CEC included the plant site near Trona in the County of San Bernardino, as well as a water pipeline that extended north into Inyo County and into areas under the jurisdiction of the Bureau of Land Management (BLM) and California State Lands Commission (SLC). The plant site portion of the ACE project is located in the unincorporated Desert Region of the County of San Bernardino, on the northwest side of Searles Lake in Trona.

The Commission's Decision on implementation of the ACE project in 1988 concluded the following with regard to the project's compliance with land use LORS and potential land use impacts:

"The proposed project is compatible with the existing on-site cogeneration and chemical processing facilities. As existing land uses in the immediate area are industrial, transportation and chemical processing, the project is not expected to have a significant impact on open-space areas to the west and residential areas to the south and northeast (March FSA 24-13)."

"The ACE project will cause no significant impacts to area land uses."

"With the implementation of the Conditions of Certification, the development of the ACE project will be consistent with applicable laws, ordinances, regulations and standards set forth in the Land Use portion of Appendix A [Compliance Plan General Provisions] of this Report."<sup>38</sup>

The singular decommissioning finding included in the ACE Decision stated:

"With implementation of the Condition of Certification, the decommissioning of the ACE project can be anticipated, and a plan developed, in order to ensure that the decommissioning will have no significant impact on public health and safety or the environment, and that reasonable efforts will be made to ensure such action is in compliance

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<sup>38</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 56 and 57

with the laws, ordinances, regulations and standards applicable at that time.”<sup>39</sup>

### 5.12.2 Applicable LORS and Required Permits

Decommissioning activities are only planned at the ACE plant site. The water pipeline that extends north from the plant site and into areas under the jurisdiction of Inyo County, the BLM, and the SLC is a dual-use water pipeline that serves both the ACE plant and the SVM plant. The water pipelines will remain in place and will continue to be used by the new owner of the site. No changes to the water pipeline are proposed as part of decommissioning the ACE project, and compliance with the land use LORS of Inyo County, the BLM, and the SLC will not be affected. County of San Bernardino LORS that would apply to decommissioning activities are shown in Table 5.12-1, specifically, those included in the County of San Bernardino General Plan and County Zoning Code.

**Table 5.12-1 LORS Applicable to Land Use**

LORS	Description	Comments
<b>Local</b>		
San Bernardino County General Plan update adopted March 13, 2007	Land Use, Conservation, and Circulation and Infrastructure, Noise, Safety, and Economic Development Elements. Provides land use designations, goals, and policies for the development and conservation of land within the unincorporated Desert Region areas of San Bernardino County.	Goals and policies of the Land Use, Conservation, Circulation and Infrastructure, Noise, Safety, and Economic Development Elements are applicable to the proposed decommissioning activities. The decommissioning activities, however, will not conflict with the elements, with the exception of the Economic Development Element. Decommissioning of the ACE project will be inconsistent with the Economic Development Element, since it will result in the loss of permanent jobs at the existing facility. For example, Policy ED 10.2 reads: “encourage the expansion of existing businesses and efforts at business retention.” This conflict is unavoidable.

As required by the State of California, Government Code Section 65300, the County of San Bernardino General Plan includes policies and programs that guide land use decisions and development in the County. According to the 1986 AFC submitted to the CEC for the ACE project, the majority of the project area at that time was designated Rural Conservation (RCN) by the County of San Bernardino General Plan, intended for very low intensity and limited human habitation. The County’s zoning for the plant site

<sup>39</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation’s Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, page 135

area at that time was General Manufacturing, or M-2. This zoning permitted most industrial uses, including chemical processing.<sup>40</sup>

The current County of San Bernardino General Plan was adopted in 2007 and last amended in April 2014. The County's Zoning Ordinance, authorized by Section 65800 of the Government Code, is Title 8 of the San Bernardino County Code. The County now uses a "one-map approach" to designating land uses and zoning classifications, to assure consistency between the two land use guidance documents. The current Land Use Zoning District of the plant site area is Regional Industrial (IR).<sup>41</sup> According to the 2007 General Plan, this Zoning District provides for "heavy industrial uses that have the potential to generate severe negative impacts, incidental commercial uses, agricultural support services, salvage operations, and similar and compatible uses."<sup>42</sup>

The 2007 County of San Bernardino General Plan consists of the following elements: Land Use, Conservation, Circulation and Infrastructure, Housing, Open Space, Noise, Safety Element, and Economic Development. A review of the General Plan shows that several of the current goals and policies included in the Land Use, Conservation, Circulation and Infrastructure, Noise, Safety, and Economic Development Elements apply to the ACE project decommissioning.

### **5.12.3 LORS Conformance and Impact Assessment**

The County of San Bernardino General Plan and Zoning Code have been revised and updated since preparation of the 1986 AFC submitted to the CEC for the ACE project and the beginning of commercial plant operations in 1991. Although specific language and details in both land use guidance documents have changed since 1986, the ACE project as described in the 1986 AFC was consistent with the County's land use designation and zoning for the area at the time. Similarly, the currently proposed decommissioning of the ACE project is consistent with the County's currently adopted land use designation and Zoning District of the plant site area.

The proposed decommissioning activities are consistent with the goals and policies of the Land Use, Conservation, Circulation and Infrastructure, Noise, Safety, and Economic Development Elements of the 2007 County of San Bernardino General Plan.

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<sup>40</sup> Kerr McGee Chemical Corporation, Application for Certification for Argus Cogeneration Expansion Project, January 1986, pages 7.5-4 and 7.5-5

<sup>41</sup> County of San Bernardino, Land Use Services Zoning Look-Up Application, <http://sbcounty.maps.arcgis.com/apps/Solutions/s2.html?appid=f696b169b4334997942ab899899b6d4e> accessed on August 19, 2014

<sup>42</sup> URS Corporation, County of San Bernardino 2007 General Plan (Amended April 24, 2014), accessed from <http://cms.sbcounty.gov/lus/Planning/GeneralPlan.aspx> on August 19, 2014

With respect to economic development, Policy ED 10.2 of the Economic Development Element states that the County shall:

“Encourage the expansion of existing businesses and efforts at business retention.”<sup>43</sup>

As discussed in Section 2.1 of this Decommissioning Plan, the demolition of the ACE plant is driven by State regulatory requirements. ACC’s existing PPA from SCE will expire in November 2015, and the ACE project is no longer economically viable due to State greenhouse gas (GHG) emissions requirements. ACC did, however, make a good faith effort to repower the existing plant to use natural gas, solar technology, or a combination of fuel sources, which would meet the State’s GHG emissions requirements. ACC went as far as to obtain a new PPA to construct a new, gas-fired CCGT CHP facility, which would keep the plant in operation, with revised technology. However, ACC was not able to obtain a new steam sales agreement from Searles Valley Minerals necessary to economically operate such a facility. Therefore, the ACE project ceased operation in early October, 2014 and decommissioning the ACE project will result in the loss of ACE as a business and all associated jobs at the plant. Since the site is being acquired by a new owner, it is expected that some new jobs will be created by planned industrial activities. The absolute number of job loss or gain and the skills required is uncertain.

#### **5.12.4 Proposed Conditions of Decommissioning**

No conditions of decommissioning are related to socioeconomics are required.

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<sup>43</sup> Ibid.

## 5.13 Noise

This section presents an analysis of LORS compliance and potential environmental impacts from noise that may result from the proposed decommissioning of the ACE project.

### 5.13.1 Background

Operation of the ACE project consisted of a number of noise producing sources, including the cogeneration unit and a cooling tower. There were also locomotives that delivered coal and operation of other coal handling equipment. The nearby SVM facility also has similar noise producing sources. To minimize impacts to birds from ongoing mining operations in the lake bed, SVM has implemented a bird hazing program using 22 air cannons.

The Commission's Decision for the ACE project concluded:

"With the implementation of the Conditions of Certification, the ACE project will be in compliance with the applicable laws, ordinances, regulations and standards identified in the "Noise" portion of Appendix A of this Report."

"With implementation of the Conditions of Certification, no significant adverse noise impact from project construction or operation will result."<sup>44</sup>

No specific decommissioning requirements related to noise were included in the ACE Decision.<sup>45</sup>

### 5.13.2 Applicable LORS and Required Permits

LORS applicable to noise during decommissioning are listed in Table 5.13-1. There are no Federal, State, and local specific, quantifiable, ground-borne noise standards.

There are no permits required related to noise.

### 5.13.3 LORS Conformance and Impact Assessment

Decommissioning activities will generate noise from the operation of demolition equipment and vehicles. Operation of the ACE facility to generate electricity and steam also generated noise. Noise anticipated to occur during demolition activities was estimated and compared with estimated noise during operation of the ACE facility to evaluate the potential for the demolition activities to increase potential impacts from noise.

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<sup>44</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, page 53

<sup>45</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 52 to 55

**Table 5.13-1 LORS Applicable to Noise**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>Federal</b>		
Occupational Health and Safety Act of 1970: 29 USC Section 651 et seq. Title 29 CFR Section 1910.95	Regulates the worker noise exposure to 90 dBA over an eight-hour work shift. Areas above 85 dBA need to be posted as high noise level areas and hearing protection will be required.	Dismantling activities will comply with these requirements.
<b>State</b>		
Title 8 CCR Section 5095 et seq.	Establishes California Occupational Safety and Health Administration (Cal/OSHA) employee noise exposure limits. These standards are equivalent to the Federal OSHA standards. Worker noise exposure limited to 90 dBA over an eight-hour work shift. Areas where worker noise exposure exceeds 85 dBA must be posted as a noise hazard zone and a hearing conservation program is required.	Dismantling activities will comply with these requirements.
<b>Local</b>		
County of San Bernardino Development Code Section 83.01.080	Establishes standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses. Exemptions to noise and vibration regulations are made for “temporary construction, maintenance, repair, or demolition activities” provided said activities take place between the hours of 7:00 a.m. and 7:00 p.m. on weekdays, including Saturday.	Dismantling activities will comply with these requirements.
San Bernardino County Ordinance – Title 8, Div. 7, Ch. 9, § 87.0905 Noise	Project noise at residential receptors is limited to 45 dBA nighttime and 55 dBA daytime. Construction noise exempt from 7 a.m. to 7 p.m.	Dismantling activities will comply with these requirements.

Ambient noise measurements were taken in September 2013 to identify the average daytime ambient noise level from the operation of the plant at the nearest noise sensitive receptor. During this time, a daytime noise measurement<sup>46</sup> was taken at the property line of the nearest residence, about 2,000 feet east of the ACE plant. The measurement recorded a daytime hourly average noise level of 58.3 dBA Leq. Noise sources were primarily from ACE and SVM plant operations, which was a continuous operational sound.

Demolition noise will be generated by the use of equipment and vehicles, typically for dismantling, and for the transport of demolition material and workers to and from the demolition site. Demolition noise levels are a function of the number and type of equipment used and the timing and duration of their noise-generating activities. Table 5.13-2 provides a list of noise levels generated by various types of equipment and vehicles that could potentially be used for the demolition activities.

As shown in Table 5.13-2, maximum noise levels ( $L_{max}$ ) from equipment and vehicles range from approximately 70 to 90 dBA  $L_{max}$  at 50 feet from the equipment.

These noise levels vary for individual pieces of equipment, based on different sizes and engines. Equipment noise levels also vary as a function of the activity level, or duty cycle. In a typical construction project, the loudest short-term noise generators tend to be earth-moving equipment under full load, at approximately 85 to 90 dBA at a distance of 50 feet from the source. In addition to these maximum instantaneous noise levels, the magnitude of the overall demolition noise can be defined by the type of demolition activity, the various pieces of equipment operating, and the duration of their activity. Typically, short-term noise is averaged over time, such as a one hour average, expressed as dBA  $L_{eq}$ .

Typical low-impact (e.g., not pavement cutting or breaking, or blasting) equipment is estimated to generate maximum noise levels of short duration not to exceed 90 dBA  $L_{max}$  at 50 feet and hourly or average noise levels of approximately 80 dBA  $L_{eq}$  at 50 feet. However, demolition will include blasting (i.e., implosion of the boiler), and potential concrete and material breaking/cutting activities. The high-impact demolition equipment and activities are estimated to generate maximum noise levels of short duration from 90 to 105 dBA  $L_{max}$  at 50 feet, or average noise levels of approximately 90 dBA  $L_{eq}$  at 50 feet.

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<sup>46</sup> The noise measurement was recorded with a Larson-Davis model 820 ANSI Type 1 (precision), statistical sound level meter to conduct continuous the measurements meeting ANSI Standards for accuracy and quality. The sound level meter was factory calibrated at the manufacturer (Larson Davis) within the 12 months prior to the measurement and field calibrated before and after the measurement with a Larson Davis CAL200 calibrator.

**Table 5.13-2 Construction/Demolition Equipment Noise Levels**

<b>Equipment</b>	<b>Maximum Noise Level (dBA) 50 feet from Source</b>
All Other Equipment (5 horsepower or less)	85
Backhoe	80
Boring Jack Power Unit	80
Chain Saw	85
Compressor (air)	80
Concrete (Diamond) Saw	90
Dozer	85
Dump Truck	84
Excavator	85
Flat Bed Truck	84
Front-End Loader	80
Generator (25 KVA or less)	70
Generator (more than 25 KVA)	82
Grader	85
Horizontal Boring Hydraulic Jack	80
Hydra Break Ram	90
Jackhammer	85
Pneumatic Tools	85
Pumps	77
Scraper	85
Tractor	84
Vacuum Street Sweeper	80
KVA = kilovolt ampere Source: Federal Highway Administration (FHWA) 2006 <sup>47</sup> .	

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<sup>47</sup> FHWA, 2006. *Highway Construction Noise Handbook, Construction Equipment Noise Levels*.



Traffic associated with truck hauling of demolished materials, and equipment; and construction worker daily trips will generate noise on-site and along access roadways during demolition. Haul trucks traveling to and from the ACE facility will use designated truck routes, and demolition workers will travel to and from the facility site using regional major arterials. These trips will occur only during the demolition period.

Demolition of the ACE plant's boiler and main stack will be accomplished with an implosion, i.e., demolition by an explosive collapse upon itself in one sudden event. Implosion methods are very effective for bringing down tall or large structures that would otherwise be difficult to reach with equipment or too expensive to demolish one floor or one piece at a time. An implosion also reduces the length of time sensitive receptors are subject to the long duration of conventional demolition methods. These methods use highly specialized explosives to undermine the supports of a structure so it collapses either within its own footprint or in a predetermined path. The implosion process is especially suited for high-rise buildings and special structures (e.g., power plant structures, cooling towers, space launch towers, smokestacks, boilers, steel mill furnaces). Specific methods and explosives will be determined in the ACE facility demolition plan by a specialized explosives demolition contractor.

The noise level of the implosion event will be specific to the methods used. Implosion of concrete structures have resulted in maximum noise levels in the range of 120 to 135 decibels at the source<sup>48</sup>, which last only a brief period of time (typically less than eight seconds), with human safety standoff distance of approximately 1,000 feet during the implosion. Since the implosion event will be well under one minute, the average daytime noise level ( $L_{eq}$ ) will not increase substantially due to the event itself. The collecting, sorting, and hauling of demolished materials with heavy equipment will increase the existing average daytime noise level, which no longer will include the ACE plant noise, as the ACE facility has been taken off-line (i.e., not operational).

Noise levels from demolition activities will attenuate with distance as point sources at a rate of 6 dBA per doubling of distance over hard site surfaces (such as streets and parking lots) (FHWA 2006). Assuming the short implosion event occurs while demolition activities are conducted continuously for 8 hours, a worst-case hourly average noise level of approximately 90 dBA  $L_{eq}$  at 50 feet will attenuate to approximately 58 dBA  $L_{eq}$  at 2,000 feet, which was approximately the recorded ambient noise level of the plant operation (58.3 dBA  $L_{eq}$ ) at the nearest residence approximately 2,000 feet east of the ACE plant. With this attenuation, ambient noise levels during demolition will be similar to those during ACE plant operation at the nearest residence. Therefore, there will not be a substantial temporary increase in ambient noise levels, even during the implosion, and hence demolition will not cause a significant impact from noise.

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<sup>48</sup> Advanced Explosives Demolition, 2011. Available at <http://www.indy.gov/eGov/City/DMD/Documents/CD/Community%20Notice-Keystone%20Towers.pdf>

The proposed demolition activities will generate noise at the ACE plant site during the demolition activities, which will occur during the daytime. The County of San Bernardino allows construction/demolition noise during the daytime, without a noise level limit. Therefore, the demolition will comply with applicable noise LORS and not cause a significant impact.

The potential for noise impacts to wildlife (including birds) was also considered. The nearest potential habitat area (degraded desert salt brush scrub between the ACE plant and the landfill) for nesting birds is approximately 1,000 feet from the boiler, and the closest point to the BLM lands from the ACE boiler is approximately 2,600 feet to the west. As stated above, the presumed peak noise level at the source (i.e., the boiler location) based on other implosion events, would be 120 to 135 dBA  $L_{max}$  and the blast is anticipated to occur for less than 10 seconds. Therefore, surrounding hourly average noise levels during the blast will not be greatly increased by the implosion event and would be similar to ambient levels, which were measured at the nearest residence at approximately 58 dBA  $L_{eq}$ . USFWS noise guidelines for protected noise sensitive nesting birds and habitat is 60 dBA  $L_{eq}$ . A worst-case hourly average noise level of other demolition activities will be approximately 90 dBA  $L_{eq}$  at 50 feet, which will attenuate to approximately 64 dBA  $L_{eq}$  at 1,000 feet, and be at background levels off-site.

#### **5.13.4 Proposed Conditions of Decommissioning**

The Section 5.6, Worker Safety, discusses the Health and Safety Plans that must remain in place during decommissioning, including the need for worker hearing protection when required. No additional conditions related to noise are proposed for decommissioning.

## **5.14 Socioeconomics**

This section addresses the potential socioeconomic impacts of the ACE project decommissioning. It describes existing socioeconomic conditions and discusses potential impacts during decommissioning activities and once decommissioning is completed. The section covers a range of economic and demographic characteristics of the area. Environmental justice considerations are addressed separately in this Section.

### **5.14.1 Background**

The ACE project is located in the community of Trona, in Searles Valley, California. The site is located just west of the residential areas in Trona and slightly north of the community of Argus. The ACE project analyzed in the 1986 AFC submitted to the CEC included an analysis of the project's impact on the economic base of the local area, as well as on population, housing, public services, and utilities. The Commission's Decision on the ACE project concluded:

"The Argus Cogeneration Expansion Project will not cause adverse socioeconomic impacts in the Trona, Argus and Ridgecrest areas."

"The ACE project will generate benefits to the area economy by generating tax revenues."<sup>49</sup>

No decommissioning requirements specific to socioeconomics were included in the 1988 ACE Decision.

### **5.14.2 Applicable LORS and Required Permits**

There are no additional LORS applicable to socioeconomics during decommissioning. The general LORS included in the Commission's Decision for the ACE project apply.

No socioeconomics-related permits are required for the proposed decommissioning.

### **5.14.3 LORS Conformance and Impact Assessment**

The following sections discuss the potential effects of decommissioning on the socioeconomic resources that were described above. The potential for environmental justice impacts is also evaluated in this section.

#### **5.14.3.1 Evaluation Methods and Significance Criteria**

For the purposes of this evaluation, local socioeconomic impacts were determined by comparing decommissioning demands and non-operation of the facility with the existing socioeconomic resources for the study area.

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<sup>49</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, page 59.

Decommissioning-related impacts would be considered significant if they:

- Induce substantial growth or concentration of population;
- Displace a substantial number of people or existing housing;
- Cause a substantial decrease in employment or property values;
- Result in the substantial change (increase or decrease) of students into an impacted school;
- Cause a substantial change (increase or decrease) in the demand for public services that would affect local agencies' ability to provide public services; or
- Cause a substantial disruption or division of the physical arrangement of an established community.

Socioeconomic impacts from decommissioning could also be considered significant if they were to cause substantial change in community interaction patterns, social organization, social structures, or social institutions; cause substantial conflict with community attitudes, values, or perceptions; or cause substantial inequities in the distribution of decommissioning costs and benefits.

#### **5.14.3.2 Existing Socioeconomic Conditions**

Since the population, housing, economic, employment, public service, utility, and fiscal resources of the communities within the ACE project area have changed since the ACE project was constructed, information is provided below to describe the current socioeconomic conditions of the ACE project area.

For the purposes of the ACE project decommissioning and the socioeconomic analysis, the study area is considered to be the primary communities that are home to the largest proportion of workers of the ACE Cogeneration plant, according to plant management.<sup>50</sup> The ACE project area includes the Census Designated Place (CDP) of Searles Valley (which includes the community of Trona) and the City of Ridgecrest. For comparison purposes, statistics from San Bernardino County and Inyo County are also presented below in many cases.

Pursuant to Executive Order 12898, this socioeconomic analysis also addresses environmental justice to identify whether high and adverse human health or environmental effects are likely to fall disproportionately on minority and/or low-income populations of the community. The study area for the environmental justice analysis was delineated by a six-mile radius from the decommissioning site per CEC guidelines. The environmental justice analysis discusses the populations residing in census tracts 8 (in Inyo County) and 89.01 (in San Bernardino County), with Inyo and San Bernardino

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<sup>50</sup> In October 2014, plant management reported that approximately 80 percent of its workers resided in Ridgecrest, while 10 percent resided in Trona. The remaining 10 percent resided in other small communities throughout the region.

County rates provided for context. San Bernardino rates are considered the comparison population against which the census tracts are compared.

### Population

Table 5.14-1 presents population estimates for communities in the study area and surrounding counties. Approximately 1,733 people live in the Searles Valley CDP, representing about 0.1 percent of the total population of San Bernardino County. The population of Inyo County is relatively small compared to San Bernardino County, with approximately 18,474 residents.

**Table 5.14-1 Study Area Population Estimates, 2012**

Geography	2012 Population Estimate
Searles Valley	1,733
Ridgecrest	27,776
Inyo County	18,474
San Bernardino County	2,041,029

Source: [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_12\\_5YR\\_S0101&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_S0101&prodType=table)

### Housing

Table 5.14-2 presents study area housing estimates for communities and surrounding counties. The estimated total number of housing units in Searles Valley CDP is 1,116, representing about 1.9 percent of the total number of housing units in San Bernardino County. Over 12,000 housing units are in Ridgecrest. The rental vacancy rate of housing units in San Bernardino County is 6.9 percent, which is higher than the rates seen in Ridgecrest and Searles Valley (6.0 and 2.7 percent, respectively). Temporary housing would likely be used by decommissioning workers. Temporary housing in the form of hotel/motel rooms are present throughout Ridgecrest and Inyo counties, and many are present in Ridgecrest. Temporary housing opportunities are available in the form of recreational vehicle facilities, mobile home sites, and campgrounds.

**Table 5.14-2 Study Area Housing Estimates, 2012**

Geography	Total Housing Units	Rental Vacancy Rate
Searles Valley	1,116	2.7%
Ridgecrest	12,167	6.0%
Inyo County	9,449	1.0%
San Bernardino County	599,698	6.9%

Source: [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_12\\_5YR\\_DP04&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_DP04&prodType=table)

### Economy and Employment

Table 5.14-3 presents employment figures for those workers (by craft) most likely required for decommissioning. Employment figures are provided for 2010, as well as employment projections for the selected occupations for 2020. The San Bernardino Region includes San Bernardino County and Riverside County for statistical purposes; Inyo County is located within the Eastern Sierra Region and includes counties to its north. As of 2010, there were relatively high numbers of construction trade workers, material moving workers, and truck drivers. Employment projections for material moving workers and truck drivers were also relatively high, with projections for over 20 percent more occupations by 2020. Specialized positions were fewer in number, including construction managers and excavating machine operators.

**Table 5.14-3 Local Labor Pool by Craft –San Bernardino Region, 2010**

Occupational Title	Annual Average Employment		Employment Change		Average Annual Job Openings		
	2010	2020	Number	Percent	New Jobs	Net Replace-ments	Total
Construction Managers	5,000	5,490	490	9.8%	49	32	81
Construction Trades Workers	52,650	57,040	4,390	8.3%	483	1,041	1,524
Material Moving Workers	56,140	69,830	13,690	24.4%	1,369	1,687	3,056
Heavy and Tractor-Trailer Truck Drivers	22,530	28,960	6,430	28.5%	643	448	1,091
Excavating and Loading Machine and Dragline Operators	280	300	20	7.1%	2	8	10

Source: [http://www.calmis.ca.gov/file/occproj/rive\\$occproj.xls](http://www.calmis.ca.gov/file/occproj/rive$occproj.xls)

Table 5.14-4 presents information on the labor force and unemployment rates within the study area and surrounding counties. As of July 2014, San Bernardino County had a labor force of 860,600 workers, of whom 783,300 were employed. In Searles Valley, the labor force was estimated at 900 workers, of whom 800 were employed. The unemployment rate in San Bernardino County was 9.0 percent, which is higher than Searles Valley (7.8 percent) and Ridgecrest (5.9 percent).

### Public Services and Utilities

The San Bernardino County Sheriff's Department provides law enforcement and public safety services to the facility site. The Trona sheriff's substation is part of the Barstow Station and a Corporal and two patrol Deputies are assigned to this resident post to provide services to the small desert communities throughout the Searles Valley region. These services include traffic control, neighborhood policing, emergency calls, and crime prevention. Sheriff's Volunteers assist the Deputies.

Table 5.14-4 Labor Force and Unemployment Rates, July 2014

Geography	Labor Force	Employment	Unemployment	Rate
Searles Valley	900	800	100	7.8%
Ridgecrest	17,100	16,100	1,000	5.9%
Inyo County	9,040	8,380	660	7.3%
San Bernardino County	860,600	783,300	77,300	9.0%
California	18,579,800	17,208,600	1,371,200	7.4%

Source: [http://www.labormarketinfo.edd.ca.gov/Links\\_to\\_LMI\\_by\\_County\\_Area.html](http://www.labormarketinfo.edd.ca.gov/Links_to_LMI_by_County_Area.html)

Fire protection services are provided by the San Bernardino County Fire Department (SBCFD). SBCFD Station 57 is located just to the northeast of the decommissioning site, while the Searles Valley Minerals Fire Department is located to the southeast; both are located in the community of Trona. The Searles Valley Minerals Fire Department is a volunteer department and the primary fire protection response for the community is provided by SBCFD Station 57.

A health clinic is located in Trona, while the nearest full hospital is Ridgecrest Regional Hospital, located approximately 20 miles to the southwest and reached by an approximate 30 minute drive.

Public schools in Trona are part of the Trona Joint Unified School District, with an elementary school (144 total enrollment in 2013-2014) and a high school (95 total enrollment in 2013-2014) both located in Trona.<sup>51</sup>

### Fiscal Resources

A summary of San Bernardino County's expenses and revenues for the 2013 fiscal year is provided in Table 5.14-5. As the decommissioning is located in San Bernardino County, the County is the local agency with taxing power and the only county that may experience direct impacts from decommissioning and a loss of taxes. The economic benefits of increased income and employment would result in indirect and induced revenue, and potential expenditures in Inyo and other counties; however, these impacts cannot be quantified by county and the distribution is not known. For the fiscal year 2013, revenues for San Bernardino County totaled approximately \$3.3 billion and expenditures totaled \$3.1 billion. San Bernardino's key expenditures were on public assistance, public protection, and hospital activities.

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<sup>51</sup> Trona Community Day is also located in Trona. Total enrollment was 5 students in 2013-2014.

Table 5.14-5 San Bernardino County Expenses and Revenues for FY2013

Expenses and Revenues	Amount (Dollars)	Percent
Expenses	\$3,138,089,371	100.0%
General Expenditures	\$163,083,209	5.2%
Public Protection	\$785,563,045	25.0%
Public Ways and Facilities	\$164,503,933	5.2%
Health and Sanitation	\$361,914,276	11.5%
Public Assistance	\$950,371,132	30.3%
Education	\$15,238,735	0.5%
Recreation and Cultural Services	\$16,027,930	0.5%
Debt Service	\$76,408,959	2.4%
Airport Activity/Enterprise	\$5,864,813	0.2%
Hospital Activity/Enterprise	\$542,573,625	17.3%
Refuse Activity/Enterprise	\$56,539,714	1.8%
Other Activity/Enterprise	--	--
Revenues	\$3,300,520,586	100.0%
Property Taxes	\$441,843,732	13.4%
All Other Taxes	\$84,444,024	2.6%
Special Benefit Assessments	\$2,600,105	0.1%
Licenses, Permits, and Franchises	\$22,310,967	0.7%
Fines, Forfeitures, and Penalties	\$21,122,850	0.6%
Revenue from Use of Money and Property	\$48,445,164	1.5%
State Aid	\$1,125,463,463	34.1%
Federal Aid	\$521,135,070	15.8%
Other In-Lieu Taxes	\$5,153,121	0.2%
Charges for Current Services	\$377,146,940	11.4%
Miscellaneous Revenue	\$50,273,228	1.5%
Other Financing Sources	\$3,610,245	0.1%
Airport Activity/Enterprise	\$5,956,282	0.2%
Hospital Activity/Enterprise	\$520,723,728	15.8%
Refuse Activity/Enterprise	\$70,291,667	2.1%
Other Activity/Enterprise	--	--

Source: <https://bythenumbers.sco.ca.gov/finance-explorer/view-by-county>



### Environmental Justice

Table 5.14-6 presents the minority population composition of the study area and for the surrounding counties. San Bernardino County as a whole exhibits a proportion of minority residents of 66.7 percent, which is higher than either census tract within 6 miles of the facility site. The median household income for San Bernardino County is higher than the two census tracts in proximity to the facility site. Census tract 89.01, located in San Bernardino County, has 22.3 percent of its population living below the poverty level (22.3 percent), which is higher than the comparison area of San Bernardino County as a whole (17.6 percent).

Table 5.14-6 Environmental Justice Characteristics

Geographic Area	Total Population (2010)	Total Minority (Percentage Minority) (2010)	Median Household Income (2012 Estimate)	Proportion of the Population Living Below the Poverty Level (2012 Estimate)
Census Tract 8 (Inyo)	3,378	1,225 (36.3%)	\$45,916	14.8%
Census Tract 89.01 (SB)	2,174	577 (26.5%)	\$52,357	22.3%
Inyo County	18,546	6,250 (33.7%)	\$60,873	11.3%
San Bernardino County	2,035,210	1,357,612 (66.7%)	\$69,987	17.6%

Source: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

#### **5.14.3.3 Decommissioning Activities**

The following subsections describe the potential decommissioning and post-decommissioning phase impacts on population, housing, employment, public services, schools, and the economic base and fiscal resources of San Bernardino county and/or local communities within the study area, where appropriate.

#### Workforce and Population

During its past operation ACE Cogeneration facility employed a total of 22 to 28 workers. It is expected that some employees may be able to find employment at other nearby traditional or alternative energy generation facilities in the region. Estimates provided by plant personnel suggest that the vast majority of these workers and their families live in the Ridgecrest area. Based on an average household size of 2.3, a maximum of 65 people could leave the Ridgecrest area, representing 0.003 percent of the total estimated population.

The employees of the ACE plant were paid approximately \$4.1 million in wages annually and the plant supported 242 indirect jobs in the region. While some of the plant employees may find other positions in the Ridgecrest and Searles Valley areas, others may have to relocate. Because the new site owner will use the site for industrial purposes, new jobs are expected to be created that may offset all or some of the jobs

lost by closure of the ACE facility. This is expected to avoid the loss in indirect jobs in the region.

Decommissioning is expected to occur over a total of six months. Decommissioning would require a maximum of 30 workers per day, including both ACC employees and demolition contractor staff, over the six month decommissioning period. It is assumed that demolition contractor workers will commute from the surrounding counties of San Bernardino and Inyo, with some relocating temporarily. The primary trades required for decommissioning include managers, trades workers, material moving workers, heavy truck drivers, and loading machine operators. Even at the peak of decommissioning activities (30 workers), the availability of key occupations in the region would be more than sufficient to meet employment needs; the project would require less than 0.01 percent of the available workforce assuming all workers came from San Bernardino County. Therefore, decommissioning labor demand would not significantly affect the availability of labor in the region. It is anticipated that the vast majority of the decommissioning workforce would commute to the site rather than relocate. Thus, impacts to population are expected to be minimal and the decommissioning would not induce substantial growth. Additionally, the decommissioning would be limited to existing site boundaries and would not displace existing populations.

### Housing

The ACE power plant decommissioning is expected to have a less than significant impact on housing because of the relatively small number of employees employed at the ACE facility. Some employees are expected to find nearby employment; however, even if all workers (and their families) leave the Ridgecrest area, this would only marginally increase vacancy rates. Furthermore, although the specific use of the site by the new owner is unknown at this time, some of the ACC employees and/or their families could find employment at the site under the new owner or in the area.

As mentioned above, it is assumed that few, if any, demolition workers would permanently relocate to the communities nearest the site. This assumption is based on the expectation that workers of this type typically commute relatively long distances to their work sites, which changes over time. Should some workers choose to stay temporarily at a local area motel or hotel, there is sufficient transient housing in Ridgecrest. Additional housing opportunities are available in the form of RV, mobile home sites, and campgrounds. Should a portion of the workers relocate to the area for the duration of their decommissioning assignment, impacts to available housing would be minor, as the rental vacancy rate is sufficient for workers to find nearby rental units.

### Economy and Employment

As stated above, 22 to 28 full-time employees were employed at the ACE cogeneration plant, including general staff and administrative support, plant maintenance, and operations staff. These employees included various technicians, skilled personnel, operators, and engineers. Upon the cessation of plant operations, these employees lost their jobs and were forced to either find employment elsewhere or leave the labor force.

It is anticipated that most of these workers could find employment within the immediate region. However, some would be forced to leave the Ridgecrest area for employment elsewhere. Statistically, a loss of 28 positions in the Ridgecrest area by itself would slightly raise local unemployment but would be negligible at the local and county level. It is uncertain how many workers will be employed by the new owner of the ACE site, but these will offset, to some degree, the loss of ACE employees.

The employees who worked at the ACE cogeneration plant were paid approximately \$4.1 million in wages annually and the plant supported 242 indirect jobs in the immediate area. The risk that many of these indirect jobs would be negatively affected by decommissioning of the plant will be partially or entirely offset with jobs created by the site's new owner. The resulting change is uncertain but at worst would represent a slight decrease in the total population and is not a significant impact.

Project decommissioning will create a temporary, positive impact on the local economic base and fiscal resources. Decommissioning wages and salaries will provide some minor additional income to the area, as will expenditures within the region for decommissioning materials and services. The decommissioning payroll has been estimated at approximately \$564,000 over 5 months. Expenditures and local spending on decommissioning materials and equipment is expected to be negligible. The minor economic benefit of construction wages and salaries will create both indirect and induced secondary economic benefits in the region. Although, given the relatively small number of decommissioning personnel and the short timeframe for the activities, these secondary economic impacts will be negligible compared to the overall economic activity in the region.

### Public Services, Utilities, and Schools

The decommissioning of the ACE project will not increase demands on local police, fire, medical, or other emergency services, nor will decommissioning increase the need for additional public utilities.

No significant impacts to local public services are expected during decommissioning activities. Current law enforcement, fire, and medical service capacity should be sufficient to handle emergencies at the site. Communication equipment will be available on site at all times to contact first responders if emergencies arise. Health and safety programs designed to mitigate hazards and comply with applicable LORS will be developed and implemented to protect worker health and safety during decommissioning activities.

Although minimal or no population impacts are expected, there will be some demands on utility services during decommissioning as a result of onsite activities. Decommissioning will likely require potable water and electrical utility supplies, and will generate wastewater and solid waste (not directly associated with the decommissioning). It is anticipated that existing electrical and water services will be adequate for use. Sanitary wastes generated during decommissioning will likely be

collected in portable, self-contained toilets and hauled to an appropriate disposal site. No significant impacts are expected.

Decommissioning is expected to have an insignificant local and regional impact on schools. A large proportion of the decommissioning workforce is expected to commute to the site daily. Further, workers who relocate temporarily for a work assignment typically do not bring their families with them. Finally, Trona Elementary and High School are located approximately one mile away, and school activities will not be affected by other impacts associated with decommissioning activities (e.g., air quality).

### Fiscal Resources

Estimates suggest that the ACE cogeneration facility contributed \$2 million annually in local taxes. According to the latest San Bernardino County revenues (FY2013), this represents approximately 0.4 percent of the total tax revenues. The loss of taxes will be distributed among local agencies and programs within the County, as outlined in Table 5.14-6. This decrease is considered negligible and will be replaced to some extent by revenues from the new owner of the site. This is not a significant impact.

Expenditures on decommissioning materials, supplies, and equipment are expected to be negligible. San Bernardino County revenues resulting from taxes on materials, supplies, and equipment are not expected to be significant and would likely not affect budgeting or activities at the county level.

### Environmental Justice

Federal guidelines for addressing environmental justice include a two-step screening process to determine whether a project could result in disproportionate impacts on low-income and minority populations. The first step is to evaluate whether the potentially affected community or area includes minority and low-income populations. If it contains these population groups, the second step is to determine whether the environmental impacts fall disproportionately on minority and low-income members of the community. In this case, a 50 percent concentration of minorities or a 17.7 percent concentration of people with low income (i.e., above the rate seen for San Bernardino County as a whole) are used as the cut-offs to indicate that there is a potential issue in a given area.

Based on the first step of the screening process described above, the decommissioning could potentially affect low-income populations in tract 89.01 as the proportion of low-income residents exceeds 17.7 percent. The proportions of minority residents in both census tracts are lower than the proportion for San Bernardino County as a whole; the potentially affected census tracts are not considered to have a concentration of minority residents.

In the context of decommissioning the ACE cogeneration plant, the primary environmental justice issues would typically be potential air, noise, or traffic issues that could adversely affect the health of nearby populations. Other issues could be socioeconomic in nature. The decommissioning of the plant will result in a decrease in

air quality impacts and impacts to surrounding communities from noise or traffic generation, and will not create significant socioeconomic impacts.

#### **5.14.4 Proposed Conditions of Decommissioning**

No significant impacts have been identified and no conditions of decommissioning are warranted.

## 5.15 Traffic and Transportation

This section presents an analysis of LORS compliance and potential environmental impacts to traffic and transportation that may result from the proposed decommissioning of the ACE project.

### 5.15.1 Background

The Commission's Decision on the ACE project concluded:

"With implementation of the Conditions of Certification, the additional traffic generated by the construction and operation of the ACE project will not significantly impact traffic flow in the area."

"With implementation of the Conditions of Certification, the additional traffic generated by the construction and operation of the ACE project will not adversely impact the physical condition of area roads."

"With implementation of the Conditions of Certification, the ACE project will be in compliance with standards, ordinances, and laws set forth in the Traffic section of Appendix A of this Report."<sup>52</sup>

No decommissioning requirements specific to traffic and transportation were included in the ACE Decision.<sup>54</sup>

### 5.15.2 Applicable LORS and Required Permits

Table 5.15-1 describes the applicable LORS associated with traffic and transportation.

No additional permits are needed related to the decommissioning as noted below.

### 5.15.3 LORS Conformance and Impact Assessment

Conformance with each of the LORS described in Table 5.15-1 will be assured as follows:

- The Code of Federal Regulations, Title 49, govern the transportation of goods and materials over public highways - Vehicles associated with the decommissioning activities will meet these requirements.
- The California Vehicle Code provides requirements as to the size, weight, and licensing of vehicles on public highways - Vehicles associated with the decommissioning activities will meet these requirements or obtain the required permits to exceed the requirements.

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<sup>52</sup> CEC, Commission Decision AFC for Kerr McGee Chemical Corporation's Argus Cogeneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 63 to 65

- The California Streets and Highway Code pertaining to the modification of street infrastructure - Since the decommissioning activities do not propose to remove, replace, or modify any facility within road rights-of-way, these requirements are not applicable.
- The San Bernardino County Congestion Management Plan (CMP) requirement for a Traffic Impact Analysis (TIA) for projects that generate more than 250 peak hour trips - Since the decommissioning activities are proposed to only generate 70 daily trips, a TIA is not required.

**Table 5.15-1 Applicable LORS for Traffic and Transportation**

<b>LORS</b>	<b>Description</b>	<b>Comments</b>
<b>Federal</b>		
Code of Federal Regulations, Title 49, Subtitle B, Sections 350-399	Includes procedures and regulations pertaining to interstate and intrastate transport.	This regulation is discussed in Section 5.4, Hazardous Materials, of this Decommissioning Plan.
<b>State</b>		
California Vehicle Code, Division 2, Chapter. 2.5, Div. 6, Chap. 7, Div. 13, Chap. 5, Div. 14.1, Chap. 1 & 2, Div. 14.8, Div. 15	Includes requirements pertaining to licensing, size, weight and load of vehicles operated on highways, safe operation of vehicles, and the transportation of hazardous materials.	Transportation of hazardous materials is discussed in Section 5.4, Hazardous Materials, of this Decommissioning Plan.
California Streets and Highway Code, Division 1 & 2, Chapter 3 & Chapter 5.5	Includes requirements for the care and protection of State and County highways, and provisions for the issuance of written permits.	Applicable only if decommissioning will require modifications to County or State highways, or if vehicles require a permit to operate. No modifications to any highways are expected as a result of decommissioning the ACE project and no vehicles are currently expected to require a permit to operate.
<b>Local</b>		
San Bernardino County Congestion Management Program	The County requires a Traffic Impact Analysis for projects that generate over 250 two-way trips during peak hour traffic.	Applicable if peak hour traffic generated by decommissioning activities exceed 250 two-way trips.

### 5.15.3.1 Existing Traffic Conditions and Level of Service

Access to the ACE facility is provided by State Route 178 (SR-178), a conventional 2-lane or 4-lane State highway that connects Bakersfield and Death Valley National Park through the City of Ridgecrest. SR-178 is oriented diagonally through San Bernardino County, with access to Kern County on the west and Inyo County on the north. Accessing the facility from the north is not deemed feasible as SR-178 enters Death Valley National Park prior to joining with other roads or highways. Accessing the site from either the east or south is also not possible due to the China Lake Naval Weapons Station and Fort Irwin military facilities. Because of this, only access from the west through Kern County is discussed.

Traffic reaches SR-178 primarily via State Route 14 (SR-14) and U.S. Route 395 (US-395), both of which are north-south conventional 2-lane or 4-lane highways, depending on location. Both SR-14 and US-395 intersect other highways and interstates, connecting the region with southern California and Nevada. Traffic can also bypass Ridgecrest by using Trona Road, a 2-lane County road. This analysis examines traffic between SR-14/US-395 and the facility as that is where the impact will be the greatest.

Level of Service (LOS) is a quantitative measure of quality of service of a specific mode of transportation. The *Highway Capacity Manual* divides highway quality of service into six letter grades, “A” through “F”, with “A” being the best and “F” being the worst. A quantitative measure of traffic conditions is tied to the quality of service described in Table 5.15-2.

**Table 5.15-2 Level of Service Characteristics for Roadways**

Level of Service <sup>53</sup>	Description
A	Primarily free flow operations
B	Reasonably unimpeded operations, ability to maneuver only slightly restricted
C	Stable operations, ability to maneuver and select operating speed affected
D	Unstable flow, speeds and ability to maneuver restricted
E	Significant delays, flow quite unstable
F	Extremely slow speeds

As a standard practice for traffic impact analysis, roadway segment Annual Average Daily Traffic (AADT) volumes are used as a performance measure and indicator of LOS and operating conditions. AADT is a measure of the total traffic volume for the year divided by 365 days. This estimate for daily trips is then adjusted to account for seasonal influence, weekly variation, and other variables. AADT capacities published in

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<sup>53</sup> Transportation Research Board, “Highway Capacity Manual”. Washington D.C., 2000.



the 2012 *Florida Quality/Level of Service Handbook* (Florida Tables)<sup>54</sup> were utilized to analyze roadway segment operations. The Florida Tables are commonly used on projects not subject to a Congestion Management Plan (CMP), as they provide a simplified method of traffic analysis. LOS classes for different route configurations are described in Table 5.15-3.

**Table 5.15-3 Daily Volumes for Roadway Levels of Service**

Number of Lanes	Type	Median	LOS Classes					
			A	B	C	D	E	F
2	Highway (Rural) <sup>55</sup>	Undivided	<4,700	4,700	8,400	14,300	28,600	57,200
4	State Signalized Arterial (Urbanized) <sup>56</sup>	Divided	<25,000	25,000	37,900	39,800	66,000	130,000

Existing traffic volumes were obtained from the Caltrans Traffic Data Branch and from the County of San Bernardino. Data from these agencies are the most current publically available. They were collected by Caltrans in 2013 and by San Bernardino County between 2007 and 2010. To project traffic volume from the collection date to 2015 levels, a one percent annual increase was assumed. Table 5.15-4 shows the projected traffic data for various intersections with SR-178.

### 5.15.3.2 Vehicle Trips During Decommissioning

Based on information from ACC regarding current worker/contractor numbers and traffic, as well as the demolition contractor, trips during current plant operations during 2013 and the trips anticipated during the decommissioning activities are listed in Table 5.15-5. Note that the trips during current plant operations ceased when the facility ceased operations.

The total vehicle trips per day during decommissioning are expected to be at most 70. As the proposed decommissioning will not generate more than 250 peak hour trips, a

<sup>54</sup> Caltrans determines roadway capacity using traffic models which comprehensively look at lane configuration, signal timing, driveway spacing, etc. This type of analysis is unnecessary for this decommissioning analysis as the impact is not significant. Florida Department of Transportation maintains tables that provide a generalization of capacity without the need for a traffic model. The Florida Tables are not as accurate as the Caltrans method, but are considered sufficient for the purpose of this Decommissioning Plan.

<sup>55</sup> Table 3 of State of Florida Department of Transportation. "Quality/Level of Service Handbook" Tallahassee, Florida: 2012.

<sup>56</sup> Table 1 of State of Florida Department of Transportation. "Quality/Level of Service Handbook" Tallahassee, Florida: 2012.

Traffic Impact Analysis for the CMP is not required. The following analysis addresses impacts to LOS on surrounding roadways during decommissioning.

**Table 5.15-4 Existing and Projected Traffic Volumes**

Route	Intersection	Collected Volume (AADT)*	Collection Date (Year)	Projected Volume (2015)
SR-178**	SR-14	2,800	2013	2,856
SR-178**	U.S. 395	7,600	2013	7,753
SR-178**	Ridgecrest, West City Limits	7,600	2013	7,753
SR-178**	North China Lake Boulevard	14,300	2013	14,587
SR-178**	Ridgecrest Boulevard	20,300	2013	20,708
SR-178**	Richmand Road	7,200	2013	7,345
SR-178**	San Bernardino/Kern County Line	2,650	2013	2,703
SR-178+	N. Athol Street	2,702	2010	2,840
SR-178+	S. Inyo County Line	639	2010	672
SR-178+	E. First Street	3,278	2010	3,445
SR-178+	E. Center Street	198	2007	214

Notes: \*AADT shown in the maximum of “ahead” (north and west) and “back” (east and south).

\*\*Caltrans traffic data.<sup>57</sup>

+County of San Bernardino traffic data.<sup>58</sup>

**Table 5.15-5 Comparison of ACE Project Traffic During Power Plant Operations and During Decommissioning**

	During 2013 Power Plant Operations Vehicle Trips/Day		During Decommissioning Vehicle Trips/Day	
	(One-Way)	(Round Trip)	(One-Way)	(Round Trip)
ACC Employees	42	21	16	8
Contractor Employees	0	0	44	22
Delivery and Removal Trips	28	14	10	5
<b>Total</b>	<b>70</b>	<b>35</b>	<b>70</b>	<b>35</b>

<sup>57</sup> California Department of Transportation (Caltrans) 2013. Traffic Counts, available at: <http://traffic-counts.dot.ca.gov/>

<sup>58</sup> County of San Bernardino 2014. Traffic data available at: <http://www.sbcounty.gov/dpw/trafficadt/>

### 5.15.3.3 Projected Traffic Conditions and Level of Service (2015)

To analyze the worst case scenario, the total number of trips during decommissioning activities was added to each of the existing routes. The LOS for each route was then analyzed to determine whether decommissioning will have any impacts as provided in Table 5.15-6. This analysis conservatively assumes that all 70 trips are added to each route. As there is not a decrease in LOS for any of the routes, there is no significant impact.

**Table 5.15-6 2015 Traffic Volumes with Decommissioning**

Route	Intersection	No. of Lanes	Without Decommissioning		With Decommissioning	
			Daily Volume 2015 (AADT)*	2015 LOS	Daily Volume 2015 (AADT)	2015 LOS
SR-178	SR-14	2U	2,856	A	2,926	A
SR-178	U.S. 395	2U	7,753	B	7,823	B
SR-178	Ridgecrest, West City Limits	4D	7,753	A	7,823	A
SR-178	North China Lake Boulevard	4D	14,587	A	14,657	A
SR-178	Ridgecrest Boulevard	4D	20,708	A	20,778	A
SR-178	Richmond Road	4D	7,345	A	7,415	A
SR-178	San Bernardino/Kern County Line	2U	2,703	A	2,773	A
SR-178	N. Athol Street	2U	2,840	A	2,910	A
SR-178	S. Inyo County Line	2U	672	A	742	A
SR-178	E. First Street	2U	3,445	A	3,515	A
SR-178	E. Center Street	2U	214	A	284	A

Note: \*Data taken from Table 5.15-3.

As shown in the data above, the LOS will not change as a result of the decommissioning activities. For that reason, there are no significant impacts expected related to transportation and traffic.

### 5.15.4 Proposed Conditions of Decommissioning

No additional conditions related to traffic and transportation are required for decommissioning.

## 5.16 Visual Resources

This section presents an analysis of LORS compliance and potential environmental impacts to visual resources that may result from the proposed decommissioning of the ACE project.

### 5.16.1 Background

The ACE project analyzed in the 1986 AFC submitted to the CEC included the plant site near Trona in the County of San Bernardino, as well as a proposed natural gas pipeline to the south and a water pipeline route that extended north into Inyo County and onto lands under the jurisdiction of the Bureau of Land Management (BLM) and California State Lands Commission (SLC). Since the project traversed BLM lands, the Visual Resource analysis in the AFC included an inventory and summary of scenic quality and visual sensitivity that was based on the BLM's 1984 Interim Guidance of Visual Resources Management Inventory and Contrast Rating.

The plant site is located in Searles Valley and is bounded by the Argus and Slate ranges on the east and west. According to the AFC, the BLM Ridgecrest Resource Area's visual inventory data assigned the two ranges Class B scenic quality ratings for their rugged and colorful form. However, Searles Valley received the lowest rating of Class C due to its flat terrain; lack of vegetation variety; and residential, commercial, industrial, and infrastructure developments.

The 1986 AFC investigated the visual sensitivity of 1) views along Trona Highway; 2) residential views in the project area; and 3) views within the Great Basins Wilderness Study Area (WSA), Great Falls Basin/Argus Range Area of Critical Environmental Concern (ACEC), and Argus Range Roadless Area. Per the BLM guidance, Trona Highway was defined as a high sensitivity route due to its high volume of use and its destination to Death Valley. Similarly, views within the Great Basins WSA, Great Falls Basin/Argus Range ACEC, and Argus Range Roadless Area were designated as high sensitivity, although views of the plant site beyond the boundaries of the three recreation areas lose specificity and were therefore designated as moderate sensitivity. Within Searles Valley, residents were already accustomed to industrial development in the project area; therefore, their sensitivity to changes in the visual quality of the project area was considered to be slightly reduced.<sup>59</sup>

The Commission's Decision on implementation of the ACE project in 1988 concluded the following with regard to the project's compliance with visual resources LORS and potential visual resources impacts:

“...the existence of the KMCC [now SVM] facility adjacent to the project site renders the visual impacts insignificant.”

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<sup>59</sup> Kerr McGee Chemical Corporation, Application for Certification for Argus Cogeneration Expansion Project, January 1986, pages 7.11-1 and 7.11-3

“Because of the lack of unique physical characteristics and high visibility of existing development, the proposed project will have an insignificant impact on landscape character.”

“The proposed project will have insignificant impacts on the landscape character of the area.”

“The proposed project will have insignificant impacts on viewpoint sensitivity in the area.”

“With implementation of the Conditions of Certification, the proposed project will not be in conflict with any applicable laws, ordinances, regulation or standards.”<sup>60</sup>

As a result of the AFC analysis and the CEC’s conclusions, no specific decommissioning requirements related to visual resources were included in the CEC’s Decision in 1988.<sup>60</sup>

#### 5.16.2 Applicable LORS and Required Permits

Decommissioning the ACE project entails only demolition activities at the plant site within the County of San Bernardino. LORS potentially applicable to visual resources in this area are shown in Table 5.16-1.

**Table 5.16-1 LORS Applicable to Visual Resources**

LORS	Description	Comments
<b>Local</b>		
San Bernardino County Code, Title 8, Development Code, Division 3, Countywide Development Standards, Chapter 83.07.040, Glare and Outdoor Lighting – Mountain and Desert Regions	Encourages effective non-detrimental lighting; to maintain night-time safety, utility, security, and productivity; and to encourage lighting practices and systems that will minimize light pollution, glare, and light trespass, conserve energy and resources, and curtail the degradation of the night-time visual environment of several areas in the county, including the desert area. Applies to new lighting only.	Demolition activities will not occur during night-time hours. Some night-time lighting with existing facility lights will be used for the purposes of maintaining site security.

<sup>60</sup> CEC, Commission Decision, AFC for Kerr McGee Chemical Corporation’s Argus Cogeneneration Expansion Project, Docket No. 86-AFC-1, January 1988, pages 60 to 62

The applicable County of San Bernardino LORS is included in the San Bernardino County Code of Ordinances, Title 8, Development Code, Division 3, Countywide Development Standards, Chapter 83.07.040, Glare and Outdoor Lighting – Mountain and Desert Regions. The purpose of the glare and outdoor lighting standards is to:

1. Minimize light pollution, glare, and light trespass;
2. Conserve energy and resources while maintaining nighttime safety, visibility, utility, and productivity; and
3. Curtail the degradation of the nighttime visual environment.<sup>61</sup>

#### **5.16.3 LORS Conformance and Impact Assessment**

Decommissioning the ACE project will not introduce a source of glare to the plant site, since the facility does not include substantial reflective materials. Decommissioning activities will occur during the daylight hours; therefore, substantial night lighting of the plant site will not be necessary. Existing facility lighting will be used for the purposes of maintaining site security at night during the decommissioning process and will be used in accordance with the lighting and shielding requirements of the San Bernardino County Code for the Desert Region. No lighting will remain on the site once decommissioning is completed.

Decommissioning the ACE project will result in the demolition of the above ground portions of the ACE power plant and the removal of the resulting waste from the site. Other structures such as the administration building, cooling towers, petroleum coke silos, and ash silos will be left in place for use by the new owners. Since other industrial facilities dominate the project area landscape, the visual character of the project area will remain substantially unchanged following decommissioning of the ACE plant.

The project will not result in a significant adverse impact to visual resources.

#### **5.16.4 Proposed Conditions of Decommissioning**

The ACE facility will continue to use existing lighting for security purposes. Since no new lighting is planned, the San Bernardino County Code shown above does not apply. Therefore, no additional conditions related to visual resources are required for decommissioning.

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<sup>61</sup> San Bernardino County Code of Ordinances, Title 8, Development Code, Division 3, Countywide Development Standards, Chapter 83.07.040, Glare and Outdoor Lighting – Mountain and Desert Regions, accessed on September 18, 2014. from [http://www.amlegal.com/nxt/gateway.dll/California/sanbernardinocounty\\_ca/sanbernardinocounty\\_californiacodeofordin?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:sanbernardinocounty\\_ca](http://www.amlegal.com/nxt/gateway.dll/California/sanbernardinocounty_ca/sanbernardinocounty_californiacodeofordin?f=templates$fn=default.htm$3.0$vid=amlegal:sanbernardinocounty_ca)

## 6.0 Decommissioning Alternatives

The existing power purchase agreement with SCE expires in November 2015. Because SCE was not interested in negotiating a new power purchase agreement for the coal-fired facility, the project owners looked extensively at several alternatives for replacing the ACE project with a solar thermal, natural gas-fired, or hybrid natural gas/solar thermal combined heat and power (CHP) project. The solar thermal and hybrid facilities were rejected because there was insufficient contiguous usable land to accommodate the solar portion of the project on the ACE site. ACC was able to successfully negotiate a Power Purchase Agreement (PPA) and a Large Generator Interconnection Agreement (LGIA) with SCE for a new natural gas-fired CHP plant. ACC and SVM, however, were unable to reach an agreement on steam sales, hence a CHP project was no longer possible. Since the PPA is contingent on the ACE project operating as a combined heat and power project, and steam sales were necessary to make the project economically viable, the only available alternative is decommissioning and removing the ACE power generation facility.

As discussed in this Decommissioning Plan, ACC will demolish and remove the power generation facilities on the site and close and cap the remaining cells in the ash landfill. Other structures will remain on the site for use of the new owner or SVM. This approach will allow the site to be used for future industrial activities. The new owner will obtain any required local and state land use and environmental permits appropriate to their proposed future use.

The ACE Decision requires the project owner to consider the alternative of restoring the site to a natural state. This would add the extra step of covering the site with topsoil and planting native vegetation on the site. ACC evaluated this alternative but is not proposing to do so because the portion of the ACE site where the power plant, administration building, and cooling tower are located is leased from SVM and the lease has been transferred to a new owner. The portion of the site owned by ACC, the ash landfill, has also been sold to the new owner.

## **7.0 List of Contributors**

### **ACE Cogeneration Company:**

- Steve Haleman, On-site Compliance Manager

### **Cobia Capital, LLC**

- Glen Casanova, General Manager ACE Cogeneration Company, LP and Managing Director, Trona Operating Partners, GP.

### **DCO Energy**

- Lonny Kirk, Owners Representative

### **Raven Energy Consulting**

- Bob Therkelsen, Lead Consultant, Project Description and Alternatives

### **Clean Power Consulting Partners**

- Dave Tateosian, P.E., Project Engineer

### **AECOM Technical Services, Inc.**

- Sara J. Head, QEP, Project Manager
- Mike Arvidson, Hazardous Materials, Waste Management and Worker Safety
- Sally Bilodeau, P.G., Water Resources
- Carmen Caceres-Schnell, P.G., Geological Hazards and Soil Resources
- Dan Cronquist, P.E., Traffic and Transportation
- Johanna Falzarano, Land Use and Visual Resources
- Jeff Goodson, Noise
- Jennifer Guigliano, CPESC, CPSWQ, CESSWI, Biological Resources
- Steve Heisler, PhD., QEP, Air Quality and Greenhouse Gases and Public Health
- Kimberly Olsen, Technical Editor
- Stephen Weidlich, Socioeconomics
- Stacie Wilson, M.S., RPA, Cultural and Paleontological Resources

### **Ellison, Schneider & Harris**

- Christopher T. Ellison
- Gregory L. Wheatland



## **Appendix A**

### **Mailing List of Property Owners within 1000 feet of the ACE Facility**

ACE Decommissioning Plan

Assessor's Parcel Number	Property Owner	Contact and Mailing Address
0485031100000	Government Land – Bureau of Land Management	Carl B. Symons, Field Manager Bureau of Land Management Ridgecrest Field Office 300 S. Richmond Rd. Ridgecrest, CA 93555
0485021120000 0485031060000	San Bernardino County Flood Control District C/O R/W Engineer	Kevin Blakeslee, Deputy Director, Flood Control District County of San Bernardino Department of Public Works 825 E. 3 <sup>rd</sup> Street San Bernardino, CA 92415
0485021210000	County of San Bernardino, C/O County Service Area No. 82	San Bernardino County Special Districts Department 157 West 5 <sup>th</sup> Street 2 <sup>nd</sup> Floor San Bernardino, CA 92415-0450
0485031120000	ACE Cogeneration Company	Glen Casanova ACE Cogeneration Company 600 Anton Blvd. 11 <sup>th</sup> Floor Costa Mesa, CA 92626
0485041280000	County of San Bernardino CSA 82, C/O CSA 82 Water/Sanitation Division	San Bernardino County Special Districts Department 157 West 5 <sup>th</sup> Street 2 <sup>nd</sup> Floor San Bernardino, CA 92415-0450
0485021130000 0485031140000 0485021220000 0485031070000 0485041290000 0485041300000 0485031180000 0485031170000 0485041350000 0485031130000 0485031160000 0485031150000 0486061330000 0486061340000 0485041310000 0485041360000 0485041370000 0485041380000 0486061040000 0486061050000	Searles Valley Minerals Operations Inc.	Burnell Blanchard Searles Valley Minerals 13200 Main Street P.O. Box 367 Trona, CA 93562

## **Appendix B**

### **Notification of Other Permitting or Interested Agencies**

# ACE Decommissioning Plan

Resource	Agency/Organization	Name	Telephone	Email
Air Quality	MDAQMD	Alan De Salvio	760-245-1661 ext. 6726	Adesalvio@mdaqmd.ca.gov
Hazardous Materials Management	California Department of Toxic Substance Control	Tom Cota	714-484-5459	tcota@dtsc.ca.gov
	San Bernardino County Fire Department (also the CUPA)	Curtis Brundage	909-386-8430	cbrundage@sbcfire.org
Land Use, Noise, Socioeconomics, Visual Resources, and Waste Management	San Bernardino County Planning Dept.	Chad Nottingham	909-387-4537	chad.nottingham@lus.sbcounty.gov
Traffic & Transportation	San Bernardino County Planning Department	Chad Nottingham	909-387-4537	chad.nottingham@lus.sbcounty.gov
	San Bernardino County Department of Public Works	Sylvia Gomez	909-387-8263	sgomez@dpw.sbcounty.gov
Water Resources	Lahontan RWQCB	Richard W. Booth, PG	530-542-5574	RBooth@waterboards.ca.gov
Worker Safety	San Bernardino County Fire Department	Curtis Brundage	909-386-8430	cbrundage@sbcfire.org

## **Appendix C**

### **Air Quality and Greenhouse Gas Emissions Calculations**

## EMISSIONS SUMMARY

### Demolition Emissions

Source	Emissions (total pounds over 6 months)									
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	CO2e
<b>Onsite</b>										
Equipment	677	7,200	7,666	10	297	274	1,041,908	60	27	1,051,469
Motor Vehicle Exhaust	1	9	17	0	0	0	2,128	0	0	2,134
Motor Vehicle Fugitive PM	0	0	0	0	1,193	119	0	0	0	0
<b>Total Onsite</b>	<b>678</b>	<b>7,209</b>	<b>7,683</b>	<b>10</b>	<b>1,491</b>	<b>394</b>	<b>1,044,036</b>	<b>60</b>	<b>27</b>	<b>1,053,603</b>
<b>Offsite</b>										
Motor Vehicle Exhaust	189	2,597	5,055	0	102	93	1,167,760	11	6	1,169,796
Motor Vehicle Fugitive PM	0	0	0	0	1,117	274	0	0	0	0
<b>Total Offsite</b>	<b>189</b>	<b>2,597</b>	<b>5,055</b>	<b>0</b>	<b>1,218</b>	<b>368</b>	<b>1,167,760</b>	<b>11</b>	<b>6</b>	<b>1,169,796</b>
<b>Total Emissions (lb/6 mo.)</b>	<b>867</b>	<b>9,806</b>	<b>12,738</b>	<b>10</b>	<b>2,709</b>	<b>761</b>	<b>2,211,796</b>	<b>71</b>	<b>33</b>	<b>2,223,399</b>
<b>Total Emissions (tons/6 mo.)</b>	<b>0.43</b>	<b>4.90</b>	<b>6.37</b>	<b>0.00</b>	<b>1.35</b>	<b>0.38</b>	<b>1105.90</b>	<b>0.04</b>	<b>0.02</b>	<b>1111.70</b>

### Existing Emissions (2013)

Source	Emissions (pounds per year)									
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	CO2e
<b>Onsite</b>										
Stationary Equipment	2,000	184,000	296,000	216,000	40,000	23,000	711,827,601	98,054	14,259	718,528,133
Motor Vehicle Exhaust	0	0	0	0	0	0	0	0	0	0
Motor Vehicle Fugitive PM	0	0	0	0	0	0	0	0	0	0
<b>Total Onsite</b>	<b>2,000</b>	<b>184,000</b>	<b>296,000</b>	<b>216,000</b>	<b>40,000</b>	<b>23,000</b>	<b>711,827,601</b>	<b>98,054</b>	<b>14,259</b>	<b>718,528,133</b>
<b>Offsite</b>										
Motor Vehicle Exhaust	526	5,084	9,769	0	91	84	1,851,303	27	19	1,857,628
Motor Vehicle Fugitive PM	0	0	0	0	3,872	950	0	0	0	0
Locomotives	518	1,365	2,268	193	75	75	499,317	40	13	504,174
<b>Total Offsite</b>	<b>1,044</b>	<b>6,449</b>	<b>12,037</b>	<b>193</b>	<b>4,038</b>	<b>1,109</b>	<b>2,350,620</b>	<b>67</b>	<b>32</b>	<b>2,361,803</b>
<b>Total Emissions (lb/yr)</b>	<b>3,044</b>	<b>190,449</b>	<b>308,037</b>	<b>216,193</b>	<b>44,038</b>	<b>24,109</b>	<b>714,178,221</b>	<b>98,121</b>	<b>14,291</b>	<b>720,889,936</b>
<b>Total Emissions (tpy)</b>	<b>2</b>	<b>95</b>	<b>154</b>	<b>108</b>	<b>22</b>	<b>12</b>	<b>357,089</b>	<b>49</b>	<b>7</b>	<b>360,445</b>
<b>Difference, Demolition-Existing (tons)</b>	<b>-1</b>	<b>-90</b>	<b>-148</b>	<b>-108</b>	<b>-21</b>	<b>-12</b>	<b>-355,983</b>	<b>-49</b>	<b>-7</b>	<b>-359,333</b>

## DEMOLITION EQUIPMENT EMISSIONS

### Equipment Use

Equipment	Fuel	Horsepower	Hours/Day	Days/Week	Hours/Week	Hours/Month <sup>a</sup>	Months	Total Hours
Bobcat	Diesel	70	10	5	50	217	6	1,300
Excavator	Diesel	175	10	5	50	217	6	1,300
Excavator	Diesel	450	10	5	50	217	6	1,300
Excavator	Diesel	530	10	5	50	217	6	1,300
Track Loader	Diesel	600	10	5	50	217	6	1,300
Man Lift	Diesel	30	10	5	50	217	6	1,300
Generator	Gasoline	5	10	5	50	217	6	1,300

<sup>a</sup> Hours/Month = Hours/Week x 52 weeks/year / 12 months/year

### Equipment Emission Factors

Equipment	Emission Factors (g/bhp-hr) <sup>a</sup>								
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Bobcat	0.2939	3.33751	3.8106	0.0049	0.2202	0.2026	522	0.030	0.014
Excavator	0.3837	3.16762	4.4807	0.0049	0.2212	0.2035	522	0.030	0.014
Excavator	0.232	1.31662	3.21395	0.0049	0.1042	0.0959	522	0.030	0.014
Excavator	0.2421	1.35372	3.47287	0.0048	0.1129	0.1039	522	0.030	0.014
Track Loader	0.3948	1.78908	4.55578	0.0047	0.1791	0.1648	522	0.030	0.014
Man Lift	0.2484	3.23342	3.93284	0.0054	0.136	0.1251	522	0.030	0.014
Generator	7.279	351.6	2.322	0	0.741	0.741	878	0.050	0.022

<sup>a</sup> Except for generator, criteria pollutant emission factors are from OFFROAD2011 taken from CalEEMod 2013.2.1 Appendix D, Table 3.4 for calendar year 2015

Generator emission factors are for small off-road engines (preempted) from PUBLIC MEETING TO CONSIDER APPROVAL OF THE CALIFORNIA SMALL OFF-ROAD ENGINE EMISSIONS INVENTORY, California Air Resources Board, November 1998.

### Equipment Emissions

Equipment	Load Factor <sup>a</sup>	Emissions (pounds) <sup>b</sup>								
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Bobcat	0.37	21.82	247.74	282.85	0.36	16.35	15.04	38,754.21	2.24	1.01
Excavator	0.38	73.13	603.71	853.96	0.93	42.16	38.78	99,504.05	5.76	2.58
Excavator	0.38	113.70	645.25	1,575.09	2.40	51.07	47.00	255,867.55	14.81	6.64
Excavator	0.38	139.74	781.37	2,004.56	2.77	65.17	59.97	301,355.11	17.44	7.82
Track Loader	0.36	244.40	1,107.53	2,820.24	2.91	110.87	102.02	323,201.11	18.71	8.39
Man Lift	0.31	6.62	86.18	104.82	0.14	3.62	3.33	13,915.60	0.81	0.36
Generator	0.74	77.19	3,728.39	24.62	0.00	7.86	7.86	9,310.36	0.53	0.23
<b>Total</b>		<b>676.59</b>	<b>7,200.16</b>	<b>7,666.15</b>	<b>9.52</b>	<b>297.09</b>	<b>274.00</b>	<b>1,041,907.98</b>	<b>60.30</b>	<b>27.02</b>

<sup>a</sup> Load factors are CalEEMod 2013.2.1 defaults from Appendix D, Table 3.3

<sup>b</sup> Emissions [lb] = Emission factor [g/bhp-hr] x Horsepower [hp] x Load factor {unitless} x Total hours [hours] / 453.6 [g/lb]

## DEMOLITION ON-SITE MOTOR VEHICLE EMISSIONS

### Motor Vehicle Use

Vehicle	Number	Miles/Day	Days/Week	Miles/Week	Miles/Month <sup>a</sup>	Months	Total Miles
Service Truck	1	2	5	10	43	6	260
Foreman Truck	1	2	5	10	43	6	260
Water Truck	1	10	5	50	217	6	1,300

<sup>a</sup> Miles/Month = Miles/Week x 52 weeks/year / 12 months/year

### Motor Vehicle Emission Factors

Vehicle	Emission Factors (g/mile) <sup>a</sup>										
	VOC	CO	NOx	SOx	Exhaust PM10	Exhaust PM2.5	Fugitive PM10	Fugitive PM2.5	CO2	CH4	N2O
Service Truck	0.3645	2.1528	4.2640	0.0000	0.0776	0.0714	297.4	29.7	530	0.0051	0.0048
Foreman Truck	0.3645	2.1528	4.2640	0.0000	0.0776	0.0714	297.4	29.7	530	0.0051	0.0048
Water Truck	0.3645	2.1528	4.2640	0.0000	0.0776	0.0714	297.4	29.7	530	0.0051	0.0048

<sup>a</sup> Criteria pollutant emission factors are from EMFAC2011 online emissions database for LHD2 diesel vehicles in calendar year 2015 at 15 mph

### Motor Vehicle Emissions

Vehicle	Emissions (pounds) <sup>a</sup>										
	VOC	CO	NOx	SOx	Exhaust PM10	Exhaust PM2.5	Fugitive PM10	Fugitive PM2.5	CO2	CH4	N2O
Service Truck	0.21	1.23	2.44	0.00	0.04	0.04	170.47	17.05	304.03	0.00	0.00
Foreman Truck	0.21	1.23	2.44	0.00	0.04	0.04	170.47	17.05	304.03	0.00	0.00
Water Truck	1.04	6.17	12.22	0.00	0.22	0.20	852.34	85.23	1,520.16	0.01	0.01
Total	1.46	8.64	17.11	0.00	0.31	0.29	1,193.27	119.33	2,128.23	0.02	0.02

<sup>a</sup> Emissions [lb] = Emission factor [g/mi] x Total miles / 453.6 [g/lb]



## DEMOLITION OFF-SITE MOTOR VEHICLE EMISSIONS

### Motor Vehicle Use

Vehicle	Number	Miles/Day	Days/Week	Miles/Week	Miles/Month <sup>a</sup>	Months	Total Miles
Worker Commute	30	56	5	8,400	36,400	6	218,400
Debris Removal	5	400	5	10,000	43,333	6	260,000

<sup>a</sup> Miles/Month = Miles/Week x 52 weeks/year / 12 months/year

### Motor Vehicle Emission Factors

Vehicle	Emission Factors (g/mile) <sup>a</sup>										
	VOC	CO	NOx	SOx	Exhaust PM10	Exhaust PM2.5	Fugitive PM10	Fugitive PM2.5	CO2	CH4	N2O
Worker Commute	0.1405	4.0164	0.4508	0.0000	0.0776	0.0714	1.06	0.26	416	0.0163	0.0066
Debris Removal	0.2125	1.1572	8.4396	0.0000	0.1121	0.1031	1.06	0.26	1,688	0.0051	0.0048

<sup>a</sup> Criteria pollutant emission factors are from EMFAC2011 online emissions database for LDT1 gasoline vehicles for workers and T7 diesel tractors for debris disposal in calendar year 2015 at 45 mph in MDAQMD

### Motor Vehicle Emissions

Vehicle	Emissions (pounds) <sup>a</sup>										
	VOC	CO	NOx	SOx	Exhaust PM10	Exhaust PM2.5	Fugitive PM10	Fugitive PM2.5	CO2	CH4	N2O
Worker Commute	67.64	1,933.82	217.05	0.00	37.38	34.39	509.76	125.12	200,177.85	7.85	3.18
Debris Removal	121.78	663.28	4,837.53	0.00	64.24	59.10	606.86	148.96	967,581.78	2.92	2.75
Total	189.41	2,597.09	5,054.57	0.00	101.61	93.48	1,116.62	274.08	#####	10.77	5.93

<sup>a</sup> Emissions [lb] = Emission factor [g/mi] x Total miles / 453.6 [g/lb]

# EXISTING OFF-SITE MOTOR VEHICLE EMISSIONS

## Employee Trips

Type	# Employees/ Shift	Shifts/Day	Days/Week	Trips / Week	Trips/Yr	Miles/ Trip	Miles/ Year
Admin Employees	5	1	5	25	1,300	56	72,800
Ops Employees	2	2	7	28	1,456	56	81,536
Maintenance Employees	2	1	7	14	728	56	40,768
Ash Employees	2	1	6	12	624	56	34,944
Ash Contract Drivers	2	1	6	12	624	56	34,944
Helper/Mechanic Contractor	1	1	4	4	208	56	11,648
Janitor	1	1	3	3	156	56	8,736
Limestone Employees	2	1	5	10	520	56	29,120
Limestone Driver	1	1	5	5	260	56	14,560
Lunch/Errands/Etc	1	1	7	7	364	56	20,384
<b>Total</b>							<b>349,440</b>

## Delivery Trips

Type	Trips/Year	Miles/Trip	Miles/ Year
Gases	6	256	1,536
Ammonia (Anhydrous)	17	256	4,450
Ammonia Traced (19ppm) Nitrogen Gas	6	256	1,536
Bottom Ash	2,920	256	747,520
Treatment Chemicals	4	256	1,024
Diesel Fuel	4	256	1,024
Fly Ash	260	256	66,560
Limestone	1,825	256	467,200
R-22 (Refrigerant)	2	256	512
Safety-Kleen Solvent	2	256	512
Office Supply	12	256	3,072
Lubricants	4	256	1,024
Sodium Hvdroxide, 50% Solution	2	256	512
Sodium Hypochlorite Solution	22	256	5,632
Sulfuric Acid	24	256	6,144
Trisodium Phosphate	1	256	256
Lab Chemical Waste	1	256	256
Used Oil	2	256	512
<b>Total</b>			<b>1,309,282</b>

## Motor Vehicle Emission Factors

Vehicle	Emission Factors (g/mile) <sup>a</sup>										
	VOC	CO	NOx	SOx	Exhaust PM10	Exhaust PM2.5	Fugitive PM10	Fugitive PM2.5	CO2	CH4	N2O
Employees	0.1405	4.0164	0.4508	0.0000	0.0032	0.0029	1.06	0.26	416	0.0163	0.0066
Delivery Vehicles	0.1446	0.6894	3.2642	0.0000	0.0308	0.0283	1.06	0.26	530	0.0051	0.0048

<sup>a</sup> Criteria pollutant emission factors are from EMFAC2011 online emissions database for LDT1 gasoline vehicles for employees and diesel LHD2 for deliveries in calendar year 2015 at 45 mph in MDAQMD

## Motor Vehicle Emissions

Motor Vehicle Emissions											
Vehicle	Emissions (pounds) <sup>a</sup>										
	VOC	CO	NOx	SOx	Exhaust PM10	Exhaust PM2.5	Fugitive PM10	Fugitive PM2.5	CO2	CH4	N2O
Employees	108.22	3,094.11	347.27	0.00	2.50	2.26	815.62	200.20	320,284.55	12.56	5.08
Delivery Vehicles	417.45	1,990.02	9,421.86	0.00	88.90	81.79	3,055.95	750.10	1,531,018.09	14.72	13.85
<b>Total</b>	<b>525.66</b>	<b>5,084.12</b>	<b>9,769.14</b>	<b>0.00</b>	<b>91.40</b>	<b>84.05</b>	<b>3,871.56</b>	<b>950.29</b>	<b>1,851,302.64</b>	<b>27.28</b>	<b>18.94</b>

<sup>a</sup> Emissions [lb] = Emission factor [g/mi] x Total miles / 453.6 [g/lb]

## LOCOMOTIVE EMISSIONS FROM COAL DELIVERIES

### Rail Cargo Weight per Delivery

Weight of Coal (tons)	10,900
Rail Car Capacity (tons) <sup>a</sup>	102
Number of Rail Cars	107
Rail Car Weight Empty (tons/car) <sup>a</sup>	29.5
Total Weight Loaded (tons)	14,056.5
Total Weight Empty (tons)	3,156.5
Total Weight per Delivery (tons)	17,213.0

<sup>a</sup> Typical values for steel manual coal cars from  
<http://www.bnsf.com/customers/equipment/coal-cars/>

### Fuel Consumption

Travel Distance in California (miles)	494
Total ton-miles	8,503,222
Fuel factor (gallons/1,000 ton-mile)	1.329
Total Fuel Use (gallons/delivery)	11,300.78
Deliveries per Year	2
Total Fuel Use (gallons/year)	22,601.56

Emissions	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Emission Factors (g/gallon) <sup>a</sup>	10.4	27.4	45.52	3.873	1.504	1.504	10,021	0.80	0.26
Emissions per Year (pounds)	518.20	1,365.26	2,268.13	192.98	74.94	74.94	499,317.18	39.86	12.96

<sup>a</sup> Criteria pollutant emission factors from Emission Factors for Locomotives, U.S. EPA 420-F-97-05, December 1997, Table 9.

# **MOTOR VEHICLE ENTRAINED ROAD DUST EMISSION FACTORS**

<b>Vehicle Type</b>	<b>Surface</b>	<b>Silt Loading (sL, g/m2) or Silt Content (s, %)<sup>a</sup></b>	<b>Average Weight (W) (tons)<sup>b</sup></b>	<b>Un- controlled PM10 Emission Factor (lb/VMT)<sup>c</sup></b>	<b>Un- controlled PM2.5 Emission Factor (lb/VMT)<sup>c</sup></b>	<b>Control Efficiency (%)<sup>d</sup></b>	<b>Controlled PM10 Emission Factor (lb/VMT)<sup>e</sup></b>	<b>Controlled PM2.5 Emission Factor (lb/VMT)<sup>e</sup></b>
Service Truck	Paved	0.4	2.4	2.33E-03	5.73E-04	0%	2.33E-03	5.73E-04
Service Truck	Unpaved	8	7	1.52E+00	1.52E-01	57%	6.56E-01	6.56E-02
Foreman Truck	Paved	0.4	2.4	2.33E-03	5.73E-04	0%	2.33E-03	5.73E-04
Foreman Truck	Unpaved	8	7	1.52E+00	1.52E-01	57%	6.56E-01	6.56E-02
Water Truck	Paved	0.4	2.4	2.33E-03	5.73E-04	0%	2.33E-03	5.73E-04
Water Truck	Unpaved	8	7	1.52E+00	1.52E-01	57%	6.56E-01	6.56E-02
Worker Commute	Paved	0.4	2.4	2.33E-03	5.73E-04	0%	2.33E-03	5.73E-04
Worker Commute	Unpaved	8	2.4	9.42E-01	9.42E-02	57%	4.05E-01	4.05E-02
Debris Removal	Paved	0.4	2.4	2.33E-03	5.73E-04	0%	2.33E-03	5.73E-04
Debris Removal	Unpaved	8	27.5	2.82E+00	2.82E-01	57%	1.21E+00	1.21E-01
Employees	Paved	0.4	2.4	2.33E-03	5.73E-04	0%	2.33E-03	5.73E-04
Employees	Unpaved	8	2.4	9.42E-01	9.42E-02	57%	4.05E-01	4.05E-02
Delivery Vehicles	Paved	0.4	2.4	2.33E-03	5.73E-04	0%	2.33E-03	5.73E-04
Delivery Vehicles	Unpaved	8	7	1.52E+00	1.52E-01	57%	6.56E-01	6.56E-02

## MOTOR VEHICLE ENTRAINED ROAD DUST EMISSION FACTORS

<sup>a</sup> Paved road silt loading from MDAQMD Emissions Inventory Guidance Mineral Handling and Processing Industries for paved low traffic road.

Unpaved road silt content from MDAQMD Mineral Guidance for unpaved industrial haul roads.

<sup>b</sup> Average paved on-road vehicle weight in San Bernardino County from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)

Unpaved road worker commuting weight assumed to be same as paved road weight

Unpaved weight for other trucks except heavy heavy-duty trucks is based on upper limit of 14,000 lbs for light heavy-duty 2 trucks. Heavy heavy duty trucks based on average of loaded weight of 80,000 lbs and empty weight of 30,000 lbs = 27.5 lbs.

<sup>c</sup> Equations:

$$EF(\text{paved}) = k_p (sL)^{0.91} (W)^{1.02}$$

Ref: AP-42, Section 13.2.1, "Paved Roads," January 2011

$$EF(\text{unpaved}) = k_u (s/12)^a (W/3)^b$$

Ref: AP-42, Section 13.2.2, "Unpaved Roads," November 2006

Constants:

$k_p =$	0.0022	(Particle size multiplier for PM10)
	0.00054	(Particle size multiplier for PM2.5)
$k_u =$	1.5	(Particle size multiplier for PM)
	0.15	(Particle size multiplier for PM2.5)
$a =$	0.9	for PM10
	0.9	for PM2.5
$b =$	0.45	for PM10
	0.45	for PM2.5

<sup>d</sup> Control efficiency from limiting speeds on unpaved roads to 15 mph, from Table XI-A, Mitigation Measure Examples,

Fugitive Dust from Construction & Demolition, [http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM\\_fugitive.html](http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html)

<sup>e</sup> Controlled emission factor [lb/mi] = Uncontrolled emission factor [lb/mi] x (1 - Control efficiency [%] / 100)

### Construction Equipment Greenhouse Gas Emission Factors

Equipment	Fuel Use (gal/bhp-hr) <sup>a</sup>	CO2 (g/gal) <sup>b</sup>	CH4 (g/gal) <sup>b</sup>	N2O (g/gal) <sup>b</sup>	CO2 (g/hp-hr)	CH4 (g/hp-hr)	N2O (g/hp-hr)
Gas Generator	0.1	8,780	0.5	0.22	878	0.050	0.022
Diesel	0.0521	10,021	0.58	0.26	522	0.030	0.014

<sup>a</sup> Gas generator estimated based on 1 gal/hr for 10 hp engine. Diesel from OFFROAD 2011 model brake-specific fuel consumption (0.367 lb/hp-hr) and diesel fuel density (7.05 lb/gal)

<sup>b</sup> CO2 emission factors from 2014 Climate Registry Default Emission Factors, April 2014, Table 13.1 and CH4 and N2O emission factors from Table 13.7  
(<http://www.theclimateregistry.org/resources/protocols/general-reporting-protocol/>)

### Motor Vehicle Greenhouse Gas Emission Factors

Vehicle Class - Fuel	Fuel Use (mi/gal) <sup>a</sup>	CO2 (g/gal) <sup>b</sup>	CO2 (g/mi)	CH4 (g/mi) <sup>b</sup>	N2O (g/mi) <sup>b</sup>
LDT1-gasoline	21.1	8,781	416	0.0163	0.0066
LHD2-diesel	19.2	10,210	530	0.0051	0.0048
T7 tractor-diesel	6.0	10,210	1,688	0.0051	0.0048

<sup>a</sup> Calculated by dividing total miles by total fuel use in MDAQMD for 2015 from EMFAC 2011 Online Database

<sup>b</sup> CO2 emission factors from 2014 Climate Registry Default Emission Factors, April 2014, Table 13.1 and CH4 and N2O emission factors from Table 13.4  
(<http://www.theclimateregistry.org/resources/protocols/general-reporting-protocol/>)

### Locomotive Greenhouse Gas Emission Factors

CO2 (g/gal) <sup>a</sup>	CH4 (g/gal) <sup>a</sup>	N2O (g/gal) <sup>a</sup>
10,021	0.80	0.26

<sup>a</sup> CO2 emission factors from 2014 Climate Registry Default Emission Factors, April 2014, Table 13.1 and CH4 and N2O emission factors from Table 13.7  
(<http://www.theclimateregistry.org/resources/protocols/general-reporting-protocol/>)

## **Appendix D**

### **Refractory Material Analytical Test Results and Regional Water Quality Control Board Letters**



BSK Associates Fresno  
1414 Stanislaus St  
Fresno, CA93706  
559-497-2888 (Main)  
559-485-6935 (FAX)

**A4H1603**

**8/28/2014**

Invoice: A418713

Jon Graves  
ACE Cogeneration Trona Operating Partners  
P.O. Box 66  
Trona, CA 93592

**RE: Report for A4H1603 Annual Ash**

Dear Jon Graves,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 8/15/2014. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

Thanks again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Michael Ng, Project Manager

If additional clarification of any information is required, please contact your Project Manager, Michael Ng, at (800) 877-8310 or (559) 497-2888 x118.



Accredited in Accordance with NELAP  
ORELAP #4021



## Case Narrative

Project and Report Details		Invoice Details
<b>Client:</b>	ACE Cogeneration Trona Operating Partners	<b>Invoice To:</b> ACE Cogeneration Trona Operating Pa
<b>Report To:</b>	Jon Graves	<b>Invoice Attn:</b> Jon Graves
<b>Project #:</b>	ACE Cogeneration Refractory Sample	<b>Project PO#:</b> -
<b>Received:</b>	8/15/2014 - 12:00	
<b>Report Due:</b>	8/29/2014	

### Sample Receipt Conditions

**Cooler:** Default Cooler

Containers Intact  
COC/Labels Agree  
Packing Material - Paper  
Sample(s) were received in temperature range.  
Initial receipt at BSK-FAL

### Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DP01 Sample Duplicate RPD exceeded the method acceptance limit.  
MS1.0 Matrix spike recoveries exceed control limits.

### Report Distribution

Recipient(s)	Report Format	CC:
Steven Haleman	FINAL.RPT	
Jon Graves	FINAL.RPT	

# Certificate of Analysis

**Sample ID:** A4H1603-01  
**Sampled By:** Jon Graves  
**Sample Description:** Combustor Refractory

**Sample Date - Time:** 08/13/14 - 09:00

**Matrix:** Solid

**Sample Type:** Grab

## BSK Associates Fresno

### General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Hexavalent Chromium	EPA 7199	ND	1.0	mg/kg	50	A410722	08/22/14	08/22/14	

### Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Antimony	EPA 6020	ND	10	mg/kg	1	A410679	08/21/14	08/22/14	
Antimony, WET	EPA 6020	ND	0.50	mg/L	1	A410788	08/25/14	08/25/14	
Arsenic	EPA 6020	ND	2.5	mg/kg	1	A410679	08/21/14	08/22/14	
Arsenic, WET	EPA 6020	ND	0.10	mg/L	1	A410788	08/25/14	08/25/14	
Barium	EPA 6020	<b>43</b>	6.2	mg/kg	1	A410679	08/21/14	08/22/14	
Barium, WET	EPA 6020	<b>0.56</b>	0.25	mg/L	1	A410788	08/25/14	08/25/14	
Beryllium	EPA 6020	ND	1.2	mg/kg	1	A410679	08/21/14	08/22/14	
Beryllium, WET	EPA 6020	ND	0.050	mg/L	1	A410788	08/25/14	08/25/14	
Cadmium	EPA 6020	<b>2.2</b>	1.2	mg/kg	1	A410679	08/21/14	08/22/14	
Cadmium, WET	EPA 6020	ND	0.050	mg/L	1	A410788	08/25/14	08/25/14	
Chromium	EPA 6020	<b>20</b>	12	mg/kg	1	A410679	08/21/14	08/22/14	
Chromium, WET	EPA 6020	ND	0.50	mg/L	1	A410788	08/25/14	08/25/14	
Cobalt	EPA 6020	ND	12	mg/kg	1	A410679	08/21/14	08/22/14	
Cobalt, WET	EPA 6020	ND	2.5	mg/L	1	A410788	08/25/14	08/25/14	
Copper	EPA 6020	<b>23</b>	5.0	mg/kg	1	A410679	08/21/14	08/22/14	
Copper, WET	EPA 6020	ND	0.50	mg/L	1	A410788	08/25/14	08/25/14	
Lead	EPA 6020	ND	6.2	mg/kg	1	A410679	08/21/14	08/22/14	
Lead, WET	EPA 6020	ND	0.25	mg/L	1	A410788	08/25/14	08/25/14	
Mercury	EPA 6020A	ND	0.50	mg/kg	1	A410679	08/21/14	08/22/14	
Mercury, WET	EPA 6020A	ND	0.020	mg/L	1	A410788	08/25/14	08/25/14	
Molybdenum	EPA 6020	ND	12	mg/kg	1	A410679	08/21/14	08/22/14	
Molybdenum, WET	EPA 6020	ND	0.50	mg/L	1	A410788	08/25/14	08/25/14	
Nickel	EPA 6020	<b>47</b>	12	mg/kg	1	A410679	08/21/14	08/22/14	
Nickel, WET	EPA 6020	<b>1.6</b>	0.50	mg/L	1	A410788	08/25/14	08/25/14	
Selenium	EPA 6020	ND	2.5	mg/kg	1	A410679	08/21/14	08/22/14	
Selenium, WET	EPA 6020	ND	0.10	mg/L	1	A410788	08/25/14	08/25/14	
Silver	EPA 6020	ND	12	mg/kg	1	A410679	08/21/14	08/22/14	
Silver, WET	EPA 6020	ND	0.50	mg/L	1	A410788	08/25/14	08/25/14	
Thallium	EPA 6020	ND	2.0	mg/kg	1	A410679	08/21/14	08/22/14	
Thallium, WET	EPA 6020	ND	0.50	mg/L	1	A410788	08/25/14	08/25/14	
Vanadium	EPA 6020	<b>16</b>	12	mg/kg	1	A410679	08/21/14	08/22/14	
Vanadium, WET	EPA 6020	<b>0.57</b>	0.50	mg/L	1	A410788	08/25/14	08/25/14	
Zinc	EPA 6020	ND	62	mg/kg	1	A410679	08/21/14	08/22/14	
Zinc, WET	EPA 6020	ND	2.5	mg/L	1	A410788	08/25/14	08/25/14	



**A4H1603**

**Annual Ash**

**BSK Associates Fresno**  
**General Chemistry Quality Control Report**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 7199 - Quality Control											
Batch: A410722										Prepared: 8/22/2014	
Prep Method: Method Specific Preparation										Analyst: RCN	
Blank (A410722-BLK1)											
Hexavalent Chromium	ND	1.0	mg/kg							08/22/14	
Blank Spike (A410722-BS1)											
Hexavalent Chromium	10	1.0	mg/kg	10		104	70-130			08/22/14	
Blank Spike Dup (A410722-BSD1)											
Hexavalent Chromium	10	1.0	mg/kg	10		103	70-130	1	20	08/22/14	
Duplicate (A410722-DUP1), Source: A4H1246-02											
Hexavalent Chromium	ND	1.0	mg/kg		ND				20	08/22/14	
Matrix Spike (A410722-MS1), Source: A4H1246-02											
Hexavalent Chromium	ND	1.0	mg/kg	10	ND	0	70-130			08/22/14	MS1.0 Low
Matrix Spike Dup (A410722-MSD1), Source: A4H1246-02											
Hexavalent Chromium	ND	1.0	mg/kg	10	ND	0	70-130		20	08/22/14	MS1.0 Low



**A4H1603**

**Annual Ash**

**BSK Associates Fresno  
Metals Quality Control Report**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
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**EPA 6020 - Quality Control**

**Batch: A410679**

Prepared: 8/21/2014

**Prep Method: EPA 3050B**

Analyst: MAS

**Blank (A410679-BLK1)**

Antimony	ND	10	mg/kg							08/22/14	
Arsenic	ND	2.5	mg/kg							08/22/14	
Barium	ND	6.2	mg/kg							08/22/14	
Beryllium	ND	1.2	mg/kg							08/22/14	
Cadmium	ND	1.2	mg/kg							08/22/14	
Chromium	ND	12	mg/kg							08/22/14	
Cobalt	ND	12	mg/kg							08/22/14	
Copper	ND	5.0	mg/kg							08/22/14	
Lead	ND	6.2	mg/kg							08/22/14	
Molybdenum	ND	12	mg/kg							08/22/14	
Nickel	ND	12	mg/kg							08/22/14	
Selenium	ND	2.5	mg/kg							08/22/14	
Silver	ND	12	mg/kg							08/22/14	
Thallium	ND	2.0	mg/kg							08/22/14	
Vanadium	ND	12	mg/kg							08/22/14	
Zinc	ND	62	mg/kg							08/22/14	

**Blank Spike (A410679-BS1)**

Antimony	100	10	mg/kg	100		103	75-125			08/22/14	
Arsenic	97	2.5	mg/kg	100		97	75-125			08/22/14	
Barium	97	6.2	mg/kg	100		97	75-125			08/22/14	
Beryllium	89	1.2	mg/kg	100		89	75-125			08/22/14	
Cadmium	94	1.2	mg/kg	100		94	75-125			08/22/14	
Chromium	92	12	mg/kg	100		92	75-125			08/22/14	
Cobalt	98	12	mg/kg	100		98	75-125			08/22/14	
Copper	98	5.0	mg/kg	100		98	75-125			08/22/14	
Lead	95	6.2	mg/kg	100		95	75-125			08/22/14	
Molybdenum	100	12	mg/kg	100		100	75-125			08/22/14	
Nickel	95	12	mg/kg	100		95	75-125			08/22/14	
Selenium	96	2.5	mg/kg	100		96	75-125			08/22/14	
Silver	47	12	mg/kg	50		93	75-125			08/22/14	
Thallium	90	2.0	mg/kg	100		90	75-125			08/22/14	
Vanadium	95	12	mg/kg	100		95	75-125			08/22/14	
Zinc	97	62	mg/kg	100		97	75-125			08/22/14	

**Blank Spike Dup (A410679-BSD1)**

Antimony	110	10	mg/kg	100		107	75-125	4	20	08/22/14	
Arsenic	100	2.5	mg/kg	100		101	75-125	4	20	08/22/14	
Barium	100	6.2	mg/kg	100		102	75-125	4	20	08/22/14	
Beryllium	90	1.2	mg/kg	100		90	75-125	1	20	08/22/14	
Cadmium	98	1.2	mg/kg	100		98	75-125	4	20	08/22/14	
Chromium	95	12	mg/kg	100		95	75-125	3	20	08/22/14	
Cobalt	97	12	mg/kg	100		97	75-125	1	20	08/22/14	
Copper	98	5.0	mg/kg	100		98	75-125	0	20	08/22/14	
Lead	99	6.2	mg/kg	100		99	75-125	4	20	08/22/14	



**A4H1603**

**Annual Ash**

**BSK Associates Fresno  
Metals Quality Control Report**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
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**EPA 6020 - Quality Control**

**Batch: A410679**

Prepared: 8/21/2014

**Prep Method: EPA 3050B**

Analyst: MAS

**Blank Spike Dup (A410679-BSD1)**

Molybdenum	100	12	mg/kg	100		103	75-125	3	20	08/22/14	
Nickel	99	12	mg/kg	100		99	75-125	4	20	08/22/14	
Selenium	100	2.5	mg/kg	100		104	75-125	7	20	08/22/14	
Silver	49	12	mg/kg	50		98	75-125	5	20	08/22/14	
Thallium	95	2.0	mg/kg	100		95	75-125	6	20	08/22/14	
Vanadium	98	12	mg/kg	100		98	75-125	3	20	08/22/14	
Zinc	99	62	mg/kg	100		99	75-125	1	20	08/22/14	

**Matrix Spike (A410679-MS1), Source: A4H1367-01**

Antimony	26	10	mg/kg	100	ND	26	75-125			08/22/14	MS1.0 Low
Arsenic	130	2.5	mg/kg	100	35	95	75-125			08/22/14	
Barium	610	6.2	mg/kg	100	500	107	75-125			08/22/14	
Beryllium	88	1.2	mg/kg	100	ND	88	75-125			08/22/14	
Cadmium	96	1.2	mg/kg	100	2.3	93	75-125			08/22/14	
Chromium	170	12	mg/kg	100	82	90	75-125			08/22/14	
Cobalt	100	12	mg/kg	100	13	92	75-125			08/22/14	
Copper	360	5.0	mg/kg	100	270	93	75-125			08/22/14	
Lead	320	6.2	mg/kg	100	220	96	75-125			08/22/14	
Molybdenum	100	12	mg/kg	100	ND	100	75-125			08/22/14	
Nickel	160	12	mg/kg	100	68	89	75-125			08/22/14	
Selenium	97	2.5	mg/kg	100	ND	95	75-125			08/22/14	
Silver	44	12	mg/kg	50	ND	88	75-125			08/22/14	
Thallium	91	2.0	mg/kg	100	ND	91	75-125			08/22/14	
Vanadium	170	12	mg/kg	100	76	96	75-125			08/22/14	
Zinc	780	62	mg/kg	100	680	105	75-125			08/22/14	

**Matrix Spike (A410679-MS2), Source: A4H1828-01**

Antimony	79	10	mg/kg	100	ND	79	75-125			08/22/14	
Arsenic	100	2.5	mg/kg	100	3.5	96	75-125			08/22/14	
Barium	330	6.2	mg/kg	100	230	96	75-125			08/22/14	
Beryllium	89	1.2	mg/kg	100	ND	89	75-125			08/22/14	
Cadmium	93	1.2	mg/kg	100	ND	93	75-125			08/22/14	
Chromium	110	12	mg/kg	100	20	93	75-125			08/22/14	
Cobalt	100	12	mg/kg	100	ND	100	75-125			08/22/14	
Copper	230	5.0	mg/kg	100	140	94	75-125			08/22/14	
Lead	120	6.2	mg/kg	100	43	78	75-125			08/22/14	
Molybdenum	100	12	mg/kg	100	ND	102	75-125			08/22/14	
Nickel	120	12	mg/kg	100	20	95	75-125			08/22/14	
Selenium	100	2.5	mg/kg	100	ND	98	75-125			08/22/14	
Silver	49	12	mg/kg	50	ND	83	75-125			08/22/14	
Thallium	89	2.0	mg/kg	100	ND	89	75-125			08/22/14	
Vanadium	120	12	mg/kg	100	22	96	75-125			08/22/14	
Zinc	430	62	mg/kg	100	350	83	75-125			08/22/14	

**Matrix Spike Dup (A410679-MSD1), Source: A4H1367-01**

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**A4H1603**

**Annual Ash**

**BSK Associates Fresno  
Metals Quality Control Report**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
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**EPA 6020 - Quality Control**

**Batch: A410679**

Prepared: 8/21/2014

**Prep Method: EPA 3050B**

Analyst: MAS

**Matrix Spike Dup (A410679-MSD1), Source: A4H1367-01**

Antimony	25	10	mg/kg	100	ND	25	75-125	2	20	08/22/14	MS1.0 Low
Arsenic	140	2.5	mg/kg	100	35	104	75-125	6	20	08/22/14	
Barium	620	6.2	mg/kg	100	500	115	75-125	1	20	08/22/14	
Beryllium	93	1.2	mg/kg	100	ND	93	75-125	6	20	08/22/14	
Cadmium	100	1.2	mg/kg	100	2.3	99	75-125	6	20	08/22/14	
Chromium	190	12	mg/kg	100	82	103	75-125	7	20	08/22/14	
Cobalt	110	12	mg/kg	100	13	98	75-125	5	20	08/22/14	
Copper	370	5.0	mg/kg	100	270	104	75-125	3	20	08/22/14	
Lead	350	6.2	mg/kg	100	220	129	75-125	10	20	08/22/14	MS1.0 High
Molybdenum	110	12	mg/kg	100	ND	106	75-125	6	20	08/22/14	
Nickel	170	12	mg/kg	100	68	103	75-125	9	20	08/22/14	
Selenium	100	2.5	mg/kg	100	ND	102	75-125	7	20	08/22/14	
Silver	47	12	mg/kg	50	ND	95	75-125	7	20	08/22/14	
Thallium	94	2.0	mg/kg	100	ND	94	75-125	3	20	08/22/14	
Vanadium	180	12	mg/kg	100	76	103	75-125	4	20	08/22/14	
Zinc	830	62	mg/kg	100	680	152	75-125	6	20	08/22/14	MS1.0 High

**Matrix Spike Dup (A410679-MSD2), Source: A4H1828-01**

Antimony	76	10	mg/kg	100	ND	76	75-125	4	20	08/22/14	
Arsenic	97	2.5	mg/kg	100	3.5	93	75-125	3	20	08/22/14	
Barium	320	6.2	mg/kg	100	230	92	75-125	1	20	08/22/14	
Beryllium	86	1.2	mg/kg	100	ND	86	75-125	3	20	08/22/14	
Cadmium	89	1.2	mg/kg	100	ND	89	75-125	3	20	08/22/14	
Chromium	110	12	mg/kg	100	20	91	75-125	2	20	08/22/14	
Cobalt	98	12	mg/kg	100	ND	98	75-125	2	20	08/22/14	
Copper	220	5.0	mg/kg	100	140	79	75-125	6	20	08/22/14	
Lead	130	6.2	mg/kg	100	43	87	75-125	7	20	08/22/14	
Molybdenum	100	12	mg/kg	100	ND	102	75-125	0	20	08/22/14	
Nickel	110	12	mg/kg	100	20	90	75-125	4	20	08/22/14	
Selenium	100	2.5	mg/kg	100	ND	98	75-125	0	20	08/22/14	
Silver	49	12	mg/kg	50	ND	82	75-125	1	20	08/22/14	
Thallium	89	2.0	mg/kg	100	ND	89	75-125	1	20	08/22/14	
Vanadium	120	12	mg/kg	100	22	94	75-125	1	20	08/22/14	
Zinc	450	62	mg/kg	100	350	101	75-125	4	20	08/22/14	

**EPA 6020 - Quality Control**

**Batch: A410788**

Prepared: 8/25/2014

**Prep Method: EPA 3010A for STLCL/DISTLC**

Analyst: MAS

**Blank (A410788-BLK1)**

Antimony, WET	ND	0.50	mg/L							08/25/14	
Arsenic, WET	ND	0.10	mg/L							08/25/14	
Barium, WET	ND	0.25	mg/L							08/25/14	
Beryllium, WET	ND	0.050	mg/L							08/25/14	
Cadmium, WET	ND	0.050	mg/L							08/25/14	

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Printed: 8/28/2014

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**BSK Associates Fresno  
Metals Quality Control Report**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
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**EPA 6020 - Quality Control**

**Batch: A410788**

Prepared: 8/25/2014

**Prep Method: EPA 3010A for STLC/DISTLC**

Analyst: MAS

**Blank (A410788-BLK1)**

Chromium, WET	ND	0.50	mg/L							08/25/14	
Cobalt, WET	ND	2.5	mg/L							08/25/14	
Copper, WET	ND	0.50	mg/L							08/25/14	
Lead, WET	ND	0.25	mg/L							08/25/14	
Molybdenum, WET	ND	0.50	mg/L							08/25/14	
Nickel, WET	ND	0.50	mg/L							08/25/14	
Selenium, WET	ND	0.10	mg/L							08/25/14	
Silver, WET	ND	0.50	mg/L							08/25/14	
Thallium, WET	ND	0.50	mg/L							08/25/14	
Vanadium, WET	ND	0.50	mg/L							08/25/14	
Zinc, WET	ND	2.5	mg/L							08/25/14	

**Blank Spike (A410788-BS1)**

Antimony, WET	9.0	0.50	mg/L	8.0	113	75-125				08/25/14	
Arsenic, WET	8.7	0.10	mg/L	8.0	109	75-125				08/25/14	
Barium, WET	8.4	0.25	mg/L	8.0	105	75-125				08/25/14	
Beryllium, WET	8.1	0.050	mg/L	8.0	101	75-125				08/25/14	
Cadmium, WET	8.2	0.050	mg/L	8.0	102	75-125				08/25/14	
Chromium, WET	7.9	0.50	mg/L	8.0	99	75-125				08/25/14	
Cobalt, WET	7.9	2.5	mg/L	8.0	99	75-125				08/25/14	
Copper, WET	7.8	0.50	mg/L	8.0	98	75-125				08/25/14	
Lead, WET	8.1	0.25	mg/L	8.0	102	75-125				08/25/14	
Molybdenum, WET	9.2	0.50	mg/L	8.0	115	75-125				08/25/14	
Nickel, WET	7.9	0.50	mg/L	8.0	99	75-125				08/25/14	
Selenium, WET	8.2	0.10	mg/L	8.0	103	75-125				08/25/14	
Silver, WET	3.9	0.50	mg/L	4.0	99	75-125				08/25/14	
Thallium, WET	7.7	0.50	mg/L	8.0	96	75-125				08/25/14	
Vanadium, WET	8.3	0.50	mg/L	8.0	104	75-125				08/25/14	
Zinc, WET	8.0	2.5	mg/L	8.0	99	75-125				08/25/14	

**Blank Spike Dup (A410788-BSD1)**

Antimony, WET	8.9	0.50	mg/L	8.0	112	75-125	1	20		08/25/14	
Arsenic, WET	8.6	0.10	mg/L	8.0	107	75-125	2	20		08/25/14	
Barium, WET	8.2	0.25	mg/L	8.0	102	75-125	3	20		08/25/14	
Beryllium, WET	8.1	0.050	mg/L	8.0	101	75-125	0	20		08/25/14	
Cadmium, WET	8.0	0.050	mg/L	8.0	100	75-125	2	20		08/25/14	
Chromium, WET	7.9	0.50	mg/L	8.0	98	75-125	0	20		08/25/14	
Cobalt, WET	8.0	2.5	mg/L	8.0	99	75-125	0	20		08/25/14	
Copper, WET	7.9	0.50	mg/L	8.0	98	75-125	0	20		08/25/14	
Lead, WET	7.9	0.25	mg/L	8.0	98	75-125	3	20		08/25/14	
Molybdenum, WET	9.4	0.50	mg/L	8.0	118	75-125	2	20		08/25/14	
Nickel, WET	8.1	0.50	mg/L	8.0	101	75-125	2	20		08/25/14	
Selenium, WET	8.1	0.10	mg/L	8.0	101	75-125	2	20		08/25/14	
Silver, WET	3.8	0.50	mg/L	4.0	96	75-125	3	20		08/25/14	
Thallium, WET	7.4	0.50	mg/L	8.0	93	75-125	3	20		08/25/14	



**A4H1603**

**Annual Ash**

**BSK Associates Fresno  
Metals Quality Control Report**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
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**EPA 6020 - Quality Control**

**Batch: A410788**

Prepared: 8/25/2014

**Prep Method: EPA 3010A for STLC/DISTLC**

Analyst: MAS

**Blank Spike Dup (A410788-BSD1)**

Vanadium, WET	8.3	0.50	mg/L	8.0	103	75-125	1	20	08/25/14
Zinc, WET	8.1	2.5	mg/L	8.0	101	75-125	2	20	08/25/14

**Duplicate (A410788-DUP1), Source: A4H1367-01**

Antimony, WET	ND	0.50	mg/L	ND				20	08/25/14
Arsenic, WET	2.5	0.10	mg/L	2.4			6	20	08/25/14
Barium, WET	1.9	0.25	mg/L	0.61			104	20	08/25/14 DP01
Beryllium, WET	ND	0.050	mg/L	ND				20	08/25/14
Cadmium, WET	0.073	0.050	mg/L	ND			106	20	08/25/14 DP01
Chromium, WET	0.98	0.50	mg/L	0.96			3	20	08/25/14
Cobalt, WET	ND	2.5	mg/L	ND				20	08/25/14
Copper, WET	9.2	0.50	mg/L	8.9			4	20	08/25/14
Lead, WET	0.38	0.25	mg/L	ND			181	20	08/25/14 DP01
Molybdenum, WET	ND	0.50	mg/L	ND				20	08/25/14
Nickel, WET	0.72	0.50	mg/L	0.76			5	20	08/25/14
Selenium, WET	ND	0.10	mg/L	ND				20	08/25/14
Silver, WET	ND	0.50	mg/L	ND				20	08/25/14
Thallium, WET	ND	0.50	mg/L	ND				20	08/25/14
Vanadium, WET	1.9	0.50	mg/L	1.8			3	20	08/25/14
Zinc, WET	11	2.5	mg/L	11			8	20	08/25/14

**Matrix Spike (A410788-MS1), Source: A4H1367-01**

Antimony, WET	9.3	0.50	mg/L	8.0	ND	112	75-125		08/25/14
Arsenic, WET	11	0.10	mg/L	8.0	2.4	107	75-125		08/25/14
Barium, WET	9.1	0.25	mg/L	8.0	0.61	106	75-125		08/25/14
Beryllium, WET	8.1	0.050	mg/L	8.0	ND	101	75-125		08/25/14
Cadmium, WET	8.1	0.050	mg/L	8.0	ND	101	75-125		08/25/14
Chromium, WET	8.9	0.50	mg/L	8.0	0.96	100	75-125		08/25/14
Cobalt, WET	8.2	2.5	mg/L	8.0	ND	100	75-125		08/25/14
Copper, WET	17	0.50	mg/L	8.0	8.9	99	75-125		08/25/14
Lead, WET	8.0	0.25	mg/L	8.0	ND	100	75-125		08/25/14
Molybdenum, WET	9.8	0.50	mg/L	8.0	ND	118	75-125		08/25/14
Nickel, WET	8.8	0.50	mg/L	8.0	0.76	100	75-125		08/25/14
Selenium, WET	8.4	0.10	mg/L	8.0	ND	105	75-125		08/25/14
Silver, WET	3.9	0.50	mg/L	4.0	ND	98	75-125		08/25/14
Thallium, WET	7.5	0.50	mg/L	8.0	ND	94	75-125		08/25/14
Vanadium, WET	10	0.50	mg/L	8.0	1.8	103	75-125		08/25/14
Zinc, WET	19	2.5	mg/L	8.0	11	107	75-125		08/25/14

**Matrix Spike Dup (A410788-MSD1), Source: A4H1367-01**

Antimony, WET	8.5	0.50	mg/L	8.0	ND	101	75-125	9	20	08/25/14
Arsenic, WET	10	0.10	mg/L	8.0	2.4	99	75-125	6	20	08/25/14
Barium, WET	9.2	0.25	mg/L	8.0	0.61	107	75-125	2	20	08/25/14
Beryllium, WET	7.2	0.050	mg/L	8.0	ND	90	75-125	11	20	08/25/14
Cadmium, WET	7.4	0.050	mg/L	8.0	ND	93	75-125	9	20	08/25/14



**A4H1603****Annual Ash****BSK Associates Fresno  
Metals Quality Control Report**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
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**EPA 6020 - Quality Control**

Batch: A410788

Prepared: 8/25/2014

Prep Method: EPA 3010A for STLC/DISTLC

Analyst: MAS

**Matrix Spike Dup (A410788-MSD1), Source: A4H1367-01**

Chromium, WET	8.1	0.50	mg/L	8.0	0.96	90	75-125	9	20	08/25/14
Cobalt, WET	7.5	2.5	mg/L	8.0	ND	91	75-125	9	20	08/25/14
Copper, WET	16	0.50	mg/L	8.0	8.9	95	75-125	2	20	08/25/14
Lead, WET	7.3	0.25	mg/L	8.0	ND	92	75-125	8	20	08/25/14
Molybdenum, WET	8.7	0.50	mg/L	8.0	ND	105	75-125	11	20	08/25/14
Nickel, WET	7.9	0.50	mg/L	8.0	0.76	89	75-125	11	20	08/25/14
Selenium, WET	7.8	0.10	mg/L	8.0	ND	97	75-125	7	20	08/25/14
Silver, WET	3.5	0.50	mg/L	4.0	ND	89	75-125	10	20	08/25/14
Thallium, WET	6.8	0.50	mg/L	8.0	ND	85	75-125	10	20	08/25/14
Vanadium, WET	9.3	0.50	mg/L	8.0	1.8	94	75-125	8	20	08/25/14
Zinc, WET	20	2.5	mg/L	8.0	11	112	75-125	2	20	08/25/14

**EPA 6020A - Quality Control**

Batch: A410679

Prepared: 8/21/2014

Prep Method: EPA 3050B

Analyst: MAS

**Blank (A410679-BLK1)**

Mercury	ND	0.50	mg/kg							08/22/14
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**Blank Spike (A410679-BS1)**

Mercury	2.1	0.50	mg/kg	2.5		85	75-125			08/22/14
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**Blank Spike Dup (A410679-BSD1)**

Mercury	2.3	0.50	mg/kg	2.5		92	75-125	8	20	08/22/14
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**Matrix Spike (A410679-MS1), Source: A4H1367-01**

Mercury	2.6	0.50	mg/kg	2.5	0.50	84	75-125			08/22/14
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**Matrix Spike (A410679-MS2), Source: A4H1828-01**

Mercury	6.3	0.50	mg/kg	2.5	4.3	82	75-125			08/22/14
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**Matrix Spike Dup (A410679-MSD1), Source: A4H1367-01**

Mercury	2.8	0.50	mg/kg	2.5	0.50	94	75-125	9	20	08/22/14
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**Matrix Spike Dup (A410679-MSD2), Source: A4H1828-01**

Mercury	5.5	0.50	mg/kg	2.5	4.3	51	75-125	13	20	08/22/14 MS1.0 Low
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**EPA 6020A - Quality Control**

Batch: A410788

Prepared: 8/25/2014

Prep Method: EPA 3010A for STLC/DISTLC

Analyst: MAS

**Blank (A410788-BLK1)**

Mercury, WET	ND	0.020	mg/L							08/25/14
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**A4H1603**

**Annual Ash**

**BSK Associates Fresno  
Metals Quality Control Report**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Date Analyzed	Qual
EPA 6020A - Quality Control											
Batch: A410788										Prepared: 8/25/2014	
Prep Method: EPA 3010A for STLC/DISTLC										Analyst: MAS	
Blank Spike (A410788-BS1)											
Mercury, WET	0.21	0.020	mg/L	0.20		103	75-125			08/25/14	
Blank Spike Dup (A410788-BSD1)											
Mercury, WET	0.19	0.020	mg/L	0.20		94	75-125	9	20	08/25/14	
Duplicate (A410788-DUP1), Source: A4H1367-01											
Mercury, WET	ND	0.020	mg/L		ND				20	08/25/14	
Matrix Spike (A410788-MS1), Source: A4H1367-01											
Mercury, WET	0.18	0.020	mg/L	0.20	ND	92	75-125			08/25/14	
Matrix Spike Dup (A410788-MSD1), Source: A4H1367-01											
Mercury, WET	0.17	0.020	mg/L	0.20	ND	83	75-125	11	20	08/25/14	

## Certificate of Analysis

**Notes:**

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.

**Definitions**

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

**BSK is not accredited under the NELAC program for the following parameters:**
**\*\*NA\*\***

Antimony, WET	Arsenic, WET	Barium, WET
Beryllium, WET	Cadmium, WET	Chromium, WET
Cobalt, WET	Copper, WET	Lead, WET
Mercury, WET	Molybdenum, WET	Nickel, WET
Selenium, WET	Silver, WET	STLC
Thallium, WET	Vanadium, WET	Zinc, WET

**Certifications:** Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

**Fresno**

State of California - ELAP	1180	State of Hawaii	4021
State of Nevada	CA000792014-1	State of Oregon - ORELAP	4021
EPA - UCMR3	CA00079	State of Washington	C997-14

**Sacramento**

State of California - ELAP	2435
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**Vancouver**

State of Oregon - ORELAP	WA100008	State of Washington	C824-13
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## Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info	Was temperature within range? Chemistry $\leq 6^{\circ}\text{C}$ Micro $< 10^{\circ}\text{C}$	Yes	No	NA	Were correct containers and preservatives received for the tests requested?	Yes	No	NA
	If samples were taken today, is there evidence that chilling has begun?	Yes	No	NA	Were there bubbles in the VOA vials? (Volatiles Only)	Yes	No	NA
	Did all bottles arrive unbroken and intact?	Yes	No	NA	Was a sufficient amount of sample received?	Yes	No	NA
	Did all bottle labels agree with COC?	Yes	No	NA	Do samples have a hold time <72 hours?	Yes	No	NA
	Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes	No	NA	Was PM notified of discrepancies?	Yes	No	NA
Bottles Received <small>"—" means preservation/chlorine checks are either N/A or are performed in the lab</small>	250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)	Checks	Passed?					
	Bacti $\text{Na}_2\text{S}_2\text{O}_3$	—	—					
	None (P) <sup>White Cap</sup>	—	—					
	Cr6 Buffer (P) <sup>Blue Cap</sup> <b>Drinking Water</b>	pH 9-9.5	Y N					
	Cr6 Buffer (P) <sup>Blue Cap</sup> <b>Wastewater</b>	pH 9.3-9.7	Y N					
	$\text{HNO}_3$ (P) <sup>Red Cap</sup>	—	—					
	$\text{H}_2\text{SO}_4$ (P) or (AG) <sup>Yellow Cap/Label</sup>	pH < 2	Y N					
	$\text{NaOH}$ (P) <sup>Green Cap</sup>	Cl, pH > 10	Y N					
	$\text{NaOH} + \text{ZnAc}$ (P)	pH > 9	Y N					
	Dissolved Oxygen 300ml (g)	—	—					
	None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
	$\text{HCl}$ (AG) <sup>Lt. Blue Label</sup> O&G, Diesel	—	—					
	$\text{Na}_2\text{S}_2\text{O}_3$ 1 Liter (Brown P) 549	—	—					
	$\text{Na}_2\text{S}_2\text{O}_3$ (AG) <sup>Blue Label</sup> 547, 515, 525, 548	—	—					
	$\text{Na}_2\text{S}_2\text{O}_3$ (AG) <sup>Blue Label</sup> THMs 524.2 or 524.3	—	—					
	$\text{Na}_2\text{S}_2\text{O}_3$ (CG) <sup>Blue Label</sup> 504, 505	—	—					
	$\text{Na}_2\text{S}_2\text{O}_3 + \text{MCAA}$ (CG) <sup>Orange Label</sup> 531	pH < 3	Y N					
	$\text{NH}_4\text{Cl}$ (AG) <sup>Purple Label</sup> 552	—	—					
	EDA (AG) <sup>Brown Label</sup> DBPs	—	—					
	Ascorbic + Maleic (AG) <sup>Lt Green Label</sup> 524.3	—	—					
	$\text{HCL}$ (CG) 524.2, BTEX, Gas, MTBE, 8260/624	—	—					
	Buffer pH 4 (CG)	—	—					
	None (CG)	—	—					
	$\text{H}_3\text{PO}_4$ (CG) <sup>Salmon Label</sup>	—	—					
	Other: <u>Tin Can</u>	—	—					
	Asbestos 1Liter Plastic w/ Foil	—	—					
	Low Level Hg / Metals Double Baggie	—	—					
	Bottled Water	—	—					
	Clear Glass Jar: 250 / 500 / 1 Liter	—	—					
	Soil Tube Brass / Steel / Plastic	—	—					
Tedlar Bag / Plastic Bag	—	—						
Split	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials	
	S P			S P				
Comments	S P			S P				

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California Regional Water Quality Control Board  
Lahontan Region



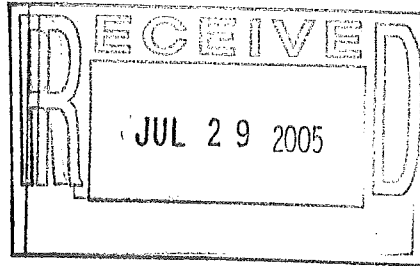
Alan C. Lloyd Ph.D.  
Agency Secretary

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(760) 241-6583 • Fax (760) 241-7308  
<http://www.waterboards.ca.gov/lahontan>

Arnold Schwarzenegger  
Governor

July 25, 2005

George T. Beene  
Ace Cogeneration Co.  
12801 Mariposa Street  
Trona, CA 93562



WDID No. 6B368907002

\* Environmental

Steve - This is  
is \* File # 5010  
Ted

**AMENDMENT TO REPORT OF WASTE DISCHARGE, ACE ASH, BOARD ORDER  
NO. 6-00-92, ACE COGENERATION COMPANY, TRONA, SAN BERNARDINO COUNTY**

**Introduction**

On July 11, 2005, Lahontan Regional Water Quality Control Board staff (Board staff) received the "Amendment to Report of Waste Discharge, ACE Cogeneration Facility, Trona, California" (RWD) for the ACE Ash Facility, Board Order No. 6-00-92, in Trona, San Bernardino County. General Requirement and Prohibition No. 21 of the Waste Discharge Requirements (WDRs) Board Order No. 6-00-92 requires the submittal of a report of a pilot test that utilizes a percentage of petroleum coke/coal that exceeds 30 percent. Board staff has reviewed this document, and considers that it is a report required by the current WDRs, and not an Amendment to the Report of Waste Discharge. Board staff also discussed this report with you on July 22, 2005, and indicated to you that the Regional Board is not considering this submittal to be an Amendment to your WDRs. The submittal included the following items.

- Cover Letter from ACE Cogeneration Company, dated July 8, 2005
- Amendment to Report of Waste Discharge, prepared by Pacific GeoScience, dated June 2005

**Report Summary**

1. The report indicated that a petroleum coke/coal test burn was conducted between January 24, 2005 and April 5, 2005;
2. The ash was deposited in a segregated area of the waste management unit, as required by the current WDRs. The WDRs also required that a report be submitted to the Regional Board which includes the following items:
  - a. location, quantity of stockpiled ash;
  - b. analysis of stockpile ash;
  - c. disposal options of stockpile ash and;
  - d. conclusions and recommendations of disposal options.

The submitted report complies with the requirements of the WDRs.

**California Environmental Protection Agency**



Recycled Paper

3. The report indicates that the depth to groundwater at the waste management unit is approximately 259 feet beneath the bottom of the cell, and the groundwater has total-dissolved solids content of 33,200 mg/L.
4. The report states that the ash samples were derived from combustion of petroleum coke/coal (up to 41 percent by weight), and were analyzed for metals, pH, and aquatic toxicity;
5. The report indicated that California Code of Regulations (CCR) - Title 22, California Regional Water Quality Control Board - Central Valley - Designated Level Methodology Guideline, and CCR Title 27 were utilized to determine if the ash was hazardous, designated or inert;
6. The report indicated that nine ash samples were collected during the petroleum coke/coal test burn, and the report states that the results indicated that the ash is non-hazardous, non-designated, inert waste, except for one sample, which exceeded the Soluble Threshold Limit Concentration (STCL) limit of 24 mg/L (actual result of 38 mg/L);
7. The attached Table 1 indicates the summary of the sample analysis from the nine ash samples. One sample exceeded the STLC for vanadium, as shown in the table, however the average STLC for all of the samples is below the regulatory limit;
8. Your classification of the ash as non-hazardous, non-designated, inert waste, was based on the following criteria:
  - a. TTLC and STLC analyzes of inorganic constituents in representative ash samples have resulted in values below Title 22 CCR limits, and the results indicate that the ash stream is non-hazardous;
  - b. All of the representative ash samples passed the biological toxicity regulatory requirements for non-hazardous wastes;
  - c. The petroleum coke/coal ash is not considered hazardous based on organic compound toxicity;
  - d. The ash stream is considered non-hazardous based on the absence of historical hazard evidence, and
  - e. The petroleum coke/coal ash is non-hazardous based on ignitability.
9. The report provided information on three other facilities that utilize the same petroleum coke/coal source (range from 10% to 80% petroleum coke by weight), which indicated that all of the other facilities have determined that the ash is non-hazardous, non-designated and inert.
10. The report provided the following conclusions:
  - a. ACE proposes to utilize a solid fuel of coal and up to 41% of petroleum coke for the generation of electricity and steam;

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Glen Casanova

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Sep 11, 2012 20:51

WDR Ash - Amendment 2005.pdf

2.11.4.1

July 25, 2005

- b. The petroleum coke/coal ash that will be generated from the 41% petroleum coke is anticipated to be a non-hazardous inert waste that can be discharged into the existing waste management units, and will not constitute a material change in the classification of the ash waste stream, and
- c. Three other facilities that utilize the same petroleum coke/coal (Mt. Poso, RB Poso, and RB Jasmin Facilities) have tested their ash, and the results indicate that the material is non-hazardous inert ash waste.

### Conclusion/Necessary Future Actions

Board staff accepts the report as required in the WDRs, Board Order No. 6-00-92. The 41% petroleum coke/coal ash stream usage is not considered a material change, and thus no amendment is required to the current WDRs. Board staff requests that the information on the pilot test be summarized in your next quarterly monitoring report, due to the Regional Board on October 15, 2005.

If you have any questions regarding this matter, please telephone me at (760) 241-7366 or Cindi Mitton, Senior Engineer at (760) 241-7413.

Sincerely,



Greg Cash  
Engineering Geologist  
Inyo/Mono Unit

Enclosure: Table 1 – Summary of Analytical Tests

cc: Edward Hoylman  
Pacific Geo Science  
30 Wilder Road  
San Anselmo, CA 94960

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WDR Ash Recycled Paper 2005.pdf

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Table 1  
Summary of Analytical Tests  
ACE Ash  
WDID No. 6B368907002

Constituent	Units	Title 22 Limit	Minimum	Maximum	Average
<b>TTLC</b>					
Antimony	mg/kg	500	<10	<10	<10
Arsenic	mg/kg	500	5	7	6.1
Barium	mg/kg	10,000	260	840	468.9
Beryllium	mg/kg	75	1	2	1.9
Cadmium	mg/kg	100	<1	2	1.7
Chromium	mg/kg	2,500	16	24	20.6
Cobalt	mg/kg	8,000	16	29	22
Copper	mg/kg	2,500	11	20	14.4
Lead	mg/kg	1,000	<5	13	9.9
Mercury	mg/kg	20	<0.1	0.2	0.1
Molybdenum	mg/kg	3,500	6	13	9.9
Nickel	mg/kg	2,000	610	1100	863.3
Selenium	mg/kg	100	<1	10	7.6
Silver	mg/kg	500	<2	<2	<2
Thallium	mg/kg	700	<2	<2	<2
Vanadium	mg/kg	2,400	750	1200	972.2
Zinc	mg/kg	5,000	21	33	27.4

<b>STLC</b>					
Vanadium	mg/L	24	4	38	15
pH	pH units	2 - 12.5	12.4	12.4	12.4



California Regional Water Quality Control Board  
Lahontan Region

Winston H. Hickox  
Secretary for  
Environmental  
Protection

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Gray Davis  
Governor

NOVEMBER 27, 2000

Dan Neilson  
ACE Cogeneration Company  
12801 Mariposa Street  
Trona, CA 93562

WDID NO. 6B368907002

**ADOPTED BOARD ORDER NO. 6-00-92**

**REVISED WASTE DISCHARGE REQUIREMENTS FOR ACE COGENERATION  
COMPANY, ACE ASH, SAN BERNARDINO COUNTY**

Enclosed is a copy of Board Order No. 6-00-92 which was adopted at the Regional Board Meeting held in Ridgecrest, California on November 15, 2000.

Sincerely,

Rebecca Phillips  
Office Technician

Enclosure



Nez

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION

BOARD ORDER NO. 6-00-92  
WDID NO. 6B368907002

REVISED WASTE DISCHARGE REQUIREMENTS  
FOR

ACE COGENERATION COMPANY  
ACE ASH

San Bernardino County

The California Regional Water Quality Control Board, Lahontan Region (Regional Board) finds:

1. Discharger

On July 13, 2000, A/C Power, - ACE Operations (ACE), submitted the necessary information to constitute a complete Report of Waste Discharge (RWD) for the ACE Plant solid waste ash discharge. For the purposes of this Regional Board Order (Order), ACE Cogeneration Company (ACE) and IMC Chemicals, Inc. (IMCC) are referred to as the "Discharger."

As a landowner of the property on which ACE disposal operations occur, IMCC is a responsible party for the discharge and any condition or threatened condition of pollution or nuisance resulting from the discharge as it affects surface or ground waters on IMCC managed land. Naming IMCC as a Discharger in this Order is consistent with past determinations by Regional Boards and the State Water Resources Control Board (SWRCB) in naming landowners as Dischargers. If ACE fails to meet the requirements of this Order or future enforcement Orders, the Regional Board will look to IMCC to meet and/or complete the requirements of this Order and/or future enforcement Orders. Before IMCC is required to meet and/or complete such requirements, IMCC will be so informed of such requirements in writing by the Regional Board Executive Officer, and a new time schedule for compliance with such requirements, will formally be established. Hereinafter, the term "Dischargers" will be used to signify the scheme of primary responsibility for ACE and secondary responsibility for IMCC for compliance actions specified in this Order as they affect surface or ground waters on IMCC managed lands.

2. Facility

The Discharger operates a solid fuel (coal and/or petroleum coke) atmospheric fluidized bed combustor boiler at an electrical power and process steam cogeneration plant in Trona, near the west side of Searles Lake as shown on Attachment "A", which is made a part of this Order. The Discharger currently discharges its ash waste stream to its unclassified unlined waste management unit (WMU), located northwest of the ACE Operations.

3. Order History

ACE has been producing ash since September 1990, and has been discharging it to an unlined WMU at the Facility since that time. The Facility was previously operating under Waste Discharge Requirements (WDRs), Board Order No. 6-90-05, which was adopted on January 11, 1990. On October 30, 1997, the Regional Board Executive Officer issued an amended Monitoring and Reporting Program, Board Order No. 90-05A1, which required annual sampling of the ash. On March 5, 1998, Amended WDRs, Board Order No. 6-90-05A1, were issued by the Regional Board which allowed the use of petroleum coke as a fuel source. Discharges of cooling tower blowdown are regulated under a separate Order.

4. Reason for Action

The Regional Board is revising WDRs for the following reasons:

- a. Incorporate 1995 Basin Plan changes;
- b. Describe and allow a modified ash handling and disposal method at its WMU (Finding No. 8);
- c. Allow the Discharger to include non-hazardous inert refractory/boiler waste in its solid waste stream managed at the facility's onsite unclassified WMU (Finding No. 10); and

CEC?

5. Facility Location

The Facility is located west of the Community of Trona adjacent to the IMC Chemicals Argus and Trona Facilities within Sections 7 and 18, T25S, R43 E, MDB&M as shown on Attachment "A" which is made a part of this Order.

6. Description of Facility and Discharge

The Discharger burns solid fuel (coal and/or petroleum coke) using the circulating fluidized bed combustion process to generate electricity and provide steam. As part of the combustion process, the Facility generates a non-hazardous inert ash waste stream. The ash waste stream consists of a combination of dry fly and bottom ash.

The discharge location for this Facility is located at the WMU located approximately 1,000 feet northwest of the ACE Plant.

The ash waste stream is mixed with brackish water to form an ash slurry. The slurry is gravity fed into an unlined disposal cell at the WMU. The slurry material solidifies into a concrete-like material and chemical constituents in the ash become fixated during the solidification process. The fixation process has been shown to reduce the leachability of metals found in the dry wash waste stream.

7. Ash Handling and Discharge Operations

The ACE boiler ash waste stream will be stored onsite at the plant in two separate 500-ton capacity storage silos. Approximately 50,000 tons of ash is discharged to the WMU each year. The ash is composed primarily of gypsum, inert material in the limestone, and inert metals present in the fuel burned. The ash will be transported to the disposal site in trucks. A specially designed pneumatic ash loading and unloading system will be implemented to minimize atmospheric discharge and spillage of ash. At the disposal site, the ash will be combined with cooling tower blowdown water (25,000 mg/l average total dissolved solids (TDS)) as the primary water source, or commingled with brackish well water (70,000 to 80,000 TDS) as a backup water source. The resulting slurry will be discharged into unlined cells constructed at the unclassified waste management unit (WMU).

The applied average slurry moisture content is designed to be 50 percent. In pilot scale tests, ash from similar coal, burned in a similarly designed boiler, was mixed with brackish supply water. The mixture solidified into a material, which had characteristics of concrete. Mixtures with moisture content of 35 percent or greater achieved unconfined 14-day compressive strengths exceeding 1,700 pounds per square inch.

8. Modified Ash Handling and Discharge Operations

The proposed modifications to the Ash handling and Discharge Operations consist of the following:

- a. During the dump truck loading process, a small amount of water (potable or brackish source) will be mixed with the ash at a pugmill that is to be built into the silo storage structure. The percent moisture by weight is anticipated to be 20 percent, however, it will not exceed 65 percent. Material greater than 50 percent moisture is allowed, as long as Section 20200(d) of Title 27, California Code of Regulations (CCR) is satisfied.
- b. The moist ash and other waste stream material along with other non-hazardous inert refractory boiler waste is trucked to the WMU where it is discharged to the unlined disposal cells from the dump truck as it is driven along the floor of the WMU.
- c. The moist ash waste stream and other non-hazardous inert refractory/boiler waste are then spread across the floor of the WMU cell using a tractor, grader or bulldozer.
- d. Water is added to the top of ash material after grading as needed for dust control.

9. Authorized Disposal Sites

The unlined WMU is the authorized disposal site for the ash waste stream, as described in Finding No. 6. This site is located west of the Community of Trona, approximately 1,000 feet northwest of the ACE Plant. This area consists of approximately 65-acre site, which has a design life of 25 years. The total design capacity of the site is 1.8 million cubic yards, with an average annual proposed usage of 72,200 cubic yards. The site will be developed in phases; wherein cells of layered, solidified ash will be built up to a height of approximately 12 to 20 feet.

10. Ash Designation

The waste ash/cooling water blowdown/brackish water slurry discharged to the WMU is classified as non-hazardous waste pursuant to Section 66305, Chapter 30, Division 4, Title 22, CCR. The Discharger uses petroleum coke as an alternative fuel source. Using petroleum coke as a fuel source increases the concentrations of nickel and vanadium in the combined bottom and fly ash. Based on the results of a pilot study, vadose zone study, and data collected from three similar facilities in Kern County, the use of 30 percent petroleum coke as a fuel source will not result in a threat to ground water quality, or cause limits for hazardous waste to be exceeded as defined in Title 22, CCR. The solidified, fixated waste constitutes an inert non-designated waste pursuant to Section 20230, Title 27, CCR. According to Section 20230(b) of Title 27, CCR, inert wastes do not need to be discharged at classified units.

This Order allows inclusion of non-hazardous waste refractory material into the waste stream which may be discharged into the WMU. The Discharger has provided information in the RWD, that the addition of the waste refractory material into the ash waste stream at ACE will not have an adverse affect on the beneficial use of ground water nor will it present a threat to water quality.

The refractory waste stream is a by-product of the as-manufactured refractory material, the combustion process, the inert material found in the limestone feed stock and the inert metals present in the fuel burned (i.e., coal and/or petroleum coke). Degradable material in the fuel is destroyed during the combustion process and is not present in the refractory waste stream; therefore, the refractory waste stream is classified as a non-hazardous inert waste. The Discharger has conducted the following tests to determine that the refractory waste is non-hazardous and inert:

- a. Biological Testing;
- b. Organic Compound Testing;
- c. Historical Hazard Evidence;
- d. Total Toxicity Limit Concentrations (TTLC) and Soluble Toxicity Limit Concentrations STLC Testing;
- e. Ignitability Testing;
- f. Reactivity Testing;
- g. Corrosivity Testing; and
- h. Pollutant Characterization.

11. Use of Petroleum Coke as a Fuel Source

The Discharger has conducted a pilot study to determine the feasibility of using petroleum coke as an alternative fuel source. One element of the study was to evaluate the chemical nature of ash when petroleum coke is burned as a fuel source. Specifically, Constituents of Concern (COC) associated with burning petroleum coke include vanadium and nickel. The Discharger has also submitted data generated at three similar facilities in Kern County which burn petroleum coke as a fuel source.

12. Results of the Pilot Test

The pilot test conducted at the Facility consisted of burning petroleum coke ranging from approximately 15 to 30 percent of the total fuel source. Seventeen samples of the ash were collected during the pilot test for laboratory analysis. These data indicate elevated concentrations of total and soluble vanadium and nickel in the ash as a result of burning petroleum coke. Only one of the 17 samples indicated a concentration of a COC exceeding hazardous limits as defined in Title 22, CCR (Title 22). When burning 30 percent petroleum coke at the Facility, vanadium was detected at a soluble concentration of 27 mg/L. This concentration of vanadium barely exceeds its respective soluble threshold limit concentration (STLC) of 24 mg/L for hazardous waste as defined in Title 22. The hazardous ash was removed from the waste management unit and relocated to an appropriate disposal facility. In addition to data collected at the Facility, the Discharger has submitted data from three other cogeneration facilities in Kern County that burn petroleum coke as an alternative fuel source. Data from eighty-nine samples were submitted by the Discharger, which also generally indicate elevated concentrations of vanadium and nickel in the ash as a result of burning petroleum coke. None of the eighty-nine samples indicated hazardous concentrations of vanadium or nickel as defined in Title 22.

13. Results of a Vadose Zone Study at the Facility

In 1997, the Discharger conducted a study at the unlined waste management unit to determine the potential threat to water quality from ash disposal at the Facility. The results of the study appear to indicate:

- a. the vertical limits of migration of liquids associated with the combined ash is a maximum of approximately nine feet below the existing unlined waste management unit;
- b. the matric potential of the ash is high in comparison to the underlying native silt, sand, and gravel. This contrast in matric potential limits the potential for downward migration of liquids under unsaturated flow conditions;

- c. depth to the upper most aquifer beneath the unlined waste management unit is approximately 280 feet below ground surface. The quality of the ground water is poor, with TDS exceeding 30,000 mg/L; and,
- d. the STLC analysis uses acid to simulate worse case leaching conditions. The pH of the combined ash is approximately 12 pH units. The alkaline nature of the fixated ash limits the leachability of metals.

Based on these Findings, it is concluded that the discharge of ash derived from coal and petroleum coke poses a minor threat to ground water quality at the Facility.

The apparent limited vertical migration of COC associated with the disposal of the fixated ash and the significant vadose zone thickness provides a conservative protection against migration of COC to ground water. As such, the combined ash is a non-hazardous waste and not a designated waste as defined in Title 27, CCR.

Considering that the STLC limit for vanadium was exceeded in one sample when burning 30 percent petroleum coke during the pilot test at the Facility, there may be a limitation on the amount of petroleum coke that can be used as the fuel source. This Order requires the Discharger to: (1) conduct additional sampling of the ash when the percentage of petroleum coke as the fuel source exceeds 30 percent; (2) place the ash in a separate staging area in the WMU until the analytical results are received; and, (3) to remove and relocate any ash from the WMU that exceeds hazardous levels for COC as defined in Title 22.

#### 14. Site Geology

The WMU is located in a closed structural basin filled with alluvium and non-marine evaporites. The basin is in the southwest part of the Basin and Range geologic province of Southern California. Geological units in the basin consist of alluvial deposits, saline deposits, and the surrounding bedrock complex. Within the basin, evaporite deposits alternate with mud beds. Thickness of the alluvial deposits range from about 20 feet in the northern portion of the basin to several thousand feet in the center of the valley.

#### 15. Site Hydrogeology

Brackish ground water within the alluvial deposits in the Searles Lake area occurs under both confined and unconfined conditions. Ground water level in the uppermost aquifer in the alluvial deposits occurs at a depth of 280 feet below ground surface (bgs). A 259 feet vadose zone exists beneath the bottom of Cell 1. The average annual precipitation in the vicinity of the WMU is reported to be four inches. The ground water in the vicinity of the WMU has a reported average TDS concentration of 33,200 mg/l.



16. Receiving Waters

The receiving waters are the ground waters of Searles Valley Hydrologic Area of the Trona Hydrologic Unit as set forth and defined in the Water Quality Control Plan (Basin Plan) for the South Lahontan Basin. The Department of Water Resources (DWR) designation for the Searles Valley Hydrologic Area is 621.10.

17. Lahontan Basin Plan

The Regional Board adopted a Basin Plan which became effective on March 11, 1995 and this Order implements the Basin Plan, as amended.

18. Beneficial Uses - Ground Water

The beneficial uses of the ground waters of Searles Valley (DWR 6.52, listed in the Basin Plan, Table 2-2) as set forth and defined in the Basin Plan is:

Industrial Service Supply (IND).

19. California Environmental Quality Act (CEQA)

The California Energy Commission (CEC), as CEQA lead agency, has completed its plant site certification process for an Argus Cogeneration Expansion (ACE) Project (Docket 86-AFC-IC) on September 6, 2000 which included allowing the use of petroleum coke as a solid fuel source. The ACE project, as approved by the CEC, will not have a significant environmental impact associated with the proposed change.

All other aspects of these revised WDRs are exempt from the provisions of the CEQA (Public Resources Code Section 21000 et seq.) in accordance with Section 15301 (Title 14, California Code of Regulations) because these WDRs govern an existing facility which the Discharger is currently operating.

20. Financial Assurance

The Discharger has provided documentation that financial assurance has been developed for closure and subsequent maintenance of the project site. This Order requires that the Discharger demonstrate in an annual report that the amount of financial assurance is adequate, or increase the amount of financial assurance.

21. Notification of Interested Parties

The Regional Board has notified the Discharger and interested parties of its intent to revise WDRs for this discharge.

22. Consideration of Public Comments

The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

**IT IS HEREBY ORDERED** that the Discharger shall comply with the following:

I. DISCHARGE SPECIFICATIONS

A. Discharge Requirements

1. The discharge of slurry to the Ash Disposal Site shall be limited to the ACE ash waste stream/cooling tower blowdown/brackish water slurry as described in Finding Nos. 6, 7 and 10. The discharge of non-hazardous inert refractory/boiler waste is allowed provided that the waste stream is non-hazardous.
2. The moisture content of the applied ash/water slurry shall not be more than 65 percent.
3. When the percentage of petroleum coke in the solid fuel exceeds 30 percent, the Discharger shall implement a Sampling and Analysis Plan for the ash waste stream. Pending the analytical results of the samples, all ash derived from a fuel source exceeding 30 percent petroleum coke shall be segregated in a designated staging areas of the WMU. If the ash is determined to be non-hazardous and inert as defined in Title 22, it may remain in the WMU. If the ash is determined to be hazardous, the ash shall be removed from the WMU and relocated to an appropriate disposal site.

II. RECEIVING WATER LIMITATIONS

This discharge shall not cause a violation of any applicable water quality standard for receiving water adopted by the Regional Board or the State Water Resources Control Board (SWRCB).

The discharge shall not cause the presence of the following substances or conditions in ground waters of the Trona Hydrologic Unit.

Ground Waters

The discharge shall not cause the presence of the following substances or conditions in the ground water of the Trona Hydrologic Unit:

1. Chemical Constituents - Ground waters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.
2. Radioactivity - Waters shall not contain concentrations of radionuclides in excess of limits specified in the CCR, Title 22, Chapter 15, Article 5, Section 64443.
3. Taste and Odors - Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses.

### III. GENERAL REQUIREMENTS AND PROHIBITIONS

1. The discharge of waste which causes violation of any narrative water quality objective contained in this Plan, including the Nondegradation Objective, is prohibited.
2. The discharge of waste which causes violation of any numeric water quality objective contained in this Plan is prohibited.
3. Where any numeric or narrative water quality objective contained in this Plan is already being violated, the discharge of waste which causes further degradation or pollution is prohibited.
4. Surface flow or visible discharge of industrial or domestic wastewater from the disposal sites to adjacent land areas or surface waters is prohibited.
5. The discharge of waste except to the authorized disposal sites is prohibited.
6. The discharge shall not cause a pollution, as defined by Section 13050(I) of the California Water Code, or a threatened pollution.
7. The discharge shall not cause a nuisance as defined in Section 13050 of the California Water Code.
8. The Discharger shall remove and relocate any wastes, which are discharged at the disposal sites in violation of these WDRs.
9. Precipitation and drainage control facilities installed for the protection of WMUs shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff in the event of a 100 year, 24-hour precipitation event. +
10. WMUs and containment structures shall be designed and constructed to limit ponding, infiltration, inundation, erosion, slope, failure, washout, and overtopping which could be caused by a 100 year, 24-hour precipitation event. +

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11. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system.
12. Surface drainage from outside the WMU shall be diverted from the WMU.
13. Discharges to the WMU or units shall be discontinued in the event of any failure, which causes a threat to water quality.
14. The WMU shall be designed to withstand the maximum credible earthquake that would be expected to occur in the vicinity of the site, without damage to the foundation or to the structures which control leakage, surface drainage or erosion. +
15. The WMU shall be designed and constructed to prevent migration of wastes from the WMU to adjacent geologic materials, ground water, or surface water, during disposal operations, closure, and the post-closure maintenance period. +
16. Containment structures shall be designed by and construction shall be supervised and certified by a Registered Civil Engineer or a Certified Engineering Geologist. +
17. Signs must be posted which warn the public of the presence of waste.
18. Access to the disposal site shall be controlled to effectively exclude the public.
19. The discharge shall not cause degradation of any water supply.
20. The staging area must meet the requirements of Section 20200(b), Title 27 CCR, which requires a higher level of containment than the WMU. The waste placed in this staging area must remain until all analytical results are known.
21. When the percentage of petroleum coke exceeds 30 percent, the Discharger must place the ash in a separate staging area. A report submitted including the following items should be submitted to the Regional Board no later than 60-days after to the initial episode of burning of more than 30 per cent petroleum coke:
  - a. location, quality of stockpiled ash;
  - b. analysis of stockpile ash;
  - c. disposal options of stockpile ash and
  - d. conclusions and recommendation of disposal options.

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#### IV. PROVISIONS

##### A. Rescission of WDRs

Board Order Nos. 6-90-05 and 6-90-05A1 are hereby rescinded.

##### B. Standard Provisions

The Discharger shall comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994 (Attachment "B"), which is made part of this Order.

##### C. Monitoring and Reporting

1. Pursuant to Section 13267(b) of the California Water Code, the Discharger shall comply with Monitoring and Reporting Program No. 00-92 as specified by the Executive Officer.
2. The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of the Monitoring and Reporting Program.

##### D. Closure and Post-Closure

The Preliminary Closure and Post-Closure Maintenance Plan (CPCMP), shall be updated when there is a substantial change in operations, and a report shall be submitted annually indicating conformance with existing operations. A final CPCMP shall be submitted at least 180 days prior to beginning any partial or final closure activities or at least 120 days prior to discontinuing the use of the site for waste treatment, storage or disposal, whichever is greater. The final CPCMP shall be prepared by or under the supervision of either a Civil Engineer or a Certified Engineering Geologist registered in the State of California. The updating of the CPCMP may be prepared by or under the supervision of the owner or operator of the waste disposal site.

##### E. Financial Assurance

The Discharger shall submit a report annually providing evidence that adequate financial assurance pursuant to the requirements of the WDRs has been provided for closure, post-closure, and for potential releases. Evidence shall include the total amount of money available in the fund developed by the Discharger. In addition, the Discharger shall either provide evidence that the amount of financial assurance is still adequate or increase the amount of financial assurance by the appropriate amount. An increase may be necessary due to inflation, a change in regulatory requirements, a change in the approved closure plan, or other unforeseen events.

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F. Modifications to the Waste Management Unit

If the Discharger intends to expand the capacity of the WMU, a report shall be filed no later than 90 days after the total quantity of waste discharged at this site equals 75 percent of the reported capacity of the site. The report shall contain a detailed plan for site expansion. This plan shall include, but is not limited to a time schedule for studies design, and other steps needed to provide additional capacity. If site expansion is not undertaken prior to the site reaching the reported capacity, the total quantity discharged shall be limited to the reported capacity.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on November 15, 2000.

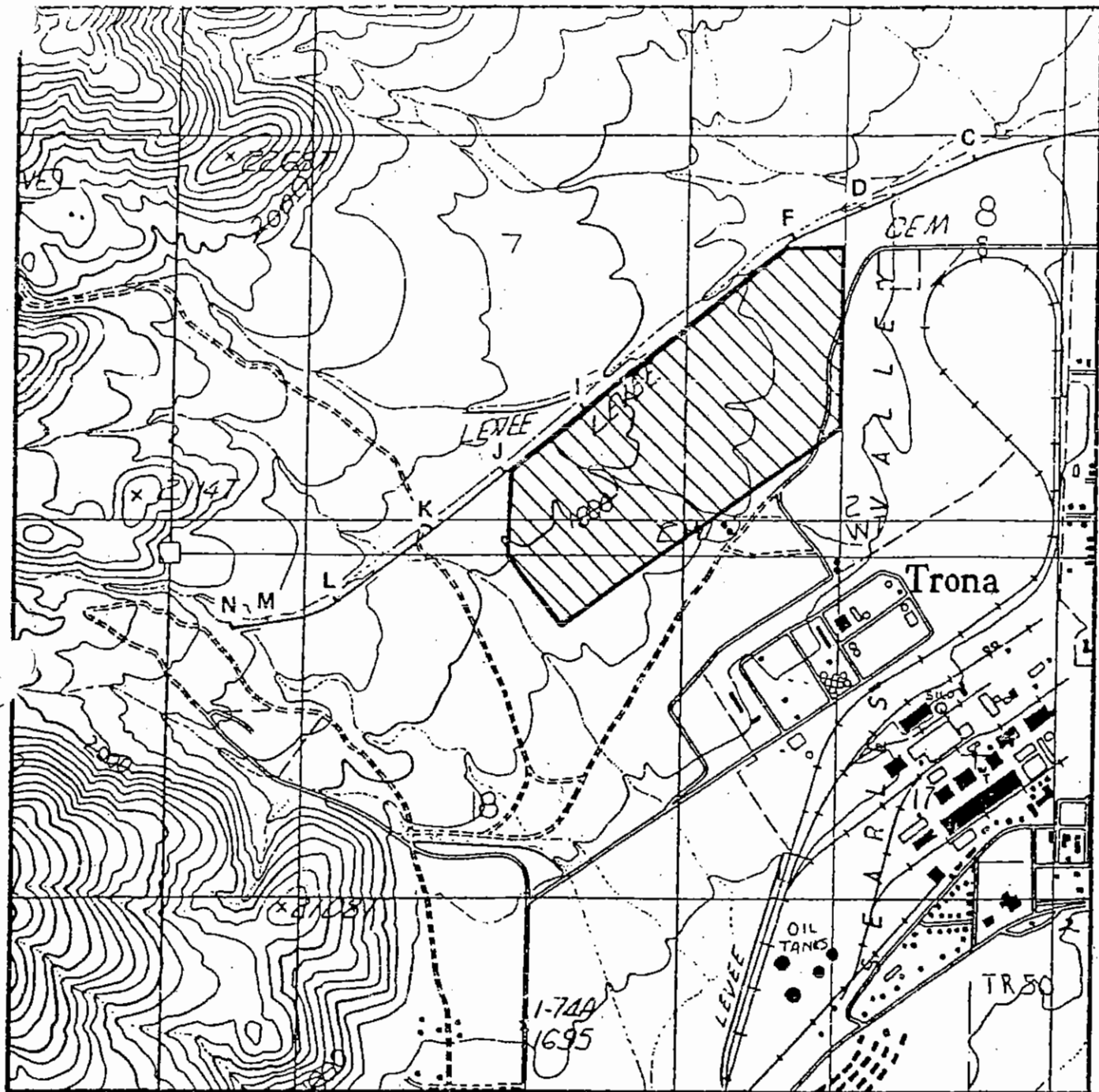


HAROLD J. SINGER  
EXECUTIVE OFFICER

Attachments: A. Location Map  
B. Standard Provisions for WDRs

11/2000 ACE-ASH WDR

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SCALE IN FEET

Source:

U.S. Geological Survey Map, Trona West  
Quadrangle, California, 7.5 minute series  
(topographic). 1983.

## ATTACHMENT "A" SITE LOCATION AND TOPOGRAPHY

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

**STANDARD PROVISIONS**  
**FOR WASTE DISCHARGE REQUIREMENTS**

1. Inspection and Entry

**ATTACHMENT B**

The Discharger shall permit Regional Board staff:

- a. to enter upon premises in which an effluent source is located or in which any required records are kept;
- b. to copy any records relating to the discharge or relating to compliance with the Waste Discharge Requirements;
- c. to inspect monitoring equipment or records; and
- d. to sample any discharge.

2. Reporting Requirements

- a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.
- b. Pursuant to California Water Code Section 13260(c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not limited to, all significant soil disturbances.
- c. The Owners/Discharger of property subject to Waste Discharge Requirements shall be considered to have a continuing responsibility for ensuring compliance with applicable Waste Discharge Requirements in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the Waste Discharge Requirements shall be reported to the Regional Board. Notification of applicable Waste Discharge Requirements shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.
- d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing and correct that information.
- e. Reports required by the Waste Discharge Requirements, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger. Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation.



- f. If the Discharger becomes aware that their Waste Discharge Requirements (or permit) is no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their Waste Discharge Requirements (or permit) be rescinded.

3. Right to Revise Waste Discharge Requirements

The Regional Board reserves the privilege of changing all or any portion of the Waste Discharge Requirements upon legal notice to and after opportunity to be heard is given to all concerned parties.

4. Duty to Comply

Failure to comply with the Waste Discharge Requirements may constitute a violation of the California Water Code and is grounds for enforcement action or for permit termination, revocation and reissuance, or modification.

5. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of the Waste Discharge Requirements which has a reasonable likelihood of adversely affecting human health or the environment.

6. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the Waste Discharge Requirements. Proper operation and maintenance includes adequate laboratory control, where appropriate, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger, when necessary to achieve compliance with the conditions of the Waste Discharge Requirements.

7. Waste Discharge Requirement Actions

The Waste Discharge Requirements may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for waste discharge requirement modification, revocation and reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any of the Waste Discharge Requirements conditions.

8. Property Rights

The Waste Discharge Requirements do not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

Enforcement

The California Water Code provides for civil liability and criminal penalties for violations or threatened violations of the Waste Discharge Requirements including imposition of civil liability or referral to the Attorney General.

## STANDARD PROVISIONS

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### 10. Availability

A copy of the Waste Discharge Requirements shall be kept and maintained by the Discharger and be available at all times to operating personnel.

### 11. Severability

Provisions of the Waste Discharge Requirements are severable. If any provision of the requirements is found invalid, the remainder of the requirements shall not be affected.

### 12. Public Access

General public access shall be effectively excluded from disposal/treatment facilities.

### 13. Transfers

Providing there is no material change in the operation of the facility, this Order may be transferred to a new owner or operator. The owner/operator must request the transfer in writing and receive written approval from the Regional Board's Executive Officer.

### 14. Definitions

- a. "Surface waters" as used in this Order, include, but are not limited to, live streams, either perennial or ephemeral, which flow in natural or artificial water courses and natural lakes and artificial impoundments of waters. "Surface waters" does not include artificial water courses or impoundments used exclusively for wastewater disposal.
- b. "Ground waters" as used in this Order, include, but are not limited to, all subsurface waters being above atmospheric pressure and the capillary fringe of these waters.

### 15. Storm Protection

- a. All facilities used for collection, transport, treatment, storage, or disposal of waste shall be adequately protected against overflow, washout, inundation, structural damage or a significant reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION

REVISED MONITORING AND REPORTING  
PROGRAM NO. 00-92  
WDID NO. 6B368907002  
FOR  
ACE COGENERATION COMPANY  
ACE ASH

San Bernardino County

I. MONITORING

A. Disposal Monitoring

The following shall be recorded and the information submitted quarterly for the following:

1. The monthly and cumulative volumes, in tons, of the ash waste stream discharged to either the authorized ash disposal site, marketed for beneficial use, or disposed of at approved off-site disposal site. The name and location of any off-site legal facility used for discharge of fly and /or bottom ash shall be included in the monitoring report.
2. The total volumes, in gallons, of cooling tower blowdown water and/or brackish water discharged to the disposal site as part of the ash slurry each month.
3. The source and type of the coal and/or petroleum coke used in the ACE boiler each quarter.
4. The quarterly and cumulative disposal capacity used (cubic yards), the total capacity remaining, and the percent of total capacity used, each quarter.
5. Information on the location and amount of material in the staging area, when petroleum coke exceeds 30 percent. This material should be segregated and analyzed prior to disposal into the WMU in accordance with the previously approved Sampling and Analysis Plan dated May 20, 1997.

B. Waste Monitoring

Combined grab samples of the ash waste stream shall be collected and reported yearly in January, and when there has been a change (e.g., change in the solid fuel source) that could significantly affect the heavy metal content of the solid waste.

The samples of waste shall be tested in accordance with Section 66700, Article II (Criteria for Identification of Hazardous and Extremely Hazardous Wastes), Chapter 30, Title 22, California Code of Regulations to determine the total constituent concentration in mg/kg and the extractable constituent content in mg/L for the following constituents:

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MONITORING AND REPORTING  
PROGRAM NO. 00-92  
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Parameters

Antimony	Lead
Arsenic	Mercury
Barium	Molybdenum
Beryllium	Nickel
Cadmium	Selenium
Chromium (VI)	Silver
Chromium (total)	Thallium
Cobalt	Vanadium
Copper	Zinc

C. Source Water Monitoring

Grab samples of the waste ash slurry source water shall be identified as cooling water or brackish supply and shall be collected, analyzed and reported annually to determine the magnitude of the following parameters:

<u>Parameter</u>	<u>Units</u>	<u>EPA Method</u>	<u>Brackish Supply Frequency</u>
Total Dissolved Solids	mg/L	EPA 160.1	Annually
Arsenic	µg/L	EPA 7060	Annually
Boron	µg/L	EPA 200.7	Annually
Fluoride	µg/L	EPA 340.2	Annually
Iron	µg/L	EPA 200.7	Annually
Nickel	µg/L	EPA 6010	Annually
Molybdenum	µg/L	EPA 6010	Annually
Beryllium	µg/L	EPA 6010	Annually
Selenium	µg/L	EPA 7740	Annually
Vanadium	µg/L	EPA 6010	Annually
Chromium (VI)	µg/L	EPA 218.4	Annually
Chromium (total)	µg/L	EPA 218.1	Annually
Chloride	mg/L	EPA 4500	Annually
Sodium	mg/L	EPA 200.7	Annually
Sulfate	mg/L	EPA 4500	Annually
Alkalinity as CO <sub>3</sub>	mg/L	EPA 2320	Annually
Hardness	mg/L	EPA 2340	Annually
pH	pH units	EPA 9040	Annually

D. Site Monitoring

The landfill and staging area shall be inspected monthly to check the integrity of the solidified slurry cells. Should the inspection indicate that an unauthorized discharge has occurred, or may occur, the Regional Board shall be notified immediately; written notification shall follow. Observation of the monthly inspections shall be recorded in a field logbook, which shall be available to Regional Board staff upon request.

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E. Unsaturated Zone Monitoring

The unsaturated zone (vadose) monitoring network consists of seven pressure-vacuum lysimeters and through electrical resistance blocks as shown on Attachment A. Specifically the monitoring network is composed as follows:

<u>Lysimeters</u>	<u>Electrical Resistance Blocks</u>	<u>Background Lysimeters</u>
VM-9	ER-9	C-2
VM-10	ER-10	C-3

For any new or replacement lysimeters, a lithologic log for each borehole shall be completed by a Certified Engineering Geologist, Registered Engineer or Registered Geologist registered in the State of California and shall be provided to the Regional Board by no later than 30 days after drilling of the holes.

F. Sampling Program

A semi-annual unsaturated zone monitoring and sampling program shall continue which includes procedures and techniques for: sample collection, sample preservation and shipment, analytical procedures, and chain of custody control. An updated monitoring and sampling program shall be submitted whenever changes to the program are implemented.

The unsaturated zone monitoring samples should shall be collected, analyzed and reported semi-annually to determine the magnitude of the following parameters:

<u>Parameter</u>	<u>Units</u>	<u>EPA Method</u>	<u>Frequencies</u>
Total Dissolved Solids	mg/l	EPA 160.1	Semi-annual
Arsenic	µg/L	EPA 7060	Semi-annual
Boron	µg/L	EPA 200.7	Semi-annual
Fluoride	µg/L	EPA 340.2	Semi-annual
Iron	µg/L	EPA 200.7	Semi-annual
Nickel	µg/L	EPA 6010	Semi-annual
Molybdenum	µg/L	EPA 6010	Semi-annual
Beryllium	µg/L	EPA 6010	Semi-annual
Selenium	µg/L	EPA 7740	Semi-annual
Vanadium	µg/L	EPA 6010	Semi-annual
Chloride	mg/L	EPA 4500	Semi-annual
Sodium	mg/L	EPA 200.7	Semi-annual
Sulfate	mg/L	EPA 4500	Semi-annual
Alkalinity as CO <sub>3</sub>	mg/L	EPA 2320	Semi-annual
pH	pH units	EPA 9040	Semi-annual

G. Statistical Analysis

The Discharger shall conduct soil-pore liquid quality sampling and analysis. Based on background soil-pore liquid quality, the Discharger shall perform a statistical analysis, each monitoring period (after eight independent samples are collected), in accordance with the procedures specified in Section 2555(h), Subchapter 15, Chapter 3, Title 23, California Code of Regulations.

H. Financial Assurance

In the first quarter's report of each year the Discharger shall submit evidence that adequate financial assurance as described in Finding No. 20 has been obtained. Evidence may include a copy of the renewed financial instrument or a copy of the receipt for payment of the financial instrument. In addition, the discharger shall either provide evidence that the amount of financial assurance is still adequate or increase the amount of financial assurance by the appropriate amount.

I. Operation and Maintenance

A brief summary of any operational problems and maintenance activities affecting effluent discharges shall be submitted to the Regional Board with each quarterly monitoring report.

This summary shall discuss:

1. Any significant modifications or additions to the disposal facility;
2. Any major maintenance conducted on the disposal facility; and
3. Any major problems occurring in the disposal facility.

II. REPORTING

- A. Quarterly monitoring reports including the preceding information shall be submitted to the Board by the 15th day of the month following each quarter.
- B. Semi-annual monitoring reports of the and unsaturated zone monitoring shall be submitted to the Board by the 30<sup>th</sup> day of the month following each semester. The reports will be due to the Regional Board on January 30<sup>th</sup> and August 30<sup>th</sup> each year.
- C. Annual monitoring reports of the source water monitoring (Brackish supply water) shall be submitted to the Regional Board by January 30<sup>th</sup> each year.

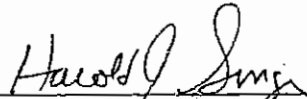
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PROGRAM NO. 00-92  
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- D. On or before January 30, 2001, and before January 30 every year thereafter the Discharger shall submit an annual financial assurance report to the Regional Board. This report shall summarize the amount of money available to ensure the closure and subsequent maintenance of the project site in a manner that will not pose an adverse threat to the environment. This report should also provide a demonstration that the amount of financial assurance is adequate, or the need to increase the amount of financial assurance based on inflation or other factors.
- E. In accordance with General Provisions 3.a., the Discharger shall make a compliance statement in each submitted monitoring report, noting each violation that occurred during the reporting period and actions taken and/or proposed to return into compliance.

Ordered by:



HAROLD J. SINGER  
EXECUTIVE OFFICER

Dated: November 15, 2000

- Attachments: A. Monitoring Location Map  
B. General Provisions for Monitoring and Reporting

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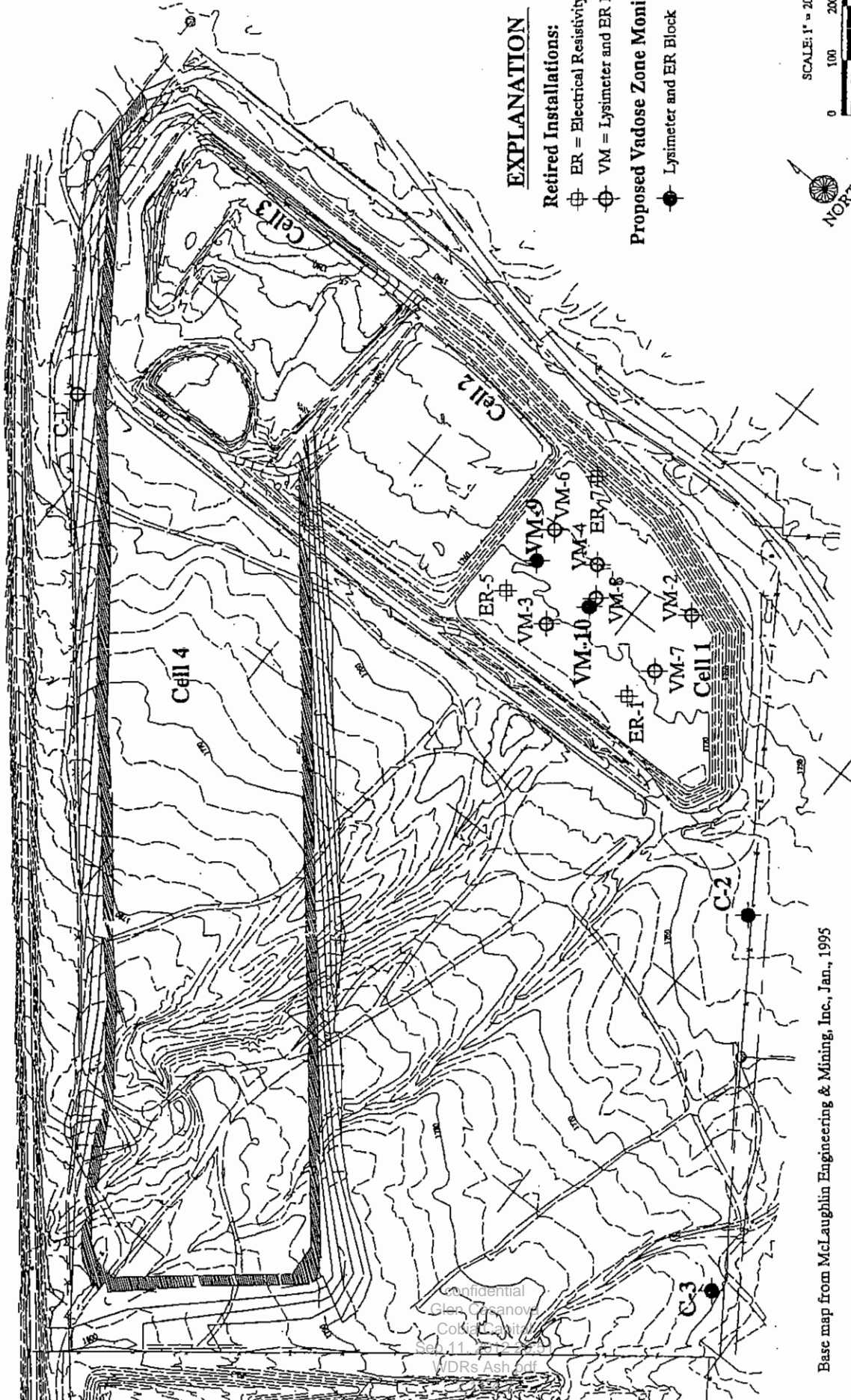
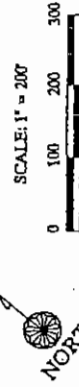
# EXPLANATION

## Retired Installations:

- ⊕ ER = Electrical Resistivity Block
- ⊕ VM = Lysimeter and ER Block

## Proposed Vadose Zone Monitoring Probe:

- ⊕ Lysimeter and ER Block



Base map from McLaughlin Engineering & Mining, Inc., Jan., 1995

<p>Figure 1</p>	<p>Vadose Zone Monitoring Locations ACE Cogeneration Facility, Trona, CA</p>	<p>Job No.: 01-1022B Approved: RAH Date: Sept., 2000</p>
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Pacific GeoScience, San Anselmo, CA

ATTACHMENT A



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION

ATTACHMENT B

GENERAL PROVISIONS  
FOR MONITORING AND REPORTING

1. SAMPLING AND ANALYSIS

- a. All analyses shall be performed in accordance with the current edition(s) of the following documents:
  - i. Standard Methods for the Examination of Water and Wastewater
  - ii. Methods for Chemical Analysis of Water and Wastes, EPA
- b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board. Specific methods of analysis must be identified on each laboratory report.
- c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The method used shall also be reported. If methods other than USEPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.
- d. The Discharger shall establish chain-of-custody procedures to ensure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.
- e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall ensure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.
- f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.
- g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

## 2. OPERATIONAL REQUIREMENTS

### a. Sample Results

Pursuant to California Water Code Section 13267(b), the Discharger shall maintain all sampling and analytical results including: strip charts; date, exact place, and time of sampling; date analyses were performed; sample collector's name; analyst's name; analytical techniques used; and results of all analyses. Such records shall be obtained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

### b. Operational Log

Pursuant to California Water Code Section 13267(b), an operation and maintenance log shall be maintained at the facility. All monitoring and reporting data shall be recorded in a permanent log book.

## 3. REPORTING

- a. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time and submit a timetable for correction.
- b. Pursuant to California Water Code Section 13267(b), all sampling shall be made available to the Regional Board upon request. Results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- c. The Discharger shall provide a brief summary of any operational problems and maintenance activities to the Regional Board with each monitoring report. Any modifications or additions to, or any major maintenance conducted on, or any major problems occurring to the wastewater conveyance system, treatment facilities, or disposal facilities shall be included in this summary.
- d. Monitoring reports shall be signed by:
  - i. In the case of a corporation, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;
  - ii. In the case of a partnership, by a general partner;

## GENERAL PROVISIONS

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September 1, 1994

- iii. In the case of a sole proprietorship, by the proprietor;
- iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.
- e. Monitoring reports are to include the following:
  - i. Name and telephone number of individual who can answer questions about the report.
  - ii. The Monitoring and Reporting Program Number.
  - iii. WDID Number.
- f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

#### 4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation under Section 13268 of the Water Code.

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## **Appendix E**

**Executive Summary from  
the Phase I Environmental  
Site Assessment of the  
ACE Cogeneration  
Facilities, Trona and  
Panamint Valley,  
California, AECOM, 2012**

2.11.15.4

Prepared for:  
**Constellation Generation Group**  
**Aliso Viejo, California**

# Phase I Environmental Site Assessment of ACE Cogeneration Facilities Trona and Panamint Valley, California

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The following personnel have prepared and/or reviewed  
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March 2012

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## EXECUTIVE SUMMARY

AECOM was retained by Constellation Generation Group (CGG) to perform a Phase I Environmental Site Assessment (ESA) of the ACE Cogeneration Facilities consisting of the ACE power plant and an associated limestone quarry located in the town of Trona and in the Panamint Valley, California, respectively (collectively the "Subject Property" or "ACE").

AECOM has performed the Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-05. Any exception to, or deletions from, this practice are described in Section 1.0 of the report. AECOM notes that under the terms of its mining-related operating permits, ACE is responsible for restoration of the limestone quarry and mill areas and has posted associated performance bonds. As these requirements are not generally derived from United States or California Environmental Protection Agency laws and regulations, for purposes of the Phase I ESA AECOM did not evaluate or investigate the quarry's use or disposal of mining-related wastes (such as limestone dust), irrespective of whether or not such wastes might be considered hazardous materials as defined in the ASTM E 152705 standard.

The ACE plant is a coal-fired power generation facility located on approximately 25 acres of leased land in the town of Trona, San Bernardino County, California. The plant is improved with an electric power generating facility using coal to fuel a circulating fluidized bed (CFB) boiler. The major site improvements consist of the coal handling equipment, the power block complex consisting of the boiler, steam turbine and associated superstructure and air pollution control equipment, a cooling tower, an ash landfill and closed ash landfill cells, and offices and maintenance shop.

The quarry is located approximately 30 miles north of the ACE plant in the Panamint Valley in unincorporated Inyo County, California. The quarry supplies crushed limestone to the ACE plant for air pollution control. The quarry consists of a series of mining claims on which lie a large, inactive quarrying operation; and series of large waste limestone piles located next to an active mill site containing rock screening, crushing and loading operations. ACE personnel remove material from the limestone piles, screen and crush it, and load it into haul trucks which deliver it to the ACE plant. The inactive quarry areas contain no improvements other than unpaved roads and a few old explosives storage caves. The mill site area is improved with the crushing and loading equipment, maintenance shop, office trailer and scales.

Hazardous materials, chemicals and wastes are used and generated at the Subject Property. Storage conditions generally appeared adequate, and there was no evidence of leaks or releases, except as summarized below.

Historical research indicated that the ACE plant was undeveloped land until the power generation facility was constructed beginning in 1986. Adjacent developed properties were developed either simultaneous to (west) or much earlier than (south, southeast, southwest) than the plant. The first known development of the Searles Valley Minerals (SVM) property to the south, southeast and southwest is believed to be pre-1900.

Historical research indicated that mineral exploration has occurred pre-1900 throughout the general area of the quarry, but that active mining operations began at the property in the mid-1950's. The property was originally owned by SVM, who utilized the mined limestone for its industrial processes and deposited the waste limestone piles which are now the area of active operations. Historic mining structures were removed in the late 1990's when the current mill was constructed.

A search of environmental databases performed by Environmental Data Resources, Inc. (EDR) found that the Subject Property is listed in a number of databases. None of the listings was judged to be an indicator of an unresolved release or threatened release. The database search did not identify any adjacent or nearby properties likely to have a material impact on the Subject Property.

This assessment has revealed the following recognized environmental conditions (RECs) in connection with the Subject Property.

- **Suspected historical discharge of used oil near the quarry maintenance shop.** ACE personnel described a historical practice by the previous quarry owner/operator of discharging crankcase oil from various quarry equipment onto unpaved soil or limestone at a location just west of the crushing facility maintenance shop. The area was reportedly periodically covered with soil or limestone dust and no staining or other indications of release are currently visible.
- **Former equipment maintenance area within inactive quarry area.** The remains of what was reportedly a former equipment maintenance area, including a number of crushed 55 gallon drums and small chemical containers and what appear to be crankcase oil drain pans, are located on an unpaved area within the inactive limestone quarry. Given the area's appearance and use, and how waste oil was reportedly handled at the nearby mill site, there appears to be the potential for releases of hazardous substances or petroleum products at this location. Minor discolored soil was present around the oil drain pans.

This assessment has revealed evidence of the following de minimis conditions, as that term is described in ASTM E 1527-05. These conditions do not generally represent a threat to human health or the environment and generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies:

- A small area of oil staining near the quarry maintenance shed.

At CGG's request, AECOM also qualitatively evaluated the potential presence of asbestos-containing materials (ACM) at the facility, which is a non-scope consideration under the ASTM E1527-05 Standard. The evaluation was limited to interviews of knowledgeable facility staff regarding the potential presence of ACM. Based on the interviews and date of facility construction, AECOM concluded there was likely a low potential for ACM to be present at the ACE plant. At the quarry, an abatement project reportedly occurred in the past which removed ACM from water lines around the crushing operation. Based on the construction date of the facility, the presence of additional ACM is possible at the shop building, which is the only remaining structure which pre-dates the current mill which was constructed in the late 1990's.

The results and conclusions of this assessment are subject to the limitations stated in Section 1.3 of this report, as is any reliance upon the results and conclusions.