

SDG&E Tie Line 695 Helicopter Emissions

Helicopter Model	Engine	Assumed Engine	Operating Mode	Fuel Flow, kg/s	Time in Mode, min	Emission Incides, g/kg fuel				Emission, lbs/mode			Cruise Mode Emission Factor, lbs/hour				
						CO	VOC	NOx	PM	CO	VOC	NOx	CO	VOC	NOx		
Hughes 500E	Allison 250-C20B/R	250B17B	Taxi Out	0.008154	19	2.199837	23.004097	2.199837	N/A	0.045081939	0.47143007	0.04508194					
			Takeoff	0.031642	10.4	6.599994	0.402675	6.599994	N/A	0.287295342	0.0175283	0.28729534					
			Climbout	0.028926	0.09	5.981142	0.408337	5.981142	N/A	0.002059694	0.00014062	0.00205969	1.373129585	0.09374458	1.37312959		
			Approach	0.010516	10.05	2.200637	5.988767	2.200637	N/A	0.03076471	0.08372243	0.03076471					
			Taxi In	0.008154	7	2.199837	23.004097	2.199837	N/A	0.016609136	0.17368476	0.01660914					
			Total per LTO									0.381810822	0.74650617	0.38181082			
SkyKing	Allison 250-C20B/R	250B17B	Taxi Out	0.018353	19	175.63	99.78	1.201	N/A	8.10115881	4.60248036	0.05539766					
			Takeoff	0.112337	1.5	8.787	2.123	7.088	N/A	0.195858528	0.04732078	0.15798853					
			Climbout	0.079	1.5	14	1.32	5.58	N/A	0.219449282	0.02069093	0.08746621	8.777971296	0.82763729	3.49864856		
			Approach	0.018	9.719	178.175	101.213	1.207995	N/A	4.123145244	2.34216865	0.0279542					
			Taxi In	0.018353	7	2.199837	23.007097	2.199837	N/A	0.037383795	0.39092917	0.0373838					
			Total per LTO									12.67699566	7.40358989	0.3661904			

Notes: Fuel flow rates and emission factors are from the Federal Aviation Administration's Emission and Dispersion Modeling System (EDMS)  
Time in mode is based on default times in EDMS.

Criteria Pollutants - tons/year

Component	Number of LTOs or hours cruising	Emissions (lb/day)			Emissions (tons/year)		
		CO	VOC	NOx	CO	VOC	NOx
LTO - light helicopter (Hughes 500)	16	6.108973152	11.94409877	6.108973152	1.1148876	2.179798	1.1148876
LTO - heavy helicopter (SkyKing)	16	202.8319306	118.4574382	5.859046448	37.0168273	21.618482	1.06927598
Installation/Demolition - light helicopter cruising time	12	16.47755502	1.1249349	16.47755502	3.00715379	0.2053006	3.00715379
Installation/Demolition - heavy helicopter cruising time	12	105.3356556	9.931647528	41.98378271	19.2237571	1.8125257	7.66204034
Total Light Helicopter		22.58652817	13.06903367	22.58652817	4.12204139	2.3850986	4.12204139
Total Heavy Helicopter		308.1675861	128.3890858	47.84282916	56.2405845	23.431008	8.73131632
Total Estimated Helicopter Emissions <sup>2</sup>		165.3770571	70.72905971	35.21467866	30.1813129	12.908053	6.42667886

Notes: <sup>1</sup> Assume there would be 16 LTOs (rounding down) and 12 hours of cruising time for helicopters for the duration of the project.

<sup>2</sup> Assume that light-duty helicopters will be used 50% of the time during construction activities, and heavy-duty helicopters will be used the remaining 50%.