

**From:** Kevin Hedinger <Kevin.Hedinger@gza.com>  
**Sent:** Monday, April 12, 2021 10:15 AM  
**To:** McKnight, Kevin - DNR  
**Subject:** RE: Oshkosh Defense - West Plant and Waukau Lot  
**Attachments:** Soil\_to\_Groundwater\_chem\_rsl\_12APR2021\_prg162429 (1).xlsx

Kevin:

Sorry for the delay in getting you this spreadsheet information. I reviewed what I had downloaded from the US EPA Regional Soil Screening Calculator and have attached the spreadsheet of values. This is directly from the calculator without any modifications. I think it matches the submittal in the report.

Thanks!

**Kevin M. Hedinger**  
**Senior Project Manager/ Hydrogeologist**  
Direct: 262-754-2578  
Cell: 262-424-1761

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**From:** McKnight, Kevin - DNR <[Kevin.McKnight@wisconsin.gov](mailto:Kevin.McKnight@wisconsin.gov)>  
**Sent:** Monday, April 12, 2021 9:55 AM  
**To:** Witte, Edward <[nwitte@gklaw.com](mailto:nwitte@gklaw.com)>; [ktubbs@oshkoshcorp.com](mailto:ktubbs@oshkoshcorp.com); Kevin Hedinger <[Kevin.Hedinger@gza.com](mailto:Kevin.Hedinger@gza.com)>  
**Subject:** Oshkosh Defense - West Plant and Waukau Lot

Good Morning,

I would like to set up a brief call to discuss our review of these sites this week. My availability is listed below. Please let me know a couple times that work and I will set up the call.

4/12 - 11:30-1:30, 3-4  
4/13 - 8:30-10, 11:30-4  
4/14 - 8:30- 1  
4/15- NA  
4/16 - 8:30-2

Thank you for your response.

Kevin

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Kevin D. McKnight  
Hydrogeologist - Remediation and Redevelopment Program  
Wisconsin Department of Natural Resources  
Oshkosh Service Center  
625 E CTY Y, Suite 700

Oshkosh WI 54901

Phone: 920-808-0170 (This is the number you should use to contact me from this point forward)

[Kevin.McKnight@wisconsin.gov](mailto:Kevin.McKnight@wisconsin.gov)



[dnr.wi.gov](http://dnr.wi.gov)



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Variable	Value
THQ (target hazard quotient) unitless	1
TR (target risk) unitless	0.00001
LT (lifetime) years	70
K (volatilization factor of Andelman) L/m <sup>3</sup>	0.5
$I_{sc}$ (apparent thickness of stratum corneum) cm	0.001
ED <sub>res</sub> (exposure duration - resident) years	26
ED <sub>res-c</sub> (exposure duration - child) years	6
ED <sub>res-a</sub> (exposure duration - adult) years	20
ED <sub>0-2</sub> (mutagenic exposure duration first phase) years	2
ED <sub>2-6</sub> (mutagenic exposure duration second phase) years	4
ED <sub>6-16</sub> (mutagenic exposure duration third phase) years	10
ED <sub>16-26</sub> (mutagenic exposure duration fourth phase) years	10
EF <sub>res</sub> (exposure frequency) days/year	350
EF <sub>res-c</sub> (exposure frequency - child) days/year	350
EF <sub>res-a</sub> (exposure frequency - adult) days/year	350
EF <sub>0-2</sub> (mutagenic exposure frequency first phase) days/year	350
EF <sub>2-6</sub> (mutagenic exposure frequency second phase) days/year	350
EF <sub>6-16</sub> (mutagenic exposure frequency third phase) days/year	350
EF <sub>16-26</sub> (mutagenic exposure frequency fourth phase) days/year	350
ET <sub>event-res-adj</sub> (age-adjusted exposure time) hours/event	0.67077
ET <sub>event-res-madj</sub> (mutagenic age-adjusted exposure time) hours/event	0.67077
ET <sub>res</sub> (exposure time) hours/day	24
ET <sub>res-c</sub> (dermal exposure time - child) hours/event	0.54
ET <sub>res-a</sub> (dermal exposure time - adult) hours/event	0.71
ET <sub>res-c</sub> (inhalation exposure time - child) hours/day	24
ET <sub>res-a</sub> (inhalation exposure time - adult) hours/day	24
ET <sub>0-2</sub> (mutagenic inhalation exposure time first phase) hours/day	24
ET <sub>2-6</sub> (mutagenic inhalation exposure time second phase) hours/day	24
ET <sub>6-16</sub> (mutagenic inhalation exposure time third phase) hours/day	24
ET <sub>16-26</sub> (mutagenic inhalation exposure time fourth phase) hours/day	24
ET <sub>0-2</sub> (mutagenic dermal exposure time first phase) hours/event	0.54
ET <sub>2-6</sub> (mutagenic dermal exposure time second phase) hours/event	0.54
ET <sub>6-16</sub> (mutagenic dermal exposure time third phase) hours/event	0.71
ET <sub>16-26</sub> (mutagenic dermal exposure time fourth phase) hours/event	0.71
BW <sub>res-a</sub> (body weight - adult) kg	80
BW <sub>res-c</sub> (body weight - child) kg	15
BW <sub>0-2</sub> (mutagenic body weight) kg	15
BW <sub>2-6</sub> (mutagenic body weight) kg	15
BW <sub>6-16</sub> (mutagenic body weight) kg	80
BW <sub>16-26</sub> (mutagenic body weight) kg	80
IFW <sub>res-adj</sub> (adjusted intake factor) L/kg	327.95
IFW <sub>res-adj</sub> (adjusted intake factor) L/kg	327.95
IFWM <sub>res-adj</sub> (mutagenic adjusted intake factor) L/kg	1019.9
IFWM <sub>res-adj</sub> (mutagenic adjusted intake factor) L/kg	1019.9
IRW <sub>res-c</sub> (water intake rate - child) L/day	0.78
IRW <sub>res-a</sub> (water intake rate - adult) L/day	2.5
IRW <sub>0-2</sub> (mutagenic water intake rate) L/day	0.78
IRW <sub>2-6</sub> (mutagenic water intake rate) L/day	0.78
IRW <sub>6-16</sub> (mutagenic water intake rate) L/day	2.5
IRW <sub>16-26</sub> (mutagenic water intake rate) L/day	2.5
EV <sub>res-a</sub> (events - adult) per day	1
EV <sub>res-c</sub> (events - child) per day	1
EV <sub>0-2</sub> (mutagenic events) per day	1
EV <sub>2-6</sub> (mutagenic events) per day	1
EV <sub>6-16</sub> (mutagenic events) per day	1
EV <sub>16-26</sub> (mutagenic events) per day	1
DFW <sub>res-adj</sub> (age-adjusted dermal factor) cm <sup>2</sup> -event/kg	2610650
DFWM <sub>res-adj</sub> (mutagenic age-adjusted dermal factor) cm <sup>2</sup> -event/kg	8191633
SA <sub>res-c</sub> (skin surface area - child) cm <sup>2</sup>	6365
SA <sub>res-a</sub> (skin surface area - adult) cm <sup>2</sup>	19652
SA <sub>0-2</sub> (mutagenic skin surface area) cm <sup>2</sup>	6365
SA <sub>2-6</sub> (mutagenic skin surface area) cm <sup>2</sup>	6365
SA <sub>6-16</sub> (mutagenic skin surface area) cm <sup>2</sup>	19652
SA <sub>16-26</sub> (mutagenic skin surface area) cm <sup>2</sup>	19652
DAF (dilution attenuation factor) unitless	1
DAF (dilution attenuation factor) unitless	1
Theta <sub>w</sub> (water-filled soil porosity) L <sub>water</sub> /L <sub>soil</sub>	0.3
Theta <sub>a</sub> (air-filled soil porosity) L <sub>air</sub> /L <sub>soil</sub> }	0.134
n (soil porosity) L <sub>pore</sub> /L <sub>soil</sub>	0.434
p <sub>b</sub> (dry soil bulk density) kg/L	1.5
I (infiltration rate) m/yr	0.18
ED <sub>res</sub> (exposure duration) yr	70
t <sub>res</sub> (time - resident) yr	26
foc (fraction organic carbon in soil) g/g	0.002
p <sub>s</sub> (soil particle density) kg/L	2.65
T <sub>w</sub> (groundwater temperature) Celsius	25

Default  
**Risk-Based Regional Screening Levels (RSL) for Soil to Groundwater**

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; \* = where: nc SL < 100X ca SL; \*\* = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF <sub>6</sub> (mg/kg-day)	SF <sub>6</sub> Ref	IUR (ug/m <sup>3</sup> -y)	IUR Ref	RID (mg/kg-day)	RID Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	GIABS	ABS	S (mg/L)	K <sub>oc</sub> (cm <sup>2</sup> /g)	K <sub>ow</sub> (cm <sup>3</sup> /g)	Dilution Attenuation Factor (DAF) (unitless)	HLC (min-m <sup>2</sup> /mole)	Henry's Law Constant (unitless)	H and HLC Ref	Normal Boiling Point (K)	BP Ref	Critical Temperature (K)	TC Ref	Noncarcinogenic SL Adult TH1=1 (ug/L)	Noncarcinogenic SL Child TH1=1 (ug/L)	Carcinogenic SL TR=1E-05 (ug/L)	Water Concentration (Adult) (mg/L)	Water Concentration (Child) (mg/L)	Water Concentration (Cancer) (mg/L)	Maximum Contaminant Level (MCL) (ug/L)	Water Concentration (MCL) (mg/L)	MCL-based SL (mg/kg)	Noncarcinogenic Adult SL TH1=1 (mg/kg)	Noncarcinogenic Child SL TH1=1 (mg/kg)	Carcinogenic SL (mg/kg)	Risk-Based SL (mg/kg)			
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	No	No	Organics	-	-	-	-	2.00E-05	D	-	-	1.00E+00	#####	#####	7.43E-01	3.72E+02	1.00E+00	-	-	ATSDR Draft Profile	5.32E+02	PHYSPROP	-	-	6.67E-01	4.01E-01	-	6.67E-04	4.01E-04	-	-	-	-	-	-	6.29E-04	3.78E-04	-	3.78E-04 nc	
Perfluorooctanoic acid (PFOA)	335-67-1	No	No	Organics	7.00E-02	D	-	-	2.00E-05	D	-	-	1.00E+00	#####	#####	2.30E-01	1.15E+02	1.00E+00	4.00E-06	1.64E-04	ATSDR Draft Profile	4.66E+02	PHYSPROP	-	-	6.67E-01	4.01E-01	1.11E+01	6.67E-04	4.01E-04	1.11E-02	-	-	-	-	-	-	2.87E-04	1.72E-04	4.78E-03	1.72E-04 nc