# CALAVERAS COUNTY
# Air Pollution Control District

## ENGINEERING EVALUATION
## Hot Mix Asphalt Plant

| **Applicant** | **Equipment Location** |
|---|---|
| CB Asphalt, Inc.<br>6739 CR 423<br>Palmyra, MO 63461 | 3560 Hogan Dam Road<br>Valley Springs, CA |
| **PREPARED BY:** | **DATE:** |
| R. Kapahi<br>*(Tel: 916.687.8352. E-Mail: ray.kapahi@gmail.com)*<br>Air Permitting Specialists<br>Consultant to Calaveras County APCD | July 12, 2015 |

**Application Date:** May 18, 2015

**Nature of Business:** Asphaltic Concrete Production

**NAIC:** 324120

| **Responsible Official** | **Facility Contact** |
|---|---|
| Shawn Simmons<br>(209) 920-3595 | Shawn Simmons<br>(916) 920-3595 |

## A. PROPOSAL

CB Asphalt, Inc. proposes to construct and operate a portable 300 tons/hr hot mix asphalt (HMA) plant to be located at 3560 Hogan Dam Road in Valley Springs (Calaveras County). The project would be located at the existing Ford Company Construction site. The existing site produces aggregate and operates pursuant to Permit to Operate # 21914006. Some of the aggregate produced at this site will be used to make asphaltic concrete at CB Asphalt, Inc. See area map showing the location of the proposed asphalt plant and the existing Ford Company aggregate plant.

Asphaltic concrete consists of a mixture of aggregate, asphalt oil, and other additives. The asphaltic concrete is used for road/highway construction and repair. The proposed plant was permitted in Siskiyou County Air Pollution Control District where it was source tested in September 2014.

## B. PROCESS DESCRIPTION

The process of manufacturing asphaltic concrete involves metering and transferring various sizes of aggregate into a rotary dryer. Liquid asphalt, small amount of fine aggregate and any additives are also added. In some cases, reclaimed asphalt pavement (RAP) are included in the production of HMA.

The HMA plant is equipped with a gas or liquid fuel fired heater. A smaller heater is used to heat the asphalt oil. The finished product is loaded on to trucks for delivery to the job site.

Two categories of emissions are released:

- Fugitive Emissions (primarily dust)
- Stack Emissions (from fuel combustion in the rotary drum dryer)

Fugitive emissions are associated with material handling/transfer of aggregate from the storage piles or storage bins into the conveyor belt where it is transferred into the mixing drum. A front-end loader is used for transferring aggregate from storage piles to a conveyor. These emissions are primarily dust (PM-10 and PM-2.5). A much smaller quantity of emissions are released from the asphalt oil storage tank.

Stack emissions are associated with fuel combustion (gas or liquid fuel). Emissions consist of criteria and toxic air pollutants. Emission rates of these air pollutants can be calculated based on daily and annual production rates, emission source tests and published emission factors.

## B. EQUIPMENT LIST

| ID | Equipment | Description |
|---|---|---|
| S-101 | Cold Feeder | Terex Model PAB-432 |
| S-102 | Storage Silos | |
| S-103 | Portable Drum Mixer | Terex Model E275P |
| S-104 | Baghouse/Fabric Filter | Terex ModelRA3-18P |
| S-105 | Energy/Control Unit | Terex Model PEC-3Ut |
| S-106 | Liquid Asphalt Tank | Terex Model CT-30P |
| S-107 | Electric Generator (910KW) | CAT Model C-32 |
| S-108 | Standby Generator | Olympian Model XQ-60 |
| | Front-End Loader | (Exempt from District Permitting Rules) |

## C. ESTIMATE OF EMISSIONS

Combustion Emissions *(Portable Asphalt Plant)*
Emissions of various air pollutants are associated with a 100 mmbtu/hr diesel fired heater were estimated in terms of lbs/ton of asphalt produced from source tests conducted for this plant by Avogadro Group, LLC. The emissions rates are shown in Table 1.

**Table 1**
**Calculation of Emission Factors Based on September 9, 2014 Source Test**

| Pollutant | Measured | Calculated Emission Factor |
|---|---|---|
| | *(lbs/hr)* | *(lbs/ton)* |
| PM/PM-10 | 2.13 | 0.010 |
| PM-2.5 *(Ref: AP-42 Table 11.1-4)* | | 0.007 |
| CO | 24.98 | 0.119 |
| NOx | 12.55 | 0.060 |
| VOCs | 0.40 | 0.002 |
| Production Rate During Source Test | | |
| | 210 tons/hr | |

These unit emission rates were used to calculate hourly, daily and annual emission rates based on the plants maximum throughput of 300 tons/hr, 250,000 tons/year production rates. The emission rates are shown in Table 2 (next page).

| Table 2 | | | | |
|---|---|---|---|---|
| **Pollutant** | **EF** *(lbs/ton)* | **Emissions** *(lbs/hr)* | *(lbs/day)* | *(tons/yr)* |
| PM/PM-10 | 0.010 | 3.04 | 36.51 | 1.27 |
| PM-2.5 | 0.007 | | | |
| CO | 0.119 | 35.69 | 428.23 | 14.87 |
| NOx | 0.060 | 17.93 | 215.14 | 7.47 |
| VOCs | 0.002 | 0.57 | 6.86 | 0.24 |
| Max. Production Rates | | | | |
| | 300 | tons/hr | | |
| | 3,600 | tons/day (12 hr day) | | |
| | 250,000 | tons/yr | | |

Combustion Emissions *(910 KW Electric Generator)*

The electric generator is equipped with a 1,372 hp diesel engine. The unit is currently permitted under the statewide portable equipment registration program. The emission were estimated based on manufacturer's emissions data.

| Table 3 | | | | |
|---|---|---|---|---|
| **Pollutant** | **EF** *(g/hp-hr)* | **Emissions** *(lbs/hr)* | *(lbs/day)* | *(tons/yr)* |
| PM/PM-10 | 0.087 | 0.26 | 3.17 | 0.11 |
| CO | 1.200 | 3.63 | 43.52 | 1.51 |
| NOx | 3.155 | 9.54 | 114.43 | 3.97 |
| VOCs | 0.403 | 1.22 | 14.61 | 0.51 |
| **Notes**<br>EFs Based on Mfg.'s Performance Data (Attached)<br>NOx Emissions = 90% of NOx+HC<br>HC/VOC Emissions = 10% of NOx+HC | | | | |
| **BASIS** | | | | |
| | 1,372 | bhp | | |
| | 12 | hrs/day | | |
| | 833 | hrs/yr | (Based on 300 tons/hr Production Rate) | |

Emissions from the standby electric generator have not been included as those emissions would occur only if the main generator was shutdown. Therefore, the standby generator would not release any additional emissions.

Emissions of Toxic Air Contaminants (TACs)

The operation of the asphalt plant would release various TACs. These emissions are a result of diesel fuel combustions. In addition, the operation of the electric generator (S-107) would release diesel particulate matter (DPM) that is regulated as a TAC. Emissions from the small asphalt oil heater are insignificant compared to emissions from the asphalt plant and the electric generator.

Emissions of TACs from the asphalt plant are summarized in Table 4 and are based on AP-42. Emissions from DPM from the electric generator were previously calculated in Table 3 (0.11 tons/yr PM/PM-10).

## Table 4
## Estimate of Toxic Air Pollutants from Asphalt Plant

| | Pollutant | Emission Factor *(lb/ton)* | Annual Emissions *(lb/yr)* | *(lbs/hr)* |
|---|---|---|---|---|
| ***Organics*** | Acenaphthene | 9.00E-07 | 2.25E-01 | 2.70E-04 |
| | Acetaldehyde | 3.20E-04 | 8.00E+01 | 9.60E-02 |
| | Anthracene | 2.10E-07 | 5.25E-02 | 6.30E-05 |
| | Benzene | 2.80E-04 | 7.00E+01 | 8.40E-02 |
| | Benz(a)anthracene | 4.60E-09 | 1.15E-03 | 1.38E-06 |
| | Benzo(a)pyrene | 3.10E-10 | 7.75E-05 | 9.30E-08 |
| | Benzo(g,h,I)perylene | 5.00E-10 | 1.25E-04 | 1.50E-07 |
| | Benzo(k)fluoranthene | 1.30E-08 | 3.25E-03 | 3.90E-06 |
| | Chrysene | 3.80E-09 | 9.50E-04 | 1.14E-06 |
| | Ethylbenzene | 2.20E-03 | 5.50E+02 | 6.60E-01 |
| | Fluoranthene | 1.60E-07 | 4.00E-02 | 4.80E-05 |
| | Formaldehyde | 7.40E-04 | 1.85E+02 | 2.22E-01 |
| | Napthalene | 3.60E-05 | 9.00E+00 | 1.08E-02 |
| | Toluene | 1.00E-03 | 2.50E+02 | 3.00E-01 |
| | Xylenes | 2.70E-03 | 6.75E+02 | 8.10E-01 |
| ***Metals*** | Arsenic | 4.60E-07 | 1.15E-01 | 1.38E-04 |
| | Beryllium | 1.50E-07 | 3.75E-02 | 4.50E-05 |
| | Cadmium | 6.10E-07 | 1.53E-01 | 1.83E-04 |
| | Chrome+6 | 4.80E-08 | 1.20E-02 | 1.44E-05 |
| | Copper | 2.80E-06 | 7.00E-01 | 8.40E-04 |
| | Lead | 8.90E-07 | 2.23E-01 | 2.67E-04 |
| | Mercury | 4.10E-07 | 1.03E-01 | 1.23E-04 |
| | Nickel | 3.00E-06 | 7.50E-01 | 9.00E-04 |
| | Selenium | 4.90E-07 | 1.23E-01 | 1.47E-04 |
| | Zinc | 6.80E-06 | 1.70E+00 | 2.04E-03 |

**Notes**

1. Emission factors for Asphalt Plant from Tables 11.1-9 and 11.1-11, AP-42, 12/00. US EPA
2. Max. Annual throughput = 250,000 *tons/yr* 833 hrs/yr (Based on Max Operating Rate of 300 tons/hr)
3. Calculation of Annual Emissions *(lbs/yr)*= Emiss. Factor *(lb/ton)* x Annual Throughput *(tons/yr)*
4. Calculation of Hourly Emissions *(lbs/hr)*= lbs/yr x $(8{,}760 \text{ hrs/yr})^{-1}$

Fugitive Dust Emissions

Fugitve dust is released from sources S-201 thru S-205. Emissions are controlled using the baghouse S-206 with a flow rate of 10,000 ACFM. The gas flow is at ambient conditions and is ducted from individual sources to the baghouse as follows:

The emission rate of dust (PM-10) is as follows.

**Table 5 Summary of Fugitive Dust Emissions**

| Source | Throughput *(lbs/hr)* | Emission Factor *(lbs/ton)* | Control Efficiency | Emissions *(lbs/hr)* | Emissions *(lbs/yr)* |
|---|---|---|---|---|---|
| Aggregate Transfer Conveyor Transfer Point | 2,060 | 5.0 | 99.9% | 0.00309 | 9.27 |
| | | | TOTALS | 0.088 | 264.1 |
| Annual Hours | 3,000 | hrs/yr | | | |

Summary of Emissions

**Table 6 Summary of Emissions (tons/year)**

| Source | PM-10 | PM-2.5 | CO | NOx | VOCs |
|---|---|---|---|---|---|
| Asphalt Plant | 1.27 | 0.87 | 14.87 | 7.47 | 0.24 |
| Electric Generator | 0.11 | 0.11 | 1.51 | 3.97 | 0.51 |
| Fugitive Dust | 0.018 | 0.018 | 0 | 0 | 0 |
| TOTALS | 1.40 | 1.00 | 16.38 | 11.44 | 0.75 |

## D. COMPLIANCE WITH APPLICABLE RULES AND REGULATIONS

In addition to general permitting requirements noted in Regulation I and IV, the facility is subject to certain prohibitory rules under Regulation II (Prohibitions) and Regulation IV (Authority to Construct Regulations). These rules and regulations are listed below and the project's compliance is discussed in this section.

| Regulation/Rule | Description |
|---|---|
| District Regulations | |
| Rule 202 | Visible Emissions |
| Rule 205 | Nuisance |
| Rule 207 | Particulate Matter |
| Rule 211 | Process Weight per Hour |
| Rule 419 | Nonattainment Pollutant Air Quality Analysis |
| Rule 421 | Contribution to Violation of National Ambient Air Quality Standard |

**RULE 202 Visible Emissions**

**Rule Description**
This rule provides a method of visually evaluating emission levels. A person shall not discharge into the atmosphere from any single source of emission any air contaminant for a period or periods aggregating more than 3 minutes in any hour which is as dark or darker in shade or obscures an observer's view to a degree equal to or greater than that designated as No. 1 on the Ringelmann Chart.

**Compliance Status**
Emissions of fugitive PM-10 are captured using the baghouse that typically removed 99+% of the captured emissions. As a result, compliance with Rule 202 is expected.

**RULE 205 Nuisance**

**Rule Description**
This rule prohibits the discharge of any air contaminant that causes nuisance, discomfort or annoyance to the public, business or property.

**Compliance Status**
The proposed source involves diesel fuel combustion and production of asphaltic concrete. There is potential for odors from these processes. In addition, the release of toxic air contaminants has the potential for exposing nearby residents to increased (cancer and non-cancer) health risks. To evaluate the incremental heath risk, the annual emissions rates of TACs (Tables 5 and Table 3 for DPM) were used to calculate a health risk score. The results are as follows for residences located 0.5 miles from the plant.

| Table 6 | | |
|---|---|---|
| Health Risk Metric | Project Impact | Significance Threshold |
| Residential Cancer Risk | 1.39 | 10 |
| Residential Non-Cancer Risk Score | 0.21 | 1.0 |

These results indicate that the project impacts to public health would not be significant to residents located 0.5 miles from the site. A copy of the risk score calculation is attached.

Cumulative health Risks

Currently, there is another diesel electric generator located adjacent to the proposed asphalt plant. The generator is located at Ford Construction that will be supplying the aggregate that will be used to make the asphalt concrete. The electric generator at Ford Construction is of similar size (910 KW) and would be expected to have similar emissions of DPM. The cumulative health risks are estimated to be:

Cumulative Cancer Risk Score: 2.6

Cumulative Non-Cancer Risk Score: 0.4

The cumulative health risks would not be significant.

**RULE 207 Particulate Matter**

**Rule Description**

Discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, particulate matter emissions in excess of: 0.1 grains per cubic foot of gas is prohibited.

**Compliance Status**

The concentration of PM is estimated to be 0.0029 gr/dscf. Therefore, this project complies with Rule 207.

**RULE 211 Process Weight Per Hour**

**Rule Description**

Limits discharge of particulate matter (in lbs/hr) based on process weight rate as listed in Rule 212.

**Compliance Status**

The PM emission rate is estimated to be 2.12 lbs/hr. The allowable emission rate is 22.0 lbs/hr based on a process rate of 600,000 lbs/hr. Therefore, the source is in compliance with this rule.

**RULE 419 Non-Attainment Pollutant Air Quality Analysis**

**Rule Description**
Determine if the increase in emissions would contribute to a violation of national ambient air quality standard. This rule is applicable only to sources where increase in emissions is 100 tons/yr or greater.

**Compliance Status**
Exempt

## Compliance with Federal Rules

**40 CFR 60.90 Subpart I New Source Performance Standards**

**Rule Description**
Limit opacity to 20% over any 3 min period and limit particulate concentration to 0.04 grains per dry standard cubic feet.

**Compliance Status**
The September 9, 2014 source test measured particulate loading of 0.0029 gr/dscf. Therefore, the plant is in compliance. Opacity to be determined after plant is in production. Method 9 is the required federal procedure for determining opacity.

## E. IMPACTS TO PUBLIC HEALTH

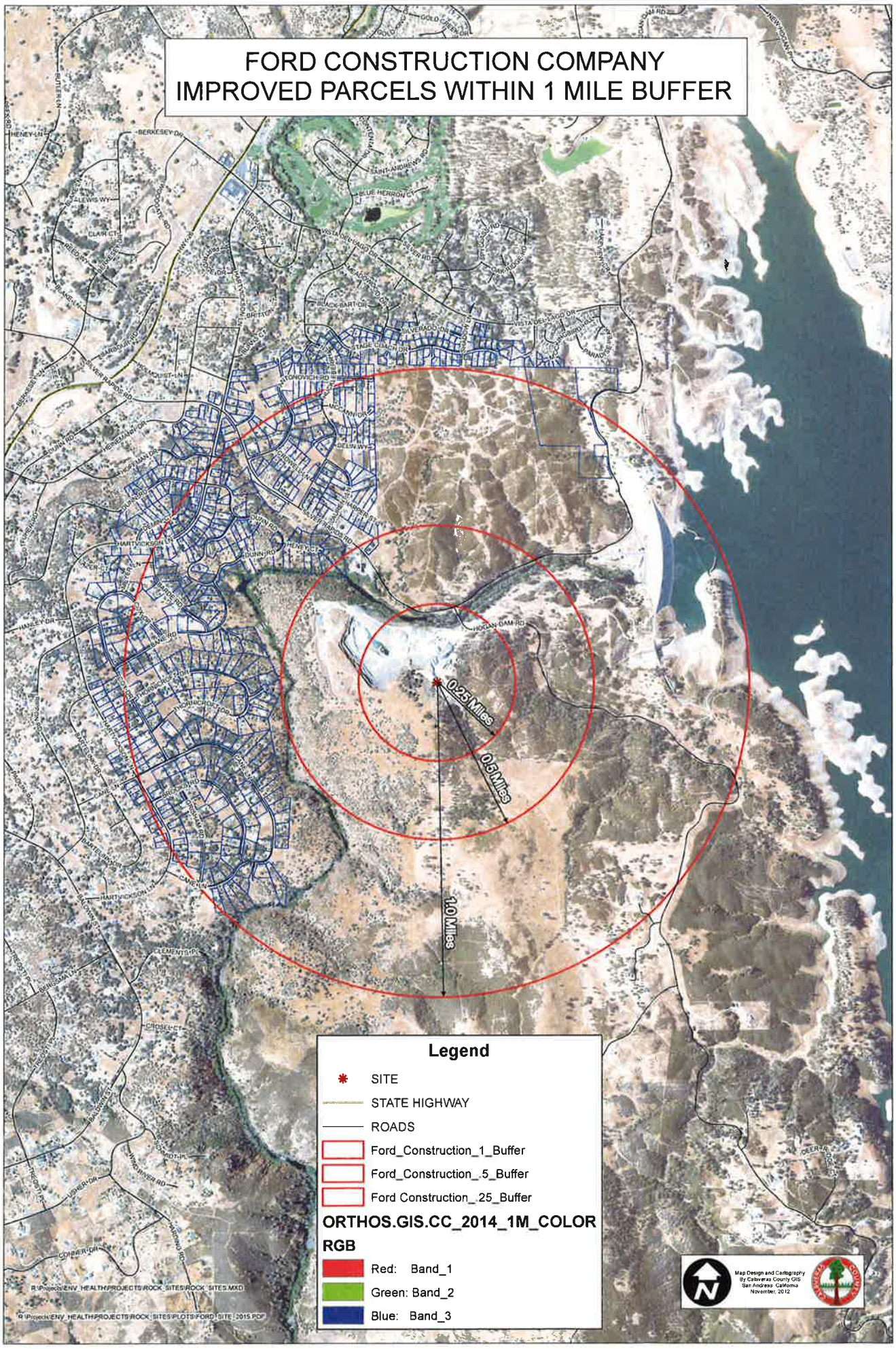
Health risks (both cancer and non-cancer) are less than significant as shown in Section C.

## F. RECOMMENDATION

The proposed project would comply with the District and applicable federal rules and regulations. Therefore, issuance of permit to construct and operate is recommended.

## ATTACHMENTS

1. Summary of Maximum Cancer and Non-Cancer Health Risks
2. Back-Up Reference Material


FORD CONSTRUCTION COMPANY
IMPROVED PARCELS WITHIN 1 MILE BUFFER
0.25 Miles
0.5 Miles
1.0 Miles
Legend
SITE
STATE HIGHWAY
ROADS
Ford_Construction_1_Buffer
Ford_Construction_.5_Buffer
Ford Construction_.25_Buffer
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Red: Band_1
Green: Band_2
Blue: Band_3
Map Design and Cartography
By Calaveras County GIS
San Andreas California
November, 2012
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# ATTACHMENTS

Table 6
Calculation of Cancer Risk Score

| Name | Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization 2.0 SJVAPCD | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Applicability | Use this spreadsheet to generate a Prioritization when emission rates of HAPs are known. Entries required in yellow areas, output in grey areas. | | | | | | | | |
| Author or updater | R Kapahi | Last Update | July 10, 2015 | | | | | | |
| Facility: | CB Aspahlt Plant | | | | | | | | |
| ID#: | Risk Score Calculation | | | | | | | | |
| Project #: | Based on DPM Emissions Only | | | | | | | | |
| Data Entered by: | Ray Kapahi (Air Permitting Specialists) | | | | | | | | |
| Data Reviewed by: | | | | | | | | | |
| Location | | | | | | | | | |
| Inputs | Operating Hours hr/yr | Release Height (m) | | | | | | | |
| | 833 | 5 | | | | | | | |
| | Receptor Proximity & Proximity Factors (Meters) | | Emissions Potency Method | | | Dispersion Adjustment Method | | | |
| | | | Carc Scores | Non-Carc Scores | Facility Ranking | Carc Scores | Non-Carc Scores | Facility Ranking | |
| | 0< R<100 | 1.000 | 126.05 | 19.54 | High Priority | 124.56756 | 19.54494 | High Priority | Medium Priority |
| | 100≤R<250 | 0.250 | 31.51 | 4.89 | High Priority | 31.14189 | 4.88623 | High Priority | Medium Priority |
| | 250≤R<500 | 0.040 | 5.04 | 0.78 | Medium Priority | 4.98270 | 0.78180 | Medium Priority | Medium Priority |
| | 500≤R<1000 | 0.011 | 1.39 | 0.21 | Medium Priority | 1.37024 | 0.21499 | Medium Priority | Medium Priority |
| | 1000≤R<1500 | 0.003 | 0.38 | 0.06 | Low Priority | 0.37370 | 0.05863 | Low Priority | Low Priority |
| | 1500≤R<2000 | 0.002 | 0.25 | 0.04 | Low Priority | 0.24914 | 0.03909 | Low Priority | Low Priority |
| | 2000<R | 0.001 | 0.13 | 0.02 | Low Priority | 0.12457 | 0.01954 | Low Priority | Low Priority |
| Height Adjustment | | | <100m | <250m | <500m | <1000m | <1500m | <2000m | >=2000m |
| <20m | 60 | | 1 | 0.25 | 0.04 | 0.011 | 0.003 | 0.002 | 0.001 |
| 20m<= <45m | 9 | | 1 | 0.85 | 0.22 | 0.064 | 0.018 | 0.009 | 0.006 |
| =>45m | 1 | | 1 | 1 | 0.9 | 0.4 | 0.13 | 0.066 | 0.042 |

*File: CB Asphalt Plant Risk Score.xls*
*Sheet: PRIOR4*

# 1. Health Score Calculation

Table 6
Calculation of Cancer Risk Score

| CAS# | Substance | Annual Emissions | Maximum Hourly | Average Hourly | Disp Adj Method Carc | EP Method Carc | EP Method Chronic | EP Method Acute | EP Max of Chronic and Acute |
|---|---|---|---|---|---|---|---|---|---|
| 79345 | 1,1,2,2-Tetrachloroethane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 79005 | 1,1,2-Trichloroethane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75343 | 1,1-Dichloroethane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 0 | 1,2,3,4,5,6,78-OctaD | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 0 | 1,2,3,4,5,6,78-OctaF | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 39001020 | 1,2,3,4,6,7,8,9-Octachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3268879 | 1,2,3,4,6,7,8,9-Octachlorodibenzo-P-dioxin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 67562394 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 35822469 | 1,2,3,4,6,7,8-Heptachlorodibenzo-P-dioxin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 55673897 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 70648269 | 1,2,3,4,7,8-Hexachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 39227286 | 1,2,3,4,7,8-Hexachlorodibenzo-P-dioxin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57117449 | 1,2,3,6,7,8-Hexachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57653857 | 1,2,3,6,7,8-Hexachlorodibenzo-P-dioxin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 72918219 | 1,2,3,7,8,9-Hexachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 19408743 | 1,2,3,7,8,9-Hexachlorodibenzo-P-dioxin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57117416 | 1,2,3,7,8-Pentachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 40321764 | 1,2,3,7,8-Pentachlorodibenzo-P-dioxin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 96128 | 1,2-Dibromo-3-chloropropane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 78875 | 1,2-Dichloropropane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 122667 | 1,2-Diphenylhydrazine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 106887 | 1,2-Epoxybutane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 106990 | 1,3-Butadiene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 542756 | 1,3-Dichloropropene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1120714 | 1,3-Propane sultone | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 123911 | 1,4-Dioxane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 42397648 | 1,6-Dinitropyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 42397659 | 1,8-Dinitropyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 5522430 | 1-Nitropyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 39635319 | 2,3,3',4,4',5,5'-HEPTACHLORBIPHENYL (PCB 189) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 38380084 | 2,3,3',4,4',5-HEXACHLOROBIPHENYL (PCB 156) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 6
Calculation of Cancer Risk Score

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 69782907 | 2,3,3',4,4',5'-HEXACHLOROBIPHENYL (PCB 157) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 32598144 | 2,3,3',4,4'-Pentachlorobiphenyl {PCB 105} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 52663726 | 2,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 167) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 74472370 | 2,3,4,4',5-PENTACHLOBIPHENYL (PCB114) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 31508006 | 2,3',4,4',5-PENTACHLOROBIPHENYL (PCB 118) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 65510443 | 2,3',4,4',5'-PENTACHOROBIPHENYL (PCB 123) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 60851345 | 2,3,4,6,7,8-Hexachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57117314 | 2,3,4,7,8-Pentachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 51207319 | 2,3,7,8-Tetrachlorodibenzofuran | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1746016 | 2,3,7,8-Tetrachlorodibenzo-P-Dioxin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 88062 | 2,4,6-Trichlorophenol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 615054 | 2,4-Diaminoanisole | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 95807 | 2,4-Diaminotoluene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 121142 | 2,4-Dinitrotoluene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 53963 | 2-Acetylaminofluorene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 117793 | 2-Aminoanthraquinone | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 607578 | 2-Nitrofluorene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 32774166 | 3,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 169) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57465288 | 3,3',4,4',5-PENTACHLOROBIPHENYL (PCB 126) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 32598133 | 3,3',4,4'-TETRACHLORBIPHENYL (PCB77) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 91941 | 3,3'-Dichlorobenzidine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 70362504 | 3,4,4',5-TETRACHLOROBIPHENYL (PCB 81) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 56495 | 3-Methylcholanthrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 101144 | 4,4'-Methylene bis(2 Chloroaniline) (MOCA) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 101779 | 4,4'-Methylenedianiline | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 92671 | 4-Aminobiphenyl | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*File: CB Asphalt Plant Risk Score.xls*
*Sheet: PRIOR4*

Table 6
Calculation of Cancer Risk Score

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 95830 | 4-Chloro-o-phenylenediamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 60117 | 4-Dimethylaminoazobenzene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57835924 | 4-Nitropyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3697243 | 5-Methylchrysene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 602879 | 5-Nitroacenaphthene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7496028 | 6-Nitrochrysene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57976 | 7,12-Dimethylbenz[a]anthracene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 194592 | 7H-Dibenzo[c,g]carbazole | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75070 | Acetaldehyde | 8.00E+01 | | 9.60E-02 | 6.05E-03 | 3.67E-01 | 1.03E-01 | 0.00E+00 | 1.03E-01 |
| 60355 | Acetamide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 107028 | Acrolein | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 79061 | Acrylamide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 79107 | Acrylic acid | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 107131 | Acrylonitrile | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 107051 | Allyl chloride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 319846 | alpha-Hexachlorocyclohexane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 61825 | Amitrole | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7664417 | Ammonia | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 62533 | Aniline | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7440382 | Arsenic | 1.15E-01 | | 1.38E-04 | 1.06E-02 | 6.45E-01 | 1.38E+00 | 0.00E+00 | 1.38E+00 |
| 1016 | Arsenic compounds (inorganic) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7784421 | Arsine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1332214 | Asbestos | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 10294403 | Barium chromate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 56553 | Benz[a]anthracene | 1.15E-03 | | 1.38E-06 | 3.54E-06 | 2.15E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 71432 | Benzene | 7.00E+01 | | 8.40E-02 | 5.68E-02 | 3.45E+00 | 2.10E-01 | 0.00E+00 | 2.10E-01 |
| 92875 | Benzidine (and its salts) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1020 | Benzidine-based dyes | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 50328 | Benzo[a]pyrene | 7.75E-05 | | 9.30E-08 | 2.39E-06 | 1.45E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 205992 | Benzo[b]fluoranthene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 205823 | Benzo[j]fluoranthene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 207089 | Benzo[k]fluoranthene | 3.25E-03 | | 3.90E-06 | 1.00E-05 | 6.08E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 100447 | Benzyl chloride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7440417 | Beryllium | 3.75E-02 | | 4.50E-05 | 2.52E-03 | 1.53E-01 | 9.65E-01 | 0.00E+00 | 9.65E-01 |
| 319857 | beta-Hexachlorocyclohexane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57578 | beta-Propiolactone | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 111444 | Bis(2-chloroethyl) ether {DCEE} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 542881 | Bis(chloromethyl) ether | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7440439 | Cadmium | 1.53E-01 | | 1.84E-04 | 1.80E-02 | 1.09E+00 | 1.38E+00 | 0.00E+00 | 1.38E+00 |
| 13765190 | Calcium chromate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2425061 | Captafol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 133062 | Captan | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75150 | Carbon disulfide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 630080 | Carbon monoxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 56235 | Carbon tetrachloride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57749 | Chlordane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 108171262 | Chlorinated paraffin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7782505 | Chlorine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 10049044 | Chlorine dioxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 6
Calculation of Cancer Risk Score

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 108907 | Chlorobenzene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 510156 | Chlorobenzilate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 0 | Chlorodifluoromethane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 67663 | Chloroform | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 107302 | Chloromethyl methy | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 76062 | Chloropicrin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1333820 | Chromium trioxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 18540299 | Chromium, hexavalent | 1.20E-02 | | 1.44E-05 | 5.04E-02 | 3.06E+00 | 1.08E-02 | 0.00E+00 | 1.08E-02 |
| 218019 | Chrysene | 9.50E-04 | | 1.14E-06 | 2.93E-07 | 1.78E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1066 | Coke oven emissions | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7440508 | Copper | 7.00E-01 | | 8.40E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1319773 | Cresols (mixtures of) {Cresylic acid} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 135206 | Cupferron | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1073 | Cyanide compounds | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 57125 | CYANIDE COMPOUNDS [Inorganic) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 117817 | Di(2-ethylhexyl) phthalate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 226368 | Dibenz[a,h]acridine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2263680 | Dibenz[a,h]acridine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 53703 | Dibenz[a,h]anthracene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 224420 | Dibenz[a,j]acridine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 192645 | Dibenzo[a,e]pyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 189640 | Dibenzo[a,h]pyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 189559 | Dibenzo[a,i]pyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 191300 | Dibenzo[a,l]pyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1080 | Dibenzofurans (chlorinated) {PCDFs} [Treated as 2378TCDD for HRA] | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 0 | Dichlorodifluoromethene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 72559 | Dichlorodiphenyldichloroethylene {DDE} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 73354 | Dichloroethylene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 62737 | Dichlorovos {DDVP} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9901 | Diesel engine exhaust, particulate matter (Diesel PM) | 2.20E+02 | | 2.64E-01 | 1.85E+00 | 1.12E+02 | 7.92E+00 | 0.00E+00 | 7.92E+00 |
| 111422 | Diethanolamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 79447 | Dimethyl carbamoyl chloride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 68122 | Dimethyl formamide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 124403 | Dimethylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1086 | Dioxins, total, w/o individ. isomers reported {PCDDs} [Treat as 2378TCDD for HRA | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1937377 | Direct Black 38 | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2602462 | Direct Blue 6 | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 16071866 | Direct Brown 95 (technical grade) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 106898 | Epichlorohydrin | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 100414 | Ethyl benzene | 5.50E+02 | | 6.60E-01 | 3.85E-02 | 2.34E+00 | 4.95E-02 | 0.00E+00 | 4.95E-02 |
| 75003 | Ethyl chloride {Chlorethane} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*File: CB Asphalt Plant Risk Score.xls*
*Sheet: PRIOR4*

Table 6
Calculation of Cancer Risk Score

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 106934 | Ethylene dibromide {EDB} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 107062 | Ethylene dichloride {EDC} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 107211 | Ethylene glycol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 111762 | Ethylene glycol monobutyl ethe | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 110805 | Ethylene glycol monoethyl ethe | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 111159 | Ethylene glycol monoethyl ether acetate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 109864 | Ethylene glycol monomethyl ethe | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 110496 | Ethylene glycol monomethyl ether acetate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75218 | Ethylene oxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 96457 | Ethylene thiourea | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 151564 | Ethyleneimine {Aziridine} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1101 | Fluorides | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 50000 | Formaldehyde | 1.85E+02 | | 2.22E-01 | 3.11E-02 | 1.89E+00 | 3.70E+00 | 0.00E+00 | 3.70E+00 |
| 111308 | Glutaraldehyde | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 76448 | Heptachlor | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 118741 | Hexachlorobenzene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1120 | Hexachlorocyclohexane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 608731 | Hexachlorocyclohexanes (mixed or technical grade) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 67721 | Hexachloroethane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 110543 | Hexane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 302012 | Hydrazine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7647010 | Hydrochloric acid | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 74908 | Hydrocyanic acid | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7664393 | Hydrogen fluoride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7783075 | Hydrogen Selenide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7783075 | HYDROGEN SELENIDE | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7783064 | Hydrogen sulfide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 193395 | Indeno[1,2,3-cd]pyrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 78591 | Isophorone | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 67630 | Isopropyl alcohol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7439921 | Lead | 2.23E-01 | | 2.68E-04 | 7.49E-05 | 4.55E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 301042 | Lead acetate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7758976 | Lead chromate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1128 | Lead compounds (inorganic) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7446277 | Lead phosphate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1335326 | Lead subacetate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 58899 | Lindane {gamma-Hexachlorocyclohexane} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 108316 | Maleic anhydride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7439965 | Manganese | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 108394 | m-Cresol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7487947 | Mercuric chloride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7439976 | Mercury | 1.03E-01 | | 1.24E-04 | 0.00E+00 | 0.00E+00 | 6.18E-01 | 0.00E+00 | 6.18E-01 |
| 67561 | Methanol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 74839 | Methyl bromide {Bromomethane} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 6
Calculation of Cancer Risk Score

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71556 | Methyl chloroform {1,1,1-Trichloroethane} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 78933 | Methyl ethyl ketone | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 624839 | Methyl isocyanate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1634044 | Methyl tert-butyl ether | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75092 | Methylene chloride {Dichloromethane} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 101688 | Methylene diphenyl diisocyanate {MDI} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 90948 | Michler's ketone | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 108383 | m-Xylene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 91203 | Naphthalene | 9.00E+00 | | 1.08E-02 | 8.57E-03 | 5.20E-01 | 1.80E-01 | 0.00E+00 | 1.80E-01 |
| 7440020 | Nickel | 7.50E-01 | | 9.00E-04 | 5.46E-03 | 3.32E-01 | 2.70E+00 | 0.00E+00 | 2.70E+00 |
| 373024 | Nickel acetate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3333673 | Nickel carbonate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3333393 | Nickel carbonate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 13463393 | Nickel carbonyl | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 12054487 | Nickel hydroxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1313991 | Nickel oxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1146 | Nickel refinery dust | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 12035722 | Nickel subsulfide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1271289 | Nickelocene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7697372 | Nitric acid | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 139139 | Nitrilotriacetic acid | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 10102440 | NITROGEN DIOXIDE | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1116547 | N-Nitrosodiethanolamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 55185 | N-Nitrosodiethylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 62759 | N-Nitrosodimethylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 924163 | N-Nitrosodi-n-butylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 621647 | N-Nitrosodi-n-propylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 86306 | N-Nitrosodiphenylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 10595956 | N-Nitrosomethylethylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 59892 | N-Nitrosomorpholine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 684935 | N-Nitroso-N-methylurea | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 100754 | N-Nitrosopiperidine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 930552 | N-Nitrosopyrrolidine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 90040 | o-Anisidine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 95487 | o-Cresol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 8014957 | OLEUM | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 95534 | o-Toluidine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 95476 | o-Xylene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 10028156 | OZONE | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1151 | PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA] | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1336363 | PCBs {Polychlorinated biphenyls} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 95692 | p-Chloro-o-toluidine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 120718 | p-Cresidine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 106445 | p-Cresol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 106467 | p-Dichlorobenzene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 6
Calculation of Cancer Risk Score

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 87865 | Pentachlorophenol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 127184 | Perchloroethylene {Tetrachloroethene} | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 108952 | Phenol | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75445 | Phosgene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7803512 | Phosphine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7664382 | Phosphoric acid | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 85449 | Phthalic anhydride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 156105 | p-Nitrosodiphenylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7758012 | Potassium bromate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 115071 | Propylene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 107982 | Propylene glycol monomethyl ethe | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75569 | Propylene oxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75569 | Propylene oxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 106423 | p-Xylene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 50555 | Reserpine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7782492 | Selenium | 1.23E-01 | | 1.48E-04 | 0.00E+00 | 0.00E+00 | 1.11E-03 | 0.00E+00 | 1.11E-03 |
| 7446346 | Selenium sulfide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1175 | Silica, crystalline | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7631869 | Silica, crystalline | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 10588019 | Sodium dichromate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1310732 | Sodium hydroxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7789062 | Strontium chromate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 100425 | Styrene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9960 | Sulfates | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9960 | SULFATES | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7446095 | Sulfur Dioxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7446719 | Sulfur Trioxide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7664939 | Sulfuric acid | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 0 | Tetrachlorophenols | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 62555 | Thioacetamide | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 62566 | Thiourea | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 108883 | Toluene | 2.50E+02 | | 3.00E-01 | 0.00E+00 | 0.00E+00 | 1.50E-01 | 0.00E+00 | 1.50E-01 |
| 1204 | Toluene diisocyanate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 26471625 | TOLUENE DIISOCYANATE | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 584849 | Toluene-2,4-diisocyanate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 91087 | Toluene-2,6-diisocyanate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 8001352 | Toxaphene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 79016 | Trichloroethylene | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 0 | Trichlororfluormethane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 0 | Trichlorotrifluormethane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 121448 | Triethylamine | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 51796 | Urethane | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7440622 | Vanadium (fume or dust) | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1314621 | VANADIUM PENTOXIDE | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 108054 | Vinyl acetate | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75014 | Vinyl chloride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 75354 | Vinylidene chloride | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1330207 | XYLENES (mixed xylenes) | 6.75E+02 | | 8.10E-01 | 0.00E+00 | 0.00E+00 | 1.74E-01 | 0.00E+00 | 1.74E-01 |

# 2. Back Reference Data

CB ASPHALT, INC.

## ATTACHMENT (A)

**GENERAL PURPOSE OF THE DRUM-MIX ASPHALT CONCRETE HOT PLANT**

The plant to be utilized in this application by C.B. Asphalt Inc., is a Drum-Mix Asphalt Concrete Hot Plant. Drum mix plants have replaced almost all of the continuous mix plants and gradually replacing batch mix plants. Almost all new mixing plants produced today are drum mix plants. There are two types of drum mix plants, parallel flow and counter flow. Drum plants do all the mixing in the same drum that is used to dry and heat the aggregate. Drum plants do not resize the material or use a screen deck, hot bins, and a mixer. Drum plant advantages over batch or continuous plants are higher production rates, less moving parts, lower maintenance, and the ability to use a higher percentage of RAP (recycled asphalt pavement). By eliminating the screening process and the batch time sequence, production rates have become greater with decreased noise measurements and overall product agitation lending additional favor to clean air requirements. When RAP is introduced into a drum mix plant, it is heated both by aggregate heat transfer and by the exhaust gases of the burner. This dual heating action allows the drum mix plant to run higher RAP percentage than batch mix plants with like or lower emission parameters. It is not uncommon to have drum mix plants producing HMA with 50 percent RAP or greater. Presently, and in an effort to recycle lending favor to "green" operations, C.B. Asphalt is planning on utilizing at or near 25% RAP in the HMA produced at this facility though exact proportions will be determined by possible contract specification restriction requirements and product mix designs. RAP is usually introduced by a conveyer near the center or latter part of the drum mixer.

A drum mix plant consists of five major components, the cold aggregate feeds, bitumen supply, combination drum dryer and mixer, surge or storage silos, and the dust collection system (bag house). The cold feeds are similar to those in a batch plant with the additional function of proportioning the aggregate for the mixture. Since there is no hot bin or weigh hopper, the cold feeds must be able to accurately feed and control the blend of aggregates. Also, since there is no weigh hopper in a drum plant, the aggregate must be weighed prior to its introduction into the dryer. This is accomplished by equipping the conveyor that charges the aggregate into the dryer with a belt speed sensor. The aggregates are proportioned out of each cold feed bin onto a feeder belt according to the percentages given by the mixture design. These percentages must be based on a total percent by aggregate basis, instead of a weight by total mixture. Belt speed used to determine the wet weight of aggregate entering the drum per hour. Using the aggregate wet weight per hour and its moisture content, the correct proportion of bitumen can be mixed with the aggregate.

The aggregate is mixed with the bitumen in the dryer and the mixture is discharged onto a conveyor or bucket elevator for storage in a surge bin more commonly referred to as a silo. The asphalt binder is stored at the plant during production in the same manner as at the batch plants, either in a vertical or horizontal storage tank. Burner fuel is also stored on site in the same manner though most typically this tank is substantially smaller than the liquid bitumen tank.



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209-263-0123 – Facsimile

The original drum mix plant design is a parallel flow system. Parallel flow drum mix plants are the most common, however newer designs are counter flow systems like the plant C.B. Asphalt is utilizing with this application. The counter flow designs are slowly replacing older parallel flow plants as most typically, parallel flow plants provide yet further reductions in emissions. This fact lends additional favor to being considered and measured as cleaner with respect to pertinent environmental considerations. A parallel flow dryer or drum mixer has the aggregate flow in the direction of the exhaust gases or towards the burner. The parallel flow drum mixer mixes the aggregate with bitumen at the opposite end of the dryer from the burner while the counter flow is inverse allowing for greatly reduced burner mixing exposure times thereby reducing given emissions.

The next page is a basic schematic drawing reflecting this specific plant and its respective components. The schematic is not to scale and though extremely close, actual configuration may vary slightly to accommodate the Foothill locations truck ingress and egress etc.



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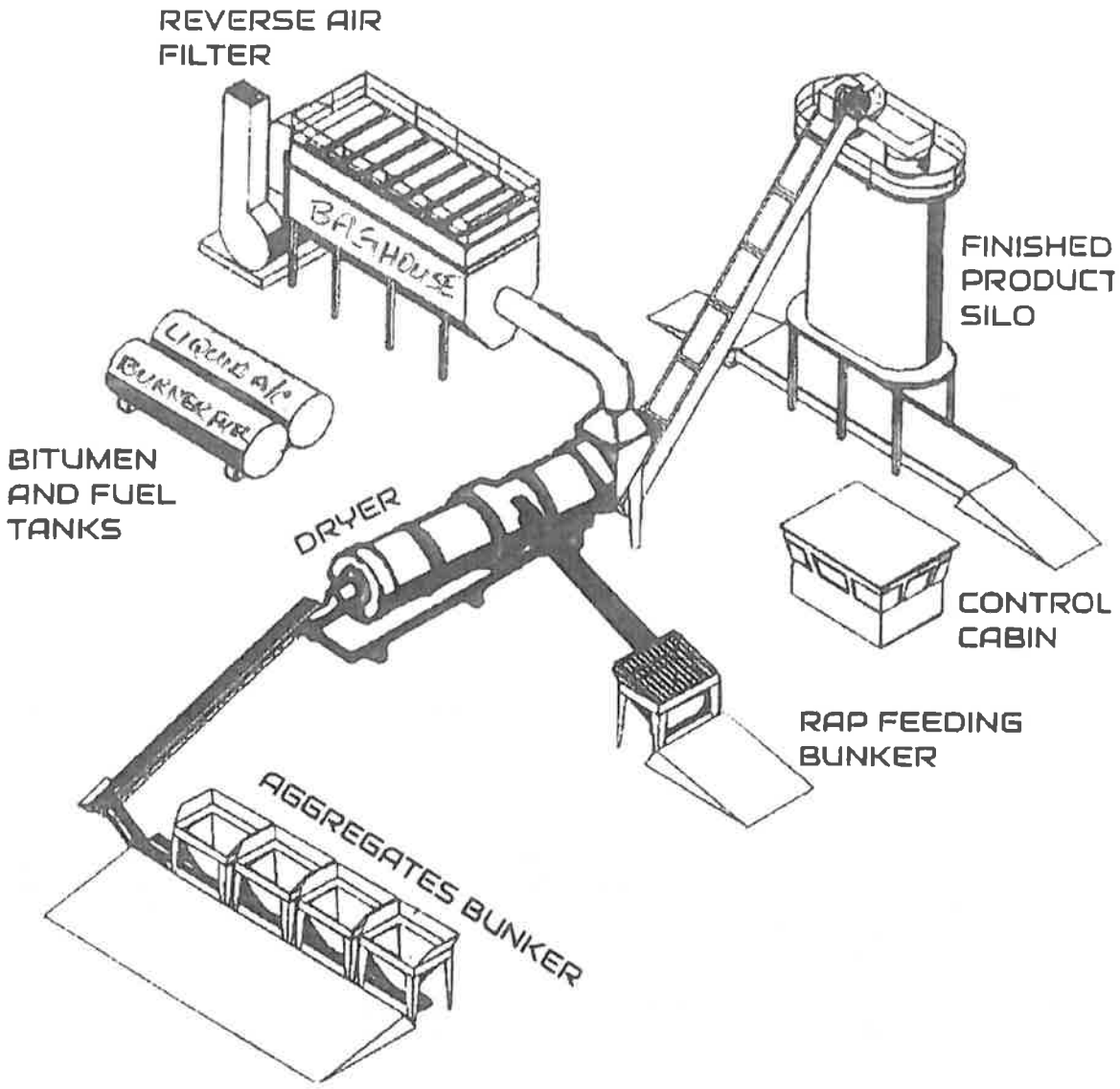
209-920-3595 – Phone
209-263-0123 – Facsimile


REVERSE AIR
FILTER
BAGHOUSE
FINISHED
PRODUCT
SILO
BITUMEN
AND FUEL
TANKS
DRYER
CONTROL
CABIN
RAP FEEDING
BUNKER
AGGREGATES BUNKER

CB ASPHALT, INC.



May 18, 2015

*Via Hand Delivery This date*

Calaveras County
Air Pollution Control District
891 Mountain Ranch Road
San Andreas, CA. 95249
(209) 754-6601PH
(209) 754-6722FX

ATTENTION: Brian S. Moss

Subject: APPLICATION FOR AUTHORITY TO CONSTRUCT

Re: BUILD/INSTALL NEW EMISSIONS UNIT/PROCES

- PORTABLE HOT MIXED ASPHALT PLANT @ FOOTHILL MATERIALS QUARRY, VALLEY SPRINGS, CA.

Dear Mr. Moss,

C.B. Asphalt, Inc. (a sister company to Chester Bross Construction), in conjunction with Foothill Materials, Inc. and Chester Bross Construction, are requesting approval to erect and utilize a Portable Hot Mixed Asphalt plant on and at the Foothill Materials Quarry located at 3560 Hogan Dam Rd., in Valley Springs, CA. All three companies listed herein above are Calaveras County based companies doing business in and around Calaveras County.

We are very excited at the possibilities the approval of this application brings for Calaveras County and the numerous residents and local families that stand to benefit from the considerable employment opportunities the approval will bring.

We believe it is imperative that it be known this application brings with it temporary approval requests for a portable facility that will carry with it very minimal or no negative impact to the community, the county and the environment.

C.B. Asphalt, Inc. is planning to utilize its portable hot plant in the Foothill Quarry to furnish Hot Mixed Asphalt Concrete to Chester Bross Construction for three Caltrans projects currently under contract, as well as the forthcoming Highway 4 Angels Camp – Copperopolis project. Additionally, C.B. Asphalt, Inc. plans to offer cost effective Hot Mixed Asphalt for sale to local Calaveras County Contractors and the Calaveras County Road Department.

Presently, there are no operational Hot Mixed Asphalt Plants in Calaveras County, or Amador County on the Northern border of Calaveras County. All Hot Mixed Asphalt needs presently, must be purchased from Suppliers in San Joaquin or Tuolumne Counties which as you are aware, and does not afford Calaveras County the ability to keep the dollars within our County so to speak.

Primarily, as outlined on the application, we are planning to produce the HMA over the course of the next 6 months. The operations will not be steady or every weekday as there is simply not enough demand or expected sales volumes to justify the same. However, 95% of the operations will be during the daylight hours with the exception of one Caltrans project that mandates night operations for approximately 15 work shifts.

CB ASPHALT, INC.

The approval of this application will allow Foothill Materials, Inc. to work its employees full time producing and selling aggregates to C.B. Asphalt, Inc. to be utilized in the HMA. Most typically, without this opportunity, the Quarry and Crusher personnel struggle to work full 40 hour work weeks.

C.B. Asphalt, Inc. takes our community and our environment very seriously and will continue to offer transparency, clarity and understanding to Calaveras County and its residents in an effort to ensure the approval of this application brings with it only positive attributes lending favor to benefits for us all.

C.B. Asphalt, Inc. and the partner companies mentioned herein, are available at any time to answer questions, provide additional information and discuss concerns with you should you wish to discuss anything in greater detail.

Please find the attached application and subsequent supporting documentation.

This Portable Hot Mixed Asphalt Plant was recently permitted in Siskiyou County, through the Siskiyou County Air Pollution Control District for the same operations.

We have also provided a copy of the 2014 Emission Compliance tests for this specific Hot Plant which we are in fact leasing from Eagle Peak Rock and Paving, Inc. The plant passed all emission compliance tests with ease. The Emission tests were performed by the Avogadro Group, LLC late last year and are not presently rescheduled until November of 2015.

We welcome the opportunity to work in our home community and are pleased to mention that thus far, we have met with nothing but positive feedback and optimism from our considerable Calaveras County employees, friends and affiliates.

Please do not hesitate to contact me at any time.

Thank you and best regards,

Shawn N. Simmons
Western Division Manager

CC:/ Rogers Joseph O'Donnell: Tyson Arbuthnot Esquire
Foothill Materials Inc. Jerry Middleton
Ford Construction, Inc. Nick Jones
The Bross Group Mike Bross

**Calaveras County**
***AIR POLLUTION CONTROL DISTRICT***
891 Mountain Ranch Road, San Andreas, CA 95249
(209) 754-6601 FAX (209) 754-6722
*Brian S. Moss ♦ Environmental Management Agency Administrator, APCO*

# APPLICATION FOR AUTHORITY TO CONSTRUCT

(Applications must be type written or printed in ink)

**Application Fee: $348/ $87 WHR**

Please provide all pertinent facility information requested in the attached application checklist. This form must be received and approved by the APCO along with application fees that are to be paid prior to the start of operation. Failure to provide a complete application and submit applicable permit fees may delay or cause denial of a Permit to Operate (PTO). Please notify the District in writing when you are ready to operate so that we may verify that the facility is constructed in accordance with the plans as submitted, and observe the equipment in operation prior issuance of the PTO.

---

**REASON FOR APPLICATION SUBMITTAL:**

XXX Build/install new emissions unit/process
☐ Change in existing permit conditions
☐ Emission Reduction Credits
☐ Modify existing permitted unit/process
Nature of modification:
☐ Relocation of equipment
Previous location:
☐ Transfer of ownership
Previous business name:
☐ Other:

☐ Permit to Operate for an existing unit
☐ Change in throughput for an existing permitted unit/process

PERMIT TO BE ISSUED TO: CB Asphalt, INC
MAILING ADDRESS: 6739 CR 423 , Palmyra, MO 63461
LOCATION OF FACILITY: 3560 Hogan Dam Rd, Valley Springs, CA
SUMMARY LIST OF PROPOSED EQUIPMENT (attach checklist information):
Asphalt Concrete Hot Plant

CONSTRUCTION SCHEDULE - START: 26 MAY 20015 COMPLETE: 26 NOV 2015
SIGNATURE OF RESPONSIBLE OFFICIAL:
DATE: 18 MAY 2015

NAME OF OFFICIAL (please print): Shawn Simmons
TITLE OF OFFICIAL: Western Division Manager
CONTACT PERSON: SHAWN SIMMONS
TELEPHONE NUMBER: ( 209 ) 920 - 3595 FAX: ( 209 ) 263 - 0123

PERMIT CONDITIONS (also see attachment):

In the absence of specific permit conditions, throughput, fuel, material consumption, capacities and hours of operation described in the permit application will be considered maximum allowable limits. All equipment, including process and pollution abatement equipment, must be properly maintained at all times. The approved PTO does not guarantee that the proposed equipment will comply with the air pollution control regulations.

---

FOR DISTRICT USE ONLY

PERMIT: Accepted Denied

PERMIT NUMBER: _____

SIGNED: _____ DATE: _____

Brian Moss, Air Pollution Control Officer

CB ASPHALT, INC.

- Name of Business *CB Asphalt ,INC*
- Nature of business *Producing Hot Mix Asphalt(HMA)*
- Contact Shawn Simmons (209) 747-3595
- Facility Location 3560 Hogan Dam Rd, Valley Springs, CA
- Type of use *Owner*
- Facility status *Modified*
- General purpose of facility *Quarry*
- General purpose of each process in facility *See Attachment A*
- Integrated block flow diagram process and control equipment in facility *Attachment A*
- Air pollution emission points *See Attachment B*
- Process and control equipment descriptions and specifications *See Attachment C*
- Scaled and dimensions plot plan of facility *See Attachment D*
- USGS topographical map of site location and surrounding terrain *See Attachment E*
- Estimated construction and completion date ***26 MAY 2015 TO 26 NOVEMBER 2015***
- ** Operating schedule . ***SEE BELOW***
- Operating mode *Continuous*
- Materials Used ***AGGREGATED, HOT LIQUID ASPHALT***
- Normal operations production *300 ton/hr 3,000 ton/day 50,000 tin/project*
- Maximum design production *300 ton/hr 3,000 ton/day 50,000 ton/project*
- Equipment model number *See Attachment A*
- All exhaust gas outlet temperatures *See Attached Specification* Caterpillar Model #32
- All exhaust gas flow rates *See Attached Specification* Caterpillar Model #32
- Fuel and material storage sites ***SEE ATTACHEMENTS***

** ***PRIMARY HOURS OF OPERATION; 4:00 AM - 6:00 PM, MONDAY - FRIDAY***
***APPROX. 3 WEEK CALTRANS NIGHT SUPPLY: 6:00 PM - 4:00 AM SUNDAY - THURSDAY***

**** THIS SCHEDULE IS APPROXIMATE AND MAY REQUIRE SLIGHT DEVIATIONS TO ACCOMODATE CALTRANS OPERATIONS.***

Figure -1 shows the batch mix HMA production process. Raw aggregate normally is stockpiled near the production unit. The bulk aggregate moisture content typically stabilizes between 3 to 5 percent by weight.

Processing begins as the aggregate is hauled from the storage piles and is placed in the appropriate hoppers of the cold feed unit. The material is metered from the hoppers onto a conveyer belt and is transported into a rotary dryer (typically gas- or oil-fired). Dryers are equipped with flights designed to shower the aggregate inside the drum to promote drying efficiency.

As the hot aggregate leaves the dryer, it drops into a bucket elevator and is transferred to a set of vibrating screens, where it is classified into as many as four different grades (sizes) and is dropped into individual "hot" bins according to size. At newer facilities, RAP also may be transferred to a separate heated storage bin. To control aggregate size distribution in the final batch mix, the operator opens various hot bins over a weigh hopper until the desired mix and weight are obtained. Concurrent with the aggregate being weighed, liquid asphalt cement is pumped from a heated storage tank to an asphalt bucket, where it is weighed to achieve the desired aggregate-to-asphalt cement ratio in the final mix.

The aggregate from the weigh hopper is dropped into the mixer (pug mill) and dry-mixed for 6 to 10 seconds. The liquid asphalt is then dropped into the pug mill where it is mixed for an additional period of time. RAP typically is conveyed directly to the pug mill from storage hoppers and combined with the hot aggregate. Total mixing time usually is less than 60 seconds. Then the hot mix is conveyed to a hot storage silo or is dropped directly into a truck.

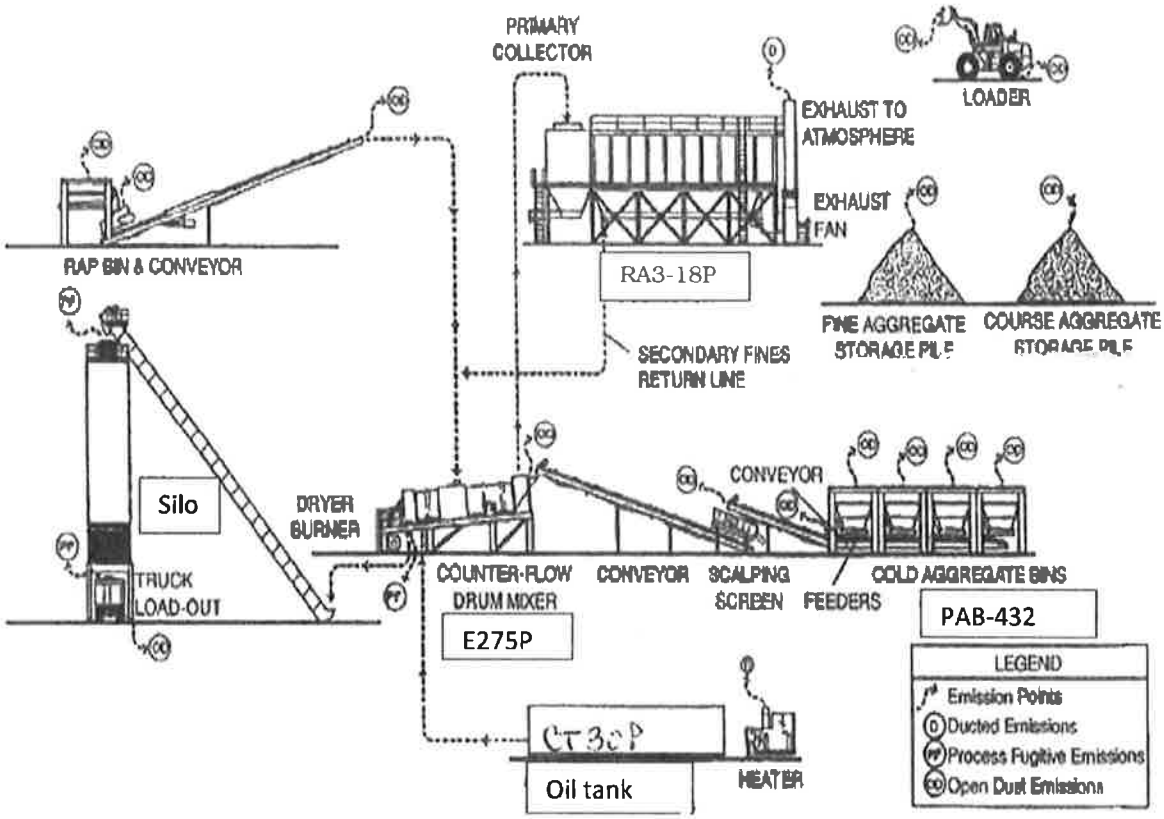
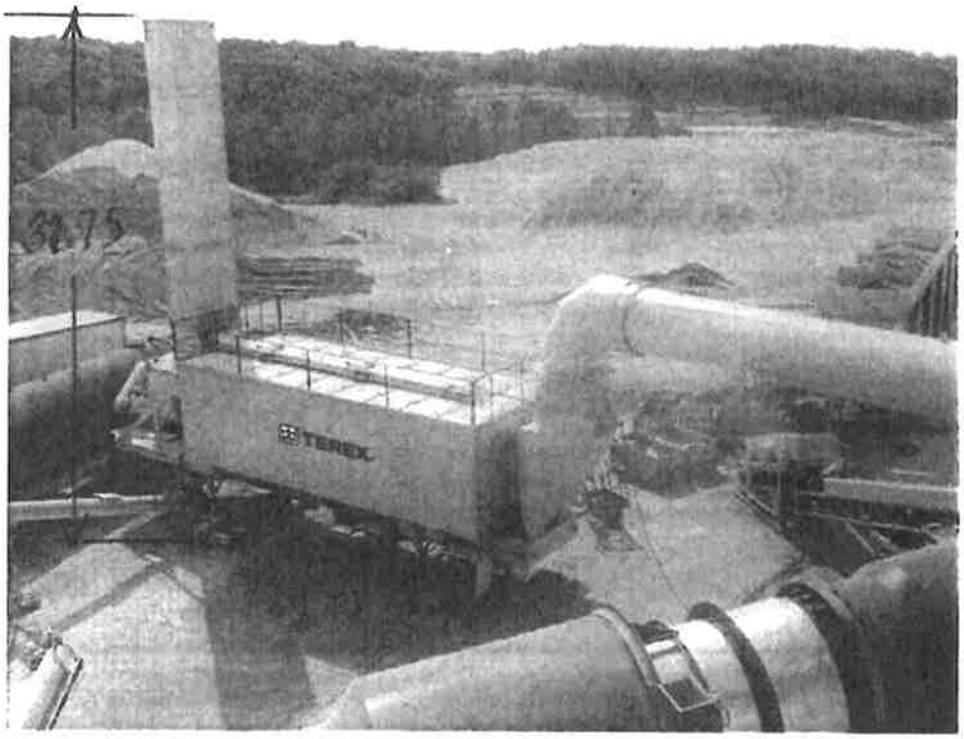

PRIMARY COLLECTOR
LOADER
EXHAUST TO ATMOSPHERE
EXHAUST FAN
RAP BIN & CONVEYOR
RA3-18P
FINE AGGREGATE STORAGE PILE
COURSE AGGREGATE STORAGE PILE
SECONDARY FINES RETURN LINE
Silo
DRYER BURNER
CONVEYOR
TRUCK LOAD-OUT
COUNTER-FLOW DRUM MIXER
CONVEYOR
SCALPING SCREEN
COLD AGGREGATE BINS
FEEDERS
PAB-432
E275P
LEGEND
Emission Points
Ducted Emissions
Process Fugitive Emissions
Open Dust Emissions
CT3cP
Oil tank
HEATER

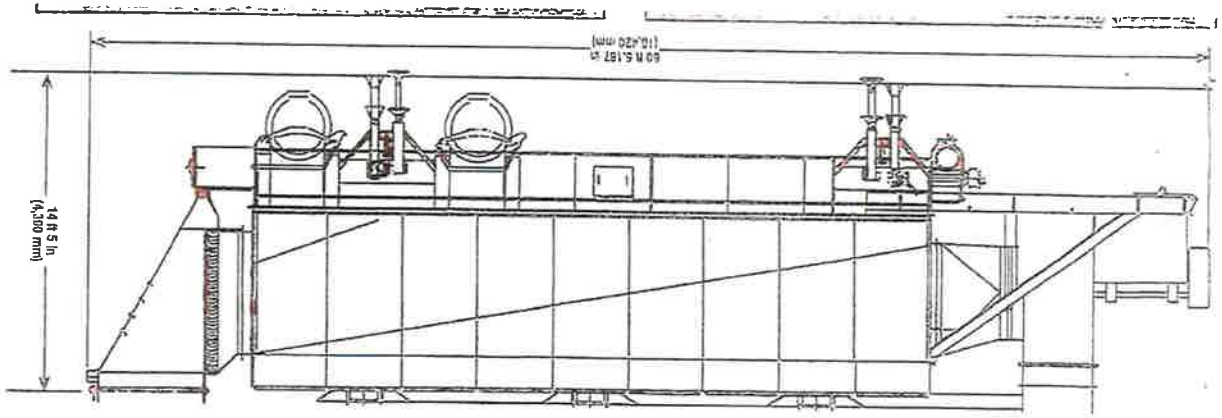
Figure 1

# EMISSION POINTS

Release Height - 37.75 feet above grade

Stack Diameter - 14.04 inches at point of release




14 ft 5 in
(4,396 mm)

## Equipment List Description

Asphalt Plant

- Cold Feed PAB-432 (Terex)
- Silo
- E275P Port Drum Mixer (Terex)
- RA3-18P Rotoaire Bag House (Terex)
- PEC-3UT Energy Center (Terex)
- CT-30P Asphalt Tank (Terex)
- 910 KW CAT Gen-set C-32 (CAT)
- 60 KW Olympian Stand-by generator XQ60 (Olympian)
- 972G Loader (CAT)

TEREX®

CT20P/CT25P/CT30P/CT35P ASPHALT HEATER/STORAGE SYSTEMS


# CT20P/CT25P/CT30P/CT35P
## ASPHALT HEATER/STORAGE SYSTEMS

## Heating System

Hot-oil coil: 45 linear ft (13.72 m) of 2 in (50.8 mm) Schedule 40 pipe with 180 degree LR return elbows per 1,000 gal (3,785.34 L) of storage. Split in two loops to provide optimum heat transfer rate. Located on the bottom, extends the length of tank for even heat distribution.

Automatic temperature control: mounted, piped and wired. Adjustable, indicator-type temperature controller with weatherproof housing. Hot-oil solenoid valve on return side. Wired together with seal-tight connectors.

Thermometer: 2 ½ in (63.5 mm) dial, 50-450°F (10-232.2°C) with 12 in (305 mm) stem mounted in drywell.

## Portability

Portable models include a 420 gal (1,589.8 L) internal fuel tank that is integrally designed into the gooseneck. The entire area on top of the gooseneck is available to mount hot-oil heater pumps or other accessories. Dual tandem axle and suspension system with 11:00 x 22.5 in (508 mm) tires, 5th-wheel kingpin, air brake system, mud flaps and DOT lighting system. Special configurations of axle placement are available. Portable models have one pair of landing jacks installed in front frame with one heavy-duty support pad. Ideal for disconnecting trailer from tractor. CT35P has a triple axle and suspension system.

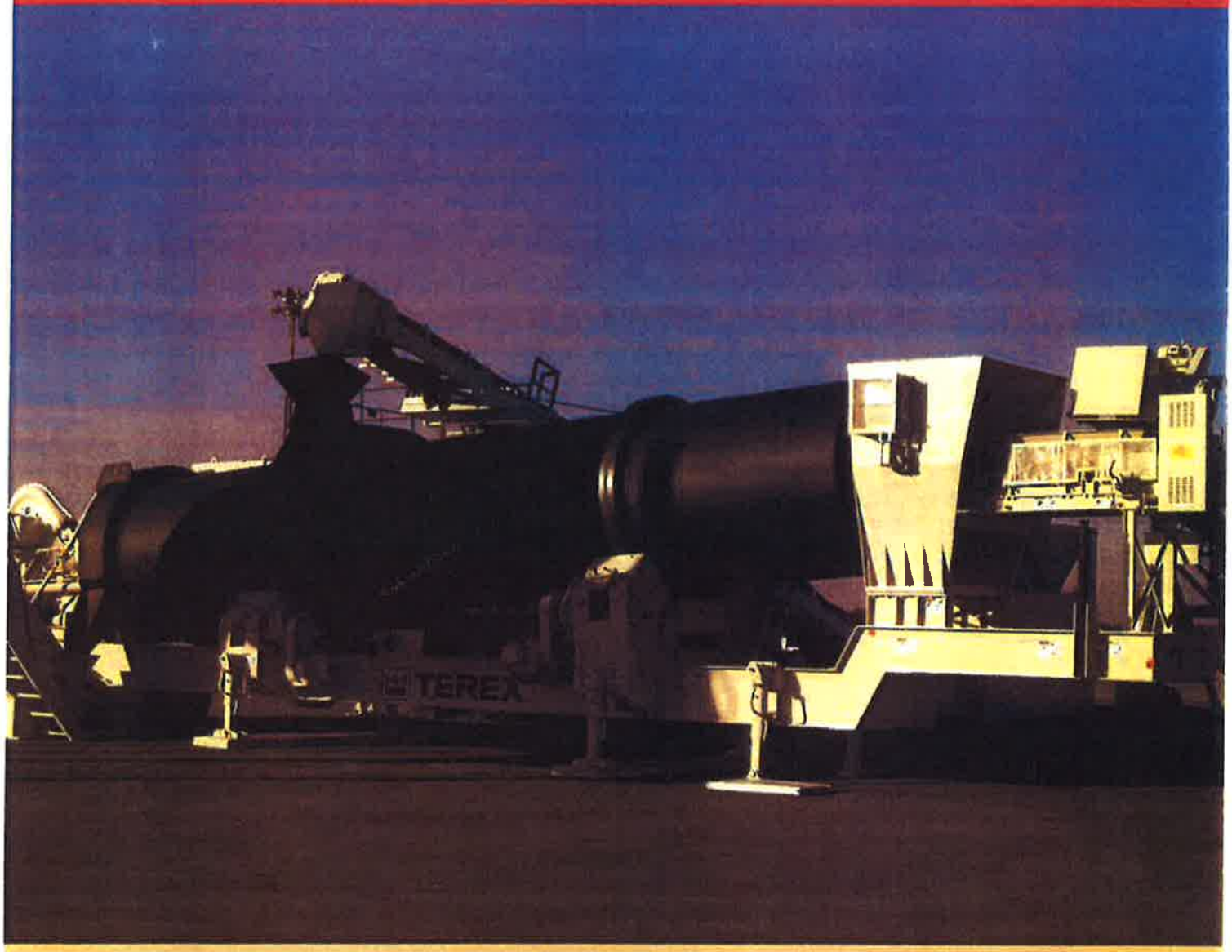
## Standard Equipment

Self-store blocking assemblies eliminate the need for screw jacks and timber blocking. Blocking assemblies consist of crank-type landing jacks and steel-beam cribbing. The steel cribbing assembly provides ample stability for storage, parking and set-up. Adjustments to the tank leveling are easily accomplished, even after the plant has been put into operation.

TEREX®

PORTABLE COUNTER-FLOW DRUM MIXER




# E225P/E275P

## PORTABLE COUNTER-FLOW DRUM MIXER

- Main frame is constructed of wide-flange structural beams with cross connections for trunnion support and rigidity.
- Trunnion drive powered by four 25 hp (18.64 kW) motors, each through a shaft-mounted reducer with torque arm, positive start sheaves and belts with belt guard.
- Drum rotates on pillow block bearing mounted 18 in (457.2 mm) diameter x 9 in (228.6 mm) wide trunnions. Trunnion shaft extended to one side for mounting of drive. Pivot-type trunnion assembly adjustment allows proper positioning of drum without the use of trunnion flanges.
- Two thrust rollers 12 in (304.8 mm) diameter x 2.5 in (63.5 mm) thick are bolted to reinforced main frame cross members to check longitudinal travel of drum.
- 1/4 in (6.35 mm) exhaust air housing assembly and 3/16 in (4.76 mm) outlet duct are constructed of 3/16 in (4.76 mm) steel plate.
- Complete portability includes triaxle assembly, tires, wheels, air brakes, lights, mud flaps and 5th wheel towing kingpin.
- Duct work is self-contained for quick set-up and ease of transportation.

## STANDARD EQUIPMENT

### REVERSIBLE SLINGER FEEDER

Aggregate is introduced "live" into the drum by a 24 in (609.6 mm) wide slinger conveyor driven by a 5 hp (3.73 kW) motor. Slinger is manually indexed. Conveyor assembly includes heat-resistant belting with recessed splice.

- Screw-type-belt take-ups on tail pulley shaft; 20° toughing idlers; loading hopper and head pulley with recessed flange bearings for heat resistance. The slinger is manually indexed for calibration of the virgin aggregate scale.

### FINES RETURN AUGER

Collected baghouse particles are returned to the mixing chamber 10 in (254 mm) diameter screw conveyor powered by a 10 hp (7.46 kW) motor. Liquid asphalt pipe enters through the discharge housing.

### SIDE ENTRY RECYCLE INLET

Inlet chute assembly and outer collar assembly are mounted to the main frame. Widow entry ports installed in the shell, complete with proportioning flights to direct reclaimed material into the drum at a point downstream of the burner.

### STARJET "HAUCK" BURNER SJ-360 (E225P) SJ-520 (E275P)

Provides high-efficiency combustion for maximum BTU availability for heat transfer. The high-pressure turbo produces more induced primary air, thus creating maximum heat release with minimum secondary air requirement. A skid-mounted pump is furnished for fuel oil supply.

### AUTOMATIC BURNER CONTROL

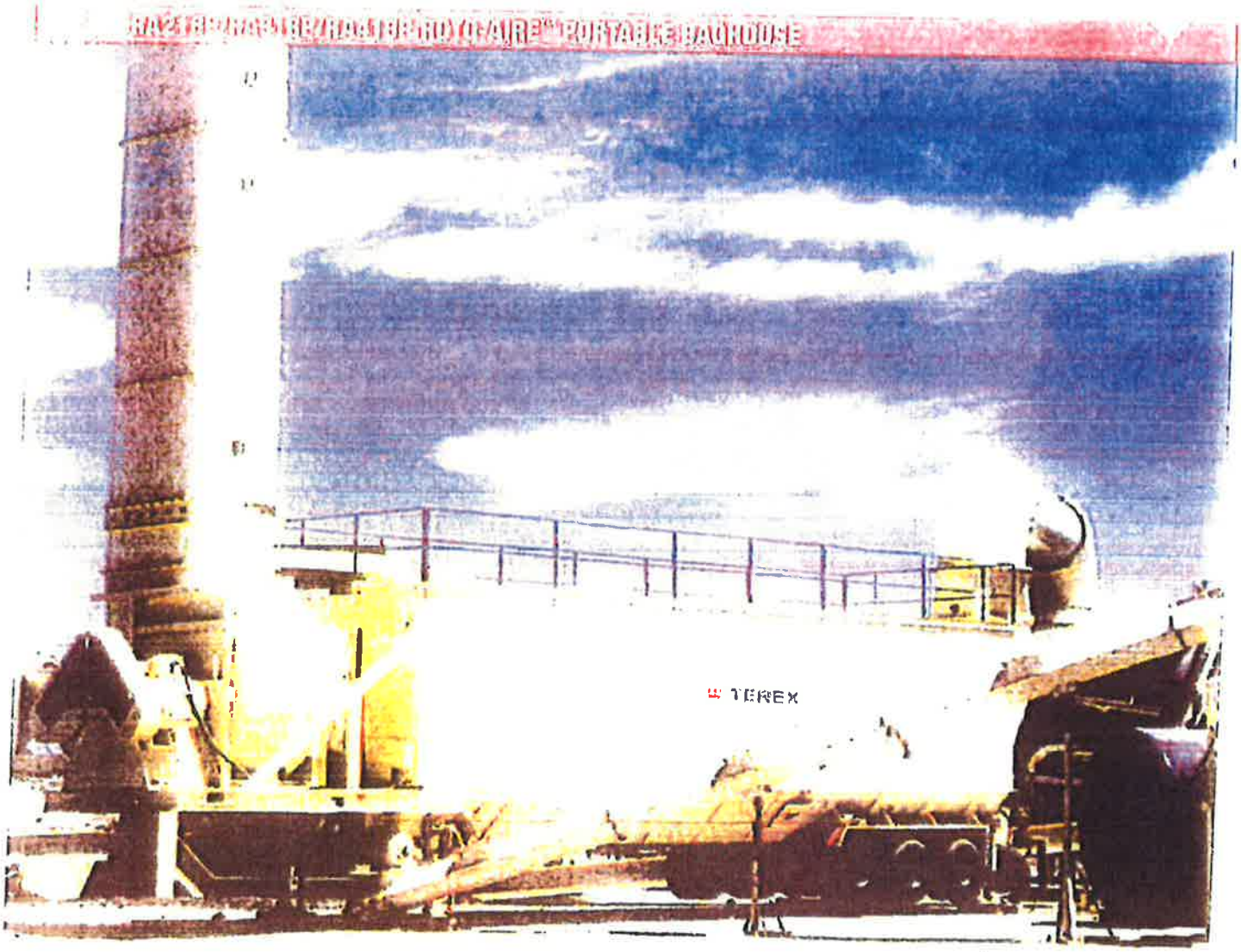
Performs all operational functions and sequential checks before firing through automatic production cycles and subsequent shutdown with a minimum of operator intervention. A unique two-stage control system allows automatic burner proportioning for the utmost accuracy. Both mix temperature and exhaust temperature are monitored and provide necessary input for proper positioning of the burner control motor.

### AUTOMATIC ASPHALT PROPORTIONING

Provided by a 2 in (.05 m) Viking pump A/C variable frequency drive, strainer and secondary pump with pick up to meter asphalt cement supply to the drum mixer. Calibration valve, sample valve and positive flow switch are included.

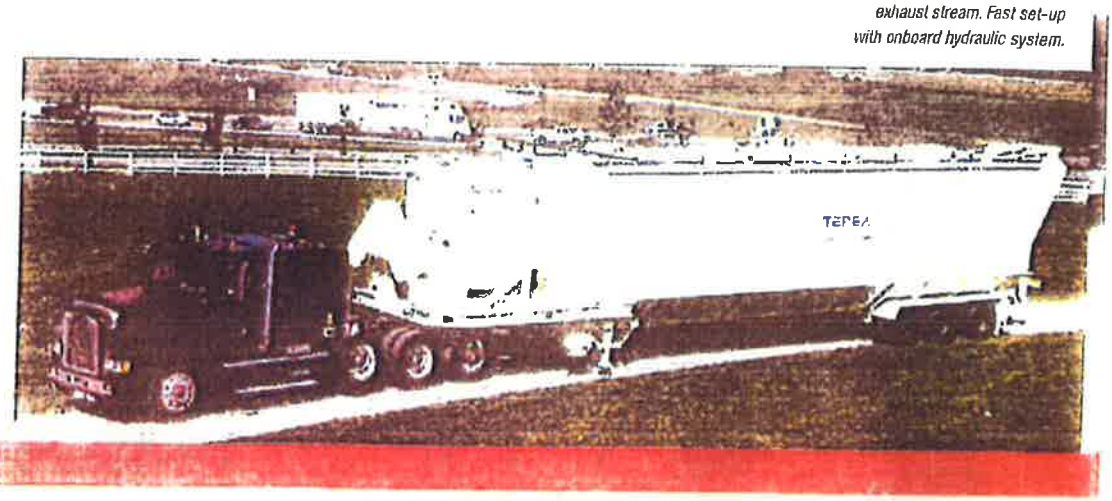

 

TEREX®



# RA2 18P/RA3 18P/ RA4 18P ROTO-AIRE™ PORTABLE BAGHOUSE

*(Right) The abrupt directional change within the inertial separator captures the heavier particles in the exhaust stream. Fast set-up with onboard hydraulic system.*



*(Right) Integral to the structure is a kingpin for fifth-wheel towing and best transport underclearance in the industry.*

## Features

- The unique ROTO-AIRE™ cleansing system eliminates the problems and operating expense inherent with jet-pulse cleaning without the disadvantage of the complex damper systems and blowers associated with old-style differential pressure systems
- Roto-Step differential pressure cleaning significantly extends bag life
- 2-pocket steel-wire galvanized cage
- Operating costs lowered by elimination of air compressor and diaphragm valves
- Easy-access top bag removal
- Cloth area range up to 15,451 @ 1008 bags or 19,987 @ 1008 (+2 ft) bags
- Over-temperature shutdown system
- Automatic roto-step operating control to maintain high filtration efficiency
- Production levels from 93 to 435 tph (120 to 562 (+2 ft) mtph)
- The ROTO-AIRE™ baghouse provides fabric filter emission control of the highest quality and is easily capable of conforming to particulate emission requirements of the United States Environmental Protection Agency standards for hot-mix asphalt plants

## Baghouse Structure

Welded construction. Integral to the structure is a kingpin for fifth-wheel towing and pneumatic-tired running gear with air control brakes. Upper "house" section contains roto-step cleaning module, tube sheets, air channels, bag access doors, handrails, kickplates, ladder, clean gas outlet plenum and dirty gas inlet with diffuser.

Lower "hopper" section includes hopper with two 16 in (406.4 mm) dust-collection screw conveyors, each driven by an electric motor (kW/hp varies by unit), gathering cross screw (center outlet) with 5 hp (4 kW) electric motor drive.

| Portable | Relocatable |
|---|---|
| RA2 16 in (406.4 mm) | RA2 12 in (304.8 mm) |
| RA3 16 in (406.4 mm) | RA3 12 in (304.8 mm) |
| RA4 18 in (457.2 mm) | RA4 16 in (406.4 mm) |

## Collector

**Cloth area range**

3,311 ft² to 15,451 ft² (4,293 m² to 19,987 m²)

**Air volume range**

14,699 ft³/min to 69,528 ft³/min. (19,273 m³/min to 89,940 m³/min).

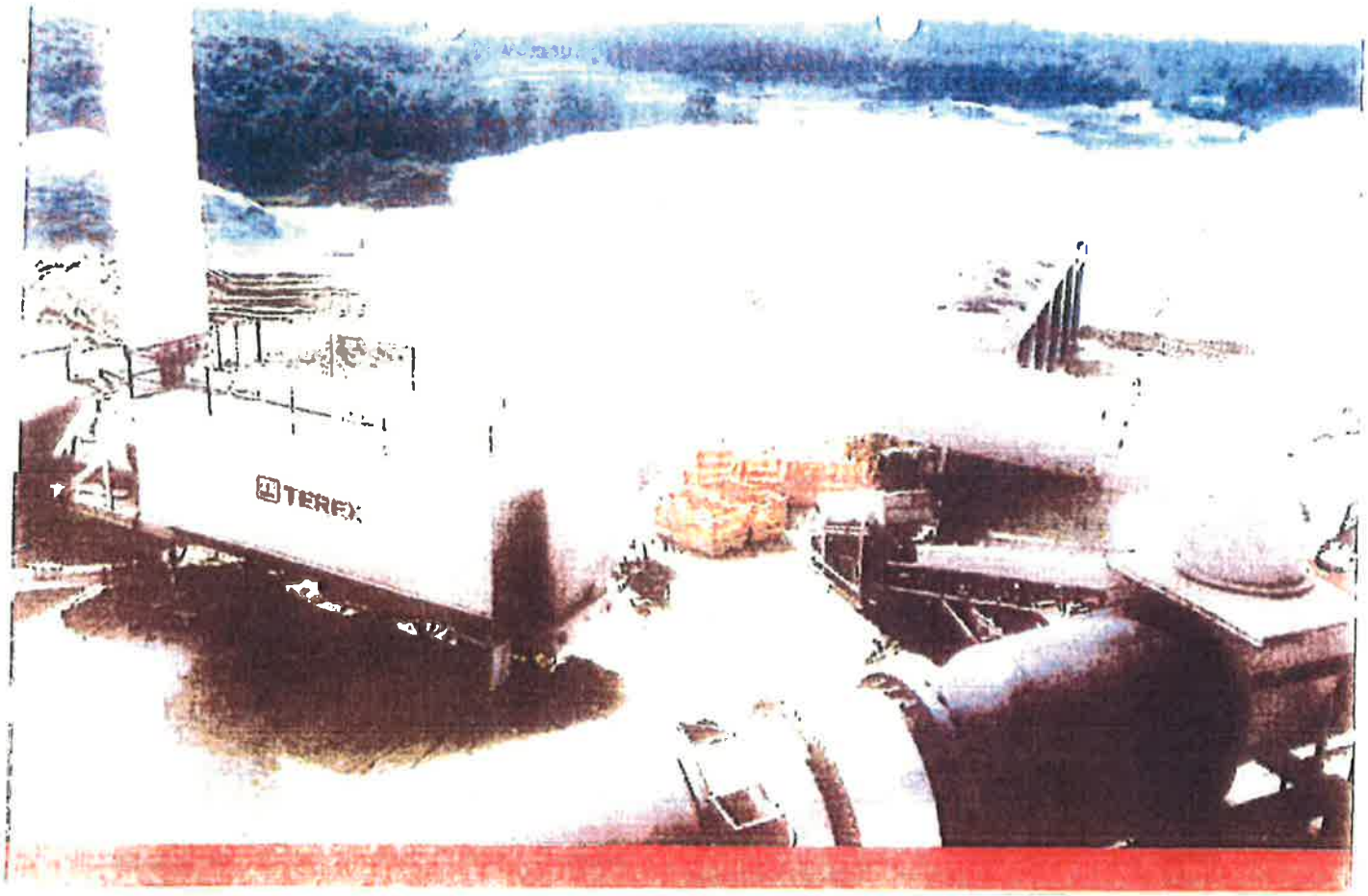
## Bags and Cages

100% Aramid fiber. These unique bags enable the installation of more cloth in a given house size so portable units are significantly smaller and lighter than pulse-cleaned designs with the same cloth area. Top bag is easily removed through quick access doors.

## Roto-Step Cleaning Unit

Two, three or four 19-station step rotation units with .50 hp (.37 kW) drive gear motor, proximity switch to stop rotor at park position and adjustable gate for smooth return of cleaned bags to online service.



## Isolation Damper

Over-temperature shut-down system includes isolation damper and two thermocouples located for inlet/outlet temperature sensing. Sensors activate damper closing and automatically shut off exhaust fan.

## Inertial Separator

Inertial separators function well by using a very simple principle, i.e., "abrupt directional change." The exhaust gas and the lightweight fine dust particles do not carry the same "inertia" as do heavy larger dust particles. Therefore, the air and fine dust can change direction very abruptly and manage to get through the deflector grid. The heavier particles, however, cannot make the abrupt turn and their weight and velocity forces them to continue on a straight line path, allowing them to be captured.

The inertial collector also acts as an air classifier, separating the larger coarse material from the fine material, allowing either or both materials to be metered and returned to the mixer by removing approximately 62 to 75 percent of the heavier particles from the air stream prior to baghouse entry, the fabric filter (bag) wear and dust loading cake on the bags is greatly reduced. It is the coarse and heavier particles that are the most abrasive.

## Heat Exchanger

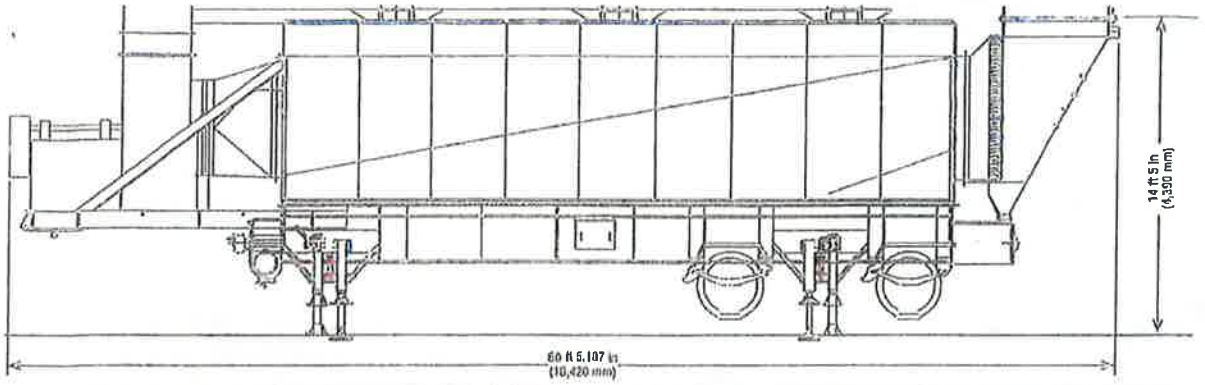
Terex Roadbuilding ROTO-AIRE™ baghouses utilize pre-heated exhaust gas to depressurize the bag plenums for cleaning instead of using cold outside ambient air injection typical of compressed-air pulse systems and reverse air purge systems. Injection of cold outside air can result in condensation on the internal walls and tube sheet, leading to premature rust and deterioration as well as forming a moist dust cake on the bags, thereby sealing the bags and reducing air flow.

A further advantage of using preheated air occurs during stack gas testing for $SO_2$, $NO_x$, CO, $CO_2$, and VOCs. When testing pulse-jet or reverse air bag-cleaning systems for chemical emissions, it is very difficult to achieve accurate readings unless the cleaning systems are turned off during the testing. The injection of cold 20.9 percent oxygen dilution air into the reduced oxygen air stream (9 to 12 percent oxygen content) can dramatically alter stack gas readings. ROTO-AIRE™ baghouses can use the air bag cleaning system during testing, since the gas stream is at baghouse temperature and contains gases which are identical in content to the stack gases being monitored.

## Fan Drive

- Variable-frequency drive for exhaust fan eliminates damper
- Lower electrical power consumption
- More efficient exhaust air flow




## Transport Dimensions

| | |
|---|---|
| **RA218P** | |
| Length | 41 ft (12,500 mm) |
| Height | 14 ft 5 in (4,390 mm) |
| Width | 11 ft 10.75 in (3,630 mm) |
| Weight | 43,340 lb (19,658 kg) |
| **RA318P** | |
| Length | 50 ft 4 in (15,340 mm) |
| Height | 14 ft 5 in (4,390 mm) |
| Width | 11 ft 10.75 in (3,630 mm) |
| Weight | 56,260 lb (25,519 kg) |
| **RA418P** | |
| Length | 60 ft 5.187 in (18,420 mm) |
| Height | 14 ft 5 in (4,390 mm) |
| Width | 11 ft 10.75 in (3,630 mm) |
| Weight | 63,860 lb (29,966 kg) |

## Maximum Bags

| | |
|---|---|
| RA218P | 504* |
| RA318P | 756* |
| RA418P | 1,008* |

## Maximum Available Cloth Area

| | |
|---|---|
| RA218P | 9,072 ft² (842.79 m²) |
| RA318P | 13,608 ft² (1,264.19 m²) |
| RA418P | 18,144 ft² (1,685.63 m²) |

## Optional Equipment

1 in (25.4 mm) high-density insulation with thick coversion

Pneumatic dust return system

Screw conveyor dust return system

Pre-collector for coarse particle removal

Self-contained hydraulic erection system

Variable frequency fan drives

## Air Flow @ 4:1 A/C

| | |
|---|---|
| RA218P | up to 40,824 ACFM |
| RA318P | up to 61,236 ACFM |
| RA418P | up to 81,648 ACFM |

## Fan Motor

| | |
|---|---|
| RA218P | E225P |
| RA318P | E3 300P, E300P |
| RA418P | E3 400P, E3 500P, E400P, E500P |

*Each bag has a 16.0 ft² (1.67 m²) filter area bag. Materials and specifications subject to change without notice.

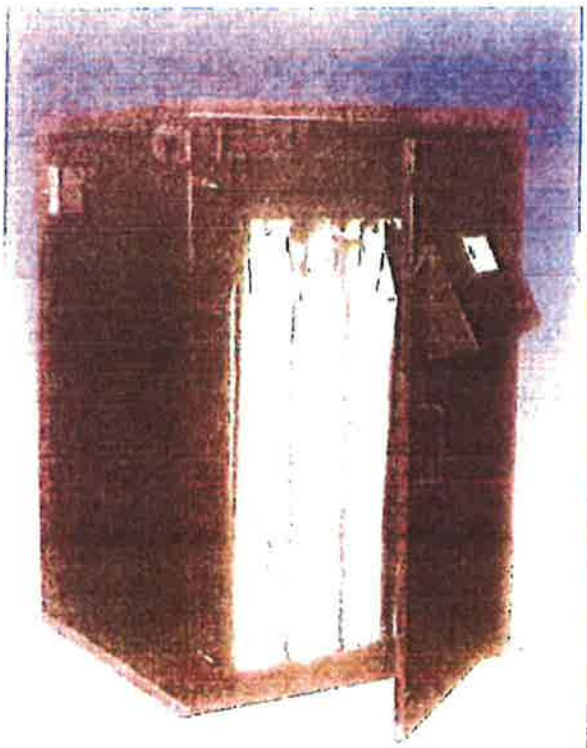
Important Note: All electrical specifications used herein refer to U.S. standards of voltage and frequency. Any electrical equipment that is factory-installed will be compatible with power availability requirements of any customer's country.



Terex Roadbuilding
P.O. Box 1985, Oklahoma City, OK 73101
(405) 787.6020 1-888-TEREXRB
www.terexrb.com

TEREX.

## Silo Filter Vents



Silo Filter Vents are used to vent silos into which material is conveyed. As the material fills the silo, it displaces air which must be vented without loss of product. Product collected on the filter bags is returned to the silo by shaking the bags after filling has completed. Silo Filter Vents are available in two series: Natural Vented, where a low positive silo pressure is acceptable, and Blower Assisted, where a negative silo pressure is desirable. A Continuous Duty Vent (72 CS) is also available to provide continuous filtration through two individual compartments, one in the collecting mode while the other is being cleaned. All electric, no air supply is required.

## OPERATION

### NATURAL VENTS (15 & KS Models)

Displaced air from the silo filling operation is filtered through the bags. After each truck is unloaded the bags must be cleaned. To clean the bags, shake them for approximately 60 seconds. (Mini-C10 control is optional)

### BLOWER ASSISTED VENTS (15 & LS Models)

Displaced air from the silo filling operation is filtered through the bags, while being assisted by a blower. After each truck is unloaded the bags must be cleaned. To clean the bags, turn the blower off and shake them for approximately 60 seconds. (Mini-C8 control is optional)

### CONTINUOUS DUTY VENT (72 CS)

The baghouse is split into two 36 bag compartments so that one is in use at all times. A timer switches the diverter valve to the opposite side once every hour. The timer can be adjusted to switch sides more frequently if necessary. Each time the damper position is switched, the compartment taken off line is shaken for 60 seconds. (C6G2E control is included)

## Controls (Optional)

**Mini C-8**
Includes solid state one minute timer with automatic stop, terminal blocks, indicator light, and fuse for manual control of blower and activation of cycle (cleaning cycle actuates after blower shuts down), in a NEMA 4 enclosure [115VAC /1/60]. Motor starters not included. Shipped loose for field installation.

**Mini C-10**
Includes solid state one minute timer with automatic stop, terminal blocks indicator light, fuse and push button control to activate cleaning cycle, in a NEMA 4 enclosure [115VAC/1/60]. Motor starters not included. Shipped loose for field installation.

Dusty Dustless®

GRIFFIN FILTERS
106 METROPOLITAN PARK DRIVE ◊ LIVERPOOL, NY 13088, USA
Tel: (315) 451-5300 ‹ Fax: (315) 451-2338

SILO FILTER VENT UNITS

| Model No | No of Bags | Bag Length (in.) | Cloth Area (sq. ft.) | Shaker Motor HP | Shaker Motor Rating | Blower Motor HP* | Blower CFM @ 6" WC | Optional Control Panel NEMA 4 | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| 54-IS | 54 | 38 1/2 | 188 | 1/4 HP | 1200, 230-460/3/60 | | | C10 | 550 |
| 54-KS | 54 | 79 | 375 | 1/4 HP | 1200, 230-460/3/60 | | | C10 | 980 |
| 36-JS | 36 | 38 1/2 | 125 | 1/6 HP | 1800, 115/1/60 | 2 | 920 | C8 | 585 |
| 36-LS | 36 | 79 | 250 | 1/6 HP | 1200, 115/1/60 | 5 | 1280 | C8 | 845 |
| 72-JS | 72 | 38 1/2 | 250 | 1/4 HP | 1200, 230-460/3/60 | 5 | 1280 | C8 | 1000 |
| 72-LS | 72 | 79 | 500 | 1/4 HP | 1200, 230-460/3/60 | 5 | 1810 | C8 | 1600 |
| 72 CS | 72 | 79 | 500 | 1/6 HP (2) | 1200, 115/1/60 | 5 | 1280 | included | 1410 |

| | Width | Depth | Overall Height |
|---|---|---|---|
| 36-IS | 37 | 37 | 51 |
| 36-KS | 37 | 37 | 91 |
| 36-JS | 37 | 37 | 65 |
| 36-LS | 37 | 37 | 110 |
| 54-IS | 57 | 37 | 51 |
| 54-KS | 57 | 37 | 91 |
| 54-JS | 57 | 37 | 70 |
| 54-LS | 57 | 37 | 110 |
| 72-IS | 74 | 37 | 51 |
| 72-KS | 74 | 37 | 91 |
| 72-JS | 74 | 37 | 70 |
| 72-LS | 74 | 37 | 110 |
| 72 CS | 70 | 34 | 110 |

## Automatic Overfill Control System

The Griffin Overfill Control System, consisting of a closing valve, limit switch and control panel, completely automates silo filling and venting while preventing overfill and resulting damage. It is designed to operate on any pneumatic silo filling system with any number of fill pipes. If the high bin signal is clear when the trucker connects his hose to the fill pipe, the butterfly valve will open and the silo will accept material. When the high bin indicator is activated, an alarm will sound telling the trucker to stop his unloading operation. In 90 seconds the butterfly valve will close, sealing off the fill pipe and making it impossible for the trucker to continue pumping in material. The bags in the dust collection system will then automatically shake clean.

| OCS Model | Fill Size (in.) | Pipe Qty. (sq. ft.) | Silo Compartments | Closings Valve |
|---|---|---|---|---|
| OCS421 | 4 | 2 | 1 | 2 |
| OCS521 | 5 | 2 | 1 | 2 |

**Note:** A bin level indicator is required to activate this control system. Pressure safety valve and alarm bell are optional

| DESCRIPTION | PART NO |
|---|---|
| BIN LEVEL INDICATOR | 950-KA301-KB1 |
| PRESSURE SAFETY VALVE | 800-PSV |
| ALARM BELL | 900-340-4N5 |

### Companion Flange

| | |
|---|---|
| Companion Flange | 1 1/2" tall |
| Slanted Roof Adapter (18 degree slope) | 6"short side 16"tall side |
| Box Roof Adapter | 6" tall |

Slanted Roof Adapter

Box Roof Adapter

**GRIFFIN FILTERS**
106 METROPOLITAN PARK DRIVE ◆ LIVERPOOL, NY 13088, USA
Tel: (315) 451-5300 ◆ Fax: (315) 451-2338

# CATERPILLAR MODEL #C32

## EQUIPMENT DESCRIPTION:

Manufacturing Specification sheets (attach if any)

- Manufacture: Caterpillar
- Model #: C32
- Serial #: SYC00933
- Family name: 6CPXL32.0ESK
- Horsepower (hp): 1372 bhp
- Btu/hour: .335
- Fuel consumption gals/hr: 65.7
- Year engine was manufactured: 2006
- Fuel Type: Diesel

## PRODUCTION INFORMATION:

[1] Data needed for back up generators only

- Maximum production output (kw-hrs):_____
- Average production output (kw-hrs):_____
- Estimated hours of operation per day:_____
- Estimated days of operation per year: _____
- Maximum hours needed for testing (Yearly):_____
- Best hours needed for maintenance : _____

## PORTABLE REGISTRATION INFORMATION:

Attach all state registration information if applicable.

- Registration Number: 143161

## CRITERIA EMISSION DATA:

CO (lbs/hr @ 50% and 100% power): 1.2

NOx (lbs/hr @ 50% and 100% power): 4.03

SOx (lbs/hr @ 50% and 100% power):

$PM_{10}$ (lbs/hr@ 50% and 100% power): .097

Lead (lbs/hr @ 50% and 100% power):

# GEN SET PACKAGE PERFORMANCE DATA [SYC00933]

**MARCH 21, 2008**

*(SYC00933)-ENGINE (G5C00634)-GENERATOR (SXC01055)-GENSET*

For Help Desk Phone Numbers Click here

**Performance Number:** DM7714

**Change Level:** 02

**Sales Model:** C32 DITA
**Combustion:** DI
**Aspr:** TA

**Engine Power:**
1000 W/F EKW
1042 W/O F EKW
1,502 HP

**Speed:** 1,800 RPM
**After Cooler:** ATAAC

**Manifold Type:** DRY
**Governor Type:** ELEC
**After Cooler Temp(F):** 120

**Turbo Quantity:** 2
**Engine App:** GP
**Turbo Arrangement:**

**Hertz:** 60
**Engine Rating:** PGS
**Strategy:**

**Rating Type:** STANDBY
**Certification:** EPA TIER-2 2006 - ----

## General Performance Data 1

| GEN W/F EKW | PERCENT LOAD | ENGINE POWER BHP | ENGINE BMEP PSI | FUEL RATE LB/BHP-HR | FUEL RATE GPH | INTAKE MFLD TEMP DEG F | INTAKE MFLD P IN-HG | INTAKE AIR FLOW CFM | EXH MFLD TEMP DEG F | EXH STACK TEMP DEG F | EXH GAS FLOW CFM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,000.0 | 100 | 1502 | 337 | 0.346 | 74.3 | 123.4 | 69.2 | 2,998.2 | 1,288.8 | 964.9 | 8,387.2 |
| 900.0 | 90 | 1358 | 305 | 0.342 | 66.4 | 110.7 | 61.2 | 2,789.9 | 1,218.7 | 923.4 | 7,560.9 |
| 800.0 | 80 | 1215 | 273 | 0.350 | 60.8 | 106.0 | 57.6 | 2,705.1 | 1,177.2 | 891.3 | 7,158.3 |
| 750.0 | 75 | 1145 | 257 | 0.355 | 58.0 | 103.6 | 55.8 | 2,662.7 | 1,156.6 | 875.8 | 6,957.0 |
| 700.0 | 70 | 1074 | 241 | 0.356 | 54.7 | 100.0 | 52.2 | 2,560.3 | 1,133.6 | 860.4 | 6,618.0 |
| 600.0 | 60 | 933 | 210 | 0.355 | 47.4 | 91.2 | 42.9 | 2,284.9 | 1,077.6 | 829.8 | 5,784.5 |
| 500.0 | 50 | 793 | 178 | 0.354 | 40.1 | 82.6 | 33.5 | 2,012.9 | 1,011.2 | 799.3 | 4,954.7 |
| 400.0 | 40 | 658 | 148 | 0.354 | 33.3 | 75.6 | 24.9 | 1,751.6 | 935.8 | 759.2 | 4,163.6 |
| 300.0 | 30 | 519 | 117 | 0.359 | 26.6 | 70.3 | 17.0 | 1,504.4 | 843.6 | 698.5 | 3,397.3 |
| 250.0 | 25 | 449 | 101 | 0.363 | 23.3 | 68.4 | 13.3 | 1,384.3 | 790.9 | 661.5 | 3,019.4 |
| 200.0 | 20 | 378 | 85 | 0.371 | 20.0 | 66.7 | 9.8 | 1,264.3 | 733.5 | 619.7 | 2,648.6 |
| 100.0 | 10 | 233 | 52 | 0.414 | 13.8 | 64.2 | 5.2 | 1,126.5 | 597.2 | 502.5 | 2,076.5 |

## General Performance Data 2

| GEN W/F EKW | PERCENT LOAD | ENGINE POWER BHP | COMPRESS OUT PRESS KPA | COMPRESS OUT TEMP DEG F |
|---|---|---|---|---|
| 1,000.0 | 100 | 1502 | 251 | 416.8 |
| 900.0 | 90 | 1358 | 223 | 379.2 |
| 800.0 | 80 | 1215 | 210 | 363.4 |
| 750.0 | 75 | 1145 | 204 | 355.5 |
| 700.0 | 70 | 1074 | 191 | 340.5 |
| 600.0 | 60 | 933 | 158 | 301.6 |
| 500.0 | 50 | 793 | 125 | 262.9 |
| 400.0 | 40 | 658 | 94 | 225.7 |
| 300.0 | 30 | 519 | 66 | 188.4 |
| 250.0 | 25 | 449 | 52 | 169.7 |

## EMISSIONS DATA

EPA TIER-2 2006 - ---- ********** B5
Gaseous emissions data measurements are consistent with those described in
EPA 40 CFR PART 89 SUBPART D and ISO 8178 for measuring HC, CO, PM, and NOx

Gaseous emissions values are WEIGHTED CYCLE AVERAGES and are in compliance
with the following non-road regulations:

| LOCALITY | AGENCY/LEVEL | MAX LIMITS - g/kW-hr | | |
|---|---|---|---|---|
| U.S. (incl Calif) | EPA/TIER-2 | CO:3.5 | NOx + HC:6.4 | PM:0.2 |

| | |
|---|---|
| EXHAUST STACK DIAMETER | -- |
| WET EXHAUST MASS | 13,789.9 LB/HR |
| WET EXHAUST FLOW (964.40 F STACK TEMP ) | 8,390.77 CFM |
| WET EXHAUST FLOW RATE ( 32 DEG F AND 29.98 IN HG ) | 2,840.00 STD CFM |
| DRY EXHAUST FLOW RATE ( 32 DEG F AND 29.98 IN HG ) | 2,601.63 STD CFM |
| FUEL FLOW RATE | 74 GAL/HR |

## RATED SPEED "Not to exceed data"

| GEN PWR EKW | PERCENT LOAD | ENGINE POWER BHP | TOTAL NOX (AS NO2) LB/HR | TOTAL CO LB/HR | TOTAL HC LB/HR | PART MATTER LB/HR | OXYGEN IN EXHAUST PERCENT |
|---|---|---|---|---|---|---|---|
| 1,000.0 | 100 | 1502 | 19.3300 | 1.1800 | .0800 | .1500 | 9.2000 |
| 750.0 | 75 | 1145 | 11.6600 | .6400 | .1900 | .1100 | 10.8000 |
| 500.0 | 50 | 793 | 7.2700 | 1.2300 | .2200 | .1800 | 11.7000 |
| 250.0 | 25 | 449 | 4.9500 | 1.8500 | .1900 | .2400 | 13.2000 |
| 100.0 | 10 | 233 | 3.1600 | 2.8000 | .3400 | .2000 | 15.3000 |

## RATED SPEED "Nominal Data"

| GEN PWR EKW | PERCENT LOAD | ENGINE POWER BHP | TOTAL NOX (AS NO2) LB/HR | TOTAL CO LB/HR | TOTAL HC LB/HR | TOTAL CO2 LB/HR | PART MATTER LB/HR | OXYGEN IN EXHAUST PERCENT |
|---|---|---|---|---|---|---|---|---|
| 1,000.0 | 100 | 1502 | 15.9700 | .6300 | .0400 | 1,675.8 | .0700 | 9.2000 |
| 750.0 | 75 | 1145 | 9.6400 | .3400 | .1000 | 1,299.5 | .0600 | 10.8000 |
| 500.0 | 50 | 793 | 6.0100 | .6600 | .1200 | 890.2 | .0900 | 11.7000 |
| 250.0 | 25 | 449 | 4.0900 | .9900 | .1000 | 511.4 | .1200 | 13.2000 |
| 100.0 | 10 | 233 | 2.6100 | 1.5000 | .1800 | 301.2 | .1000 | 15.3000 |

## Altitude Capability Data(Corrected Power Altitude Capability)

| Ambient Operating Temp. / Altitude | 50 F | 68 F | 86 F | 104 F | 122 F | NORMAL |
|---|---|---|---|---|---|---|
| 0 F | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp |
| 984 F | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp |
| 1,640 F | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp | 1,502 hp |
| 3,281 F | 1,502 hp | 1,502 hp | 1,502 hp | 1,498 hp | 1,451 hp | 1,502 hp |
| 4,921 F | 1,502 hp | 1,502 hp | 1,455 hp | 1,409 hp | 1,365 hp | 1,502 hp |
| 6,562 F | 1,466 hp | 1,415 hp | 1,368 hp | 1,325 hp | 1,283 hp | 1,428 hp |
| 8,202 F | 1,376 hp | 1,329 hp | 1,286 hp | 1,244 hp | 1,206 hp | 1,357 hp |
| 9,843 F | 1,293 hp | 1,248 hp | 1,207 hp | 1,168 hp | 1,132 hp | 1,287 hp |
| 11,483 F | 1,212 hp | 1,171 hp | 1,132 hp | 1,096 hp | 1,062 hp | 1,222 hp |
| 13,123 F | 1,136 hp | 1,097 hp | 1,061 hp | 1,027 hp | 995 hp | 1,159 hp |
| 14,764 F | 1,065 hp | 1,027 hp | 994 hp | 962 hp | 932 hp | 1,098 hp |

The powers listed above and all the Powers displayed are Corrected Powers

## Identification Reference and Notes

| | | | |
|---|---|---|---|
| **Engine Arrangement:** | 2537557 | **Lube Oil Press @ Rated Spd(PSI):** | 58.6 |
| **Effective Serial No:** | SYC00001 | **Piston Speed @ Rated Eng SPD (FT/Min):** | 1,785.4 |
| **Primary Engine Test Spec:** | 0K6255 | **Max Operating Altitude(FT):** | 4,921.3 |
| **Performance Parm Ref:** | TM5739 | **PEEC Elect Control Module Ref** | |
| **Performance Data Ref:** | DM7714 | **PEEC Personality Cont Mod Ref** | |
| **Aux Coolant Pump Perf Ref:** | | | |
| **Cooling System Perf Ref:** | | **Turbocharger Model** | GTA5518BS |
| **Certification Ref:** | EPA TIER 2 | **Fuel Injector** | |
| **Certification Year:** | 2006 | **Timing-Static (DEG):** | -- |
| **Compression Ratio:** | 15.0 | **Timing-Static Advance (DEG):** | -- |
| **Combustion System:** | DI | **Timing-Static (MM):** | -- |
| **Aftercooler Temperature (F):** | 120 | **Unit Injector Timing (MM):** | -- |
| **Crankcase Blowby Rate(CFH):** | -- | **Torque Rise (percent)** | -- |
| **Fuel Rate (Rated RPM) No Load (Gal/HR):** | -- | **Peak Torque Speed RPM** | -- |
| **Lube Oil Press @ Low Idle Spd(PSI):** | 37.4 | **Peak Torque (LB/FT):** | -- |

ATTACHMENT 1 OF 1

# Engine Model

U-R-001-0293

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **6CPXL32.0ESK**

Mfr Family Name: **NA**

Process Code: **New Submission**

| 1.Engine Code | 2.Engine Model | 3.BHP@RPM (SAE Gross) | 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) | 5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only) | 6.Torque @ RPM (SEA Gross) | 7.Fuel Rate: mm/stroke@peak torque | 8.Fuel Rate: (lbs/hr)@peak torque | 9.Emission Control Device Per SAE J1930 |
|---|---|---|---|---|---|---|---|---|
| 1 | C32 | 1505@2100 | 376 | 530.8 | 4422@1400 | 418 | 393.4 | EM,DI,TC,ECM,CAC |
| 2 | C32 | 1505@2100 | 376 | 530.8 | 4422@1400 | 418 | 393.4 | EM,DI,TC,ECM,CAC |
| 3 | C32 | 1330@1500 | 469 | 473.0 | NA | NA | NA | EM, DI, TC, ECM |
| 5 | C32 | 1502@1800 | 418 | 506.3 | NA | NA | NA | EM, DI, TC, ECM, |
| 6 | C32 | 1357@1800 | 374 | 453.1 | NA | NA | NA | EM, DI, TC, ECM, |
| 8 | C32 | 1357@1800 | 374 | 453.1 | NA | NA | NA | EM, DI, TC, ECM, |
| 9 | C32 | 1508@1800 | 418 | 506.3 | NA | NA | NA | EM, DI, TC, ECM, |

# Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **6CPXL32.0ESK**

Mfr Family Name:

Process Code: **Running Change - 1**

| 1.Engine Code | 2.Engine Model | 3.BHP@RPM (SAE Gross) | 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) | 5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only) | 6.Torque @ RPM (SEA Gross) | 7.Fuel Rate: mm/stroke@peak torque | 8.Fuel Rate: (lbs/hr)@peak torque | 9.Emission Control Device Per SAE J1930 |
|---|---|---|---|---|---|---|---|---|
| 2 | | 1500@2100 | | | | | | |
| 9 | | 1502@1800 | | | | | | |
| 10 | C32 | 1016@1750 | 294 | 345.9 | 3635@1300 | 349 | 305.4 | EM, DI, TC, ECM, |
| 11 | C32 | 1257@1800 | 356 | 431.2 | NA | NA | NA | EM, DI, TC, ECM, |
| 12 | C32 | 1126@1800 | 324 | 392.1 | NA | NA | NA | EM, DI, TC, ECM, |
| 13 | C32 | 970@1750 | 277 | 325.8 | 3461@1300 | 335 | 292.9 | EM, DI, TC, ECM, |
| 14 | C32 | 951@1800 | 266 | 322.7 | 3205@1400 | 298 | 280.3 | EM, DI, TC, ECM, |
| 15 | C32 | 951@2100 | 238 | 336.9 | 3205@1400 | 298 | 280.3 | EM, DI, TC, ECM, |
| 16 | C32 | 1125@1800 | 319 | 386.1 | 3792@1400 | 365 | 344.1 | EM, DI, TC, ECM, |
| 17 | C32 | 1125@2100 | 279 | 393.6 | 3792@1400 | 365 | 344.1 | EM, DI, TC, ECM, |
| 18 | C32 | 1200@1800 | 336 | 407.3 | 4045@1400 | 390 | 367.2 | EM, DI, TC, ECM, |
| 19 | C32 | 1200@2100 | 301 | 425.9 | 4045@1400 | 390 | 367.2 | EM, DI, TC, ECM, |
| 20 | C32 | 1350@1800 | 384 | 464.7 | 4552@1400 | 438 | 412.4 | EM, DI, TC, ECM, |
| 21 | C32 | 1350@2100 | 340 | 480.6 | 4552@1400 | 438 | 412.4 | EM, DI, TC, ECM, |

# Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **6CPXL32.0ESK - 3**

Mfr Family Name:

Process Code: **Running Change**

| 1.Engine Code | 2.Engine Model | 3.BHP@RPM (SAE Gross) | 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) | 5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only) | 6.Torque @ RPM (SEA Gross) | 7.Fuel Rate: mm/stroke@peak torque | 8.Fuel Rate: (lbs/hr)@peak torque | 9.Emission Control Device Per SAE J1930 |
|---|---|---|---|---|---|---|---|---|
| 24 | C32 | 1502@1800 | 418 | 506.3 | NA | NA | NA | EM, DI, TC, ECM, |
| 25 | C32 | 1330@1500 | 469 | 473.0 | NA | NA | NA | EM, DI, TC, ECM, |
| 26 | C32 | 1502@1800 | 418 | 506.3 | NA | NA | NA | EM, DI, TC, ECM, |
| 27 | C32 | 1330@1500 | 469 | 473.0 | NA | NA | NA | EM, DI, TC, ECM, |
| 28 | C32 | 1257@1800 | 356 | 431.2 | NA | NA | NA | EM, DI, TC, ECM, |
| 29 | C32 | 1110@1500 | 408 | 412.2 | NA | NA | NA | EM, DI, TC, ECM, |

# Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
Engine category: **Nonroad Over 50 Hp**
EPA Engine Family: **6CPXL32.0ESK**
Mfr Family Name:
Process Code: **Running Change - 4**

| 1.Engine Code | 2.Engine Model | 3.BHP@RPM (SAE Gross) | 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) | 5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only) | 6.Torque @ RPM (SEA Gross) | 7.Fuel Rate: mm/stroke@peak torque | 8.Fuel Rate: (lbs/hr)@peak torque | 9.Emission Control Device Per SAE J1930 |
|---|---|---|---|---|---|---|---|---|
| 30 | C32 | 923@1800 | 257 | 311.4 | 3554@1300 | 345 | 302.0 | EM, DI, TC, ECM, |
| 31 | C32 | 800@2100 | 207 | 292.9 | 2447@1350 | 239 | 217.1 | EM, DI, TC, ECM, |

# MANUFACTURER'S PERFORMANCE DATA

MODEL: C32
DATA REF NO.: DM9046-00
GENSET RATING (W/F FAN): 910.0 EKW PRIME 60 HERTZ @ 1800 RPM
CERTIFICATION YEAR: 2007 CERT AGENCY: CARB/EPA

## GENERAL PERFORMANCE DATA

| GEN W/F EKW | ENG PWR BHP | FUEL RATE LB/BHP-HR | FUEL RATE GPH | EXHAUST STACK TEMP DEG F | EXHAUST GAS FLOW CFM | O2 (DRY) IN EXH (VOL) % | H2O IN EXH (VOL) % |
|---|---|---|---|---|---|---|---|
| 910.0 | 1372 | 0.335 | 65.7 | 793.2 | 7599.7 | 11.10 | 8.38 |

## EMISSIONS DATA

Gaseous emissions data measurements are consistent with those described in EPA 40 CFR PART 89 SUBPART D and ISO 8178 for measuring HC, CO, PM, and NOx.

Gaseous emissions values are WEIGHTED CYCLE AVERAGES and are in compliance with the following non-road regulations:

EPA and CARB Tier 2

| | MAX Limit - GM/HP-HR | |
|---|---|---|
| CO | NOX + HC | PM |
| 2.6 | 4.8 | 0.15 |

EPA ENGINE FAMILY NAME: 7CPXL32.0ESK
CARB EXECUTIVE ORDER NO.: U-R-001-0314

"D2 CYCLE CERT LIMITS" for the engine family are:

| | GM/HP-HR | |
|---|---|---|
| CO | NOX + HC | PM |
| 1.2 | 4.03 | 0.097 |

## CORRECTION FACTORS

FOR CALIFORNIA LOW SULFUR FUEL

NOX = (0.87)

PARTICULATE MATTER = (0.90)

## CALCULATION OF SOX

SOX = (0.05 % FUEL SULFUR BY WEIGHT/100) (FUEL RATE/HR) (1.9981)

## EMISSIONS DATA [SYC00933]

(SYC00933)-ENGINE (G5C00634)-GENERATOR (SXC01055)-GENSET

**MARCH 21, 2008**

For Help Desk Phone Numbers Click here

# Engine Emissions Data

Emissions Definitions

| | |
|---|---|
| Serial Number | **SYC00933** |
| Engine Arrangement Number | 2537557 |
| As - Shipped Certification | EPA / CARB @ Constant Speed |
| Labeled Model Year | 2006 |
| Family Code | 6CPXL32.0ESK |
| Family Certification | EPA Tier 2 |
| Spec Number | 0K6255 |
| Has Engine Been Rerated? | No |
| Interlock Code Actual Progression | No Interlock Code Progression |
| As - Shipped Interlock Code | No Interlock Code |
| As - Shipped Flash File | 3031612 |
| As - Shipped Flash File CRB | 3170632 |
| As - Shipped CORR FL Power at RPM | No Power Available at 1800 rpms |
| Build Date | 12Dec2006 |



This is not an official emission certificate. This is for emission data information only.

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

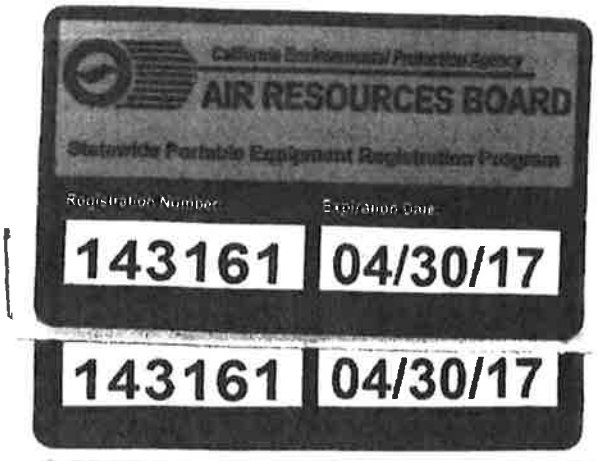
Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

# Statewide Portable Equipment Registration

**Registration No: 143161**

| | |
|---|---|
| Legal Owner or Operator: | Eagle Peak Rock & Paving Inc. |
| Mailing Address: | P.O Box 879<br>Alturas, CA 96101 |
| Engine Description: | |
| **Certified portable internal combustion engine, compression ignition, Caterpillar, model C32, Serial No: SYC00933, (Unit Number: 2805), rated at 1372 bhp, diesel fueled, equipped with turbocharger and aftercooler.** | |
| U.S. EPA Engine Family Name: | 6CPXL32.0ESK |
| Conditions: | see attached |
| Home District: | Modoc County Air Pollution Control District |
| Engine Inspection Discount: | No inspection discount claimed |




**Expiration Date: April 30, 2017**

Michael J. Tollstrup
Chief, Project Assessment Branch
Stationary Source Division

**Statewide Portable Equipment Registration**

**The following operating conditions apply for registration #143161**
Engine Serial # : SYC00933

**General Requirements**

1. The engine shall be properly maintained and kept in good operating condition at all times.
2. The registration identification sticker shall be affixed in a visible location on the registered portable engine at all times. The metal placard shall be securely affixed on a vertical surface of the portable engine in a location that is readily visible from a distance. A legible copy of the registration certificate and operating conditions shall be kept on site with the portable engine and shall be made accessible to the Air Resources Board or district representative upon request.
3. Engine fuel shall meet standards for California motor vehicle fuels as set forth in Chapter 5, Division 3, Title 13, of the California Code of Regulations, or shall have been verified through the In-Use Strategies to Control Emissions From Diesel Engines verification procedure per Title 13 of the California Code of Regulations commencing with section 2700.
4. The engine and any replacement engine shall not reside at the same location for more than 12 consecutive months
5. The operation of this engine shall not cause a public nuisance.
6. The engine shall be equipped with operational and properly maintained non-resettable hour time meter.
7. For each rental engine or an engine used in a third party rental transaction, the owner shall provide each person who rents the portable engine with a copy of the registration certificate, including operating conditions, as part of the rental agreement.
8. The operator of a portable engine or equipment unit shall obtain district authorization prior to operation at any specific location where the Statewide registration is not valid.
9. This registration is not valid for operation of generators used to provide power into the grid, except during an emergency event or other unforeseen event that affects grid stability.
10. This registration is not valid for operation of generators used to provide primary or supplemental power to a building, facility, stationary source, or stationary equipment except during the following scenarios: unforeseen interruptions of power from the serving utility; maintenance and repair operations; and electrical upgrade operations that do not exceed 60 calendar days.
11. This registration is not valid for operation within the boundaries of the California Outer Continental Shelf and State Territorial Waters.
12. The portable engine shall not be operated under both statewide registration and a district permit at any specific location.
13. This registration is not valid for operation of an engine that powers an equipment unit that has been determined by the Air Resources Board to qualify as part of a stationary source permitted by a district.

**The following operating conditions apply for registration # 143161**
Engine Serial # : SYC00933

14. Except for engines owned by a rental business, the owner/operator of this engine shall contact the local air district prior to operation at an agricultural source.
15. For each rental engine or an engine used in a third party rental transaction, a written copy of the rental agreement or a completed Form 10 must be kept onsite at all times.

**Emission Limitation**

16. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann 1 or equivalent to 20% opacity.

**Recordkeeping**

17. For a rental engine or an engine that is part of a third party rental transaction, the rental business shall provide a written log for recordkeeping purposes which is to be kept with the rental engine at all times. The rental business shall keep records of the registration number of the engine; date of the start and end of the rental transaction; and written (signed) acknowledgment by each renter of having received the registration certificate and operating conditions. The written log shall be maintained on an annual basis and previous annual logs shall be maintained at a central location for a minimum of five years, and made accessible to the Air Resources Board or districts upon request.
18. While the engine is out on rent, the rental customer shall record no less than once a month the specific location of the engine (i.e. street address and city; or county and UTM coordinates; or other location indicator) in the written log provided by the owner.
19. For non-rental engines, the operator shall record the registration number and specific location of the engine (i.e. street address and city; or county and UTM coordinates; or other location indicator) no less than once a month.
20. All records shall be maintained at a central place of business for a minimum of five years, and made accessible to the Air Resources Board or district representative upon request.

**Reporting & Notification**

21. Within 5 days of a rental transaction exceeding 9 months in duration, a rental business or the owner of a registered engine involved in a third party rental shall submit written notification of the rental transaction to the district in which the rental business is located. The notification shall include the engine registration number, the rental customer telephone number and mailing address, and estimated location of the registered engine.

**The following operating conditions apply for registration # 143161**
Engine Serial # : SYC00933

22. When this engine is sold, the new owner shall submit a change of ownership application within 30 days of the change in ownership. If an application is not received within 30 days of the ownership change, the existing registration is not valid for the new owner until the application has been filed and all applicable fees have been paid.
23. The owner of a registered portable engine shall notify the Executive Officer in writing within five days of replacing the registered portable engine with an identical replacement. The notification shall include company name, the responsible official, phone number, registration number, make, model, rated brake horsepower, and serial number of the identical replacement, description of the mechanical breakdown, and applicable fees.

**Fleet Average Requirements**

24. Except for low-use engines and engines used exclusively in emergency applications, for engines greater than 750 bhp, a weighted fleet average PM emission factor of 0.25 g/bhp-hr shall be met by **January 1, 2013**, 0.08 g/bhp-hr shall be met by **January 1, 2017**, and 0.02 g/bhp-hr shall be met by **January 1, 2020.** Changes in the fleet, including engine additions and deletions, shall not result in noncompliance with this standard.
25. The weighted fleet average PM emission factor shall be calculated by taking the summation of the emission factor for each engine in the fleet multiplied by the bhp rating for each engine and then dividing that summation by the summation of the bhp ratings for all the engines in the fleet.
26. The weighted fleet average PM emission factor calculation shall use the test results from nonroad emission standard certification, test results from a verified emission control strategy as defined in Title 13 of the California Code of Regulations Section 93116.2, or the test results from a SCR system. All test results shall be made available to the Air Resources Board upon request.
27. Where equipment uses grid power for more than 200 hours in lieu of operating a portable diesel engine for a given project, the time period grid power is used may be used to reduce each affected engine's emission factor. The emission factor for each affected portable engine shall be reduced proportionally by the percentage of time the equipment uses grid power.
28. The weighted fleet average PM emission factor shall include all portable engines, including those permitted or registered with a local air district, that are owned and managed by an individual operational entity, such as a business, business unit within a corporation, or individual city or state department under the control of a Responsible Official. Engines that are owned by different business entities that are under the common control of only one Responsible Official shall be treated as a single fleet.

**The following operating conditions apply for registration # 143161**
Engine Serial # : SYC00933

29. If certified non-diesel fueled engines are part of your fleet and have been operating 100 or more hours, they may be included toward determining compliance with the applicable fleet emission standards. A diesel PM emission rate of zero shall be used in the fleet calculations for these engines. If the engine was added to the fleet prior to January 1, 2009 , it may be counted twice in the company's fleet average determination toward compliance with the 2013 and 2017 fleet emission standards.
30. Portable diesel-fueled engines certified to Tier 4 nonroad engine standards that are added to a fleet prior to January 1, 2015, may be counted twice in the company's fleet average determination toward compliance with the 2013 and 2017 fleet emission standards.

**Fleet Recordkeeping**

31. Starting January 1, 2012, the responsible official of a fleet shall keep records of annual operating hours for non-diesel fueled portable engines used as part of a company's fleet average, engines affected by the use of electrification, low-use engines, and engines used exclusively in emergency applications.
32. All records pertaining to the fleet average shall be maintained at a central place of business for a minimum of five years, and made accessible to the Air Resources Board or district representative upon request.

**Fleet Reporting and Notification**

33. The Responsible Official of a fleet shall submit to the Air Resources Board by March 1, 2013, March 1, 2017, and March 1, 2020 a signed statement of compliance that the fleet standards are being achieved. The Statement of compliance shall include for each engine in the fleet: make, model, serial number, fuel type, PM emission factor (g/bhp-hr), and district permit or State registration number. If compliance with the fleet average includes the use of electrification, the Responsible Official shall provide documentation supporting the credit claimed for electrification.
34. As part of each statement of compliance, the Responsible Official shall, if applicable, certify that all alternative-fueled engines included in the fleet average operated at least 100 hours during the previous 12 months prior to the fleet emission standard becoming effective, for all engines exclusively used in emergency applications, the engines were used only for emergency applications, for all engines using the low-use designation, the engines operated no more than 80 hours for the reporting period, and for all portable diesel-fueled engines equipped with SCR, the engine complies with applicable district or Statewide Portable Equipment Registration Program requirements.

**The following operating conditions apply for registration # 143161**
Engine Serial # : SYC00933

35. The Responsible Official of a fleet electing to use electrification in determining the fleet average shall notify prior to the start of the project the Executive Officer of the dates, location of the project, and make, model, serial number, district permit or State registration number of the affected engines. In addition, the notification shall clearly identify the electrification activity, including indicating the amount of electricity used and the time period for the project.

**Inspection Requirements**

36. Within 45 days after initial issuance or renewal of a registration, the owner or operator shall contact the home district to arrange for inspection to be completed within one year of the initial registration or renewal date. If the engine is operating in a district other than the home district, the owner or operator may request the home district to arrange an inspection by that other district.
37. For the purposes of scheduling inspections of multiple engines in order to qualify for an inspection fee discount, the owner or operator shall submit, within 45 days of initial registration issuance date or by January 30 of each year for renewals, a letter of intent to the home district that shall include an engine list with registration numbers of those to be inspected.
38. The time for the arranged inspection shall be agreed upon in advance between the district and the company. To the extent that an arranged inspection does not fall within the district's normal workday, the district may charge for the off-hour time.
39. If an arranged inspection does not occur due to unforeseen circumstances, the inspection shall be rescheduled for no later than 90 days from the initially scheduled inspection.
40. If the engine is out of California for one year or more following initial registration or renewal, the engine shall be excused from having the arranged inspection provided that within 45 days after the date of initial registration or renewal, the owner sends a letter to the district containing the registration number and a statement that the registered engine or equipment unit is out of California for the one-year period. Upon the return of the engine to California, the owner shall arrange to have the engine inspected within 30 days.


Google earth

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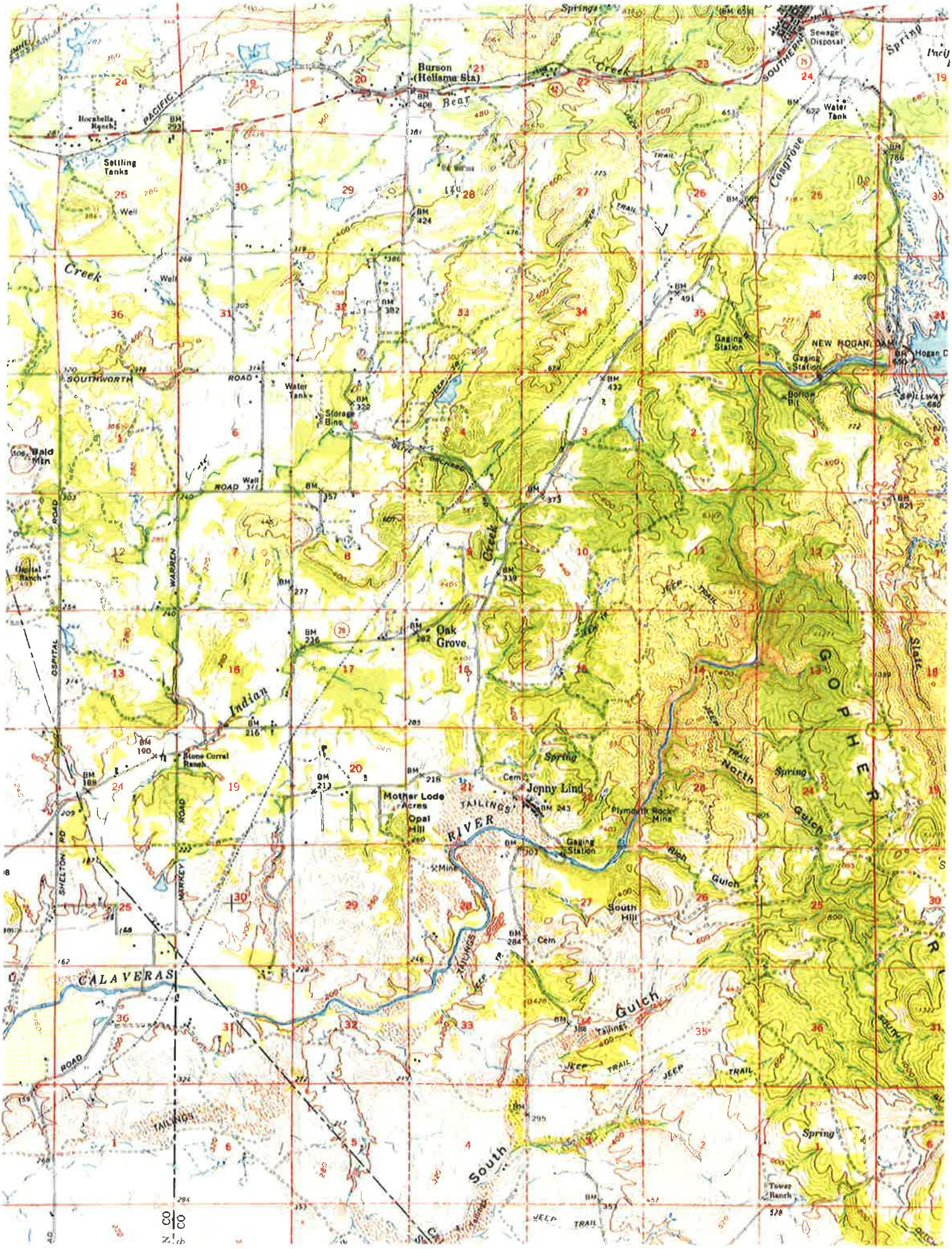
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SPILLWAY
Oak Grove
Indian
Stone Corral Ranch
Mother Lode Acres
Opal Hill
Jenny Lind
Cem
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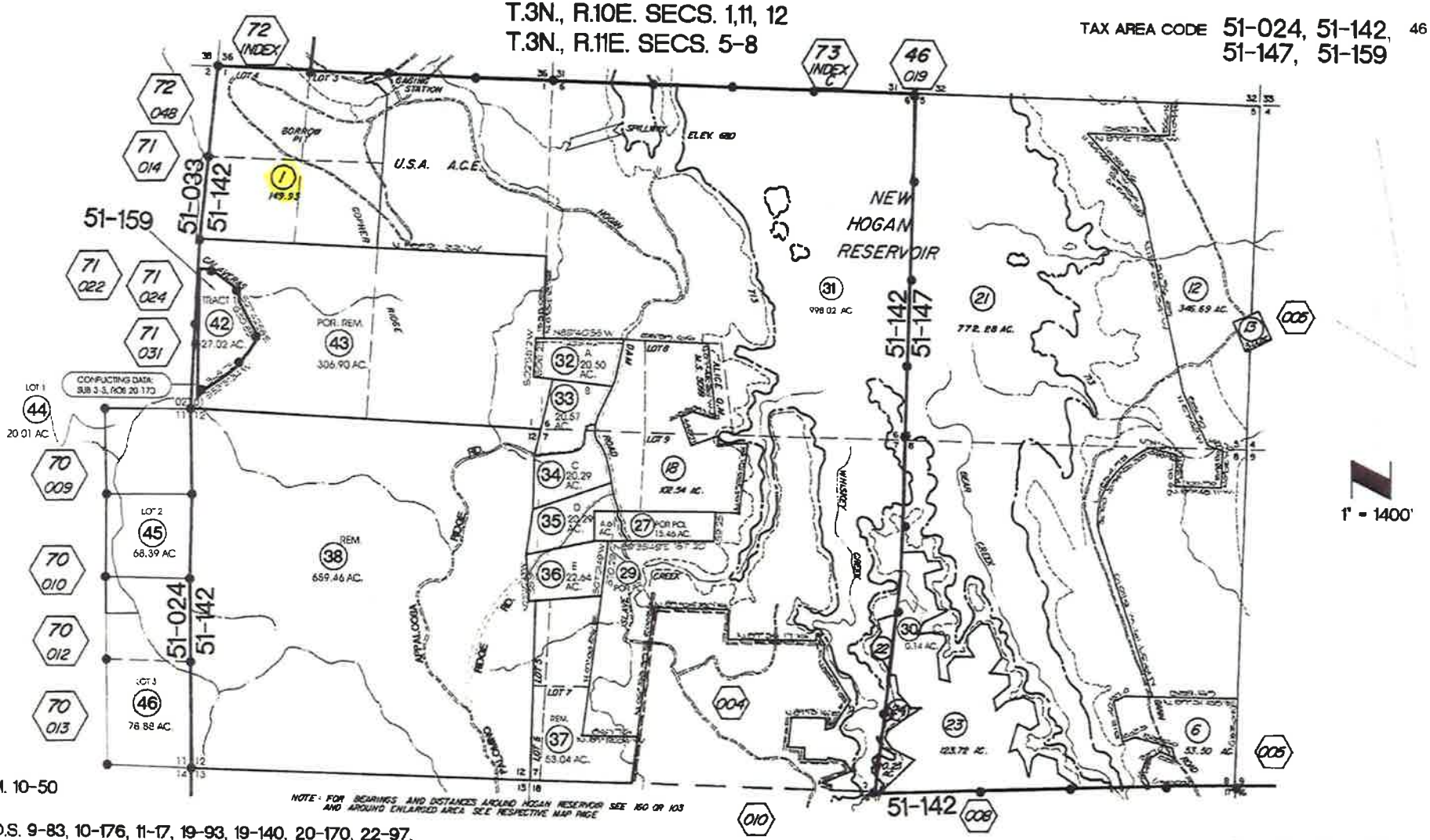
RIVER
Plymouth Rock Mine
Spring
North
Gulch
Rich
South Hill
GOPHER
CALAVERAS
South
Tailings
JEEP TRAIL
Tower Ranch
WARREN
SHELTON
MARKLEY
HOSPITAL

T.3N., R.10E. SECS. 1,11, 12
T.3N., R.11E. SECS. 5-8

TAX AREA CODE 51-024, 51-142, 51-147, 51-159 46




P.M. 10-50

NOTE: FOR BEARINGS AND DISTANCES AROUND HOGAN RESERVOIR SEE 150 OR 103 AND AROUND ENLARGED AREA SEE RESPECTIVE MAP PAGE

R.O.S. 9-83, 10-176, 11-17, 19-93, 19-140, 20-170, 22-97,

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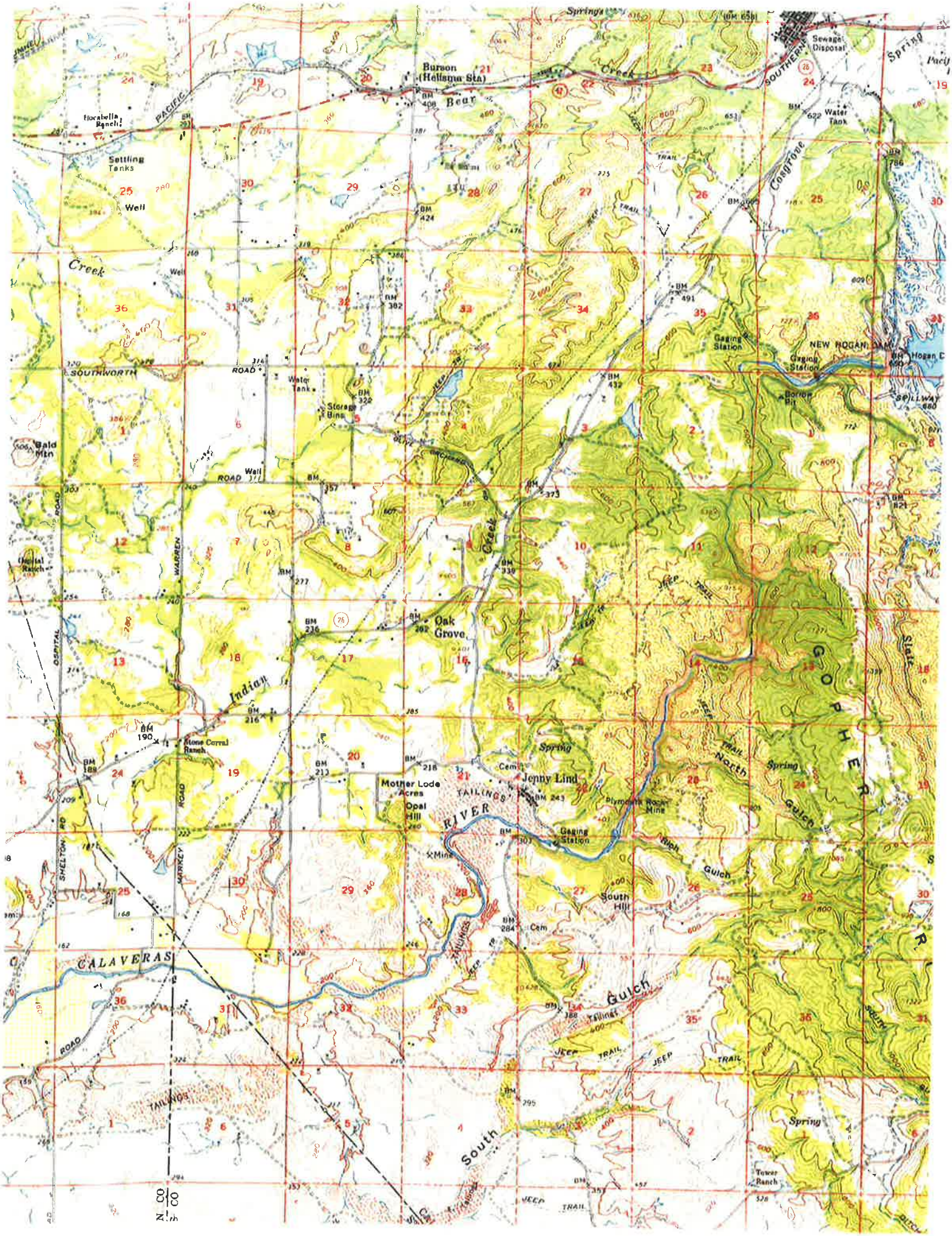
ASSESSMENT PURPOSES ONLY
NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA DELINEATED HEREON

CALAVERAS COUNTY
ASSESSOR'S MAPS
BOOK 50 PAGE 003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Water Tank
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ROAD
Water Tank
Storage Bins
Bald Mtn
Gaging Station
NEW HOGAN DAM
Hogan C
Spillway
Borrow Pit
Oak Grove
Indian
Stone Corral Ranch
Mother Lode Acres
Opal Hill
Jenny Lind
TAILINGS
RIVER
Plymouth Rock Mine
Mine
South Hill
Cem
CALAVERAS
Gulch
North
South
Spring
TRAIL
JEEP
Tower Ranch
GOPHER
WARREN
SHELTON RD
MARKLEY
HOSPITAL