

# Errata

## September 9, 2009 Oil and Gas EA

### DOI-BLM-C060-2009-0038

An error under Impacts to Air Quality on page 33, paragraph 8 was corrected to reflect the right information. In addition, Appendix F – Air Emissions Calculations on page 91-92 was corrected and is attached below.

Below is a copy of paragraph 8.

Estimated emissions of PM2.5, PM10, and SOx for one well range from approximately 30-36 lbs/year. Per well, NOx emissions are estimated at 375 lbs/year and 1,200 lbs/year of VOCs, NOx, SOx, PM10, and PM2.5 for one well range from 29.565 0.0003 lbs/year SOx to 2.27 lbs/year PM2.5 to 1,204.5 lbs/year VOCs. This range of pollutant emissions represents 0.002% of the total emissions from oil and gas production, statewide.

Appendix F

## APPENDIX F - Air Emissions Calculations

For the purpose of this exercise, there are a number of assumptions. First, as a maximum, it is assumed that the emission numbers in the above table are for wells alone and not for all of the other equipment and sources previously described. In making this assumption, BLM is conceding that these estimates are above actual individual well emission factors, and the numbers calculated are higher than actual emission factors that would be found if the appropriate data were available. We are also using a 45,000 oil and gas well estimate gathered from the California Division of Oil and Gas ([www.consrv.ca.gov/DOG](http://www.consrv.ca.gov/DOG)) for the number of total oil and gas wells in the San Joaquin Valley. Furthermore, we are using the values for Kern County, CDOGGR District 4, and the San Joaquin Valley APCD in analyzing the environmental effects related to air quality under this EA. This is necessary because the data are not available on an individual field or well by well basis. This will not cause a statistically significant error because all of the parcels are in Kern County.

An emission formula and emission factor was provided by Air Quality Engineer Leonard Scandura of the *SJVAPCD*. The formula is  $E = A \times EF$  where E= emissions, A= activity or source, and EF is the constant emission factor. Using a derivative of the  $E = A \times EF$  formula and the Estimated Statewide Annual Emissions from Oil and Gas Production, 2006, the emission calculations for VOCs, NOx, SOx, PM10 and PM 2.5 for one well are included below.

### The emission calculation for VOCs is as follows:

74.19 tons VOCs/day = 148,380 lbs VOCs/day

$EF = E/A$

$EF = 148,380 \text{ lbs VOCs/day} / 45,000 \text{ total wells} = 3.30 \text{ lbs VOCs /day/well}$

$3.30 \text{ lbs VOCs/day/well} \times 365 \text{ days/year} = \text{0.009-1,204.5 lbs VOCs/year/well}$

This is 0.002% ( $3.30 \text{ lbs/day/well} / 148,380 \text{ lbs VOCs/day}$ ) of the total oil and gas production emissions for VOCs, and below the *de minimis* level for VOCs.

**The emission calculation for NOx is as follows:**

23.16 tons NOx/day = 46,320 lbs NOx/day

EF = E/A

EF = 46,320 lbs NOx/day / 45,000 total wells = 1.03 lbs NOx/day/well

1.03 lbs NOx/day/well x 365 days/year = ~~375.70~~375.70 lbs NOx/year/well

This is 0.002% (1.03 lbs/day / 46,320 lbs NOx/day) of the total oil and gas production emissions for NOx, and below the *de minimis* level for NOx of 10 tons/year/stationary source.

**The emission calculations for SOx are as follows:**

2.23 tons SOx/day = 4,460 lbs SOx/day

EF = E/A

EF = 4,460 lbs SOx/day / 45,000 total wells = 0.10 lbs SOx/day/well

~~One well would emit a maximum of 1.5 lbs SOx/day (see below):~~

~~E = 1 well x 0.10 lbs SOx/day = 0.10 lbs SOx/day~~

0.10 lbs SOx/day/well x 365 days/year = ~~0.0003~~36.5 lbs SOx/year/well

This is 0.002% (0.10 lbs/day / 4,460 lbs SOx/day) of the total oil and gas production emissions for SOx, which is below the *de minimis* level for SOx of 10 tons/year/stationary source.

**The emission calculations for PM10 are as follows:**

1.82 tons PM10/day = 3,640 lbs PM10/day

EF = E/A

EF = 3,640 lbs PM10/day / 45,000 total wells = 0.081 lbs PM10/day/well

~~One well would emit a maximum of 0.081 lbs PM10/day (see below):~~

~~E = 1 well x 0.081 lbs PM10/day = 0.081 lbs PM10/day~~

0.081 lbs PM10/day/well x 365 days/year = ~~2.2229~~29.565 lbs PM10/year/well

This is ~~0.002%~~ (0.081 lbs/day / 3,640 lbs PM10/day) ~~= 0.002%~~ of the total oil and gas production emissions for PM10, which is below the *de minimis* level for PM10 of 15 tons/year/stationary source.

**The emission calculations for PM2.5 are as follows:**

1.87 tons PM2.5/day = 3,740 lbs PM2.5/day

EF = E/A

EF = 3,740 lbs PM2.5/day / 45,000 total wells = 0.083 lbs PM2.5/day/well

~~One well would emit a maximum of 0.083 lbs PM2.5/day (see below):~~

0.083 lbs PM2.5/day x 365 days/year = ~~2.2730~~30.30 lbs PM2.5/year/well

This is 0.002% (0.083 lbs/day / 3,740 lbs PM10/day) of the total oil and gas production emissions for PM2.5, which is below the *de minimis* level for PM2.5 of 15 tons/year/stationary source.