

WEST B CATOX—CIRCULAR CHART AVERAGES—CALCULATIONS

TOTAL CONTAMINANT MASS COMBUSTED DURING JANUARY REPORT PERIOD

Week of 1/07/09 through 1/14/09

2 days (beginning with 21 degree rise and ending with 1 degree rise = 11° average temperature increase)

(Assuming a proportional decline from beginning to end of the period)

$$2 \text{ days} \times 15^\circ \text{ rise} = 30$$

$$5 \text{ days} \times 10^\circ \text{ rise} = 50$$

Proportional value of 80 (Divided by 7 days = 11.4° average rise)

Equivalent to 0.80 gallons combusted per day

$$0.80 \times 7 \text{ days} = 5.6 \text{ gallons (Total contaminant mass combusted in one week)}$$

(Note: This is already more than the contaminant mass combusted during the previous one-month period)

Week of 1/14/09 through 1/20/09

6 days (beginning with 10 degree rise and ending with 8 degree rise = 9° average temperature increase)

(Chart indicates a proportional decline from beginning to end of the period)

9° rise is equivalent to 0.65 gallons combusted per day

$$0.65 \times 7 \text{ days} = 3.9 \text{ gallons (Total contaminant mass combusted in one week)}$$

Week of 1/20/09 - 1/27/09

7 days (beginning with an 8 degree rise and ending with 3 degree rise = 5.5° average temperature increase)

(Chart indicates a proportional decline from beginning to end of the period)

5.5° rise is equivalent to 0.37 gallons combusted per day

$$0.37 \times 7 \text{ days} = 2.6 \text{ gallons (Total contaminant mass combusted in one week)}$$

Week of 1/27/09 - 2/03/09

7 days (beginning with a 3 degree rise and ending with 2 degree rise = 2.5° average temperature increase)

(Chart indicates a proportional decline from beginning to end of the period)

2.5° rise is equivalent to 0.19 gallons combusted per day

$$0.19 \times 7 \text{ days} = 1.3 \text{ gallons (Total contaminant mass combusted in one week)}$$

Total gallons combusted for the four weeks is 5.6 gallons + 3.9 gallons + 2.6 gallons + 1.3 gallons = 13.4 gallons

CENTRAL SVE SYSTEM—Contaminant Combustion—CALCULATIONS

TOTAL CONTAMINANT MASS COMBUSTED BETWEEN Jan. 8, 2009 and Feb. 03, 2008

Period from 1/07/09 through 2/03/09:

Date of PID Measurement	Central SVE System (PPM)	Central SVE System Flow Rate
Jan 07, 2009	1.5	418
Jan 14, 2009	---	418
Jan 20, 2009	1.6	418
Jan 27, 2009	1.25	375
Feb 03, 2009	1.1	365

Average PPM = 1.4

Average Flow Rate = 400 CFM

(See following flow rate calculations)

14 days at 418 CFM

7 days at 418 + 375/2 = 396.5 CFM

7 days at 375 + 365/2 = 370 C CFM

(14X418) + (7X396.5) + (7X370) =

5852 + 2775.5 + 2590 = 11,217.5/28 = 400.625

(Round to 400 CFM Average)

At 10 ppm concentration and 400 SCFM flow, contaminant mass combustion is 0.173 gallons/day

At 1.4 ppm concentration, volume combustion is 0.02422 gallons per day. (See following calculations)

$$\frac{10}{X} = 1.4$$

$$0.173 \quad X$$

$$10X = 1.4 \times .173 = 0.2422$$

$$X = 0.02422 \text{ gallons per day}$$

$$0.02422 \text{ gallons per day} \times 28 \text{ days} = 0.68 \text{ gallons}$$

West Alley SVE SYSTEM—Contaminant Combustion—CALCULATIONS

TOTAL CONTAMINANT MASS COMBUSTED BETWEEN January 20 and February 03, 2009

Period from 1/20/09 through 2/03/09

The period is divided into two periods of descending or ascending vapor concentrations.

System Flow Rate: 50 SCFM

Date of PID Measurement	West Alley SVE System (PPM)	
Jan 20, 2009	26	
Jan 27, 2009	50	
Feb 3, 2009	40	

Initial PPM + Final PPM / 2 = average

1st period: 1/20 through 1/26/2009 (7 days)

$26 + 50 / 2 = 38$ ppm average concentration

2nd period: 1/27 through 2/2/2009 (7 days)

$50 + 40 / 2 = 45$ ppm average concentration

Proportional Values:

(7 days) (38 ppm) = 266

(7 days) (45 ppm) = 315

Sum of Proportional Values / Total Number of Days = Avg. ppm per day

$581 / 14 = 41.5$ ppm Average

At 100 ppm concentration and 50 SCFM flow, contaminant mass combustion is 0.216 gallons/day

Calculations: 0.0011 pounds per hour per SCFM X 50 SCFM = 0.055 lbs/hour

$0.055 \times 24 = 1.32$ lbs/day

1.32 lbs/day X $1/6.1$ lbs per gallon of gasoline = 0.22 lbs per day

At 41.5 ppm concentration, volume combustion is 0.09 gallons per day

0.09 gallons X 14 days = 1.26 gallons combusted

WEST B CATOX—CIRCULAR CHART AVERAGES—CALCULATIONS

TOTAL CONTAMINANT MASS COMBUSTED DURING FEBRUARY 2009 REPORT PERIOD

Week of 2/03/09 to 2/10/09

7 days (beginning with a 2 degree rise and ending with a 2 degree rise = 2° average temperature increase)

A 2.0° rise is equivalent to 0.15 gallons combusted per day

0.15 X 7 days = 1.0 gallons (Total contaminant mass combusted in one week)

Week of 2/10/09 to 2/17/09

7 days (beginning with a 2 degree rise and ending with a 0 degree rise = 1° average temperature increase)

(Chart indicates a proportional decline from beginning to end of the period)

A 1.0° rise is equivalent to 0.10 gallons combusted per day

0.10 X 7 days = 0.7 gallons (Total contaminant mass combusted in one week)

Week of 2/17/09 to 2/24/09

7 days (beginning with a 0 degree rise and ending with a 5 degree rise = 2.5° average temperature increase)

(Chart indicates a proportional decline from beginning to end of the period)

5.5° rise is equivalent to 0.38 gallons combusted per day

0.37 X 7 days = 2.6 gallons (Total contaminant mass combusted in one week)

Week of 2/24/09 to 3/03/09

7 days (beginning with a 5 degree rise and ending with 13 degree rise = 9° average temperature increase)

(Chart indicates a proportional increase from beginning to end of the period)

A 9 degree rise is equivalent to 0.65 gallons combusted per day

0.65 X 7 days = 4.5 gallons (Total contaminant mass combusted in one week)

Week of 3/3/09 to 3/10/09

7 days (beginning with a 13 degree rise and ending with 26 degree rise = 19.5 degree avg. temperature increase)

(Chart indicates a proportional increase from beginning to end of the period)

A 19.5 degree rise is equivalent to 1.36 gallons combusted per day

1.36 X 7 days = 9.5 gallons (Total contaminant mass combusted in one week)

Total gallons combusted for the four weeks is 1.0 gal. + 0.7 gal. + 2.6 gal. + 4.5 gal. + 9.5 gal. = 18.3 gallons

West Alley SVE SYSTEM—Contaminant Combustion—CALCULATIONS

TOTAL CONTAMINANT MASS COMBUSTED BETWEEN Feb 03 and March 10, 2009

The period is divided into 5 periods, based on weekly readings.

System Flow Rate: 50 SCFM

Date of PID Measurement	West Alley SVE System (PPM)	
Feb 03, 2009	40	
Feb 10, 2009	32	
Feb 17, 2009	29	
Feb 24, 2009	32	
March 3, 2009	61	
March 10, 2009	90	

Initial PPM + Final PPM / 2 = average

1st period—2/03 through 2/10/2009 (7 days)

$40 + 32 / 2 = 36$ ppm average concentration

2nd period—2/10 through 2/17/2009 (7 days)

$32 + 29 / 2 = 30.5$ ppm average concentration

3rd period—2/17 through 2/24/2009 (7 days): $29 + 32 / 2 = 30.5$ ppm average concentration

4th period—2/24 through 3/03/2009 (7 days): $32 + 61 / 2 = 46.5$ ppm average concentration

5th period—3/03 through 3/10/2009 (7 days): $61 + 90 / 2 = 75.5$ ppm average concentration

Proportional Values:

(7days) (36 ppm) = 252

(7 days) (30.5 ppm) = 213.5

(7days) (30.5 ppm) = 213.5

(7days) (46.5 ppm) = 325.5

(7days) (75.5 ppm) = 528.5

Sum of Proportional Values / Total Number of Days = Avg. ppm

$1533 / 35 = 43.8$ ppm (Average)

At 100 ppm concentration and 50 SCFM flow, contaminant mass combustion is 0.216 gallons/day

Calculations: 0.0011 pounds per hour per SCFM X 50 SCFM = 0.055 lbs/hour

$0.055 \times 24 = 1.32$ lbs/day

1.32 lbs/day X $1/6.1$ lbs per gallon of gasoline = 0.22 gallons per day

At 43.8 ppm concentration, volume combustion is 0.09 gallons per day

0.09 gallons X 35 days = 3.2 gallons combusted

WEST B CATOX—CIRCULAR CHART AVERAGES—CALCULATIONS

TOTAL CONTAMINANT MASS COMBUSTED DURING MARCH 2009 REPORT PERIOD

Week of 3/10/09 to 3/17/09

7 days (beginning with a 26 degree rise and ending with 30 degree rise = 28 degree avg. temperature increase)
(Chart indicates a proportional increase from beginning to end of the period)

A 28 degree average rise is equivalent to 1.94 gallons combusted per day

$1.94 \times 7 \text{ days} = 13.58$ gallons (Total contaminant mass combusted in one week)

Week of 3/17/09 to 3/27/09

10 days (beginning with a 30 degree rise and ending with 38 degree rise = 34 degree avg. temperature increase)
(Chart indicates a proportional increase from beginning to end of the period)

A 34 degree average rise is equivalent to 2.65 gallons combusted per day

$2.65 \times 10 \text{ days} = 26.5$ gallons (Total contaminant mass combusted in 10 days)

Week of 3/27/09 to 4/03/09

7 days (beginning with a 38 degree rise and ending with 42 degree rise = 40 degree avg. temperature increase)
(Chart indicates a proportional increase from beginning to end of the period)

A 40 degree average rise is equivalent to 2.8 gallons combusted per day

$2.8 \times 7 \text{ days} = 19.6$ gallons (Total contaminant mass combusted in one week)

Week of 4/03/09 to 4/10/09

7 days (beginning with a 42 degree rise and ending with 46 degree rise = 44 degree avg. temperature increase)
(Chart indicates a proportional increase from beginning to end of the period)

A 44 degree average rise is equivalent to 3.04 gallons combusted per day

$3.04 \times 7 \text{ days} = 21.28$ gallons (Total contaminant mass combusted in one week)

Total gallons combusted for the four periods is 13.58 gal. + 26.5 gal. + 19.6 gal. + 21.28 gal. = 80.96 gallons

CENTRAL SVE SYSTEM—Contaminant Combustion—CALCULATIONS

TOTAL CONTAMINANT MASS COMBUSTED BETWEEN Mar 17, 2009 and Apr 8, 2008

Period from 3/17/09 through 4/08/09:

Date of PID Measurement	Central SVE System (PPM)	Central SVE System Flow Rate
Mar 10, 2009	7.5	365
Mar 17, 2009	11.8	365
Mar 27, 2009	20.2	365
Apr 2, 2009	17.6	360
Apr 8, 2009	24.8	360

Average PPM = 1.4

Average Flow Rate = 400 CFM

(See following flow rate calculations)

7 days at 365 CFM and 9.65 ppm

10 days at 365 CFM and 16 ppm

6 days at 365 + 360/2 = 362.5 CFM and 18.9 ppm

6 days at 360 CFM and 21.2 ppm

$(7 \times 365) + (10 \times 365) + (6 \times 362.5) + (6 \times 360) =$

$2555 + 3650 + 2175 + 2160 = 10540/29 = 363.45$

(Round to 363 CFM Average)

See the following calculations to obtain average ppm:

$$(7)(9.65) + (10)(16) + (6)(18.9) + (6)(21.2) =$$

$$67.55 + 160 + 113.4 + 127.2 = 468.15$$

$$468.15/29 = 16.1 \text{ ppm average}$$

At 16.1 ppm average concentration and 363 SCFM flow, contaminant mass combustion is 0.29 gallons/day

(See following calculations)

At 10 ppm and 363 CFM: $0.011 \times 3633 = 0.03993 \text{ lbs/hr.}$

$\times 24 \text{ hours} = 0.958 \text{ lbs/day}$

divided by 6.1 lbs / gallon = 0.157 gal/day

$$\frac{10}{0.157} = \frac{16.1}{X}$$

$$0.157 \quad \times$$

$$10X = 16.1 \times 0.157 = 2.53 \text{ gal/day}$$

$$X = 0.25 \text{ gallons per day}$$

$$0.25 \text{ gallons per day} \times 29 \text{ days} = 7.25 \text{ gallons}$$

West Alley SVE SYSTEM—Contaminant Combustion—CALCULATIONS

TOTAL CONTAMINANT MASS COMBUSTED BETWEEN March 10 and March 27, 2009

Period from 3/10/09 through 3/27/09

The period is divided into two periods.

System Flow Rate: 50 SCFM

Date of PID Measurement	West Alley SVE System (PPM)	
March 10, 2009	90	
March 17, 2009	102	
March 27, 2009	87	

Initial PPM + Final PPM / 2 = average

1st period: 3/10 through 3/17/2009 (7 days)

$90 + 102 / 2 = 96$ ppm average concentration

2nd period: 3/17 through 2/27/2009 (10 days)

$102 + 87 / 2 = 95$ ppm average concentration

Proportional Values:

(7days) (96 ppm) = 672

(10 days) (95 ppm) = 950

Sum of Proportional Values / Total Number of Days = Avg. ppm

$1622 / 17 = 95.4$ ppm Average

At 100 ppm concentration and 50 SCFM flow, contaminant mass combustion is 0.216 gallons/day

Calculations: 0.0011 pounds per hour per SCFM X 50 SCFM = 0.055 lbs/hour

$0.055 \times 24 = 1.32$ lbs/day

1.32 lbs/day X 1/6.1 lbs per gallon of gasoline = 0.216 gallons per day

At 95.4 ppm concentration, volume combustion is 0.205 gallons per day

0.206 gallons X 17 days = 3.5 gallons combusted