

**Table 33: Heavy-Duty Helicopter Emissions**

Helicopter Model	Sikorsky Black Hawk		
Engine Type	T700-GE-700		
Fuel S Content by Weight	0.3 %		
Fuel Burn Rate	164 gal/hr		
Jet Fuel density	7 lbs/gal		
Fuel Type	Jet Fuel A		
High Heat Value	0.135	MMBtu/gal	(ARB 2012)
CO2 emission factor	72.22	kg CO2/MMBtu	(ARB 2012)

	Fuel (kg)	NOx (g)	HC	CO	PM	Fugitive PM
LTO	73	575.3	571	724.9	16.9	1500
Run	507.6	5430	1110	1320	1800	

Activity	Emission Rate						
	HC	CO	NOx	SOx	PM	PM2.5	CO2
Flight (lbs/hr)	2.442	2.904	11.946	0.093	3.960	3.643	3522.486
LTO (lbs)	1.256	1.595	1.266	0.045	3.337	0.727	230.265

Activity	Working Hrs	Emissions lbs/day						
		HC	CO	NOx	SOx	PM	PM2.5	CO2
Flight	3	7.326	8.712	35.838	0.279	11.880	7.286	10567.459
LTO	2	1.256	1.595	1.266	0.045	3.337	0.727	230.265
TOTAL		8.582	10.307	37.104	0.324	15.217	8.014	10797.724

Construction Phase	Working Days	Emissions tons						MT
		HC	CO	NOx	SOx	PM	PM2.5	CO2
P-06	21	0.090	0.108	0.390	0.003	0.160	0.084	113.376

**NOTES:**

California Air Resources Board (ARB). 2012. Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. Petroleum Fuels. Section 95115(c)(1)  
 Ref: Swiss Confederation, DETEC and FOCA "Guidance on the Determination of Helicopter Emissions", 2015  
 Engine T700-GI-700

Fugitive dust estimates from Emission Factor Source: `

Fugitive dust estimates from Emission Factor Source: Dr. J. A. Gillies et. al. December 31, 2007. Particulate Matter Emissions for Dust from Unique Military Activities.

**Table 34: Light-Duty Helicopter Emissions**

Helicopter Model	Hughes 500		
Engine Type	DDA250-C18		
Fuel S Content by Weight	0.3 %		
Fuel Burn Rate	32 gal/hr		
Jet Fuel density	7 lbs/gal		
Fuel Type	Jet Fuel A		
High Heat Value	0.135	MMBtu/gal	(ARB 2012)
CO2 emission factor	72.22	kg CO2/MMBtu	(ARB 2012)

	Fuel (kg)	NOx (g)	HC	CO	PM	Fugitive PM
LTO	16.4	59.5	438.2	571.2	2.3	1500
Run	98.8	480	960	1200	16	

Activity	Emission Rate						
	HC	CO	NOx	SOx	PM10	PM2.5	CO2
Flight (lbs/hr)	2.112	2.640	1.056	0.018	0.035	0.032	685.622
LTO (lbs)	0.964	1.257	0.131	0.010	3.305	0.698	51.731

Activity	Working Hrs	Emissions lbs/day						
		HC	CO	NOx	SOx	PM10	PM2.5	CO2
Flight	8	16.896	21.120	8.448	0.145	0.282	0.065	5484.975
LTO	2	0.964	1.257	0.131	0.010	3.305	0.698	51.731
TOTAL		17.860	22.377	8.579	0.155	3.587	0.762	5536.706

Construction Phase	Working Days	Emissions tons						MT
		HC	CO	NOx	SOx	PM10	PM2.5	CO2
P-07	20	0.179	0.224	0.086	0.002	0.036	0.008	55.367
L-11	26	0.232	0.291	0.112	0.002	0.047	0.010	71.977

**NOTES:**

California Air Resources Board (ARB). 2012. Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. Petroleum Fuels. Section 95115(c)(1)  
 Ref: Swiss Confederation, DETEC and FOCA "Guidance on the Determination of Helicopter Emissions", 2015  
 Engine DDA250-C18

Fugitive dust estimates from Emission Factor Source: Dr. J. A. Gillies et. al. December 31, 2007. Particulate Matter Emissions for Dust from Unique Military Activities.  
 ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.