### NRCS Diesel Engine Emissions Inventory Worksheet

**Contract No.: [SIP ID: 3776]**

**Participant Name:**

**Service Center: Madera**

#### Old Engine(s)

<table>
<thead>
<tr>
<th>Equipment Function</th>
<th>Tractor</th>
<th>Engine Serial No.</th>
<th>Engine Fuel Type</th>
<th>Destruction Facility</th>
<th>Destruction Location</th>
<th>Date Destroyed</th>
<th>Verified By Name</th>
<th>Verification Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Model</td>
<td>2640</td>
<td>Horse Power</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment VIN</td>
<td>[Redacted]</td>
<td>Annual Hours</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Make</td>
<td>Deere Power Systems Group Of</td>
<td>Initial Hour</td>
<td>Meter Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Model No.</td>
<td>5277981</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Model Year</td>
<td>1978</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### New Engine(s)

<table>
<thead>
<tr>
<th>Equipment Function</th>
<th>Tractor</th>
<th>Engine Serial No.</th>
<th>EPA Engine Family</th>
<th>Engine Fuel Type</th>
<th>Horse Power</th>
<th>Annual Hours</th>
<th>Initial Hour</th>
<th>Meter Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Manufacturer</td>
<td>John Deere</td>
<td>[Redacted]</td>
<td>KIDX50,5315</td>
<td>Diesel, Tier 4 Final</td>
<td>100</td>
<td>1000</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>Vehicle Model</td>
<td>5100ML</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment VIN</td>
<td>[Redacted]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Make</td>
<td>John Deere Power Systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Model No.</td>
<td>4045HLV78</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Engine Model Year</td>
<td>2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Baseline In-Use Equipment and Engine Worksheet

**California Air Quality - CPS 372 Combustion System Improvement**

**USDA Natural Resources Conservation Service**

The applicant is to complete a separate worksheet for each in-use equipment/engine. See instructions on the back before answering questions below.

<table>
<thead>
<tr>
<th>Applicant Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Report the total acres this equipment/engine serves:</td>
<td>38</td>
</tr>
<tr>
<td>2. Years operated on these acres:</td>
<td></td>
</tr>
</tbody>
</table>

#### 3. Fuel Type
- [ ] Diesel
- [ ] B20 diesel
- [ ] B100 biodiesel
- [ ] Other:

#### 4. Emissions Tier Level
- [ ] Non-Tier
- [ ] Tier 1
- [ ] Tier 2

#### 5. Describe the in-use equipment (check one):
- [ ] Wheeled Tractor
- [ ] Rubber-Tired Loader
- [ ] Tracked Tractor
- [ ] Rough-Terrain Forklift
- [ ] Bulldozer

#### 6. Name of Equipment/Engine Owner: [ ]

#### 7. Year Purchased: [1989]

#### 8. Equipment Manufacturer
- [ ] John Deere

#### 9. Equipment Model: [2690]

#### 10. Equipment Model Year: [2007]

#### 11. Equipment VIN: [ ]

#### 12. Annual Hours of Operation: [1000]


#### 14. Engine Manufacturer
- [ ] JD - 2690

#### 15. Engine Model: [5277981]

#### 16. Engine Model Year: [1973]

#### 17. Engine Serial No: [ ]

#### 18. Engine Horsepower (bhp): [240 hp]

#### 19. PTO Horsepower: [if applicable]

#### 20. EPA Engine Family Name: [N/A]

#### 21. Months in Operation:
- [ ] January
- [ ] April
- [ ] July
- [ ] October
- [ ] February
- [ ] May
- [ ] August
- [ ] November
- [ ] March
- [ ] June
- [ ] September
- [ ] December

- [ ] Operates throughout the year

#### 22. The planned location on where the equipment/engine will be scrapped and properly disposed:

#### 23. The applicant is to provide two documents verifying engine and equipment ownership and one document verifying the equipment/engine operations over the previous 12-consecutive month period prior to the submittal of this worksheet and EQIP application.

#### 24. Additional Information:

- [ ] Purchase [1989-2014]
Instructions

BASELINE IN-USE EQUIPMENT AND ENGINE WORKSHEET

1. Report the total acres this equipment/engine serves: The total acres this off-road mobile agricultural equipment operates on or the total acres being irrigated from the well powered by this diesel engine.

2. Years Operated on these acres: Approximate length of time the engine & equipment has been operating at this location.

3. Fuel Type: All fuels must be suitable for use in a compression-ignition engine and meet California Air Resources Board (CARB) standards. "Diesel" is represented as petroleum-based "CARB diesel" and may be blended with up to 5% biodiesel (B5). "B20 diesel" is petroleum-based CARB diesel blend of up to 20% biodiesel. "B100" is non petroleum-based biodiesel. More information on California diesel fuels may be found at: http://www.arb.ca.gov/fuels/diesel/diesel.htm.

4. Emissions Tier Level: Select "Non-Tier" for non-emissions certified or uncontrolled emissions diesel engines. Select "Tier 1" or "Tier 2" for emissions-certified diesel engines. Please consult your engine vendor.

5. Describe the in-use equipment: Check the box that best describes the in-use equipment. If "other", please describe (e.g. forage harvester, combine, sprayer, shaker, etc.).

6. Name of Equipment/Engine Owner: Identify ownership (see No. 23).

7. Year Purchased: The year the equipment was purchased by the owner (see No. 6 and No. 23)

8. Equipment Manufacturer: The equipment make. For example, Case IH, John Deere, Massey Ferguson, Ford, etc.

9. Equipment Model: The manufacturer’s equipment model designation. For example, 1600, 3300, 294S, etc.

10. Equipment Model Year: The year in which the equipment was manufactured.

11. Equipment VIN: The equipment Vehicle or Product Identification Number (not the engine serial number).

12. Annual Hours of Operation: Report the engine’s actual annual hours of operation on the acres reported, which will be used for estimating baseline operations. Exaggerating hours may affect the project screening and ranking, or deem the project ineligible.

13. Annual Fuel Usage (gal/year): The amount of fuel use yearly in gallons. Annual fuel consumption may be used for estimating the baseline annual hours of operation.

14. Engine Manufacturer: The make of the diesel engine (e.g. Cummins, John Deere, Perkins, Caterpillar, Fiat, Ford, etc.)

15. Engine Model: The model number of the in-use engine. For example, 6BTA5.9C.

16. Engine Model Year: The year the engine was manufactured (this can be different than the equipment model year).

17. Engine Serial No.: The engine serial number listed on the engine block or engine identification label.

18. Engine Horsepower (bhp): The manufacturer’s rated advertised brake (or gross) horsepower. Do not report “net”, “peak” or “PTO” horsepower. If not available, estimate engine horsepower by multiplying the PTO horsepower by 1.20.

19. PTO Horsepower: The advertised PTO horsepower if the engine is equipped with a power take-off unit (e.g. a tractor).

20. EPA Engine Family Name: Only for Tier 1 or 2-certified diesel engines. Identify the engine family name assigned by the EPA. If available, attach the applicable CARB Executive Order for this engine, which should be available through your engine vendor or on-line at: www.arb.ca.gov/msprog/offroad/cert/cert.php

21. Months in Operation: Select whether the in-use engine operates throughout the year or on specific months.

22. The planned location on where equipment/engine will be scrapped and properly disposed: Identify where the equipment/engine is planned for final destruction and disposal. Knocking a hole in the block only disables the engine and does not render the engine and equipment as being destroyed. Destruction and final disposal is at a mutually approved metal scrap yard location in California.

23. Ownership and Operations Verification: Provide two documents verifying ownership and one document verifying operation status for the existing equipment/engine. Ownership documents may include bill of sale, insurance records, bank appraisals, maintenance or service records, general ledgers, fuel records, or other documents. Operations documents may include maintenance or service records, usage records, routine inspections, hour meter reading logs, historical fuel usage logs, or other documents. Please refer to CPS 372-Specifications for more information.

24. Additional Information: Include any information pertinent to this equipment/engine, including and not limited to: evaluating other alternatives, whether incentive funds from other public or private programs are being sought in addition to this application, and/or attach applicable permits or documentation from a local air district.

NRCS, CA
December 2015
### PROPOSED NEW EQUIPMENT AND ENGINE/MOTOR WORKSHEET

**California Air Quality – CPS 372 Combustion System Improvement**  
**USDA Natural Resources Conservation Service**  

The applicant is to complete a separate worksheet for each new equipment/engine/motor.  
See Instructions on the back before answering questions below.

**Applicant Name:**

1. Report the total acres this equipment/engine/motor will serve: **38**

2. Identify the county or counties this equipment/engine/motor will operate and the percent use for each county listed:

   - Madera: **100%**

3. Fuel Type
   - Diesel
   - B20 diesel
   - B100 biodiesel
   - Electric
   - Other:

4. Emissions Tier-Level
   - Tier 3
   - Tier 4 Interim
   - Tier 4 Final
   - Electric:

5. Describe the new equipment (check one):
   - Wheeled Tractor
   - Rubber-Tired Loader
   - Stationary Diesel-Powered Irrigation
   - Portable Diesel-Powered Irrigation
   - Electric-Powered Irrigation
   - Other:

6. Equipment Manufacturer: **John Deere**

7. Equipment Model: **5100ML**

8. Equipment Model Year: **2015**

9. Equipment VIN: 

10. Annual Hours of Operation: **1,000**

11. Annual Fuel Usage (gal/year): **492**

12. Engine/Motor Manufacturer: **John Deere**

13. Engine/Motor Model: **410JW**

14. Engine/Motor Serial No.: 

15. Engine/Motor Model Year: **2015**

16. Engine (bhp) or Motor Horsepower: **100**

17. PTO Horsepower: (if applicable)

18. EPA Engine Family Name:  
   **FJYlUXM.S305**  
   (Attach the applicable ARB Executive Order)

19. Months in Operation:
   - January
   - February
   - March
   - April
   - May
   - May
   - June
   - July
   - August
   - September
   - August
   - October
   - November
   - November
   - December
   - Operates throughout the year

20. Cost Estimate of the New Equipment/Engine/Motor: 

21. Describe the fuel source (i.e. location of fuel storage and dispensing system):

   **Diesel**
Instructions

PROPOSED NEW EQUIPMENT AND ENGINE/MOTOR WORKSHEET

1. Report the total acres this equipment/engine/motor will serve: The total acres the proposed off-road mobile agricultural equipment will operate on or the total acres to be irrigated by the well powered by the proposed diesel engine or electric motor.

2. Identify the county or counties where this equipment/engine/motor will operate and the percent use for each county: Report 100% if the engine and equipment will operate only in a single county. For multiple counties, estimate percent annual usage for each county by dividing the hours of use in each county by the total annual hours and multiplying by 100.

3. Fuel Type: All fuels must be suitable for use in a compression-ignition engine and meet California Air Resources Board (CARB) standards. "Diesel" is represented as petroleum-based "CARB diesel" and may be blended with up to 5% biodiesel (B5). "B20 diesel" is petroleum-based CARB diesel blend of up to 20% biodiesel. "B100" is non petroleum-based biodiesel. More information on California diesel fuels may be found at: http://www.arb.ca.gov/fuels/diesel/diesel.htm. Select "Electric" for a new irrigation motor.


5. Describe the new equipment: Check the box that best describes the new equipment. If "other", please describe (e.g. forage harvesters, combines, sprayers, shakers, etc.). A new engine powers equipment that will serve the same function and perform the same work to the equipment that's being replaced. Replacements are intended to reduce emissions of air pollution and not for any production related purpose.

6. Equipment Manufacturer: The equipment make. For example, Case IH, John Deere, Massey Ferguson, Ford, etc.

7. Equipment Model: The manufacturer's equipment designation. For example, 1600, 3300, 294S, etc.

8. Equipment Model Year: The year in which the equipment was manufactured.

9. Equipment VIN: The equipment Vehicle or Product Identification Number (not the engine serial number).

10. Annual Hours of Operation: Report the engine’s actual total annual hours of operation on the total acres reported. Exaggerating hours may affect the project screening or ranking, or deem the project ineligible.

11. Annual Fuel Usage (gal/year): The amount of fuel use yearly in gallons. Annual fuel consumption may be used for estimating the baseline annual hours of operation.

12. Engine/Motor Manufacturer: The make of the diesel engine or electric motor. Diesel engine examples include: Cummins, John Deere, Fiat, Caterpillar, etc.

13. Engine/Motor Model: The model number of the in-use engine. For example, 6BTA5.9C.

14. Engine/Motor Serial No.: The engine serial number listed on the engine block or engine ID label.

15. Engine/Motor Model Year: The year the engine was manufactured.

16. Engine (bhp) or Motor Horsepower: For diesel engines, the manufacturer's rated advertised brake (or gross) horsepower. Do not report "net", "peak", "drawbar" or "PTO" horsepower, and do not estimate new engine horsepower by multiplying PTO horsepower by 1.20. For electric motors, report the rated motor horsepower.

17. PTO Horsepower: The advertised PTO horsepower if the equipment is equipped with a power take-off unit (e.g. a tractor).

18. EPA Engine Family Name: Identify the engine family name assigned by the EPA and attach the applicable CARB Executive Order for this diesel engine, which should be available through your engine vendor or on-line at: www.arb.ca.gov/msprog/offroad/cert/cert.php.

19. Months in Operation: Select whether the equipment/engine/motor will operate throughout the year or by the month.

20. Cost Estimate of the New Equipment/Engine/Motor: Please attach an estimate that clearly itemizes the costs.

21. Describe the fuel source: Describe how the fuel or electricity will be supplied to the new engine. If the diesel engine will be fueled by biofuel or biofuel blends, please identify the vendor supplying the fuel.

NRCS, CA
December 2015
US DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
CALIFORNIA

IMPLEMENTATION REQUIREMENTS FOR  
372-COMBUSTION SYSTEM IMPROVEMENT

ENGINES

For:  Business Name: [Redacted]
Job Location: Madera, CA
County: Madera  RCD: hilla
Contract No: [Redacted]

It shall be the responsibility of the owner/operator to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to this installation.

Installation shall be in accordance with the following drawings, specifications, and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS.

1. Drawings, No.: [Redacted]
2. Practice Specifications: 372
3. Critical Air Quality Period: April-September
4. Existing Engine/Equipment:

<table>
<thead>
<tr>
<th>Existing Unit No. 1</th>
<th>Tier 0 Diesel</th>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Natural Gas</th>
<th>Gasoline</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Equip Purchased:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment Make: John Deere</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment Model: 2640</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment Type (Use): Diesel Tractor</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
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<tr>
<td>Engine Manufacturer: John Deere</td>
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<tr>
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<tr>
<td>Engine Serial No: [Redacted]</td>
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<tr>
<td>EPA Engine Family: n/a</td>
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<tr>
<td>Engine Model Year: 1978</td>
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<td></td>
</tr>
<tr>
<td>Engine Rated HP: 84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Existing Unit No. 2

<table>
<thead>
<tr>
<th>Annual Hours Use</th>
<th>1000</th>
<th>PTO Horsepower</th>
</tr>
</thead>
</table>

**Existing Unit No. 2**

- Tier 0 Diesel
- Tier 1
- Tier 2
- Tier 3
- Natural Gas
- Gasoline
- Other

**Year Equip Purchased:**

**Equipment Make:**

**Equipment Model:**

**Equipment Type (Use):**

**Equipment VIN:**

**Engine Manufacturer:**

**Engine Model:**

**Engine Serial No:**

**EPA Engine Family:**

**Engine Model Year:**

**Engine Rated HP:**

**Annual Hours Use:**

**PTO Horsepower:**

---

### 5. Existing In-Use Engine Verification and Emissions

Owner provided the following documentation (per 372 Specifications):

- Verification of ownership
- Verification of the in-use engine/equipment operational status

<table>
<thead>
<tr>
<th>Existing Engine Emissions</th>
<th>NOx</th>
<th>ROG</th>
<th>PM10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing #1 (tons/yr)</td>
<td>.784</td>
<td>.085</td>
<td>.039</td>
</tr>
<tr>
<td>Existing #2 (tons/yr)</td>
<td>.784</td>
<td>.085</td>
<td>.039</td>
</tr>
<tr>
<td>Total Emissions (tons/yr)</td>
<td>.784</td>
<td>.085</td>
<td>.039</td>
</tr>
</tbody>
</table>

### 6. Destruction:

After being replaced, the existing engine and mobile off-road agricultural equipment shall be rendered inoperable, permanently destroyed and scrapped. The owner shall assure destruction and provide the NRCS with a written certification that the engine and associated equipment has been permanently destroyed and scrapped. The certification must specify that no parts or components were or will be parted-out, used or sold as parts, or used to rebuild an engine or equipment that was intended for destruction. NRCS staff may follow-up with a site visit to verify engine and equipment destruction.

**Additional Destruction and Disposal Requirements:**
7. Combustion Improvement To:

☐ Tier 3 diesel     ☐ Tier 4 Interim diesel     ☐ Tier 4 Phase-Out diesel
☐ Tier 4 Phase-In Alt NOx  ☒ Tier 4 Final diesel

☐ New Electric Motor
☐ Spark-ignition engine utilizing natural gas, LPG, biogas, etc.
☐ Other: __________________________________________

Engines must be certified by the California Air Resources Board (and/or the local APCD/AQMD for irrigation engines) as meeting the applicable emission standards.

The following equipment / engine is approved under this contract:

<table>
<thead>
<tr>
<th>Equipment Make:</th>
<th>John Deere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment Model:</td>
<td>5100ML</td>
</tr>
<tr>
<td>Equipment Type (Use):</td>
<td>Diesel Tractor</td>
</tr>
<tr>
<td>Engine Manufacturer:</td>
<td>John Deere</td>
</tr>
<tr>
<td>Engine Model:</td>
<td>4045HLV78</td>
</tr>
<tr>
<td>EPA Engine Family:</td>
<td>KJDX04.5315</td>
</tr>
<tr>
<td>Engine Model Year:</td>
<td>2019</td>
</tr>
<tr>
<td>Engine Rated HP:</td>
<td>100</td>
</tr>
<tr>
<td>Annual Hours Use:</td>
<td>1000</td>
</tr>
<tr>
<td>PTO Horsepower:</td>
<td></td>
</tr>
</tbody>
</table>

Purchase of this equipment/engine will result in the following emissions:

<table>
<thead>
<tr>
<th>New Engine Emissions:</th>
<th>NOx</th>
<th>ROG</th>
<th>PM10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Emissions (tons/yr):</td>
<td>.020</td>
<td>.004</td>
<td>.001</td>
</tr>
</tbody>
</table>

Purchase of this equipment/engine will result in the following emission reductions:

| Total Reductions (tons/yr): | .764 | .081 | .039 |
| Percent Reductions: | 97.4 | 95.5 | 98.2 |

If no new equipment/engine model is selected at time of contracting or there is a change or modification to the new equipment/engine model described above, contact the appropriate NRCS Field Office to schedule an appointment in order to verify the new equipment/engine is eligible for EQIP payment under this contract. The participant shall not purchase the new equipment/engine until after seeking NRCS concurrence and approval of the new equipment/engine modification or addition.

8. Work shall be completed with the period: April 2019 – March 2021
9. **Special Requirements:**
   a. Installation must adhere to Practice Code 372 Specifications and O&M.
   b. The participant under contract shall notify the NRCS field office after the purchase has been made for NRCS to perform a final verification of the new equipment/engine.
   c. New engine, electric motor, and associated equipment shall be maintained and operated according to manufacturer's requirements and specifications.
   d. No modifications shall be made to the engine, electric motor, or equipment that would compromise the integrity of the emission reductions.
   e. The participant under contract must provide the NRCS field office with the final, applicable EPA engine family name and engine model descriptions prior to purchase for emissions verification and concurrence.
   f. Once the installation is in place, the participant shall provide the NRCS field office with the new engine make, model, horsepower, and serial number; the equipment make, model, and Vehicle Identification Number (if applicable); and the total hours from the non-resettable time meter recorded at the time of purchase.
   g. The participant shall maintain annual usage records of the new engine operations over the 10-year practice lifespan beginning the year following installation. At a minimum, the usage report shall include the total hours recorded from the non-resettable time meter and identify the locations the engine and equipment operated within the calendar year.
   h. For mobile engines within the San Joaquin Valley, participants shall submit yearly usage reports to the NRCS annually over the 10-year practice lifespan beginning the year following installation. Please refer to CPS 372 - Operations and Maintenance.
   i. If emission testing is required by the local air quality authority, the source test shall be performed by an ARB-certified independent contractor.
   j. Other requirements:
PRACTICE APPROVAL

Job Classification: This job is classified as Class: [Redacted] Date: 7/14/20

Plan Approved by: [Redacted] Date: [Redacted]

LANDOWNER’S/OPERATOR’S ACKNOWLEDGEMENT

The landowner/operator acknowledges that:

a. He/she has received a copy of the drawings and specifications, and that he/she has an understanding of the contents and requirements.
b. He/she has obtained all the necessary permits, where applicable.
c. No changes will be made in the installation of the job without prior concurrence of the NRCS.
d. Maintenance of the installed work is necessary for proper performance during the 10-year project life.

Accepted by: [Redacted] Date: 5-01-20

PRACTICE COMPLETION:

I have made an on-site inspection of the site (or I am accepting owner/contractor documentation), and certify the practice meets NRCS standards and specifications.

Completion Certification by:

/s/ [Redacted] Date: [Redacted]
**NRCS-CA NAQI | 2021 Annual Report**

**SIP ID 3776, Madera County**

### Existing Engine Emissions Calculations

**Manufacturer(s):** John Deere  
**Engine Model Year(s):** 1987  
**Equipment Type(s):** Tractors, Diesel  
**Serial Number(s):** 

<table>
<thead>
<tr>
<th>Baseline Emissions</th>
<th>NOx</th>
<th>ROG</th>
<th>PM10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Rated Brake Horsepower(s)</td>
<td>84</td>
<td>84</td>
<td>84</td>
</tr>
<tr>
<td>Annual Hours of Operation</td>
<td>x 1000</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Emission Factor(s)</td>
<td>x 12.090</td>
<td>1.310</td>
<td>0.605</td>
</tr>
<tr>
<td>Load Factor(s)</td>
<td>x 0.700</td>
<td>0.700</td>
<td>0.700</td>
</tr>
<tr>
<td>Conversion to Tons</td>
<td>+ 907,200</td>
<td>907,200</td>
<td>907,200</td>
</tr>
<tr>
<td>Annual Emissions (EE)</td>
<td>= 0.784</td>
<td>0.085</td>
<td>0.039</td>
</tr>
</tbody>
</table>

### New Engine Emission Calculations (Report as zero emissions if electric)

**Manufacturer:** John Deere  
**Model Year Engine:** 2019  
**Equipment Type:** Tractors, Diesel  
**Serial Number (if available):** 4045HLV78

<table>
<thead>
<tr>
<th>New Engine Emissions</th>
<th>NOx</th>
<th>ROG</th>
<th>PM10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Rated Brake Horsepower</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Annual Hours of Operation</td>
<td>x 1000</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Emission Factor</td>
<td>x 0.260</td>
<td>0.050</td>
<td>0.009</td>
</tr>
<tr>
<td>Load Factor</td>
<td>x 0.700</td>
<td>0.700</td>
<td>0.700</td>
</tr>
<tr>
<td>Conversion to Tons</td>
<td>+ 907,200</td>
<td>907,200</td>
<td>907,200</td>
</tr>
<tr>
<td>Annual Emissions (NE)</td>
<td>= 0.020</td>
<td>0.004</td>
<td>0.001</td>
</tr>
</tbody>
</table>

### Calculation Results

**Annual Emission Reductions:**  
(EE)-(NE)= 0.764  
Percent Emission Reductions:  
[(EE-NE) / (EE)] x 100= 97.4  

<table>
<thead>
<tr>
<th>NOx</th>
<th>ROG</th>
<th>PM10</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.081</td>
<td>0.039</td>
<td>Tons/Year</td>
</tr>
</tbody>
</table>

User:

Emission Factors and Agricultural Equipment Default Load Factors from Carl Moyer Program Guidelines, Tables D10 through D14
NRCS-CA NAQI | 2021 Annual Report
SIP ID 3776, Madera County

In-Use Off-Road Mobile Equipment Field Verification Worksheet
California Air Quality – CPS 372 Combustion System Improvement
USDA Natural Resources Conservation Service

<table>
<thead>
<tr>
<th>Contract No:</th>
<th>Date of Site Visit: 1/14/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Name:</td>
<td></td>
</tr>
<tr>
<td>Field Office:</td>
<td>Madera</td>
</tr>
<tr>
<td>NRCS Verifier Name:</td>
<td>T. Fried</td>
</tr>
</tbody>
</table>

**In-Use Equipment and Engine Information**

<table>
<thead>
<tr>
<th>Equip Model Year:</th>
<th>1978</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment Make:</td>
<td>John Deere</td>
</tr>
<tr>
<td>Equipment Model:</td>
<td>___0</td>
</tr>
<tr>
<td>Equipment Type (Use):</td>
<td>___0</td>
</tr>
<tr>
<td>Equipment VIN:</td>
<td>___</td>
</tr>
<tr>
<td>Engine Manufacturer:</td>
<td>___</td>
</tr>
<tr>
<td>Engine Model:</td>
<td>___0</td>
</tr>
<tr>
<td>Engine Serial Number:</td>
<td>___</td>
</tr>
<tr>
<td>EPA Family Name:</td>
<td>___</td>
</tr>
<tr>
<td>Engine Model Year:</td>
<td>1978</td>
</tr>
<tr>
<td>Engine HP:</td>
<td>84</td>
</tr>
<tr>
<td>Annual Hours of Use:</td>
<td>1,000</td>
</tr>
<tr>
<td>PTO HP:</td>
<td></td>
</tr>
</tbody>
</table>

Is the above information similar to what is described in the supplemental application worksheet submitted by the participant? If "No", update the project file accordingly. □ Yes □ No

**Checklist**

Check all that applies during the site visit to verify that the in-use unit (engine, equipment, and components) is fully functional and in operating condition (leave blank if not applicable):

- [x] Yes □ No The unit appears to be well maintained and shows visible signs of in-use operations.
- [x] Yes □ No The engine starts-up (battery is charged and connected) and powers the equipment as intended.
- [x] Yes □ No The engine self-propels the equipment forwards and backwards with no drivetrain problems.
- [x] Yes □ No If Tier-certified, the Engine Family Name and Model label is affixed to the engine and visible.
- [x] Yes □ No Fuel gauge, hour meter, oil pressure guage, etc. are all functional.
- [x] Yes □ No The tires have sufficient tread, hold air, and are not flat.
- [x] Yes □ No Buckets, blades, hydraulics, rollers, 3-point hitch, PTO, etc. are in working order.
- [x] Yes □ No Hydrolics show no leaks or blockages and are able to operate components as intended.
- [x] Yes □ No The PTO was connected to an implement and demonstrated good working condition.
- [x] Yes □ No The fuel tank is in usable condition with no visible leaks.
- [x] Yes □ No Undercarriage is structurally sound with no signs of once being compromised.
- [x] Yes □ No The unit has not been vandalized and no parts have been stripped or removed.
- [x] Yes □ No Photographs were taken to be placed in the project file.

If "No" or "Blank", please explain on the back of this worksheet.

**Verification Results**

- [x] Yes □ No The in-use engine and equipment align with CPS 372 criteria and specifications

If "No", explain: __________________________

NRCS Verifier Signature: __________________________ Date: 1/14/19

NRCS, CA
October 2017
Engine Verification

4/11/2016 by N. Smith
John Deere 2640 Serial [redacted]
Meets all NRCS Program Standards for Field Verification, will be used in Almond Orchard
This worksheet serves to document that the engine/equipment identified below has been disabled by placing a hole in the block, permanently destroyed by shearing, crushing, or shredding into scrap metal, and properly disposed of as scrap metal at a California facility. No engine, drive-train components, hydraulics, and other essential engine or equipment components were or will be parted-out, used or sold as parts, or used to build or rebuild other engines or equipment. The completed certification worksheet shall be signed and submitted to the NRCS Field Office after destruction and final disposal.

Participant Name: [redacted]

Equipment VIN: [redacted]

Equipment Type: [redacted]

Equipment Model Year: [redacted]

Date engine/equipment was disabled:

Engine/Equipment Owner's Name (Print): [redacted]

Owner's Signature: [redacted]

Date: [redacted]

The engine/equipment identified above were delivered for destruction and disposal at:

Destruction Facility Name: [redacted]

Address: [redacted]

City: [redacted]

Date engine/equipment was destroyed and scrapped: 2-3-20

The engine/equipment has been destroyed and scrapped.

Destruction Facility Contact Name (Print): [redacted]

Contact Signature: [redacted]

Date: [redacted]

Attach data stamped photo graphs of the engine/equipment pre- and post-demolition that includes clearly identifiable engine serial number and vehicle identification number.
New Off-Road Mobile Equipment Field Worksheet
California Air Quality - CPS 372 Combustion System Improvement
USDA Natural Resources Conservation Service

Contract No: [Redacted] Date of Site Visit: 10/13/20
Contract Name: [Redacted] Field Office: Madera
NRCS Verifier Name: Taylor Friedich

New Equipment and Engine Information

Equip Model Year: John Deere 2019 Date Purchased:
Equipment Make: John Deere
Equipment Model: 5100ML
Equipment Type (Use): Diesel Tractor
Equipment VIN: [Redacted]
Engine Manufacturer: John Deere
Engine Model (Type): 4045HLY7E
Engine Serial Number: [Redacted]
Engine Family Name: KD04704.5315
Engine Model Year: 2019 Engine Rated HP: 100 hp
Hour Meter Reading: 94.2 PTO Horsepower:

Checklist
Check all that applies:
☒ Yes ☐ No The Engine Family Name and Model (type) label is affixed to the engine or equipment.
☒ Yes ☐ No The Engine Family Name and Model label is clearly visible.
☒ Yes ☐ No The Engine Family Name and Model match the applicable ARB Executive Order.
☒ Yes ☐ No The engine serial number label is affixed to the engine or equipment.
☒ Yes ☐ No The VIN (PIN) number label is affixed to the equipment.
☒ Yes ☐ No The non-resettable hour meter is functional and the total hours are recorded above.
☒ Yes ☐ No Photographs were taken to be placed in the project file.

(For San Joaquin Valley projects only):
☐ Yes ☒ No The participant was informed of and provided with the annual reporting documents.

If "No" or "blank", explain: I did not have them with me, will provide at a later date.

Notes:

Verification Results
☒ Yes ☐ No The new equipment and engine aligns with CPS 372 criteria and specifications
If "No", explain:

NRCS Verifier Signature: Taylor Friedich Date: 10/14/20

NRCS, CA
October 2017
Pursuant to the authority vested in California Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

<table>
<thead>
<tr>
<th>MODEL YEAR</th>
<th>ENGINE FAMILY</th>
<th>DISPLACEMENT (liters)</th>
<th>FUEL TYPE</th>
<th>USEFUL LIFE (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>KJDXL04.5315</td>
<td>4.5</td>
<td>Diesel</td>
<td>8000</td>
</tr>
</tbody>
</table>

**SPECIAL FEATURES & EMISSION CONTROL SYSTEMS**
- Electronic Control Module
- Exhaust Gas Recirculation, Selective Catalytic Reduction-Urea, Electronic Direct Injection
- Turbocharger, Charge Air Cooler, Oxidation Catalyst, Ammonia Oxidation Catalyst

**TYPICAL EQUIPMENT APPLICATION**
- Loaders, Tractor, Dozer, Pump, Compressor, Generator Set, Other Industrial Equipment

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

<table>
<thead>
<tr>
<th>RATED POWER CLASS</th>
<th>EMISSION STANDARD CATEGORY</th>
<th>EXHAUST (g/kw-hr)</th>
<th>OPACITY (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>56 ≤ kW &lt; 130</td>
<td>Tier 4 Final</td>
<td>Optional STD</td>
<td>CERT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NMHC 0.19</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOx 0.40</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NMHC+NOx 5.0</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CO 0.02</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM 0.1</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accel N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lug N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peak N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression Ignition Engines, Part I-D" adopted October 20, 2005 and last amended October 25, 2012.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

**This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.**

Executed at El Monte, California on this 12 day of October 2018.

Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division
<table>
<thead>
<tr>
<th>Engine code</th>
<th>Model</th>
<th>KW@RPM (SAE Gross)</th>
<th>mmHg/min</th>
<th>kph</th>
<th>peak kW</th>
<th>(l/h)/peak kW</th>
<th>(bar)/peak kW</th>
<th>(kW)/peak torque</th>
<th>(bar)/peak torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>4041HDC05A</td>
<td>4045</td>
<td>0.64@2200</td>
<td>100.8@200</td>
<td>22.6@2200</td>
<td>540@1600</td>
<td>113.3@1600</td>
<td>18.5@1600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4041HDC05B</td>
<td>4045</td>
<td>0.64@2200</td>
<td>100.8@200</td>
<td>22.6@2200</td>
<td>540@1600</td>
<td>113.3@1600</td>
<td>18.5@1600</td>
<td></td>
<td></td>
</tr>
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<td>4041HDC05B</td>
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<td>18.5@1600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NRCS-CA NAQI | 2021 Annual Report
SIP ID 3776, Madera County
New Tractor Inspection
Inspected by: Taylor Fridrich and Prospero Gonzalez
10/13/20
John Deere 5100ML 100HP
EPA Engine Family Name: KJDXL04.5315
*Note: Engine serial # photo is obscured by machine parts, but info is recorded on the field verification worksheet