



**TUOLUMNE COUNTY
AIR POLLUTION CONTROL DISTRICT
DRAFT
TITLE V OPERATING PERMIT**

Issued to: **Pacific Ultrapower Chinese Station**

Facility Location: 8755 Enterprise Drive
Jamestown, CA 95327

Application Deemed Complete: July 7, 2011

Nature of Business: Electrical Generation

Primary SIC: 4911

Responsible Officials: Steven Gross, Chief Executive Officer, IHI Power Services
Russ Johnston, VP Operations, West Region, Covanta Energy
Steve Arreguin, Plant Manager PUCS

Facility Contact Person: Steve Arreguin, Plant Manager, Pacific Ultrapower
Chinese Station

Permit Issuance Date

Permit Expiration Date:

Permit Number: 55-0032-TV-01

Issued by: _____
Vicki Helmar, APCO

Date Signed

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I. FACILITY SUMMARY DESCRIPTION

Pacific-Ultrapower Chinese Station (PUCS) is located near the town of Chinese Camp off of State Route 120 in Tuolumne County. PUCS is a 25.6 gross megawatt electrical generating facility combusting wood fuel; the only biomass fired facility in Tuolumne County that operates exclusively for electrical generation purposes.

The facility's main process equipment is a 370 MMBtu/hr fluidized bed combustion boiler with a propane fired start up burner. The boiler has a design rate of 206,000 pounds per hour of steam. Support equipment includes: receiving truck dumps, fuel and ash conveyors, fuel screening, fuel and ash storage, fuel grinders, and sand silo. Air pollution controls for combustion consist of selective noncatalytic reduction, multiclones and an electrostatic precipitator. Fuel and ash controls consist of wind screens, water, enclosures, and stacker height minimizations.

This facility is a major source for Title V due to annual actual emissions of NOx and CO exceeding 100 tons per year. This facility is not a PSD source due to the potential to emit of NOx and CO being limited to less than the 250 tons per year PSD applicability threshold.

II. EQUIPMENT DESCRIPTION

Process Equipment

- Two Biomass Fuel Receiving Truck Dumps: TD - 101, 102
- Nine Fuel Receiving/Feed Conveyors: CV - 101, 102, 103, 109, 112, 113, 114A, 114B, 115
- Two Reclaimers: CV - 107, 110
- Two Disk Screens (North & South)
- Two Hammer Mill / Knife Hogs
- One 370 MMBTU/hr Biomass Fired Fluidized Bed Combustor/Boiler with 13 MMBTU/hr Propane Fired Startup Burner
- Eight Ash Handling Conveyors: CV - 100, 120, 121, 122, 123, 124, 125, 126
- One Ash Batch Loadout Bin
- One Sand Silo for Fluidized Bed Combustor

Control Equipment

- Ammonia Injection (SNCR) - Boiler
- Electrostatic Precipitator - Boiler
- Multiclone - Boiler
- Tertiary Air Controls - Boiler
- Water Sprays - Fuel/Ash Transfer
- Conveyor Enclosures - Fuel Transfer
- Wind Screens - Fuel Storage
- Vehicle Speed Limitations - Off-road Fugitives
- Stacker Drop Height Minimization - Fuel Transfer

Insignificant Equipment

- Safety Kleen - Parts Cleaning Stoddard Solvent Tank; Capacity: NA; Controls: Separate Sump / Closed Lid
- Emergency IC Engine - Fire Water Pump; Capacity: 140 bhp; Controls: NA

Insignificant Activities

- Plant maintenance, repair, and upkeep activities
- Combustion emissions from mobile sources
- Portable generators, portable steam cleaners, and water/steam cleaners

III. ADMINISTRATIVE REQUIREMENTS AND GENERAL CONDITIONS

1. **Permit Term and Renewal:** This permit shall be valid for a term of five years from the date of issuance. The permittee shall submit a standard District application no earlier than 18 months and no later than six months prior to the expiration date. Permits to operate for all emissions units at a stationary source shall undergo simultaneous review. [TCAPCD Rule 500 - *Additional Procedures for Issuing Permits to Operate for Sources Subject to Title V of the 1990 Federal Clean Air Act Amendments*, Amended 6/19/01, Final Approval by U.S. EPA 68FR65637, 11/21/2003 (TCAPCD Rule 500)].
2. **Responsibility:** PUCS shall comply with all terms and conditions of this permit. This permit does not release the facility from complying with all applicable statutes, ordinances, codes, or law, including federal, state, and local requirements. This permit does not authorize emissions of air contaminants in excess of limits established by federal, state, and local requirements. Operating staff shall be advised of and familiar with all conditions contained in the permit. [TCAPCD Rule 500]
3. **Property Rights:** This permit does not convey any property rights or exclusive privilege of any sort. [TCAPCD Rule 500]
4. **Non-compliance:** Any non-compliance with any permit condition is grounds for permit termination, revocation and reissuance, modification, enforcement action, or denial of permit renewal. Each day of non-compliance constitutes a separate violation. [TCAPCD Rule 500]
5. **Severability:** The provisions of this permit are severable, and should any permit requirement become illegal or unenforceable, the validity of the remaining requirements shall be unaffected. [TCAPCD Rule 500]
6. **Information Request:** Within a reasonable period of time, PUCS shall furnish any information requested, in writing by the Air Pollution Control Officer (APCO) or the Regional Administrator (RA), for the purpose of determining whether or not cause exists for modifying, revoking, reissuing, or terminating this permit, or to determine compliance with this permit, or whether or not cause exists for a permit or enforcement action. [TCAPCD Rule 500]
7. **Permit Transfer:** Upon change of ownership, PUCS shall notify the succeeding owner or operator of this facility of the existence of this permit, in writing, with a copy of the notification being provided to the District. The terms and conditions of this permit shall be binding on the subsequent owner or operator. A request for an administrative amendment shall be sought for changes in ownership or address of the facility. [TCAPCD Rule 500]
8. **Permit Reopening:** A pending permit action or notification of anticipated

noncompliance does not stay any condition of the permit. This permit must be reopened if any of the following occur: the APCO or the RA determines there is a need to correct a material mistake, inaccurate statement, or a need to revise or revoke a permit to assure compliance with applicable federal requirements; additional requirements become applicable to the subject equipment and there is three or more years remaining before the permit expires; or, additional requirements become effective pursuant to Rule 500 section (V)(H). [TCAPCD Rule 500]

9. Permit Modification: Any modification as defined in Rule 500 section (II), subsections (B), (W), and (CC) shall require a new or revised permit. If a new or revised permit is required, an application shall be filed with the APCO following the procedures specified in Rule 500 section (IV). [TCAPCD Rule 500]
10. Right of Entry: The RA, APCO, Executive Officer of the California Air Resources Board (CARB), or their authorized representatives, upon the presentation of credentials, shall be permitted to enter upon the premises: to inspect the stationary source, including equipment, work practices, operations, and emissions related activity; to inspect and duplicate records required by this Permit to Operate; and, to sample substances or monitor emissions from the source or other parameters to assure compliance with the permit or applicable requirements. Monitoring of emissions can include source testing. [TCAPCD Rule 500]
11. Permit Fees: The authorized representative shall pay all applicable fees as stated in Rule 500 section (VII) and TCAPCD Rule 601. [TCAPCD Rule 500 / TCAPCD Rule 601 - *Permit Fees*, approved by U.S. EPA 44CFR70141 (12/6/79)]
12. Defenses to Enforcement Action: PUCS shall not use "Need to Halt or Reduce a Permitted Activity in Order to Maintain Compliance" as a defense for non-compliance with any permit condition. [TCAPCD Rule 500]
13. Emergency Provisions:
 - a. Definition: An "emergency" is any situation arising from a sudden and reasonably unforeseeable event(s) beyond the control of the source, including "acts of God", which requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology based emission limitation under a permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.
 - b. Effect of an Emergency: An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology based emission limitations if the reporting requirements of permit condition 38 are met.

- c. Affirmative Defense Provisions for Emergency: The affirmative defense of an emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence as specified in permit condition 38.
 - d. In any enforcement proceeding, in seeking to establish the occurrence of an emergency, PUCS has the burden of proof for establishing that an emergency occurred.
[TCAPCD Rule 500; USEPA Memo from Steven Herman/Robert Perciasepe, SIP: Policy Regarding Excess Emissions During Malfunction, Start Up, and Shutdown, Sept. 20, 1999 (EPA 1999 MSS Policy)]
14. For the purposes of this Permit, the following definitions apply:
- a. A “start up” is the period of time the boiler begins heating to achieve the normal operating temperature (approximately 1,700° F) and ends when it reaches normal operating temperature. A normal start up shall not exceed 24 hours in duration. A curing start up shall not exceed 96 hours in duration.
 - b. A “shutdown” is the period of time when fuel feed is curtailed and the boiler begins cooling from normal operating temperature, and ends when the steam flow to the turbine is essentially zero, or 24 hours has elapsed, whichever occurs first.
[TCAPCD Rule 505 - *Conditional Approval*, approved by U.S. EPA 47FR23159, 5/27/82 (TCAPCD Rule 505)]
15. Stratospheric Ozone: PUCS shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F. [40 CFR 82]
16. Asbestos Removal: PUCS shall comply with the provisions of 40 CFR Part 61, Subpart M, during any renovation or demolition activity at this facility. [40 CFR 61]
17. NESHAPS / MACT Requirements: Should PUCS become subject to an existing or newly promulgated National Emissions Standards for Hazardous Air Pollutants or Maximum Achievable Control Technology standard, the facility shall comply with applicable requirements. Sources subject to 40 CFR Part 63 Subpart DDDDD have received a "No Action Assurance" from EPA, effective until December 31, 2012 or until the effective date of a final rule addressing the proposed reconsideration of said rule. [40 CFR 63/ USEPA Memo from Cynthia Giles, *No Action Assurance Regarding* (February 7, 2012)]
18. NSPS Applicability: Should PUCS become subject to an existing or newly promulgated New Source Performance Standard, the facility shall comply with the applicable requirements. [40 CFR 60]

19. Risk Management: PUCS shall comply with all applicable requirements under 40 CFR Part 68 Risk Management Planning for Accidental Releases. [40 CFR 68]
20. Compliance Assurance Monitoring: PUCS is subject to the requirements of 40 CFR Part 64. For compliance assurance monitoring parameters and operating ranges for particulate matter emissions, see Appendix A for CAM Plan. [40 CFR 64]

IV. GENERALLY APPLICABLE REQUIREMENTS

21. Visible Emissions: All non-boiler process shall not discharge into the atmosphere air contaminants for a period or periods (defined as a 15 second interval) aggregating more than three minutes in any one hour which is dark or darker in shade than Ringelmann No. 1 or 20% opacity. Compliance shall be determined by visible emissions evaluations conducted by a CARB certified observer in accordance with Rule 202. [TCAPCD Rule 202 - *Visible Emissions*, approved by U.S. EPA 44FR70141 (12/06/79)]
22. Nuisance: PUCS shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons, or to the public or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have a natural tendency to cause injury or damage to business or property. [TCAPCD Rule 205 - *Nuisance*, approved by U.S. EPA 42FR42225 (8/22/77)]
23. Particulate matter emissions from any non-combustion source or single processing unit shall not exceed 0.1 grains per dry standard cubic foot of exhaust gas (gdscf). [TCAPCD Rule 207 - *Particulate Matter*, approved by U.S. EPA 46FR22117 (5/18/81)]
24. Solid particulate matter shall not be discharged from any source or operation in excess of that allowed using the following equations, except as provided for in section (c):
 - a. For process rates less than 30 tons per hour:
 $E = 3.59 P^{0.62}$
 - b. For process rates greater than 30 tons per hour:
 $E = 17.31 P^{0.16}$

Where: E = Emission limit in lbs/hr
P = Process weight in tons/hr

 - c. Combustion equipment which derives at least 80% of its fuel input heat content from wood or wood associated waste is exempt from this requirement, except that such equipment shall comply with all other Rules in this Regulation.

[TCAPCD Rules 211 / 212 - *Process Weight Per Hour / Process Weight Table*, approved by U.S. EPA 42FR42225 (8/22/77)]

V. OPERATIONAL CONDITIONS

25. During start up and shutdown, emissions shall be minimized insofar as technologically feasible. [TCAPCD Rule 505]
26. Equipment Integrity: The physical integrity of all process equipment, air pollution control equipment, and monitoring equipment shall be maintained in good working order at all times during facility operation. No process equipment shall be operated without designated air pollution control equipment in operation. Manufacturer's recommendations shall be followed. [TCAPCD Rule 505]
27. Hours of Operation: Operation of the boiler shall be limited to 8,400 hours per year. This limit may be increased upon written authorization of the APCO when PUCS has demonstrated that annual emissions of NOx will not exceed 244.9 tons per year. [TCAPCD Rule 505]
28. Fuel Use: Other than for start up purposes, only wood fuel as defined in sections (a) and (b) of this condition shall constitute the fuel allowed for use. Any fuel classified as contaminated, or treated with organic or inorganic compounds known to the State of California to be toxic or hazardous is prohibited to be used as fuel:
 - a. Biomass is defined as any organic material not derived from fossil fuels, such as agricultural crop residues, bark, lawn, yard, and garden clippings, leaves, forest derived biomass or tree harvesting residuals, tree and brush pruning, wood and wood chips, and any other clean cellulosic biomass, including these materials when separated from other sources. Biomass does not include material containing sewage sludge or industrial, medical, hazardous, radioactive, or municipal solid waste.
 - b. Urban wood fuel is defined as any wood consisting of clean construction and demolition wood, wood pieces or particles which are generated from the manufacturing or production of wood products, harvesting, processing, or storage of raw wood materials, wood pallets, crates, and boxes.
 - c. Foreign material for all fuel consumed shall not exceed three percent by weight averaged over a 12 month rolling average. For the purposes of this condition, foreign material is defined as any material that is not included in sections (a) and (b) of this condition. The permittee shall specify in all fuel contracts that foreign material shall not exceed three percent by weight of the fuel mix.
 - d. No fuel other than propane shall be used for start-up purposes.

- e. Additional fuels may be approved for use provided the following:
 - i. A written request is submitted and the APCO does not object to the request. A objection shall include the reason and identify any additional information required for approval including, but not limited to, emissions tests, calculations, or engineering analyses; and,
 - ii. Demonstration that the emissions from the combustion of additional fuels will not violate emissions limits or cause non-compliance with permit conditions or operating requirements.
 - f. Combustion of wet fuel shall not be considered as an affirmative defense to an excess emission condition.
[TCAPCD Rule 505]
29. Fugitive Dust Emissions: Including but not limited to any of the following, shall be controlled at all times such that a public nuisance is not created at any point beyond the plant property lines:
- a. Dust from paved and unpaved roads, fuel pile areas, fuel handling devices, or any other non-vegetative covered areas;
 - b. Boiler ash shall be conveyed and stored in such a manner so as to not cause excessive fugitive emissions. Ash transported offsite shall be in a wet condition or in covered containers;
 - c. All outside surfaces, including but not limited to the main building, boilers, electrostatic precipitators, support pads, etc., shall be cleaned as necessary to prevent the buildup of ash and/or fugitive dust;
 - d. In the event that any exposed surfaces become littered with dust due to a emergency, upset, breakdown, or malfunction condition, a cleaning procedure shall be implemented within 24 hours following the upset to remove the debris; and,
 - e. All transfer processes involving a free-fall of material in open areas shall be constructed and operated in such a manner as to minimize the free-fall distance and fugitive emissions.
[TCAPCD Rule 505]
30. State registered portable equipment shall comply with State registration requirements. A copy of the State registration shall be readily available whenever the portable equipment is at the facility and notification shall be provided prior to operation of the unit. Recordkeeping of fuel and operation time is required. [TCAPCD Rule 500 / CH&SC 41753]

VI. RECORDKEEPING REQUIREMENTS

31. PUCS shall record, retain, and maintain on-site, boiler stack gas emissions from the continuous emissions monitoring systems (CEMS) for NO_x and O₂, and the continuous opacity monitoring system (COMS) for opacity. The facility shall also maintain files with date and time of all performance audits, calibrations, adjustments, and maintenance of the CEMS, COMS, and continuous emissions rate monitoring system (CERMS). [TCAPCD Rule 505]
32. PUCS shall record and maintain records of the occurrence and duration of any CEMS, COMS, or CERMS downtime, malfunctions, or excess emissions. [TCAPCD Rule 505]
33. PUCS shall record and maintain fuel use rates to the boiler (tons per year); on-line boiler operating hours; ash generation rates; and, gross megawatt production rates. [TCAPCD Rule 505]
34. All records shall be retained for a period of at least five years from the date of such measurements, maintenance, reports, and/or record inputs. [TCAPCD Rule 505]

VII. REPORTING REQUIREMENTS

35. On an annual basis and within 30 days after the end of each calendar year, PUCS shall provide the APCO production information and any requested emissions data for inventory and billing purposes. The format for providing this information shall be provided by the APCO. [TCAPCD Rule 505]
36. PUCS shall notify the APCO prior to any start-up of boiler operations. The facility shall indicate whether the start up is classified as normal or curing. [TCAPCD Rule 505]
37. PUCS shall notify the APCO of the intent to shutdown any emissions related monitoring equipment at least 24 hours prior to the event when boiler operations continue. This condition does not apply to routine maintenance and repair of monitoring equipment. [TCAPCD Rule 505]
38. PUCS shall notify the APCO of any occurrence which constitutes an emergency, upset, breakdown, or malfunction condition which results in excess emissions or other violations of this permit as soon as reasonably possible, but not later than two hours after its detection.
 - a. The initial notification shall identify the time, specific location, equipment involved, cause of the occurrence, and initial mitigating or corrective action(s) taken or to be taken;

- b. Within seven working days of an occurrence, a signed contemporaneous log, report, or other evidence which demonstrates the following shall be submitted to the District
 - i. An emergency, upset, breakdown, or malfunction condition occurred, identification and cause of emergency, and description of any mitigating or corrective actions taken;
 - ii. The facility was being properly operated at the time of the emergency, upset, breakdown, or malfunction condition;
 - iii. During the period of emergency, upset, breakdown, or malfunction, PUCS took all reasonable steps to minimize emissions resulting from the occurrence.
 - iv. The type of emission(s) and estimated quantity caused by the occurrence; and,
 - v. The date of correction and proof of compliance, including a specific statement of cause(s) for the occurrence, and a description of the corrective measures taken to avoid such an occurrence in the future.
[TCAPCD Rule 505 / (EPA 1999 MSS Policy)]
39. PUCS shall notify the APCO of any occurrence which constitutes a breakdown condition. Such notification shall identify the time, specific location, equipment involved, and the cause of the occurrence as soon as possible but not later than two hours after its detection during normal business hours. [TCAPCD Rule 516 - *Upset and Breakdown Conditions*, non-federally enforceable rule (TCAPCD Rule 516)]
40. An occurrence which constitutes a breakdown condition which persists longer than 48 hours (96 hours for continuous monitoring equipment), shall constitute a violation of any applicable emission limitation, or restriction of the District rules; however the APCO may elect not to take enforcement action if PUCS demonstrates that a breakdown exists and the requirements of section (B)(1) of Rule 516 are met. [TCAPCD Rule 516]
41. A quarterly report shall be submitted to the APCO within 30 days of the end of each reporting period and contain the following:
 - a. A list of deviations from the permit requirements; the date, time, and duration of upset/breakdown or malfunction occurrences including probable cause and preventative or corrective actions taken; CGA, CEMS, COMS, or CERMS audits, or any other QA/QC procedures, excluding RATAs; progress made on

any deviations; a log of any preventative or corrective action taken; and, CEMS, COMS, and CERMS downtime and excess emissions reports.

- b. Daily average concentrations for NO_x (corrected to 3% O₂); daily average O₂ concentrations; total hourly and daily NO_x mass emission rates; quarterly fuel use rates; on-line boiler operating hours; ash generation rates; and, gross megawatt production rates.

[TCAPCD Rule 500 / TCAPCD Rule 515]

42. Compliance Plan and Schedule: In the event of facility noncompliance the provisions in Rule 500 sections (VI)(8) and (VI)(9) shall apply. [TCAPCD Rule 500]

43. Compliance Certification: PUCS shall submit an Annual Emissions Report and Certification Statement by March 1 of each year. The certification report shall contain the following:

- a. Identification of each term or condition of the permit and a means for monitoring compliance;
- b. The status and method to determine compliance for the current time period and over the entire reporting period;
- c. Any additional inspection, monitoring, or entry requirement that may be promulgated pursuant to sections 114(a) and 504(b) of the CAA; and
- d. The facility shall include a written statement from the responsible official certifying the truth, accuracy, and completeness of the report.
- e. All documents shall be submitted to the following agencies:

Director, Air Division
U.S. EPA Region 9
75 Hawthorne Street, AIR - 3
San Francisco, CA 94105

Air Pollution Control Officer
Tuolumne County APCD
2 South Green Street
Sonora, CA 95370

[TCAPCD Rule 500]

VIII. TESTING AND MONITORING REQUIREMENTS

44. Visible Emissions Observations:

- a. PUCS shall employ at least one person at this facility who is continuously certified by the CARB to conduct visible emissions observations for opacity.
- b. Boiler Exhaust Stack: Visible emissions observations of the boiler exhaust

stack shall be conducted and recorded at least once on a daily basis, by CARB certified PUCS staff, when upset/breakdown conditions of the COMS exceed 24 hours. Compliance shall be determined by visible emissions evaluations in accordance with Rule 202.

- c. Facility-wide: At least daily, facility staff shall observe whether any emissions units are causing fugitive emissions beyond the facility's property lines and have the potential to create a public nuisance. If such conditions exist, facility staff shall implement measures designed to repair or maintain the physical integrity of the process and control equipment to minimize emissions.

[TCAPCD Rule 505]

45. Performance Source Testing

- a. Boiler Exhaust Stack: The facility shall conduct compliance performance tests on the boiler exhaust stack for PM₁₀, NO_x, SO₂, VOC, CO, and NH₃ with the test methods referenced in the following section. The performance tests shall be conducted annually. The APCO reserves the right to require an ultimate and proximate fuel analysis of that fuel which is burned during source testing.
 - i. Performance tests shall be conducted under such conditions as the RA or APCO shall specify, based on the representative performance of the affected facility within 10% of the maximum design steam load (206,000 lbs/hr), and considering ambient conditions and available fuel. If there are conditions that prevent the unit from operating within 10% of the maximum steam load, the APCO shall be notified prior to testing. The owner or operator shall make available to the RA such records as may be necessary to determine the conditions of the performance tests.
 - ii. On a biennial basis PM₁₀ source testing shall include a minimum of one source test sample occurring during a normal boiler soot blow.
 - iii. On an annual basis, ammonia emissions (ppmv and lbs/hr) from the boiler exhaust stream shall be measured, if requested by the APCO.
 - iv. The APCO reserves the right to require more frequent testing of CO if there is sufficient justification that the emissions limits are not being complied with.
- b. The performance tests for the boiler exhaust stack shall conform to the following test methodologies/procedures:

- i. Stack Exhaust Parameters: EPA Methods 1, 2, 3, 4
 - ii. PM₁₀: EPA Method 201A and EPA Method 202.
 - iii. NO/NO₂: EPA Method 7E or ARB Method 100.
 - iv. SO₂: EPA Method 6C or ARB Method 100.
 - v. VOC: EPA Method 18 or ARB Method 100.
 - vi. CO: EPA Method 10 or ARB Method 100.
 - vii. NH₃: BAAQMD Method ST-1B.
- c. Deviations from said performance tests are allowed provided the APCO has given written approval. A source test protocol shall be submitted at least 14 days prior to the scheduled test and notification of any scheduled test shall be a minimum of 10 days. The results of the performance test(s) shall be submitted within 60 days following completion of testing.

[TCAPCD Rule 505]

46. Continuous Emissions Monitoring:

- a. PUCS shall install, calibrate, maintain, and operate the following monitoring systems to measure stack emissions and related process parameters, including recording the operating temperature of the boiler; at all times during the combustion process in accordance with manufacturer's recommendations, and meet the requirements of 40 CFR Part 60 section 60.13 and Appendix B for the following: COMS - PS1; NO_x CEMS - PS2; CO₂ CEMS - PS3; O₂ CEMS - PS3; and, CERMS - PS6.
- b. PUCS shall follow quality assurance requirements for the gas monitoring systems consistent with 40 CFR Part 60 Appendix F, and PS1 for the COMS.
- c. All records of maintenance activities, accuracy and audit procedures, corrective actions for malfunctioning CEMS, COMS, and CERMS and associated equipment, shall be recorded, maintained for a period of five years and submitted to the APCO on a quarterly basis pursuant to permit condition 37 (except RATA results).

[TCAPCD Rule 505 / TCAPCD Rule 515]

IX. BOILER EMISSIONS LIMITS

47. Visible Emissions:

- a. Visible emissions from the boiler exhaust stack shall not discharge into the atmosphere air contaminants for a period or periods (defined as 15 second intervals) aggregating more than three minutes in any one hour which is dark or darker in shade than Ringelmann No. 1 or 20% opacity.
- b. Visible emissions resulting from the start up or shutdown of the boiler are exempt for a period or periods of time aggregating less than or equal to 30

minutes in any 24 hour period. This exemption shall not apply to visible emissions which result from the failure to operate and maintain in good working order any emission control equipment.

[TCAPCD Rule 202 / TCAPCD Rule 203 - *Exceptions*, approved by U.S. EPA 47FR23159 (5/27/82)]

48. Particulate Matter / Combustion Contaminants:

- a. Combustion contaminant emissions from the boiler exhaust stack shall not exceed 0.1 g/dscf calculated to 12% CO₂. [TCAPCD Rule 407 *Specific Contaminants*, approved by U.S. EPA 37FR19812 9/22/72 (TCAPCD Rule 407)]
- b. Combustion contaminant emissions from the boiler exhaust stack shall not exceed 10 lbs/hour. Non combustion contaminants can be subtracted from the total combustion contaminants, when assessing compliance with Rule 408. [TCAPCD Rule 408 *Fuel Burning Equipment*, approved by U.S. EPA 37FR19812 9/22/72 (TCAPCD Rule 408)]
- c. Particulate matter (PM₁₀) emissions from the boiler exhaust stack shall not exceed 0.025 gdscf corrected to 12% CO₂ based on a three hour block average; 21.7 pounds per hour based on a three hour block average; and, 91.3 tons per year. The APCO reserves the right to allow ammonium sulfate formed as a result of the capture of ammonia to be subtracted from the total particulate residue through EPA Test Method 202. [TCAPCD Rule 505]

49. Sulfur Dioxide:

- a. Sulfur compounds calculated as sulfur dioxide shall not exceed 0.2% by volume. [TCAPCD Rules 407]
- b. Sulfur compounds calculated as sulfur dioxide shall not exceed 200 pounds per hour. [TCAPCD Rule 408]
- c. Sulfur dioxide emissions from the boiler exhaust stack shall not exceed 51.9 pounds per hour on a three hour block average and 90.2 tons per year. [TCAPCD Rule 505]

50. Nitrogen Oxides:

- a. NO_x emissions calculated as nitrogen dioxide shall not exceed 140 pounds per hour. [TCAPCD Rule 408]
- b. Except during start up and/or shutdown periods, NO_x emissions from the boiler exhaust stack shall not exceed 140 ppmv calculated at 3% O₂ and

averaged over a 24 hour period from 8 a.m. to 8 a.m.; 58.3 pounds per hour averaged over a 24 hour period from 8 a.m. to 8 a.m.; and, 244.9 tons per year. [TCAPCD Rule 505]

- c. On those days during which a start up and/or shutdown occurs, a daily NO_x limit of 1,399.2 pounds per day from 8 a.m. to 8 a.m. shall apply. [TCAPCD Rule 505]

51. Volatile Organic Compounds: Volatile Organic Compound emissions from the boiler exhaust stack shall not exceed 36.3 pounds per hour based on a three hour block average and 152.5 tons per year. [TCAPCD Rule 505]

52. Carbon Monoxide:

- a. Carbon Monoxide emissions from the boiler exhaust stack shall not exceed 55.6 pounds per hour based on a three hour block average and 233.4 tons per year.

- b. On those days during which a start up and/or shutdown occurs, a daily CO limit of 3,500 pounds from 8 a.m. to 8 a.m. shall apply. [TCAPCD Rule 505]

53. Ammonia: Ammonia emissions from the SNCR system shall not exceed 20 ppmv calculated to 3% O₂. Compliance with this condition shall be based on annual source testing as described in condition 45. [TCAPCD Rule 505]

X. EXEMPT EQUIPMENT

Equipment and operations not specifically identified in this permit are not subject to federally enforceable operating conditions or emissions limitations. Such equipment and operations are subject to the applicable Administrative Requirements and General Conditions of this Permit.

**APPENDIX A
COMPLIANCE ASSURANCE MONITORING PLAN**

**PACIFIC-ULTRAPOWER CHINESE STATION
COMPLIANCE ASSURANCE MONITORING PLAN
FOR PARTICULATE MATTER EMISSIONS**

Date: October 2005

Prepared for
Pacific-Ultrapower Chinese Station
8755 Enterprise Drive
Jamestown, CA 95327

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1.0 GENERAL

This compliance assurance monitoring (CAM) plan was developed in accordance with 40 CFR Section 64.3 "Monitoring design criteria". Within these regulations requirements for selecting monitoring parameters and establishing operating ranges are outlined. The plan was developed to include specified methods to determine compliance with an emission limitation on a continuous basis, consistent with the averaging period established for the emission unit in the operating permit. The plan addresses the operation of the electrostatic precipitator and monitoring opacity at Pacific Ultrapower Chinese Station as means of assuring compliance with particulate matter emission limitations.

The basis for selecting monitoring parameters and establishing operating ranges to ensure continued compliance are discussed in the sections below. Equipment description, performance indicators, operating ranges, and justification for each indicator are described.

2.0 BACKGROUND

The plant utilizes an electrostatic precipitator (ESP) furnished by Research-Cottrell for control of particulate matter. The ESP is equipped with G-Opzel type collecting plates (three fields), "Duratrod" rigid discharge electrodes, one chamber, 22 gas passages, support insulator seal air system and top housing. The ESP is installed at Pacific Ultrapower, Chinese Station, Tuolumne County, California. The emission limit for the precipitator is 0.025 grains per dry standard cubic foot of exhaust gas corrected to 12% CO₂ based on a three hour average; 21.74 pounds per hour based on a three hour average; and 91.34 tons per year (County of Tuolumne 2005 Permit to Operate Condition 19 a). The opacity limit is 20% (County of Tuolumne 2005 Permit to Operate Condition 11b). Prior source tests have indicated that when the ESP is properly operating at its design specifications the above emission limits are met. Indicators for particulate matter control are proper operation and performance of the ESP, including secondary voltage and secondary current along with verification of normal operation of rappers. The plant also has in place a continuous opacity monitoring system (COMS) to monitor the opacity from the stack.

3.0 ELECTROSTATIC PRECIPITATOR DESCRIPTION:

One (1) 370 MMBTU/hr Wood Fired Fluidized Bed Combustion Unit controlled by One (1) Noncatalytic NO_x Reduction System using ammonia, One (1) Multiclone System, and One (1) Electrostatic Precipitating Unit.

The primary control for particulate matter is the electrostatic precipitator. The electrostatic precipitator is assembled from a series of modules. The unit is comprised of three fields/chambers, 16 feet each in length. The precipitator utilizes a plate separation distance of 12 inches, a voltage potential of 50 kVA, and a specific collection area of 233 ft² per 1000 acfm. There are 22 gas passages and 138 collecting surfaces. The emitter plates have pins in the leading and trailing edge to generate corona. Computer controlled automatic voltage controllers optimize collection efficiency across the plates. The current configuration is as follows:

ESP data:

Number of fields: 3
Cleaning Method: Electro Mechanical Rapping
Power Input: 47.3 KVA at 480V, 98.5 mA, 60 Hz, each field

Applicable Regulation, Emission Limit and Monitoring Requirements:

Regulation No.: Permit No. 55-0032
Regulated Pollutant: Particulate Matter

Emission Limit:

0.025 grain loading limitation (grains per dry standard cubic foot of exhaust gas corrected to 12% CO₂ on a three hour average; and mass emission rate of 21.74 pounds per hour (based on three hour average) and 91.34 tons per year (outlet)

Monitoring Requirements in Permit:

Continuous opacity monitor

VEE Evaluation (daily) if breakdown of COM beyond 24 hours

Control Technology:

Multiclone System and Electrostatic Precipitating Unit

4.0 PERFORMANCE INDICATORS AND JUSTIFICATION FOR PM

The performance indicators for proper operation of the ESP include secondary voltage, secondary current, and rappers in good operating order.

- A. Secondary voltage is the voltage being applied to the collector and emitter plates. This voltage is very high relative to the primary voltage. This is necessary to attract dust and particulate matter to the collector plates. In the event that this drops to below the ranges indicated, then collection performance of the ESP field or fields is affected. Field #1 through #3 operate at approximately the same voltage set point. Generally the first field collects a larger proportion of the total particulate. A reduction in field voltages in field #2 and #3 would occur if less particulate is available to collect.

Rationale: Low secondary voltage reduces the effectiveness of the ESP. For this reason the voltage operating range of 50,000 to 68,000 volts is maintained across all fields and is selected as a monitored parameter (data collected and recorded manually each day).

- B. Secondary current (or amperes) is the current or power being consumed by the ESP field or fields. Since the voltage is very high being applied to the fields, the current is relatively low, ≤500 (field #1) to 750 (fields #2 and #3) milliamps. Readings near the high end of the range

indicate that particulate loading is relatively high on the field and readings near the low end of the range indicate relatively low particulate loading on the field. Readings above the high end of the range for each field may indicate an electrical fault in the ESP.

Rationale: Secondary current above the high end of the range for each field may indicate a potential electrical problem that could result in reduced effectiveness of the ESP. For this reason the secondary current of less than or equal to 500-750 milliamps (depending on the particular ESP field) is selected as a monitored parameter (data collected and recorded manually each day).

- C. Rappers in good operating condition indicate that collected particulate matter is being effectively removed from the plates by a mechanical rapping action for collection and removal from the ESP hoppers. Any rapper on any field that is not operating properly will not allow for removal of accumulated particulate and continued collection of particulate over time.

Rationale: Proper Rapper Operation is necessary for effective particulate matter collection and removal. For this reason the rapper system verified in good working order every 24 hours is selected as a monitored parameter. The proper operation of the rapper system is checked and verified daily.

5.0 MONITORING PLAN FOR PM:

The Plant will monitor the parameters shown in Table 1 as part of the CAM Plan. Actions are taken by plant operators, as indicated, in the event that any parameter is outside of established limits.

Table 1 – CAM Plan Monitoring Requirements for Particulate Matter

<u>Parameter</u>	<u>Operating Limits</u>	<u>Actions to be Taken</u>	<u>Monitoring Method</u>
Opacity	≥20	Initial action is taken when the opacity reaches 10%. A visual inspection is made of all control equipment. At 20% opacity the plant investigates and will take action to shutdown equipment – Report to the District as required in Permit condition 8.	COMS and Data Recording and the plant employs one CARB certified VEE per Permit Condition No. 12.
ESP Secondary Voltage Field #1, #2, #3	≥50 kv ≤68 kv	In event of secondary voltage being outside of stated range, the Plant will investigate and Repair or Shutdown. If condition remains outside range after 3 hours, report condition as a deviation from parameters in	Daily Observation and Data Recording

<u>Parameter</u>	<u>Operating Limits</u>	<u>Actions to be Taken</u>	<u>Monitoring Method</u>
		CAM Plan to the District within 2 hours of making the above determination.	
ESP Secondary Amperes (current)	≤500 milliamps for field #1 and ≤750 milliamps for fields #2 and #3	In event of secondary current being higher than stated upper limit for that field, the Plant will investigate and Repair or Shutdown. If condition remains higher than limit for that field after 3 hours, report condition as a deviation from parameters in CAM Plan to the District within 2 hours of making the above determination.	Daily Observation and Data Recording