Attachment A
San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review
Circulating Fluidized Bed Combustor

Facility Name: Hanford L.P.  Date: June 15, 2005
Mailing Address: 4300 Railroad Ave  Engineer: Tim Bush
Pittsburg, CA 94565-6006  Lead Engineer: Arnaud Marjollet

Contact Person: Mark Kehoe
Telephone: (925) 431-1440
Application #(s): C-603-1-5
Project #: C-1043492
Deemed Complete: December 28, 2004

I. Proposal

Hanford L.P. is applying for an Authority to Construct (ATC) to modify the 30 MW circulating fluidized bed combustor (CFBC) at their facility (see Permit to Operate (PTO) C-0603-1-4 in Appendix A for the current valid permit). Hanford L.P. is proposing that the CFBC be allowed to fire on a higher sulfur delayed petroleum coke from an alternate source in the event that the historically utilized lower sulfur content fuel becomes unavailable. Hanford L.P. is also proposing to express start-up and shutdown emissions on the permit.

Background
Shell Oil, the sole supplier of the currently utilized sulfur petroleum coke to Hanford L.P., recently announced their intent to close their Bakersfield oil refinery. GWF identified the Shell Wilmington refinery’s petroleum coke as a suitable alternative fuel source in the event that the Shell Bakersfield refinery petroleum coke is no longer available. Based on test data submitted by the applicant (see Appendix B), the Wilmington coke is expected to contain significantly higher sulfur than the Bakersfield coke.

The Shell Bakersfield refinery was recently sold to Flying J’s Oil, and, for the time being, is continuing to produce and supply the historically utilized delayed petroleum coke to Hanford L.P. Hanford L.P. would like the ability to switch to the alternate Wilmington higher sulfur delayed petroleum coke after demonstrating to the District that the historically utilized Bakersfield coke is no longer available and providing emission reduction credits to offset the potential emissions increases.

Hanford L.P. is proposing that the freeboard temperature of 1560 °F where the current SO\textsubscript{X} concentration is measured be changed to the bed temperature of 1500 °F. The reason for using the bed temperature is the limestone calcines at temperature greater than 1500 °F and
sets off the reaction to control SO2. This revision has no impact on the emissions and reflects the actual operating conditions.

Hanford L.P. is also proposing startup and shutdown relief for NOₓ and SOₓ emissions. A start-up event commences when the petroleum coke feed to the CFBC is initiated and/or the feed board temperature is 1560 °F. The start-up event is complete when the NOₓ concentration and SOₓ concentration are in compliance with the concentration limits. A shutdown event commences when the petroleum coke feed to the CFBC is terminated and is complete when the combustion airflow to the CFBC is terminated. Hanford L.P. proposes that a start-up/shutdown event shall not exceed any of the following limits: 2 hours, 1 per day, 50 per year. The facility also proposes that the emissions during start-up/shutdown will not exceed 140 lb NOₓ/hr or 200 lb SO₂/hr. Current daily and annual emissions are proposed to remain at currently permitted levels when firing on the historically utilized lower sulfur Bakersfield coke.

Prior to utilizing high sulfur Wilmington petroleum coke, Hanford LP shall provide the District with a written request and analysis demonstrating that the historically utilized lower sulfur Bakersfield coke is not available. The request shall include the following:

- A demonstration that Bakersfield petroleum coke can not be continuously supplied under a long-term contract by the Flying J Bakersfield refinery (located at 6451 Rosedale HWY, and 3663 Gibson St, Bakersfield, CA) or,
- An analysis demonstrating that the Bakersfield lower sulfur coke is no longer economically feasible as a fuel source and is therefore unavailable.

Upon receipt of a written request and analysis, the District will analyze the request and approve or disapprove the use of the alternate Wilmington fuel.

Hanford L.P. received their Title V Permit on February 17, 2004. This modification can be classified as a Title V minor modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. ABC Oilfield must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC(s) issued with this project.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (12/19/02)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4101 Visible Emissions (11/15/01)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4301 Fuel Burning Equipment (12/17/92)
Rule 4352 Solid Fuel Fired Boilers, Steam Generators, and Process Heaters (10/19/95)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
III. Project Location

The facility is located at 10596 Idaho Avenue in Hanford, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

In the GWF Fluidized Bed Combustion System, a mixture of petroleum coke, limestone and ammonia is burned inside a combustion chamber, while suspended in a turbulent, upward-moving flow of air. By suspending the fuel in the fluidized air stream and adding limestone and ammonia, very efficient, low emissions combustion is achieved.

1 Fuel Delivery Petroleum coke arrives from local refineries in sealed trucks and is pneumatically loaded into the fuel storage silo.
2 Fluidized Bed Combustor Fuel mixed with limestone and ammonia is burned in a turbulent, upward flow of air to release heat and to produce steam.
3 Superheater The steam temperature is increased to 1,000 degrees, generating 1,500 pounds/square inch of pressure.
4 Turbine/Generator The superheated, high-pressure steam expands through the high-efficiency turbine which causes the generator to spin, producing 20,000 kilowatts of electricity.
5 Transformer The generated electricity passes through the transformer and is sent to the PG&E powergrid for distribution to the local community.
6 Cooling Towers Cooled water is used to condense the steam back into water so it can be recycled for reuse in the boiler.
7 Bag House The gas stream is cleared by highly efficient fabric filters.
8 Emissions Monitoring Emissions are monitored continuously, 24 hours a day, through a sophisticated computerized monitoring system.
9 By-product Synthetic gypsum and synthetic limestone are produced as a result of reducing emissions during the combustion process. These sand-sized by-products are used commercially in cement manufacturing and as a substitute for lime.
V. Equipment Listing

Pre-Project Equipment Description:

C-603-1-4: 30 MW FLUIDIZED BED COMBUSTOR FUELED BY PETROLEUM COKE, NATURAL GAS, AND NO. 2 FUEL OIL UP TO 320 MMBTU/HR.

Proposed Modification:

C-603-1-5: MODIFICATION OF 30 MW FLUIDIZED BED COMBUSTOR FUELED BY PETROLEUM COKE, NATURAL GAS, AND NO. 2 FUEL OIL UP TO 320 MMBTU/HR: INCREASE SOX LIMITS FROM 20.2 PPMV AND 245 LB-SOX/DAY TO 35 PPMV AND 469 LB-SOX/DAY; SET MAXIMUM YEARLY EMISSIONS AT 76.1 TON-SO_X/YR; AND ADD STARTUP AND SHUTDOWN PROVISIONS

Add conditions limiting the SOX emissions when fired on approved alternate petroleum coke, and add a condition to limit the NO_X and SOX emissions during startup and shutdown.

When fired on approved alternate petroleum coke, the SOx emissions (calculated as SO_2) from the combined exhaust of the combustor and low pressure evaporator shall not exceed 469 pounds per day.

When fired on approved alternate coke, the SOx concentration (as SO_2 corrected to 3% O_2) in the combined exhaust of the fluidized bed combustor and low pressure evaporator shall not exceed 35 ppmvd averaged over any three hour period when the bed temperature was at least 1500°F.

New Startup/Shutdown conditions:
A start-up event commences when the petroleum coke feed to the CFBC is initiated and/or the feed board temperature is 1560 °F. The start-up event is complete when the NO_X concentration and SOX concentration are in compliance with the concentration limits established in condition 5 and 18, or 22. A shutdown event commences when the petroleum coke feed to the CFBC is terminated and is complete when the combustion airflow to the CFBC is terminated.

The start-up/shutdown event shall not exceed any of the following limits: 2 hours, 1 per day, 50 per year.

Emissions from the circulating fluidized bed combustor shall not exceed either of the following limits during a start-up or shutdown event: 140 lb NO_X/hr or 200 lb SO_X/hr.

Current daily and annual emissions are proposed to remain at currently permitted levels when firing on the historically utilized lower sulfur Bakersfield coke

Post Project Equipment Description:

C-603-1-4: 30 MW FLUIDIZED BED COMBUSTOR FUELED BY PETROLEUM COKE, NATURAL GAS, AND NO. 2 FUEL OIL UP TO 320 MMBTU/HR.
VI. Emission Control Technology Evaluation

No new control devices are proposed. However, the following technical description of the existing control devices is presented for completeness. Combustion of fuel will result in the formation of SO\(_x\), NO\(_x\), CO, VOC and PM\(_{10}\) emissions, via combustor exhaust stack.

A. NO\(_x\) Control

The NO\(_x\) is produced from two primary sources. The nitrogen contained in the petroleum coke, or fuel-bound nitrogen, is liberated during combustion and oxidized into NO\(_x\). Second, ambient nitrogen in the CFBC air intake is oxidized into NO\(_x\) in the presence of the high combustion temperatures.

NO\(_x\) control during the combustion process is achieved through a combination of methods. The fluidized bubbling bed combustion technology in combination with multiple stages of combustion air creates an extended combustion zone where cool bed temperatures both inhibit thermal NO\(_x\) formation and minimize the conversion of fuel nitrogen into NO\(_x\). The use of large quantities of inert materials (limestone) with high volumes of preheated fluidizing air makes low NO\(_x\) and VOC emissions possible.

NO\(_x\) is also controlled by an ammonia injection system. Ammonia (NH\(_3\)) is injected into the combustor where it can react with NO\(_x\). Nitric Oxide (NO) is converted into nitrogen and water in the following reaction:

\[
6\text{NO} + 4\text{NH}_3 \rightarrow 6\text{H}_2\text{O} + 5\text{N}_2.
\]

Similarly, nitrogen dioxide (NO\(_2\)) is converted into nitrogen and water in the following reaction:

\[
6\text{NO}_2 + 8\text{NH}_3 \rightarrow 12\text{H}_2\text{O} + 7\text{N}_2.
\]

B. PM\(_{10}\) is controlled by baghouse. There are no modifications proposed to this emissions control equipment as a result of this project. Therefore this unit is expected to operate within the design specifications.

C. SO\(_x\) is controlled by injection limestone into the combustor. CaCO\(_3\) reacts with SO\(_x\) to form CaSO\(_4\), which is collected in the baghouse described above.

VII. General Calculations

A. Assumptions

- Facility will operate 24 hrs/day, 7 days per week, and 52 weeks per year.
- NO\(_x\) and SO\(_x\) are exempt from the normal operation emissions concentrations.
- SO\(_x\) is the only pollutant to be effected by this project.
- Combustor Rating: 320 MMBtu/hr
- Pre-project emission factors are based on the current valid permit conditions verified by a continuous emissions monitoring system and source test.
- Post-project emission factor for SO\(_x\) is based on preliminary test performed by the applicant.
- Applicant has proposed to set the annual SO\(_x\) emissions to 152,200 lb/yr
B. Emission Factors

- Current Permitted Emissions Limits (When fired on low sulfur type Bakersfield petroleum coke, NG, fuel oil or any combination of these fuels)
  \[ \text{NOX} \quad 28 \text{ ppmvd @ 3\% O}_2 \text{ or } 245 \text{ lb/day} \]
  \[ \text{SOX} \quad 20.2 \text{ ppmvd @ 3\% O}_2 \text{ or } 244/\text{day 3}\text{rd qtr, 245 lb/day every other quarter} \]
  \[ \text{PM}_{10} \quad 80 \text{ lb/day} \]
  \[ \text{CO} \quad 544 \text{ lb/day} \]
  \[ \text{VOC} \quad 60 \text{ lb/day} \]

- Proposed Emissions Limits During Start-Up or Shutdown (When fired on high sulfur type Approved alternate petroleum coke, NG, fuel oil or any combination of these fuels)
  \[ \text{NOX} \quad 140 \text{ lb/hr} \]
  \[ \text{SOX} \quad 200 \text{ lb/hr} \]

- Proposed Emissions Limits (When fired on petroleum coke, NG, fuel oil or any combination of these fuels)
  \[ \text{NOX} \quad 28 \text{ ppmvd @ 3\% O}_2 \text{ or } 245 \text{ lb/day} \]
  \[ \text{SOX} \quad 35 \text{ ppmvd @ 3\% O}_2 \text{ or } 469 \text{ lb/day}^1 \]
  \[ \text{PM}_{10} \quad 80 \text{ lb/day} \]
  \[ \text{CO} \quad 544 \text{ lb/day} \]
  \[ \text{VOC} \quad 60 \text{ lb/day} \]

Note: For the derivations of the 35 ppmv SOX and 469 lb/day from the test data, see Appendix C.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

The potential to emit for the operation is calculated as follows, and summarized in the table below for low sulfur type Bakersfield petroleum coke, NG, fuel oil, or any combination of these fuels:

Daily emissions are from the values listed on the current valid permit.

\[ \text{PE1} = 244 \text{ lb SOX/day in the third quarter.} \]
\[ \text{PE1} = 245 \text{ lb SOX/day in every other quarter.} \]

\[^1 \text{Post-project emission factor for SOX is based on preliminary test performed by the applicant.} \]
Annual emissions

PE1 = (244 lb SO\textsubscript{X} /day) * ((365 ÷ 4) day/yr) + (245 lb SO\textsubscript{X} /day) * ((3/4 * 365) day/yr)

= 89,334 lb SO\textsubscript{X}/year

<table>
<thead>
<tr>
<th></th>
<th>Daily Emissions (lb/day)</th>
<th>Annual Emissions (lb/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{X}</td>
<td>245</td>
<td>89,425</td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>244/245\textsuperscript{2}</td>
<td>89,334</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>80</td>
<td>29,200</td>
</tr>
<tr>
<td>CO</td>
<td>544</td>
<td>198,560</td>
</tr>
<tr>
<td>VOC</td>
<td>60</td>
<td>21,900</td>
</tr>
</tbody>
</table>

2. Post Project Potential to Emit (PE2)

When fired on low sulfur type Bakersfield petroleum coke, NG, fuel oil, or any combination of these fuels:

PE1 = 244 lb SO\textsubscript{X}/day in the third quarter.
PE1 = 245 lb SO\textsubscript{X}/day in every other quarter.

Annual emissions

PE1 = (244 lb SO\textsubscript{X} /day) * ((365 ÷ 4) day/yr) + (245 lb SO\textsubscript{X} /day) * ((3/4 * 365) day/yr)

= 89,334 lb SO\textsubscript{X}/year

<table>
<thead>
<tr>
<th></th>
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</thead>
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<tr>
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<td>244/245\textsuperscript{2}</td>
<td>89,334</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>80</td>
<td>29,200</td>
</tr>
<tr>
<td>CO</td>
<td>544</td>
<td>198,560</td>
</tr>
<tr>
<td>VOC</td>
<td>60</td>
<td>21,900</td>
</tr>
</tbody>
</table>

\textsuperscript{2} The DEL is 244 during the third quarter and 245 every other quarter.
When fired on high sulfur type Wilmington petroleum coke, NG, fuel oil, or any combination of these fuels:

\[ PE2 = 469 \text{ lb SO}_X / \text{day} \]

Annual emissions
\[ PE2 = 152,200 \text{ lb SO}_X / \text{year} \] (as proposed by applicant)

<table>
<thead>
<tr>
<th>Post Project Potential to Emit (PE2)</th>
<th>Daily Emissions (lb/day)</th>
<th>Annual Emissions (lb/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{X}</td>
<td>245</td>
<td>89,425</td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>469</td>
<td>152,200</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>80</td>
<td>29,200</td>
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<tr>
<td>CO</td>
<td>544</td>
<td>198,560</td>
</tr>
<tr>
<td>VOC</td>
<td>60</td>
<td>21,900</td>
</tr>
</tbody>
</table>

The applicant has requested to keep the same daily and annual emissions during start-up and shutdown when firing on the Bakersfield or approved alternate petroleum coke.

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

<table>
<thead>
<tr>
<th>Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)</th>
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</thead>
<tbody>
<tr>
<td>Permit Unit</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>C-0603-1-4</td>
</tr>
<tr>
<td>C-0603-2-1</td>
</tr>
<tr>
<td>C-0603-3-1</td>
</tr>
<tr>
<td>C-0603-6-2</td>
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<tr>
<td>C-0603-13-2</td>
</tr>
<tr>
<td>C-0603-14-1</td>
</tr>
<tr>
<td>Pre-project (SSPE1)</td>
</tr>
</tbody>
</table>

The values listed in SSPE1 were established in project C-1040696.

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source
and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

### Post Project Stationary Source Potential to Emit [SSPE2] (lb/year)

<table>
<thead>
<tr>
<th>Permit Unit</th>
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<th>SOX</th>
<th>PM10</th>
<th>CO</th>
<th>VOC</th>
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</thead>
<tbody>
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<td>21,900</td>
</tr>
<tr>
<td>C-0603-2-1</td>
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<td>0</td>
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<tr>
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<td>0</td>
<td>310</td>
<td>0</td>
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<tr>
<td>C-0603-6-2</td>
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<tr>
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<td>0</td>
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<td>0</td>
<td>50</td>
<td>0</td>
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</table>

**Post Project SSPE (SSPE2)**

<table>
<thead>
<tr>
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<th>SOX</th>
<th>PM10</th>
<th>CO</th>
<th>VOC</th>
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<tbody>
<tr>
<td>92,900</td>
<td>153,372</td>
<td>30,049</td>
<td>199,326</td>
<td>22,005</td>
</tr>
</tbody>
</table>

### 5. Major Source Determination

Pursuant to Section 3.25 of District Rule 2201, a major source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.25.2 states, “for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

<table>
<thead>
<tr>
<th>NOX</th>
<th>SOX</th>
<th>PM10</th>
<th>CO</th>
<th>VOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>92,900</td>
<td>90,506</td>
<td>30,049</td>
<td>199,326</td>
<td>22,005</td>
</tr>
<tr>
<td>92,900</td>
<td>153,372</td>
<td>30,049</td>
<td>199,326</td>
<td>22,005</td>
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<tr>
<td>50,000</td>
<td>140,000</td>
<td>140,000</td>
<td>200,000</td>
<td>50,000</td>
</tr>
</tbody>
</table>

| Major Source? | Yes | Yes | No | No | No |

This source is an existing Major Source for NOX and SOX emissions and will remain a Major Source for NOX and SOX. No change in other criteria pollutants are proposed or expected as a result of this project.

### 6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:
- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.
otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.23

a. BE NO\(_x\)

*Fully Offset Emissions Unit, located at a Major Source*
Offsets have previously been provided for this permit unit, as they were required to fully offset the original Kings County Air Pollution Control District application #9124. See Appendix D for ATC #9124. Therefore, pursuant to District Rule 2201, Section 3.20, this permitted unit is considered as a Fully Offset Emissions Unit.

\[
BE = PE1 = (245 \text{ lb NO}_x/\text{day}) \times (365 \text{ day/year}) = 89,425 \text{ lb NO}_x/\text{year}
\]

b. BE SO\(_x\)

*Fully Offset Emissions Unit, located at a Major Source*
Offsets have previously been provided for this permit unit. Therefore, pursuant to District Rule 2201, Section 3.20, this permitted unit is considered as a Fully Offset Emissions Unit.

\[
PE1 = (244 \text{ lb SO}_x/\text{day}) \times ((365 \div 4) \text{ day/yr}) + (245 \text{ lb SO}_x/\text{day}) \times ((3/4 \times 365) \text{ day/yr}) = 89,334 \text{ lb SO}_x/\text{year}
\]

c. BE PM\(_{10}\)

*Unit Located at a Non-Major Source*
As shown in Section VII.C.5 above, the facility is not a major source for PM\(_{10}\) emissions.

Therefore, Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

\[
BE = PE1 = (80 \text{ PM}_{10}/\text{day}) \times (365 \text{ day/year}) = 29,200 \text{ lb PM}_{10}/\text{year}
\]

d. BE CO

*Unit Located at a Non-Major Source*
As shown in Section VII.C.5 above, the facility is not a major source for CO emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

\[
BE = PE1 = (544 \text{ lb CO/day}) \times (365 \text{ day/year}) = 198,560 \text{ lb CO/year}
\]

e. BE VOC

*Unit Located at a Non-Major Source*
As shown in Section VII.C.5 above, the facility is not a major source for VOC emissions. Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

\[
BE = PE1 = (60 \text{ lb VOC/day}) \times (365 \text{ day/year}) = 21,900 \text{ lb VOC/year}
\]

7. Contemporaneous Increase in Permitted Emissions (CIPE) & Title I Modification

Calculating CIPE is required for existing Major Sources to determine if the current project has emissions increases above the Title I modification thresholds. This is also required for existing non-Major Sources becoming Major Sources, to determine if the current project has emissions increases above Major Source thresholds.

Section 3.39 of District Rule 2201 defines a Title I Modification as "the same as a Major Modification." District Policy APR 1125 (currently in draft form) defines a Major Modification as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

A Major Modification occurs if the Post-Project Stationary Source Potential to Emit (SSPE2) exceeds the Major Source Thresholds (as defined in Rule 2201) and the Contemporaneous Increase in Permitted Emissions (CIPE), is equal to or greater than one or more of the following threshold values:

For an existing Major Source:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>CIPE (lb/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\text{X}</td>
<td>50,000</td>
</tr>
<tr>
<td>SO\text{X}</td>
<td>30,000</td>
</tr>
<tr>
<td>PM\text{10}</td>
<td>30,000</td>
</tr>
<tr>
<td>VOC</td>
<td>50,000</td>
</tr>
</tbody>
</table>

According to draft Policy APR 1125, there are six (6) steps to take when determining whether a project is a Major/Title I Modification.

Step 1: Determine whether the project is an exempt action under Federal NSR. Pursuant to 40 CFR 51.165(a)(1)(v)(C), a physical change or change in the method of operation does not include any of the following actions:

- Routine maintenance, repair and replacement;
- Use of an alternative fuel or raw material by reason of a natural gas curtailment plan pursuant to a Federal, state or local directive;
- An increase in the hours of operation or in the production rate, unless such change is prohibited under any federally enforceable permit condition;
- Any change in ownership at a stationary source;
- Any permit revision considered not to be a direct District NSR action;
The addition, replacement or use of a pollution control project of an existing source, unless the APCO determines that the action renders the unit less environmentally beneficial (see Section IV L); or

Other actions specifically enumerated in 40 CFR 51.165(a)(1)(v)(C).

This project does not qualify for any of the above exempt actions; therefore we can proceed to Step 2.

**Step 2:** Determine if the project results in a "net emissions increase" (NEI). This term is defined in 40 CFR 51.165(a)(1)(vi)(A) as shown below and includes the following clauses:

"(A) Net emissions increase means the amount by which the sum of the following exceeds zero:

(1) Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

(2) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable."

The phrase "result in" (40 CFR 51.165(a)(1)(v)(A)) implies that if the stationary source modification (project) has no NEI, then the project cannot result in a Major Modification so it not necessary to examine increases which may have occurred during the Contemporaneous period. This situation can occur in one of two cases:

1. If a project involves a fully offset unit or source, and there is no proposed increase to it's Potential to Emit (PE), then the NEI is zero; or

2. If the unit is not fully offset but the applicant proposes to reduce the post-project potential to emit below the pre-project actual emissions, then the NEI is zero.

This project does include a fully offset unit, but there is a proposed increase to it's Potential to Emit (PE; therefore, we can proceed to Step 3.

**Step 3:** Determine the Stationary Source boundary.

For Major Modification calculations only, a Stationary Source is defined as any building, structure, facility, or installation that emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility or installation includes all pollutant emitting activities including emissions units which:

- Are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and

- Belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and

- Are located on one or more contiguous or adjacent properties.
The Hanford LP facility and all of its permitted units will be treated as one Stationary Source. Therefore, we can proceed to Step 4.

**Step 4:** Determine if the facility’s SSPE2 exceeds the Major Source Threshold(s).

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NOₓ and SOₓ. Therefore, we can proceed to Step 5.

**Step 5** Determine which projects, within the Contemporaneous Period, are creditable.

To be contemporaneous, an action must have occurred before the date of the proposed change (40 CFR 51.165(a)(1)(vi)(B). For District projects, the contemporaneous period is the period of five consecutive years immediately preceding the start of construction of the proposed project increase.

This project is expected to begin construction in third quarter of 2005; therefore, the five-year Contemporaneous Period will be from **07/1/00 to 07/1/05**. The projects for Hanford LP which fall within this timeframe are listed as follows:

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Date Finalized</th>
<th>Date Complete</th>
<th>Permit Unit(s)</th>
<th>Action/Type of Project</th>
<th>Creditable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C1020361</td>
<td>Aug 08, 2002</td>
<td>Mar 25, 2002</td>
<td>-13 and -14 Add two existing silos</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>C1040496</td>
<td>May 05, 2004</td>
<td>Apr 28, 2004</td>
<td>-2 Modify the gypsum storage system by upgrading the dust</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>C1043492</td>
<td>Current project</td>
<td>Dec 28, 2005</td>
<td>-1 See Proposal Section I above</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Note: Title V projects (i.e. Administrative Amendments, Minor Modifications, Title V Renewals, etc.) have not been included since there are no emissions increases associated with these types of projects.

Not all contemporaneous NEI are included in the Major Modification calculations. To avoid double-counting emission changes, the CFR excludes previously used projects. Specifically, NEI are “creditable” only if “The reviewing authority has not relied on it in issuing a permit for the source under regulations approved pursuant to this section which permit is in effect when the increase in actual emissions from the particular change occurs.” (40 CFR 51.165(a)(1)(vi)(C)(2))

That requirement requires all projects, which have either been issued under the August 20, 2001 NSR rule or were part of another Major Modification project, to be considered not creditable for NEI purposes. Therefore, the emissions from any project deemed complete after 8/20/01 has been “relied on it in issuing a permit for the source under regulations approved pursuant to” 40 CFR 51.165 and are therefore not creditable as a net emission increase (NEI)³. In addition, projects which were issued under an NSR

---

³ This only applies to previously-issued permits, and not to the specific project being evaluated for Major Modification requirements.
rule in effect before 8/20/01, and which have been used to trigger a Major Modification permitting action, are also not considered to be creditable as an NEI. 4

As demonstrated from the table above, all projects were deemed complete after August 20, 2001. Therefore, project numbers 1, and 2 are not creditable and will not be included in the CIPE calculation.

**Step 6: Calculate the Contemporaneous Increase in Permitted Emissions (CIPE)**

The CIPE is calculated, on a pollutant-by-pollutant basis, as follows:

\[
CIPE^5 = SSPNEC - AER_{\text{major}}
\]

Where:

- **SSPNEC** = Stationary Source Project Net Emission Change (SSPNEC) shall be calculated, on a pollutant-by-pollutant basis, as the sum of Net Emissions Change (NEC) for all emissions units contained in the Stationary Source Project or any creditable project. A SSPNEC calculated to a negative value shall be set to zero.

Where:

- **NEC** = Net Emissions Change (NEC) shall be calculated, on a pollutant-by-pollutant basis, as follows:

   1. For emissions units not covered by a Specific Limiting Condition (SLC):

   \[
   NEC = PE2 - HE
   \]

   Where:

   - **PE2** = Post Project Potential to Emit for each Emissions Unit
   - **HE** = Historic Actual Emissions - for each Non-fully offset Emissions Unit
   - **HE** = Pre-Project Potential to Emit - for Fully Offset Emissions Units

As shown above, the facility is a major source for NO\textsubscript{X} and SO\textsubscript{X}. Therefore CIPE calculations will be only be performed for these pollutants.

**a. NO\textsubscript{X} CIPE:**

Based on the discussion in Step 5 and the formula above, the NO\textsubscript{X} CIPE can be calculated as follows:

\[
CIPE_{NOX} = SSPNEC_{\text{current project}} \text{ (As AER is equal to zero.)}
\]

---

4 Emissions have "been previously relied upon as part of a Major Modification" if they were included in the contemporaneous period of a project which triggered a Major Modification. Merely having been included in a project calculation which did not trigger a Major Modification does not qualify as having been relied upon.

5 Emission Reduction Credits are not included in the CIPE calculations.
Current Project C1043492:

C-603-1-5: (Allow the utilization of Wilmington coke as fuel for the 30 MW fluidized bed Combustor)

**Fully-Offset Emissions Units**
As shown above in section VII.C.6.a of this evaluation, this permitted unit is a fully offset emissions unit for NOX. Therefore CIPE calculations can be based on PE1 and PE2.

Therefore; NOX NEC = PE2 – PE1
= PE2 – PE1
= 89,425 lb NOX/year - 89,425 lb NOX/year
= 0

CIPE\textsubscript{NOx} = SSPNEC\textsubscript{current project}
= 0 lb NOX/year

As demonstrated above, the CIPE\textsubscript{NOx} of 0 lb/year is not greater than the NOX Major Modification Threshold of 50,000 lb/year above; therefore, the project will not be considered a Title I Modification for NOX purposes.

b. SOX CIPE:

Based on the discussion in Step 5 and the formula above, the SOX CIPE can be calculated as follows:

**Fully-Offset Emissions Units**
As shown above in section VII.C.6.a of this evaluation, this permitted unit is a fully offset emissions unit for SOX. Therefore CIPE calculations can be based on PE1 and PE2.

Therefore; SOX NEC = PE2 – PE1
= PE2 – PE1
= 152,200 lb SOX/year - 89,334 lb SOX/year
= 62,866 lb SOX/year

CIPE\textsubscript{SOx} = SSPNEC\textsubscript{current project}
= 62,866 lb SOX/year

As demonstrated above, the CIPE\textsubscript{SOx} of 62,866 lb SOX/year is greater than the SOX Major Modification Threshold of 30,000 lb/year above; therefore, the project will be considered a Title I Modification for SOX purposes.

8. Quarterly Net Emissions Change (QNEC)
The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix E.

VIII. Compliance

Rule 1080  Stack Monitoring Rule

This Rule grants the APCO the authority to request the installation and use of continuous emissions monitors (CEMs), and specifies performance standards for the equipment and administrative requirements for recordkeeping, reporting, and notification.

The circulating fluidized bed combustor is equipped with operational CEMs for NOx, SOx, O2 concentration and opacity. Provisions included in the operating permit are consistent with the requirements of this Rule. Compliance with the requirements of this Rule is anticipated.

Proposed Rule 1080 Conditions:

• A Continuous Emissions Monitoring System shall be in place and operating whenever the circulating fluidized bed combustor is operating. NOx (as NO2 corrected to 3% O2), SOx as SO2, opacity and O2 concentrations must be recorded continuously. [District Rule 1080]

• Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]

• The continuous monitoring equipment must be linked to a data logger which is compatible with the District's data acquisition system. [District Rule 1080 and District Rule 4352]

• Records of all daily fuel consumption shall be maintained on site and submitted to the District with quarterly reports and upon request. [District Rule 1070, District rule 1080, District Rule 4352 and 40 CFR 60.49b(d)]

• {748} A violation of NOx emission standards indicated by the NOx CEM shall be reported by the operator to the APCO within 96 hours. [Rule 108 (Kings, Fresno, Merced San Joaquin, Tulare, Kern, and Stanislaus) and Rule 109 (Madera) and District Rule 1080, 9.0]

• The owner/operator shall perform a relative accuracy test audit (RATA) as specified by 40 CFR Part 60, Appendix F, 5.11, at least once every four calendar quarters. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]

• Operator shall notify the APCO no later than eight hours after the detection of a breakdown of the CEMS. Operator shall inform the APCO of the intent to shut down the CEMS at least 24 hours prior to the event. [District Rule 1080; Fresno County Rule 108]
Rule 1081  Source Sampling Rule

This Rule requires adequate and safe facilities for use in sampling to determine compliance with emissions limits, and specifies methods and procedures for source testing and sample collection.

The requirements of this Rule will be included in the operating permits. Compliance with this Rule is anticipated.

Proposed Rule 1081 Conditions:

- Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- Source testing to demonstrate compliance with permit conditions and all rules and regulations shall be conducted on an annual basis. [District Rule 1081]
- Performance testing shall be conducted annually for NOx, CO, SOx, and PM(10) at normal operating capacity using following test methods; for NOx, EPA Method 7E or ARB Method 1-100; for CO, EPA Method 10 or ARB Method 100; for SOx, EPA Method 6 or 6C; and for PM(10), EPA Method 201A, and SCAQMD Method 5.3 and 6.1. [District Rules 1081 and 2201]
- Filterable PM(10) shall be quantified using EPA Method 201A. Condensable PM10 from the back-half of the test apparatus shall be quantified using SCAQMD methods 5.3 and 6.1. Total PM10 is the sum of the results of these two tests. [District Rules 1081 and 2201]

Rule 2201  New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:
   a. Any new emissions unit with a potential to emit exceeding two pounds per day,
   b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
   c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
   d. Any new or modified emissions unit, in a stationary source project, which results in a Title I Modification.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.
a. New emissions units – PE > 2 lb/day

As discussed in Section I above, there are no new emissions units associated with this project; therefore BACT for new units with PE > 2 lb/day purposes is not triggered.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

\[ \text{AIPE} = \text{PE2} - \text{HAPE} \]

Where,

\[ \text{AIPE} = \text{Adjusted Increase in Permitted Emissions, (lb/day)} \]
\[ \text{PE2} = \text{Post-Project Potential to Emit, (lb/day)} \]
\[ \text{HAPE} = \text{Historically Adjusted Potential to Emit, (lb/day)} \]

\[ \text{HAPE} = \text{PE1} \times (\text{EF2/EF1}) \]

Where,

\[ \text{PE1} = \text{The emissions unit’s Potential to Emit prior to modification or relocation, (lb/day)} \]
\[ \text{EF2} = \text{The emissions unit’s permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1} \]
\[ \text{EF1} = \text{The emissions unit’s permitted emission factor for the pollutant before the modification or relocation} \]

\[ \text{AIPE} = \text{PE2} - (\text{PE1} \times (\text{EF2/EF1})) \]

C-603-1-5:

30 MW FLUIDIZED BED COMBUSTOR:

\[ \text{AIPE} = 469 - (245 \times (35/20.2)) \]
\[ = 469 - 245 \times 1 \]
\[ = 224 \text{ lb/day} \]

As demonstrated above, the AIPE is greater than 2.0 lb/day for SO\textsubscript{X} emissions; therefore BACT is triggered.

d. Title I Modification

As discussed in Section VII.C.7 above, this project does constitute a Title I Modification for SO\textsubscript{X} emissions; therefore BACT is triggered for SO\textsubscript{X} for all emissions units associated with this stationary source project.
2. BACT Guideline

BACT Guideline 1.3.1, applies to the fluidized-bed combustor greater than 272 MMBtu/hr. (See Appendix F)

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District’s NSR Rule.

BACT Guideline 1.3.1 was analyzed with the CFBC utilizing Bakersfield (low sulfur) coke as the fuel. The modification to the existing BACT is necessary to allow the use of Wilmington (high sulfur) coke when the Bakersfield coke is no longer available. Pursuant to the attached Top-Down BACT Analysis (see Appendix G), BACT has been satisfied with the following:

- **NOX**: Certified NOX emissions of 6.9 g/hp·hr or less
- **SOX**: Sorbent injection and natural gas and low sulfur fuel oil (0.05% sulfur) as auxiliary fuel
- **PM10**: PM10 emissions less than or equal to 0.1 g/hp·hr
- **VOC**: Positive Crankcase Ventilation (PCV) System

B. Offsets

1. Offset Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 or Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

<table>
<thead>
<tr>
<th>Offset Determination (lb/year)</th>
<th>NOX</th>
<th>SOX</th>
<th>PM10</th>
<th>CO</th>
<th>VOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Project SSPE (SSPE2)</td>
<td>92,900</td>
<td>153,372</td>
<td>30,049</td>
<td>199,326</td>
<td>22,005</td>
</tr>
<tr>
<td>Offset Threshold</td>
<td>20,000</td>
<td>54,750</td>
<td>29,200</td>
<td>200,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Offsets triggered?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
2. Quantity of Offsets Required

As seen above, the facility is an existing Major Source for NO$_X$ and SO$_X$ and the SSPE2 is greater than the offset thresholds for PM$_{10}$ and VOC; therefore offset calculations will be required for this project.

Per Sections 4.7.1 and 4.7.3, the quantity of offsets in pounds per year is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = (\$[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

Where,

\[
\text{PE2} = \text{Post Project Potential to Emit, (lb/year)} \\
\text{BE} = \text{Baseline Emissions, (lb/year)} \\
\text{ICCE} = \text{Increase in Cargo Carrier Emissions, (lb/year)} \\
\text{DOR} = \text{Distance Offset Ratio, determined pursuant to Section 4.8}
\]

\[
\text{BE} = \text{Pre-project Potential to Emit for:} \\
- \text{Any unit located at a non-Major Source,} \\
- \text{Any Highly-Utilized Emissions Unit, located at a Major Source,} \\
- \text{Any Fully-Offset Emissions Unit, located at a Major Source, or} \\
- \text{Any Clean Emissions Unit, Located at a Major Source.}
\]

otherwise,

\[
\text{BE} = \text{Historic Actual Emissions (HAE)}
\]

As calculated in Section VII.C.6 above, the Baseline Emissions (BE) from this unit are equal to the Pre-Project Potential to Emit (PE1) since the unit is a Clean Emissions Unit and fully offset.

Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) = ([PE2 – BE] + ICCE) x DOR

\[
\text{NO}_X \\
\text{PE2 (NO}_X) = 89,425 \text{ lb/year} \\
\text{BE (NO}_X) = 89,425 \text{ lb/year} \\
\text{ICCE} = 0 \text{ lb/year}
\]

Offsets Required (lb/year) = [(89,425 – 89,425) + 0] x DOR

= 0 lb NO$_X$/year
SO\(_X\)
- \(PE2 (SO_X) = 152,200 \text{ lb/year}\)
- \(BE (SO_X) = 89,334 \text{ lb/year}\)
- \(ICCE = 0 \text{ lb/year}\)

Offsets Required (lb/year) \(= ([152,200 - 89,334] + 0) \times DOR\)
\(= 62,866 \text{ lb SO}_X/\text{year}\)

PM\(_{10}\)
- \(PE2 (PM_{10}) = 29,200 \text{ lb/year}\)
- \(BE (PM_{10}) = 29,200 \text{ lb/year}\)
- \(ICCE = 0 \text{ lb/year}\)

Offsets Required (lb/year) \(= ([29,200 - 29,200] + 0) \times DOR\)
\(= 0 \text{ lb PM}_{10}/\text{year}\)

VOC
- \(PE2 (VOC) = 21,900 \text{ lb/year}\)
- \(BE (VOC) = 21,900 \text{ lb/year}\)
- \(ICCE = 0 \text{ lb/year}\)

Offsets Required (lb/year) \(= ([21,900 - 21,900] + 0) \times DOR\)
\(= 0 \text{ lb VOC/year}\)

As demonstrated in the calculation above, the amount of offsets is 62,866 lb SO\(_X\); therefore, offsets will be required for this project.

See Appendix H for a summary of the proposed offsets.

**Proposed Rule 2201 (offset) Conditions:**

- Prior to utilizing of Wilmington petroleum coke, Hanford LP shall surrender SO\(_X\) emission reduction credits for the following quantity of emissions: 1st quarter - 15,717 lb, 2nd quarter - 15,717 lb, 3rd quarter - 15,717 lb, and fourth quarter - 15,717 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 12/19/02).

- ERC Certificates Numbers C-517-5, C-442-5, C-605-5, C-520-5, S-1628-5, S-1623-5, S-1628-19, and N-382-5 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this permit shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this permit.
C. Public Notification

1. Applicability

Public noticing is required for:

a. Any new Major Source, which is a new facility that is also a Major Source,
b. Title I Modifications,
c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
d. Any project which results in the offset thresholds being surpassed, and/or
e. Any project with an SSIPPE of greater than 20,000 lb/year for any pollutant.

   a. New Major Source

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

b. Title I Modification

As demonstrated in VII.C.7, this project is a Title I Modification; therefore, public noticing for Title I Modification purposes is required.

c. PE > 100 lb/day

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units associated with this project; therefore public noticing is not required for this project for Potential to Emit Purposes.

d. Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>SSPE1 (lb/year)</th>
<th>SSPE2 (lb/year)</th>
<th>Offset Threshold</th>
<th>Public Notice Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOX</td>
<td>92,900</td>
<td>92,900</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>SOX</td>
<td>90,506</td>
<td>153,372</td>
<td>54,750 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>PM10</td>
<td>30,049</td>
<td>30,049</td>
<td>29,200 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>199,326</td>
<td>199,326</td>
<td>200,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>22,005</td>
<td>22,005</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
</tbody>
</table>
As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

e. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e., SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>SSPE2 (lb/year)</th>
<th>SSPE1 (lb/year)</th>
<th>SSIPE (lb/year)</th>
<th>SSIPE Public Notice Threshold</th>
<th>Public Notice Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOₓ</td>
<td>92,900</td>
<td>92,900</td>
<td>0</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>SOₓ</td>
<td>153,372</td>
<td>90,506</td>
<td>62,866</td>
<td>20,000 lb/year</td>
<td>Yes</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>30,049</td>
<td>30,049</td>
<td>0</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>199,326</td>
<td>199,326</td>
<td>0</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>22,005</td>
<td>22,005</td>
<td>0</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
</tbody>
</table>

As demonstrated above, the SSIPEs for SOₓ is greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is required.

2. Public Notice Action

As discussed above, public noticing is required for this project for SOₓ for Title I modification and SSIPE in excess of 20,000 lb/year. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.17 to restrict a unit’s maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.17.1 and 3.17.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

For this fluidized bed combustor, the DELs are stated in the form of emission factors (ppmv), heat input, and the maximum emissions per day.
**Proposed Rule 2201 (DEL) Conditions:**

- Fuel consumption in the fluidized bed combustor shall not exceed 320 MMBTU/hr of petroleum coke, natural gas, and No. 2 fuel oil combined. [District Rule 2201] Y

- The NOx emissions (measured as NO\textsubscript{2}) from the combined exhaust of the low pressure evaporator and fluidized bed combustor shall not exceed 245 pounds in any one day. [District Rule 2201] Y

- The NOx concentration (as NO\textsubscript{2} corrected to 3% O\textsubscript{2}) in the combined exhaust of the fluidized bed combustor and low pressure evaporator shall not exceed 28 ppmvd averaged over any 3 hour period when the freeboard temperature is at least 1560 F. [District Rules 2201, District Rule 4301 and District Rule 4352, 5.1] Y

- The carbon monoxide emissions from the combined exhaust of the fluidized bed combustor and low pressure evaporator shall not exceed 544 pounds in any one day. [District Rule 2201 and District Rule 4352, 5.3] Y

- The VOC emissions from the combined exhaust of the fluidized bed combustor and low pressure evaporator shall not exceed 60 pounds in any one day. [District Rule 2201] Y

- The PM10 emissions from the combined exhaust of the fluidized bed combustor and low pressure evaporator shall not exceed 80 pounds in any one day. [District Rule 2201] Y

- When fired on Bakersfield, or other equivalent low sulfur petroleum coke, the SOx emissions (calculated as SO\textsubscript{2}) from the combined exhaust of the combustor and low pressure evaporator shall not exceed 244 pounds in any one day in the third quarter or 245 pounds in any one day in any of the other three calendar quarters. [District Rule 2201] Y

- When firing on Bakersfield, or other equivalent low sulfur petroleum coke, the SOx concentration (as SO\textsubscript{2} corrected to 3% O\textsubscript{2}) in the combined exhaust of the fluidized bed combustor and low pressure evaporator shall not exceed 20.2 ppmvd averaged over any three hour period when the freeboard bed temperature was at least 1500°F. [District Rule 2201] Y

- Upon District approval, when firing on approved alternate petroleum coke, SOx emissions (calculated as SO\textsubscript{2}) from the combined exhaust of the combustor and the low pressure evaporator shall not exceed 469 pounds per day. [District Rule 2201] Y
The following condition represents the maximum SO\textsubscript{X} concentration allowed, and will be revised after source testing: Within 90 days of the initial source test, Hanford L.P. shall prepare and submit to the District a report proposing the SO\textsubscript{2} concentration (as SO\textsubscript{2} corrected to 3% O\textsubscript{2}) for the approved alternate petroleum coke, for inclusion in this permit. The report shall provide all relevant information and data, and a technical demonstration that, when fired on the approved alternate petroleum coke, the proposed SO\textsubscript{2} emission concentration (as SO\textsubscript{2} corrected to 3% O\textsubscript{2}) in the combined exhaust of the fluidized bed combustor and low pressure evaporator, is the lowest achievable concentration, not to exceed 35 ppmdv averaged over any 3 hour period when the bed temperature is at least 1500 F. [District Rule 2201] Y

A start-up event commences when the petroleum coke feed to the CFBC is initiated and/or the feed board temperature is 1560 F. The start-up event is complete when the NO\textsubscript{x} concentration and SO\textsubscript{x} concentration are in compliance with the concentration limits. A shutdown event commences when the petroleum coke feed to the CFBC is terminated and is complete when the combustion air flow to the CFBC is terminated. [District Rule 2201]

The start-up/shutdown event shall not exceed any of the following limits: 2 hours, 1 per day, 50 per year. [District Rule 2201] Y

Emissions from the circulating fluidized bed combustor shall not exceed either of the following limits during a start-up or shutdown event: 140 lb NO\textsubscript{x}/hr or 200 lb SO\textsubscript{2}/hr. [District Rule 2201] Y

E. Compliance Assurance

1. Source Testing

Source testing to show compliance with the proposed SO\textsubscript{X} will be required. The control equipment will include a sorbent injection system to control SO\textsubscript{X}.

Therefore, source testing for SO\textsubscript{X}, will be required within 60 days of initial operation and at least once every 12 months thereafter. Additional source testing requirements are addressed under District Rule 1081.

2. Monitoring

District Rule 4352 requires the owner of any unit equipped with NO\textsubscript{X} reduction technology shall either install and maintain continuous emissions monitoring equipment for NO\textsubscript{X}, CO, and oxygen, as identified in Rule 1080 (Stack Monitoring). Since the circulating fluidized bed will be equipped with ammonia injection, this requirement applies.
The facility utilizes continuous emissions to meet the requirements of District Rule 4352. Monitoring for Rule 4352 also satisfies the monitoring requirements for Rule 2201. No additional monitoring is required.

### 3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition(s) will appear on the permit to operate:

- Records of all daily fuel consumption shall be maintained on site and submitted to the District with quarterly reports and upon request. [District Rule 1070, District rule 1080, District Rule 4352 and 40 CFR 60.49b(d)]

The applicant will also be required to keep records of all of the parameters that are required by the Rule 2520.

- Records of system maintenance, inspections, and repair shall be maintained. The records shall include identification of the equipment, date of inspection, corrective action taken, and identification of the individual performing the inspection. [District Rule 2520, 9.4.2]

### 4. Reporting

40 CFR Part 60 Subpart Section 60.49b paragraph (h) requires that the owner submit quarterly excess emission reports for any calendar quarter during which there are excess emissions. It also requires semiannual reports stating that there have been no excess emissions during periods when there have been no excess emissions. Such reporting will be required and will satisfy the reporting requirements for Rule 2201. No additional reporting is required.

### F. Ambient Air Quality Analysis

Section 4.14.2 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix I of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NOX, CO, and SOX. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NOX, CO, or SOX.

The proposed location is in a non-attainment area for PM10. The increase in the ambient PM10 concentration due to the proposed equipment is shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.
As shown, the calculated contribution of PM$_{10}$ will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

G. Compliance Certification

Section 4.14.3 of this Rule requires the owner of a new Major Source or a source undergoing a Title I Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this facility is not a new major source, however this project does constitute a Title I modification. Therefore, this requirement is applicable. Included in Appendix J is Hanford LP’s compliance certification.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. The proposed modification is a Major Modification to the Title V Permit pursuant to Section 3.31 of this rule. As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional

This subpart addresses standards for PM emissions from steam generators. Section 60.43b(c) of the rule limits PM emissions to 0.1 lb/MMBtu. Permit conditions will be included to assure compliance with this subpart.
Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the stack is equipped CEMs with an opacity meter, and based on past history of the facility continued compliance is expected.

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (Appendix I), a prioritization was not necessary as there was no increase in toxic emissions. Therefore, no future analysis is required to determine the impact from this project and compliance with the District’s Risk Management Policy is expected.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

\[
\text{PM Conc. (gr/scf)} = \frac{\text{(PM emission rate)} \times (7,000 \text{ gr/lb})}{\text{(Air flow rate)} \times (60 \text{ min/hr}) \times (24 \text{ hr/day})}
\]

PM\textsubscript{10} emission rate = 80 lb/day. Assuming 100% of PM is PM\textsubscript{10}.

Exhaust Gas Flow = 58,278 scfm

\[
\text{PM Conc. (gr/scf)} = \frac{[(80 \text{ lb/day}) \times (7,000 \text{ gr/lb})]}{[(58,278 \text{ ft}^3/\text{min}) \times (60 \text{ min/hr}) \times (24 \text{ hr/day})]}
\]

PM Conc. = 0.007 gr/scf

Therefore, the PM concentration is within allowable limits and compliance with the rule is expected.
Rule 4202 Particulate Matter Emission Rate

This rule limits the allowable PM emission rate based on the equipment process weight rate. Section 3.1 defines the process weight as “the total weight of all materials introduced into any specific process, which process may cause any discharge into the atmosphere.”

The post-project process weight rate of the material handling operation is 0.0017 tons per hour (equivalent to 0.04 tons/day).

\[
\text{Rule 4202 emission limit} = 3.59 \times P^{0.62} \quad \text{where } P \text{ less than 30 tons/hr}
\]
\[
= 3.59 \times (0.0017)^{0.62}
\]
\[
= 0.07 \text{ lb/hr}
\]

Therefore, the PM emissions are within allowable limits and compliance with the rule is expected.

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO$_2$, NO$_2$, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf.

<table>
<thead>
<tr>
<th>District Rule 4301 Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollutant</td>
</tr>
<tr>
<td>ATC #C-603-1-5 (lb/hr) normal operation</td>
</tr>
<tr>
<td>ATC #C-603-1-5 (lb/hr) Start-up/Shutdown</td>
</tr>
<tr>
<td>Rule Limit (lb/hr)</td>
</tr>
</tbody>
</table>

The above table indicates compliance with the maximum lb/hr emissions in this rule; therefore, continued compliance is expected.

Rule 4351 Boilers, Steam Generators and Process Heaters – Phase 1

Pursuant to section 4.1.2, units fired with solid fuel are exempt from the requirements of this rule. Since CFBC is solid fuel fired, this rule does not apply.

Rule 4352 Solid Fuel Fired Boilers, Steam Generators and Process Heaters

This rule limits NO$_X$ emissions to 0.2 lb/MMBtu, CO emissions to 400 ppmv at 3% O$_2$, and a CEMS that continuously records CO concentrations in the stack gas.

The maximum allowable daily emissions limit based on the rule limit and the CFBC hit is calculated as follows:

\[
\text{Max DEL} = (0.2 \text{ lb/MMBtu}) \times (320 \text{ MMBtu/hr}) \times (24 \text{ hr/day})
\]
= 1,536 pound of NO\textsubscript{X} per day.

The following permit condition shows compliance with the rule:

The NO\textsubscript{X} emissions (measured as NO\textsubscript{2}) from the combined exhaust of the low pressure evaporator and fluidized bed combustor shall not exceed 245 pounds in any one day. [District Rule 2201]

\[
\text{Volume CO} = \frac{n RT}{P}
\]

With:

- \( N = \text{moles CO} \)
- \( T \) (Standard Temperature) = 60°F = 520°R
- \( P \) (Standard Pressure) = 14.7 psi
- \( R \) (Universal Gas Constant) = \( \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{°R}} \)

\[
\frac{400 \cdot \text{parts}}{\text{MMBtu}} \times \frac{9,860 \cdot \text{dscf}}{1 \text{lb} \cdot \text{mol}} \times \frac{28 \text{lb}}{\text{lb} \cdot \text{mol} \cdot \text{°R}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{520°R} \times \frac{14.7 \text{ psi}}{1,000,000 \cdot \text{parts}} \times \frac{\text{million}}{\text{MMBtu}} = 0.3346 \frac{\text{lb}}{\text{MMBtu}}
\]

The maximum allowable daily emissions limit based on the rule limit and the CFBC hit is calculated as follows:

\[
\text{Max DEL} = (0.3346 \text{ lb/MMBtu}) \times (320 \text{ MMBtu/hr}) \times (24 \text{ hr/day})
\]

= 2,570 pound of CO per day.

The following permit condition shows compliance with the rule:

The carbon monoxide emissions from the combined exhaust of the fluidized bed combustor and low pressure evaporator shall not exceed 544 pounds in any one day. [District Rule 2201 and District Rule 4352, 5.3]

The rule also requires that records be kept of the type and quantity of fuel burned in the unit.

The following conditions will appear on the permit:

Records of all daily fuel consumption shall be maintained on site and submitted to the District with quarterly reports and upon request. [District Rule 1070, District rule 1080, District Rule 4352 and 40 CFR 60.49b(d)]
Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂, on a dry basis averaged over 15 consecutive minutes.

The following conditions will appear on the permit:

The SOx concentration (as SO₂ corrected to 3% O₂) in the combined exhaust of the fluidized bed combustor and low pressure evaporator shall not exceed 35 ppmdv averaged over any three hour period when the bed temperature was at least 1500 F. [District Rule 2201, District Rule 4301 and District Rule 4801]

The condition indicates compliance with the maximum emissions in this rule; therefore, continued compliance is expected.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authority to Construct C-603-1-5 subject to the permit conditions on the attached draft Authority to Construct in Appendix K.

X. Billing Information

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Fee Schedule</th>
<th>Fee Description</th>
<th>Annual Fee</th>
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<tbody>
<tr>
<td>C-603-1-5</td>
<td>3020-08A-F</td>
<td>30,000 KW</td>
<td>$7004.00</td>
</tr>
</tbody>
</table>
Appendices are available upon request at the District’s Central Office
A: Current PTO
B: Fuel Test Report
C: SO₂ Calculations
D: ATC Application #9124
E: Quarterly Net Emissions Change
F: BACT Guideline
G: BACT Analysis
H: Offset Summary
I: Ambient Air Analysis and HRA Summary
J: Compliance Certification
K: Draft ATC