

DOCKETED

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2014 Particulate Emissions Investigation Report

PALOMAR ENERGY CENTER (01-AFC-24C)

CONFIDENTIAL INVESTIGATION REPORT	
Allegation(s)/Issue(a)	Discharge of air contaminants or other material from the Palomar Energy Center (PEC) on April 7, 2014. Complaint from Quality Chevrolet auto dealership alleging PEC releasing matter damaging clear coat on vehicles.
Name of facility subject to investigation	Palomar Energy Center (PEC) 2300 Harveson Place, Escondido CA 92029
Name of complainant (if appropriate)	Quality Chevrolet 1550 Auto Park Way N, Escondido CA 92029
Investigator(s)	Jonathan Fong, STEP Division CPM Dale Rundquist, STEP Division CPM Gerry Bemis, STEP Division Air Resources Supervisor

Executive Summary

Energy Commission staff (staff) initiated an investigation of a complaint made by Quality Chevrolet against PEC for a potential discharge of contaminants. Quality Chevrolet is an automobile dealership located in the city of Escondido, approximately 1.5 miles east of PEC (see attached Vicinity Map).

This investigation was initiated to conduct a root cause analysis of the incident, determine if the incident was in violation of any Energy Commission conditions of certification and evaluate potential precautionary measures to prevent recurrence.

Staff has determined the discharge did not violate any Energy Commission conditions of certification. However, the incident was considered a public nuisance and in violation of San Diego County Air Pollution District (SDAPCD) Rules 51 and 1421. Staff finds the precautionary measures voluntarily implemented by PEC are sufficient to reduce the potential for re-occurrence.

Site Visit Summary and Investigation Summary

On September 17, 2014, Energy Commission staff Gerry Bemis (Air Quality Supervisor), Jonathan Fong (CPM), and Dale Rundquist (CPM) met at Palomar Energy Center (PEC) with PEC representatives Carl La Peter (Plant Manager), Jason Dobbs (Compliance Administrator), Jason Bowman (Senior Environmental Specialist), and Adriana B. Kripke (Senior Counsel for SDGE).

- The meeting was held in a conference room at PEC in an open discussion format. The purpose of the visit was to gather information for the investigation of a complaint filed by Quality Chevrolet dealership claiming particulate matter was emitted from the PEC stack on April 7, 2014 and was deposited on new cars at the dealership causing possible damage to the clear coat on the automobiles in the lot.



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- We discussed the issuance of an Notice of Violation (NOV) to PEC by SDAPCD.
- We discussed the allegation of particulate matter (rust) being deposited on the automobiles at Quality Chevrolet dealership.
- We discussed the possibility of the rust coming from PEC.
- We discussed the chronology of events of the allegation.

Compliance history relevant to investigation:

04/07/2014 Quality Chevrolet called SDAPCD to complain about particle emissions landing on the cars.

04/08/2014 Fred Waller and Jason Bowman from PEC contacted Quality Chevrolet to talk to Mr. Grubbs about incident. SDAPCD personnel also met with Mr. Waller and Mr. Bowman at Quality Chevrolet. The automobiles that were observed at that time were covered with what looked like a rust colored dust.

04/11/2014 Phone message and e-mail from Jason Dobbs at PEC to Dale Rundquist (CPM) reporting a complaint received from Quality Chevrolet about particulate material on cars parked at Quality Chevrolet on Auto Parkway near the power plant.

05/29/2014 SDAPCD Notice of Violation issued (No. 225207).

05/30/2014 E-mail from Jason Dobbs to CPM Dale Rundquist reporting that SDAPCD was going to issue a NOV.

06/02/2014 Palomar filed COM-11 Complaint Form (WORD).

06/10/2014 Palomar filed COM-11 Complaint Form (signed pdf).

06/21/2014 Fred Waller sent an e-mail to SDAPCD in reference to NOV issued by SDAPCD. Fred stated that a nuisance did not occur and requested that the NOV be rescinded.

07/09/2014 Gregory Gjerde at SDAPCD sent a letter to Fred Waller stating the NOV would not be rescinded.

07/18/2014 CPM Dale Rundquist e-mailed Jason Dobbs to ask if complaint had been resolved.

07/22/2014 E-mail from Jason Dobbs to CPM Dale Rundquist. Complaint being managed by San Diego Gas & Electric's (SDG&E's) Claims Management Dept.

08/22/2014 Adriana Kripke (Senior Counsel at SDG&E) sent an e-mail to Gregory Gjerde at the SDAPCD responding to Gregory Gjerde's letter of July 9, 2014. Adriana Kripke states reasons why PEC does not believe a nuisance occurred.

09/15/2014 CPM Dale Rundquist received e-mail from Jason Dobbs with information about SDG&E correspondence with SDAPCD. Several documents and over 100 pictures from SDAPCD accompanied this e-mail.

07/23/2015 SDAPCD signed Settlement Agreement between SDG&E and SDAPCD.

Conditions of Certification/ Laws, Ordinances, Regulations, Standards (LORS) Conformance

Condition of Certification **COM-11** requires the project owner to notify the CPM of all notices, complaints and citations within 10 days. The complaint from Quality Chevrolet was received on April 7, 2014. The CPM was notified by PEC on April 11,



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2014. PEC acted in compliance with this reporting condition.

Although SDAPCD has anti-nuisance requirements (Rules 51 and 1421), the Energy Commission conditions of certification do not address public nuisances which occur as a result of power plant operation and maintenance. However, Condition of Certification **AQ-2** requires the plant be properly maintained and kept in good operating condition at all times. The particulate discharge was a result of PEC maintaining and cleaning their HRSG during an extended outage.

Corrective Measures

PEC has stated all precautions will be taken to prevent this type of incident from happening again. Some of the measures PEC intends to take are:

- Use high temperature paint on stacks and flue components.
- Use dehumidifiers in the HRSGs and stacks during any future planned outages when not necessary for staff to enter HRSG.
- Ensure there is no rust in the HRSGs before start up after an extended outage.
- Investigate methods to prevent similar incidents from happening.
- Invite SDAPCD and the Energy Commission staff to observe the startup after the next planned outage (currently planned for the spring of 2016);

Pursuant to the Settlement Agreement between SDG&E and SDAPCD, PEC has agreed to the following:

- Payment of \$40,000 in civil penalties related to the rust release;
- An additional payment of \$30,000, stayed for 3 years, which will not be paid unless: (1) SDAPCD issues a subsequent notice of violation for the facility under their Rule 51 or Health and Safety Code section 41700, (2) the SDAPCD documents that the air contaminants comprising the basis of this subsequent notice could not come from any other source, and (3) both parties complete a dispute resolution process described in the agreement. SDG&E will also provide notice of at least the next three start-ups to SDAPCD; and
- PEC will notify SDAPCD of a minimum of three future start-ups after any extended outage of more than 14 calendar days.

Findings

During the investigation process, Energy Commission staff discovered the following:

- In April 2014 particulate matter was discovered on cars at the Quality Chevrolet dealership.
- PEC was coming back on-line after an extended planned annual maintenance outage at the time of the incident.
- PEC had hired a contractor (Precision Ice Blast) to clean the Heat Recovery



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Steam Generator (HRSG)s with a dry ice process in an effort to remove rust and other deposits.

- Twenty-two 55-gallon drums of rust were collected after the cleaning.
- PEC also experienced a 5 week outage in May 2014 to fix leak in the Steam Turbine. PEC used a dehumidifier and a stack seal to control rust formation during the Steam Turbine outage since there was no need to access the HRSG. There was no report of rust emitted on start-up after the Steam Turbine outage in May of 2014.
- SDG&E's Claims Management Department agreed to pay documented incident costs incurred by Quality Chevrolet.
- In June of 2015, PEC notified SDAPCD of a start-up which the District witnessed. With implementation of the voluntary corrective measures developed by PEC, there was no release or NOV.
- Since the Settlement Agreement was finalized in July of 2015, PEC has not experienced any extended outages.

Conclusions

Energy Commission staff believe there was an incident that occurred at PEC on April 7, 2014. The HRSGs at PEC had been cleaned extensively and rust had been collected before start up of the turbines. At start up rust was likely released out of the stack and into the air and deposited on vehicles at Quality Chevrolet.

Energy Commission staff is in agreement with PEC that the stated precautionary measures are likely to reduce the potential for reoccurrence. Staff has requested PEC notify staff of any future start-ups after extended outage which would require SDAPCD notification.

Appendices

- *Vicinity Map*
- *Records of Site Visit*

Staff Name: Jonathan Fong, Compliance Project Manager

Signed: *Original Signed* **DATE: 1-06-2016**

Office Manager: Christine Stora, Compliance Office Manager

Signed: *Original Signed* **DATE: 1-06-2016**

CALIFORNIA ENERGY COMMISSION

REPORT OF COMPLIANCE SITE VISIT



Siting, Transmission and Environmental Protection Division

	DOCKET #: 01-AFC-24C	
	PROJECT NAME: Palomar Energy Center	
<p>SITE CONTACT (s):</p> <p>Names: Carl La Peter (Plant Manager), Jason Bowman (Senior Environmental Specialist), Jason Dobbs (Compliance Administrator), Adrianna Kripke (Senior Counsel)</p> <p>Company: San Diego Gas & Electric Company</p> <p>Address: 2300 Harveson Place. Escondido, CA 92029</p> <p>Phone: 760-432-2503</p> <p>Email: CLaPeter@semprautilities.com</p>	<p>PROJECT LOCATION: The project location is a 20-acre site within a planned 186-acre industrial park in the City of Escondido, San Diego County, California. The project site is about 600 feet southwest of the intersection of Vineyard Avenue and Enterprise Street, west of Interstate 15 and south of State Highway 78.</p>	
<p>CPM: Jonathan Fong</p> <p>Staff Performing the Site Visit:</p> <p>J. Bemis, J. Fong and D. Rundquist</p>	<p>DATE: 9-17-2014</p>	<p>TIME: 1000</p>
<p>PURPOSE (check one)</p> <p> <input type="checkbox"/> Routine Compliance <input type="checkbox"/> Construction or Demolition <input checked="" type="checkbox"/> Complaint <input type="checkbox"/> Emergency Response <input type="checkbox"/> Follow-up/Re-inspection </p>		

BACKGROUND

On September 9, 2014, Energy Commission staff Gerry Bemis (Air Quality Supervisor), Jonathon Fong (CPM), and Dale Rundquist (CPM) visited Palomar Energy Center to gather information for the Particulate Matter Complaint filed by Quality Chevrolet.

We met with Palomar Energy Center (PEC) representatives Carl La Peter (Plant Manager), Jason Dobbs (Compliance Administrator), Jason Bowman (Senior Environmental Specialist), and Adriana B. Kripke (Senior Counsel for SDGE).

As stated earlier the purpose of the visit was to gather information for the investigation of a complaint filed by Quality Chevrolet claiming particulate matter was emitted from Palomar on April 7, 2014 and was deposited on new cars at the dealership causing possible damage to the clear coat on the automobiles in the lot.

OBSERVATIONS

Chronology of the 2014 event.

- February 1, to April 3, 2014, PEC was on a planned maintenance outage.
- March (PEC to submit dates) Carl La Peter hired **Precision Ice Blast Co.** to clean the tubes of the Heat Recovery Steam Generators (HRSGs) and insides of Stacks with CO2 Blasting although **Tetra Engineering** (local company that cleans and inspects HRSGs) had not recommended cleaning the tubes. Twenty-two 55-gallon drums were filled with rust that was removed by CO2 blasting.
- Thursday, April 3, 2014, Unit 1 was started (no trips or visible discharge).
- Monday, April 7, 2014 at 3 pm, Unit 2 was started (no trips, but reported visible discharge).
- Monday, April 7, 2014, Mr. Grubbs (sp?) called San Diego Air Pollution Control District (SDAPCD) to complain about particle emissions landing on the cars.
- Tuesday April 8, 2014, Fred Waller and Jason Bowman contacted Quality Chevrolet to talk to Mr. Grubbs about incident. SDAPCD personnel also met with Fred and Jason at Quality Chevrolet. The automobiles that were observed at that time were dusted with what looked like a rust colored dust.
- May, 2014 another outage (5 week duration) to fix steam leak in steam generator. De-humidifiers were used in the HRSGs and Stacks to retard the formation of rust while the turbines were not operating.
- May (?) Turbines were started up in the early morning hours to take advantage of calmer winds. No rust was emitted upon start-up.
- May 29, 2014 SDAPCD issued a Notice of Violation (NOV) to PEC for the April 7, 2014 particulate emissions incident. (Attachment 1)
- June 21, 2014, Fred Waller sent an e-mail to SDAPCD in reference to NOV (No. 225207) issued by SDAPCD. Fred stated that a nuisance did not occur and requested that the NOV be rescinded. (Attachment 2)
- July 9, 2014, Gregory Gjerde at SDAPCD sent a letter to Fred Waller stating the NOV would not be rescinded. Gregory Gjerde listed several other incidents with similar results dating back to 2 November, 2005. (Attachment 3)
- August 22, 2014, Adriana Kripke sent an e-mail to Gregory Gjerde at the SDAPCD responding to Gregory Gjerde's letter of July 9, 2014. Adriana states reasons why PEC does not believe a nuisance occurred. (Attachment 4)

Palomar Energy Center had scheduled outages in 2013 and 2012 but not as long of a duration as in 2014. Currently, Palomar Energy Center is operating full-time.

CONCLUSIONS

Carl stated that Palomar has offered to reimburse Quality Chevrolet for the cost of cleaning the vehicles. Palomar Energy Center needs hours expended, cost of materials and labor rates.

PEC has an appointment with SDAPCD on October 17, 2014 to discuss and resolve the complaint. Adriana Kripke will send a report to the Energy Commission with the results of that meeting.

The next PEC maintenance outage is scheduled for the spring of 2105. PEC will provide the exact date of the outage when it is decided.

Staff Name: Dale Rundquist, Compliance Project Manager		
Signed:	<i>Original Signed</i>	DATE: 1-06-2016
Office Manager:	Christine Stora, Compliance Office Manager	
Signed:	<i>Original Signed</i>	DATE: 1-06-2016

CALIFORNIA ENERGY COMMISSION

REPORT OF COMPLIANCE SITE VISIT



Siting, Transmission and Environmental Protection Division

DOCKET #: 01-AFC-24C

PROJECT NAME: Palomar Energy Center

SITE CONTACT (s):
 Name: Carl La Peter (Plant Manager), Jason Bowman (Senior Environmental Specialist), Jason Dobbs (Compliance Administrator), Adrianna Kripke (Senior Counsel)
 Company: San Diego Gas & Electric Company
 Address: 2300 Harveson Place. Escondido, CA 92029
 Phone: 760-432-2503
 Email: CLaPeter@semprautilities.com

PROJECT LOCATION: The project location is a 20-acre site within a planned 186-acre industrial park in the City of Escondido, San Diego County, California. The project site is about 600 feet southwest of the intersection of Vineyard Avenue and Enterprise Street, west of Interstate 15 and south of State Highway 78.

CPM: Dale Rundquist, Jonathan Fong
Staff Performing the Site Visit: Gerry Bemis

DATE: 09-17-2014

TIME: 1000

PURPOSE (check one)
 Routine Compliance Construction or Demolition Complaint
 Emergency Response Follow-up/Re-inspection

BACKGROUND

April 7, Rust Fallout from Palomar Energy Center

On September 17, 2014, Energy Commission staff visited Palomar Energy Center in an attempt to determine the root cause of rust accumulating on vehicles at a nearby business, Quality Chevrolet, which is located approximately 0.75 miles southeast of the Palomar facility. In attendance from Palomar were Adrianna Kripke (Senior Counsel), Carl La Peter (Plant Manager), Jason Bowman, (Senior Environmental Specialist, who used to work at the nearby CalPeak facility was substituting for Fred Waller, who was on vacation), and Jason Dobbs

(Compliance Administrator). Also attending and representing the Energy Commission were Dale Rundquist (Compliance Project Manager), Jon Fong (Compliance Project Manager) and Gerry Bemis (Air Quality Unit Senior). The meeting was a frank and open discussion of rust formation and potential for rust fallout.

The Incident

The facility was in routine operation under routine dispatch from the ISO from April 2013 until **February 3, 2014**, when the facility went offline for an extended maintenance outage. This was the first extended outage in approximately 8 years of operation. Other annual outages are shorter, although they occur in the same February to April time period, depending on need for facility operation. During this extended outage, they upgraded from a GE operating system to another vendor. This required some operator training. Unit 1 returned to service **April 3 or 4** (Palomar will provide exact date and time) with the new operating system and Unit 2 returned to

service **April 7 at approximately 3 pm** (Palomar to confirm), with a “few tweaks to incorporate what they learned when starting up Unit 1.”

The HSRG was inspected at the beginning of the outage by Palomar personnel and a contractor, Tetra Engineering. Near the end of the outage (after about 5 weeks), Carl La Peter (Plant Manager) inspected the HSRG and found evidence of rust accumulation since the outage began February 3. Some rust accumulation during a major outage (after being out of service several days so that the temperature cools down below the dew point) is normal and Tetra advised him that the rust was not significant enough to need cleaning before restarting. However, Carl decided to remove the rust anyway because too much rust creates back pressure which reduces the facility’s efficiency. He hired (a company from the Mideast; Precision Ice Blast) to do “CO₂ ice blasting” using small pellets to remove the rust. The CO₂ blasting was followed by using pressurized air in an attempt to remove any residual loose rust flakes, although it is very difficult to reach the inside tubes. They did use spreaders to get to the inside tubes as much as possible. They swept HSRG floor and removed 22 55-gallon “drums” of rust, with most of the rust coming off the tube fins, not the tubes themselves (I think that total is for both units?). Metallurgy of the tubes varies from front to back to meet the needs within the HSRG and to minimize fabrication costs. Since the rust tends to form more in the rear of the HSRG (due to more use of ferrous metallurgy since this portion of HSRG is cooler during operations) than in the front (due to more use of chrome alloy metallurgy since this portion of HSRG is hotter during operations), cleaning begins from the back of the HSRG (beginning at the top) and moves towards the front of the HSRG until they determine they don’t need to clean any more. Unit 2 was treated to remove rust more so than Unit 1. The cost of this cleaning was approximately \$300,000 for the contractor, plus additional facility costs. The Palomar staff stated “...there was no standard industry practice on how to do residual cleaning of the HSRG after CO₂ blasting....” The Tetra Engineering did a report on the HSRG maintenance (including photos inside HSRG) and Palomar will provide a copy to the Energy Commission.

Carl stated that there was no ammonium salt accumulation on the surfaces of HSRG. He said the design of the low pressure (LP) portion of HSRG has a recirculation system that keeps temperatures up to reduce potential to have rust formation during operation and to minimize ammonia deposits. Although Palomar is a combined cycle, simple cycle units (such as CalPeak next door) can cool down enough due to their intermittent operation such that they can have rust formation in the expansion chamber/SCR device between hours of operation. However, these facilities have much less material within the expansion chamber to rust.

Carl expressed the opinion that this sort of rust release happens frequently at other facilities, but these are probably located in regions which “are not adversely affected due to being in remote locations.” He said that one strategy for future releases from Palomar is to do the restart “when the air is still and there is reduced likelihood of transport off their own property.” Carl admitted this was not very likely since their property is fairly small, about 20 acres. Gerry noted that it is not very likely of a viable strategy since the air is never really still (but this point was not explored further, including wind at plume height). They do have 3 anemometers on site, but we did not discuss their locations nor their ability to measure at plume height.

SDG&E advised complainant (Quality Chevrolet) to submit a claim to their claims department, which needs documentation in the form of hours worked to clean the cars, labor rates, etc. Even though it is (apparently) routine for Quality Chevrolet to clean the vehicles twice a week (at least that portion of their inventory on display for sale), SDG&E would be receptive to pay these costs. However, for the past month or so, Quality has requested reimbursement for such costs from their own insurance company. The insurance company is requesting the same documentation (hours worked, labor rates, etc). As far as Palomar personnel are aware, Quality has been requesting payment from the insurance company (but not SDG&E) for about a month.

CONCLUSIONS

Options to Avoid Recurrence

We discussed options that could be employed to reduce future rust deposit events. The volume of air within the HSRG is too large to use anything other than the gas turbine itself as a source of pressurized air to “blow out” any remaining rust. As noted above, they did use pressurized air in an attempt to clear the rust flakes out of the tubes region of HSRG. However, they experimented with dehumidifiers, as explained below.

Palomar staff disclosed that there was a forced outage caused by a steam pipe/system failure. This occurred in May 2014. Since this occurred soon after the restart that had the rust release, and since they did not have to have to do any work inside the HSRG, Palomar rented “industrial scale dehumidifiers” in an attempt to keep rust from forming in the HSRGs, to keep the humidity level below about 30%, which should be sufficient to keep rust from forming within the HSRG. These can be situated outside the HSRG, connected to it (somehow) through access doors; the stack was somehow capped to keep the dehumidified air within the HSRG. The May 2014 forced outage was for 5 weeks, which is about the same period of time when the April 2014 inspection of the HSRG identified rust formation. There must have been a visual inspection, because Carl stated that they observed some rust formation. They used a shop vacuum to remove as much loose rust as possible. Some of this loose rust may have been a holdover from the April rusting event. Upon restart after the forced shutdown in May, there was no rust release; this restart was conducted purposely at about 5 am to 7 am, when the winds would tend to be as calm as possible. As a result of this experience, in future outages they expect they will use dehumidifiers as much as possible. They can’t use them when personnel are working inside the HSRG. However, they can use them (weekends, evenings, etc.) whenever they are not working inside HSRG. They can rent them with a short-term advanced notice (not enough time for rust formation) so they don’t plan on buying them for future uses. The APCD was invited to observe the May 2014 restart, but Palomar staff did not see them and do not know if they observed from offsite.

The next annual maintenance outage will likely be March-April 2015. They intend to use dehumidifiers as much as possible to limit the potential for rust accumulation. Energy Commission staff may wish to observe this return to service, and Palomar welcomed this step. Palomar is considering a public outreach effort in the future to notify nearby people when the next startup occurs that there could be some rust released.

NOV Issues

The San Diego APCD Notice of Violation (NOV) for the April 7, 2014 event indicates that the Palomar facility has released rust upon restart for the past 3 years, plus at least one additional event at the time of commissioning. Palomar staff said that the commissioning event was a “steam blow” that occurred near the end of commissioning and that this event was entirely different from rust release from the HSRG. The equipment used to conduct that steam blow was removed at the end of the commissioning phase and is in no way related to rust releases.

The APCD also claims that Palomar was responsible for rust deposits that occurred April 2012 and March (?) 2013. However, Palomar states that they were operating at the time of both incidents and could not have been responsible for the rust released in either event. Since the rust cannot form during operations (because the HSRG is simply too hot to be below the dew point where rust can form), they could not be the source of any rust deposits associated with either incident. They can provide operating records to prove they were operating during both periods.

Palomar staff indicated that the APCD must not be too familiar with the design of the HSRG since they provided at least one article that deals with corrosion occurring inside the HSRG tubes (the water side of the tubes) rather than the outside of the tubes where the hot air from the gas turbine is exposed to the tubes and fins to transfer their waste heat into steam used to drive the steam turbine.

The NOV is still active and Palomar will meet with the APCD to further discuss it on October 17, 2014.

Staff Name: Gerry Bemis, Air Quality Supervisor		
Signed:	<i>Original Signed</i>	DATE: 1-5-2016
Office Manager: Matthew Layton, Engineering Office Manager		
Signed:	<i>Original Signed</i>	DATE: 1-5-2016

Palomar Energy Center Investigation Report Figure
 Palomar Energy Center Proximity to Quality Chevrolet

