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LAMPIRAN

Lampiran 1 Dokumentasi Penelitian

1. Jalur Akses TPA Iwaka

2. Area Landfill TPA Iwaka

3. Pengukuran lapangan bersama Staf Teknis Analisis DLH Kab. Mimika (Henry Werimon, S.Si)

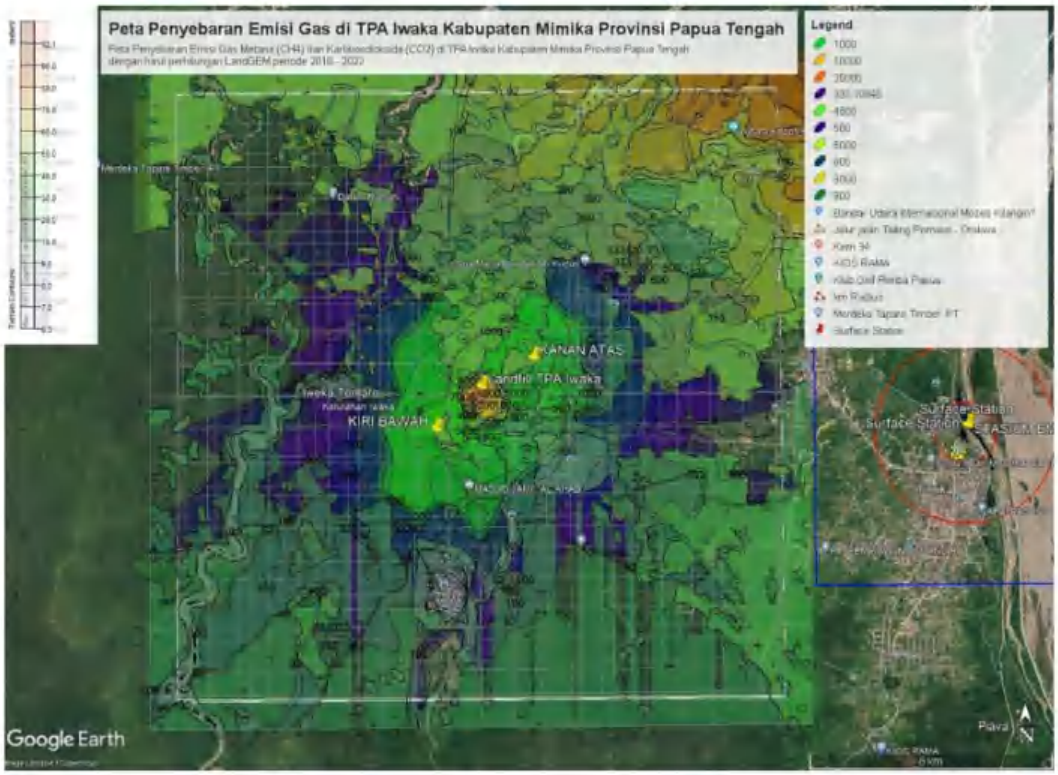
4. Pengukuran menggunakan Alat Portabel “DIGILIFE” dan “Air Quality Detector”NOTE

5. Pengumpulan interview pengawas TPA Iwaka (Pak Melki Delaplata)

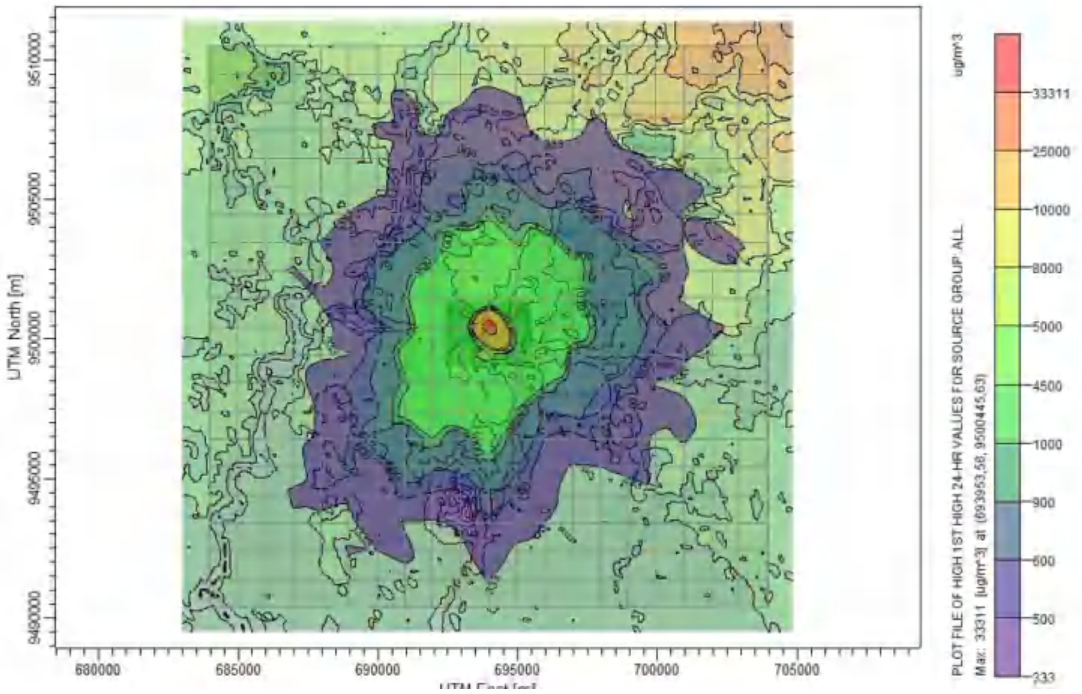
6. Data Pemodelan AERMOD Penyebaran Emisi Gas Metana (CH4) dan Karbondioksida (CO2)

UTM East [m]

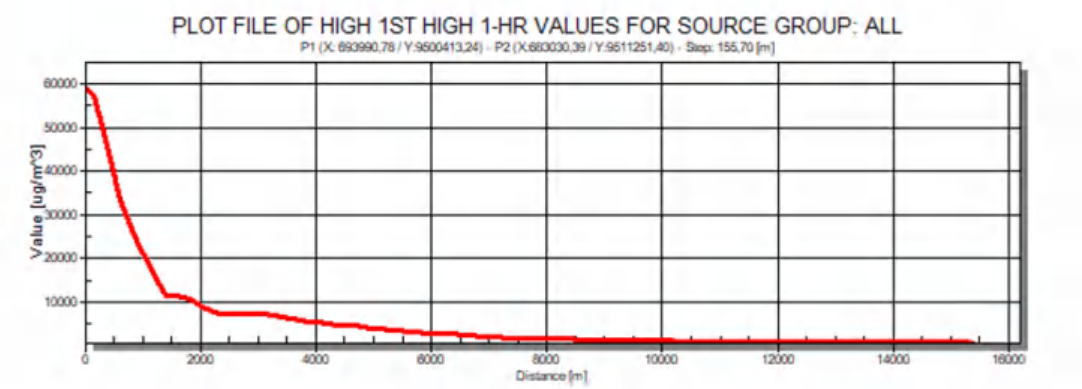
Gambar 4. 14 Peta Penyebaran Emis Gas Metana CH_4 dan Karbondioksia CO_2 di TPA Iwaka Kabupaten Mimika Provinsi Papua Tengah (Sumber : Data Export AERMOD – Google Earth 2010 – 2022)



Gambar 4. 13 Peta Pemodelan AERMOD Penyebaran Emisi Gas Metana (CH_4) dan Karbondioksida (CO_2) di TPA Iwaka Kabupaten Mimika Provinsi Papua Tengah (Sumber : Pengolahan Data LandGEM - AERMOD 2010 – 2022)

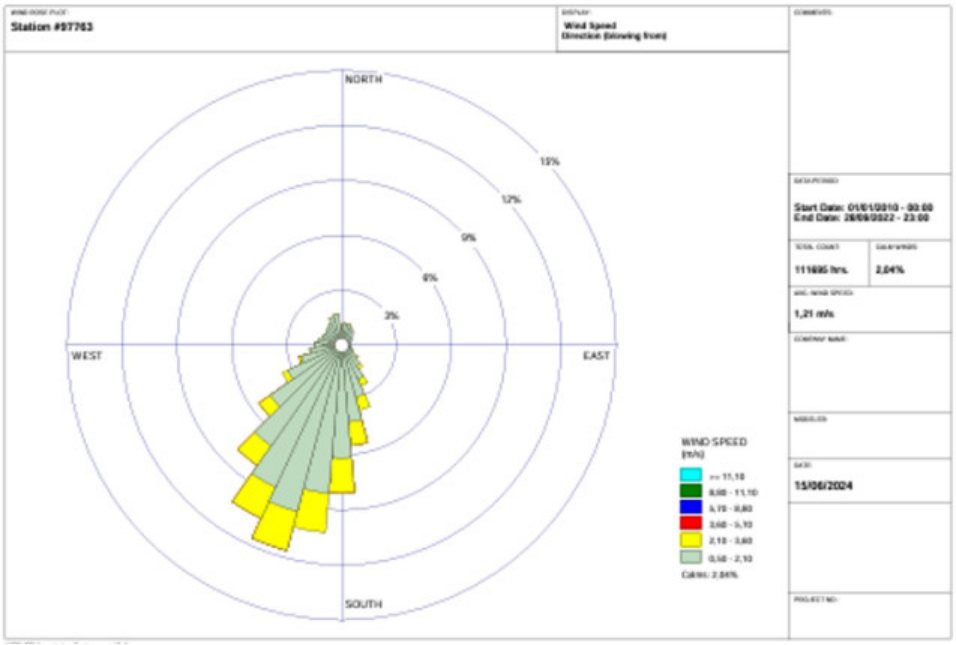


7. Grafik AERMET



8. WRPLOT arah dan kecepatan Angin

Gambar 4. 10 AERMET Win Rose Plot Stasiun BMKG Moses Kilangin Timika Papua Tengah (Sumber : Pengolahan data WRPLOT AERMET)



9. Data Volume Sampah dari Sistem Informasi Pengolahan Sampah Nasional (SIPSN) Kabupaten Mimika Provinsi Papua Tengah

No.	KETERANGAN	NILAI (Ton/tahun)
I	JUMLAH TIMBULAN SAMPAH	57125.42
	(Jumlah Penduduk x Faktor Estimasi Timbulan Perkapita)	
II	JUMLAH PENGURANGAN SAMPAH	27.45
	Persentase pengurangan sampah	0.05
a	Jumlah Pembatasan Timbulan Sampah	0
b	Jumlah Pemanfaatan Kembali Sampah	0
c	Jumlah Pendauran Ulang Sampah	27.45
III	JUMLAH PENANGANAN SAMPAH	33364.65
	Persentase penanganan sampah	58.41
d	Pemilahan/Pengumpulan	
e	Pengangkutan*)	
	Sampah diangkut ke tempat pengolahan sampah (residu pemilahan)	
	Sampah diangkut ke tempat pemrosesan akhir (residu pengolahan)	
f	Pengolahan	0
	Jumlah Sampah terolah menjadi bahan baku (pakan ternak, kompos, daur ulang dan upcycle)	0
	Jumlah Sampah termanfaatkan menjadi sumber energi	0
g	Pemrosesan akhir	33364.65
	Jumlah Sampah yang terproses di tempat pemrosesan akhir	33364.65
IV	SAMPAH YANG DIKELOLA (II + III)	33392.1
	Persentase sampah terkelola	58.45
V	SAMPAH TIDAK DIKELOLA (I - IV)	23733.32
	Persentase sampah tidak terkelola	41.55

10. Data Volume sampah Software LandGEM (Landfiil Gas Emision Model)

Tabel 4. 8 Enter Waste Acceptane rates (Sumber: data landGEM EPA USA)

Input Units: Mg/year

Year	Input Units (Mg/year)	Calculated Units (short tons/year)
2010	34,568	38,025
2011	34,482	37,931
2012	34,482	37,931
2013	35,843	39,428
2014	35,843	39,428
2015	36,374	40,012
2016	36,806	40,487
2017	37,520	41,272
2018	37,520	41,272
2019	37,520	41,272
2020	40,093	44,103
2021	56,934	62,628
2022	57,724	63,496
2023	57,724	63,496

11. Data curh hujan

Bulan *Month*	Jumlah Curah Hujan *Number of Precipitation* (mm)	Jumlah Hari Hujan (hari) *Number of Rainy Days (day)*	Penyinaran Matahari *Duration of Sunshine* (%)
(1)	(14)	(15)	(16)
Januari/*January*	445.8	19	54
Februari/*February*	519.6	18	49
Maret/*March*	437.7	25	60
April/*April*	344.3	21	69
Mei/*May*	346.1	19	61
Juni/*June*	316.5	16	49
Juli/*July*	761.8	25	27
Agustus/*August*	887.8	26	43
September/*September*	539.5	20	51
Oktober/*October*	194.8	19	63
November/*November*	488.6	21	65
Desember/*December*	411.8	22	49

Catatan/*Note*: calm adalah kecepatan angin mendekati nol / *Calm is wind velocity close to zero*
Sumber/*Source*: Badan Meteorologi, Klimatologi dan Geofisika, Stasiun Meteorologi / *Meteorological, Climatological and Geophysical, Meteorological Station*

12. Data temperatur / suhu

Bulan *Month*	Suhu/*Temperature* (°C)			Kelembaban/*Humidity* (%)		
	Minimum	Rata-rata *Average*	Maksimum *Maximum*	Minimum	Rata-rata *Average*	Maksimum *Maximum*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Januari/*January*	23.7	26.9	32.4	61	84	95
Februari/*February*	23.4	26.6	32.1	62	84	96
Maret/*March*	23.7	26.9	32.6	62	84	95
April/*April*	23.7	27.0	32.5	61	84	95
Mei/*May*	23.7	26.7	31.5	67	87	97
Juni/*June*	23.1	26.2	31.0	68	88	98
Juli/*July*	23.3	25.2	29.1	77	93	99
Agustus/*August*	23.2	25.6	30.1	71	88	99
September/*September*	23.1	26.2	31.5	67	88	98
Oktober/*October*	23.7	27.0	32.5	64	86	98
November/*November*	23.6	26.8	32.9	63	87	98
Desember/*December*	23.7	26.7	32.5	95	87	98

13. Data pengukuran Software LandGEM

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**2010**	
Landfill Closure Year (with 80-year limit)	**2033**	
Actual Closure Year (without limit)	***2033***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity		*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.040**	$year^{-1}$
Potential Methane Generation Capacity, L_0	**100**	m^3/Mg
NMOC Concentration	**600**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**Methane**
Gas / Pollutant #3:	**Carbon dioxide**
Gas / Pollutant #4:	**NMOC**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2010	34,568	38,025	0	0
2011	34,482	37,931	34,568	38,025
2012	34,482	37,931	69,050	75,955
2013	35,843	39,428	103,532	113,886
2014	35,843	39,428	139,376	153,313
2015	36,374	40,012	175,219	192,741
2016	36,806	40,487	211,593	232,752
2017	37,520	41,272	248,399	273,239
2018	37,520	41,272	285,919	314,511
2019	37,520	41,272	323,440	355,784
2020	40,093	44,103	360,960	397,056
2021	56,934	62,628	401,053	441,159
2022	57,724	63,496	457,988	503,787
2023	57,724	63,496	515,712	567,283
2024	57,724	63,496	573,435	630,779
2025	57,724	63,496	631,159	694,275
2026	57,724	63,496	688,883	757,771
2027	57,724	63,496	746,607	821,268
2028	57,724	63,496	804,331	884,764
	57,724	63,496	862,055	948,260
	57,724	63,496	919,778	1,011,756
	57,724	63,496	977,502	1,075,253
	57,724	63,496	1,035,226	1,138,749
	0	0	1,092,950	1,202,245
	0	0	1,092,950	1,202,245

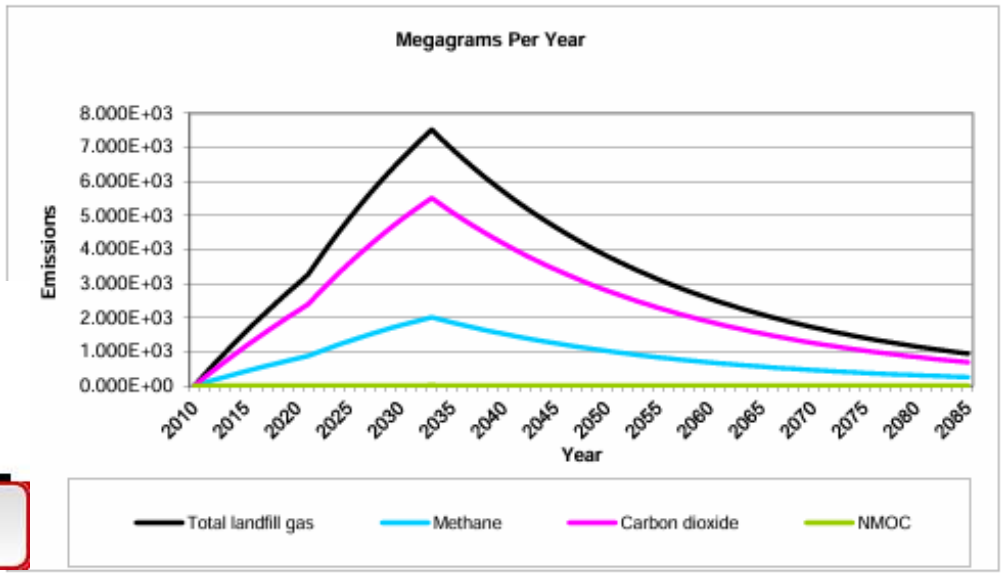
Pollutant Parameters

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	:hlorofluoromethane -)C	2.6	102.92		
	:hloromethane ethylene chloride) - .P	14	84.94		
	nethyl sulfide (methyl fide) - VOC	7.8	62.13		
	hane	890	30.07		
	hanol - VOC	27	46.08		

Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

14. Grafik Emisi Megagrams Per Tahun (Sumber : data LandGEM EPA-USA)



15. Tabel laporan capaian kinerja Pengelolaan sampah Kabupaten Mimika

KABUPATEN/KOTA: KABUPATEN MIMIKA

II. Tabel Laporan Capaian Pengurangan dan Penanganan Sampah Tahun 2023 - KABUPATEN MIMIKA

NO	INDIKATOR	TARGET		CAPAIAN	
		TON/TAHUN	(%)	TON/TAHUN	%
1	Timbulan Sampah	42,988.04	-	57,838.81	-
2	Pengurangan	11,606.77	27.00	6,432.90	11.12
3	Penanganan	31,381.27	73.00	-	

16. Data Operasional pengelolaan Sampah pada Dinas Lingkungan Hidup Kabupaten Mimika Provinsi Papua Tengah