

## BAB V

## PENUTUP

## V.1. KESIMPULAN

Dari hasil penulisan ini dapat disimpulkan perbandingan efisiensi program komputer excel dan perhitungan secara manual pada table berikut:

No.	Parameter / faktor		Perhitungan dengan Program Komputer		Perhitungan Secara Manual
1.	Kecepatan perhitungan	+	Hanya membutuhkan waktu tidak lebih dari 40 menit	-	Membutuhkan waktu lebih dari 60 menit
2.	Melakukan koreksi	+	Sangat mudah dan cepat	-	Cukup lama karena melakukan perhitungan yang berantai
3.	Ketelitian perhitungan	+	Sangat teliti dan cepat sesuai dengan kebutuhan	-	Harus lebih teliti dalam melakukan perhitungan terutama dalam pembulatan angka desimal
4.	Keamanan dokumen	+	Dokumen tersimpan dengan aman di dalam <i>media elektronik computer</i> (sejenisnya) atau <i>Flas Disc</i>	-	Ada kemungkinan dokumen akan hilang, kotor atau rusak
5.	Kerapihan dokumen	+	Dokumen akan terlihat rapih dan bersih setelah di <i>print</i>	-	Dokumen sedikit terlihat kurang rapih atau bersih jika ada koreksi, revisi, coretan
6.	Pengiriman data	+	Dokumen langsung dapat dikirim lewat email/internet	-	Membutuhkan proses untuk dapat dikirim lewat email/internet
7.	Perhitungan yang berulang	+	Sangat mudah dilakukan dan cepat	-	Melakukan perhitungan kembali, karena perhitungan saling berhubungan

- Harus mempersiapkan *battery media electronic computer* (sejenisnya) dalam keadaan *full power*, jika dimungkinkan menambah / membawa *battery* cadangan yang *full power* juga ke atas kapal.
- Harus menyiapkan form-form manual dan kalkulator jika kemungkinan terjadi program komputer mengalami masalah.



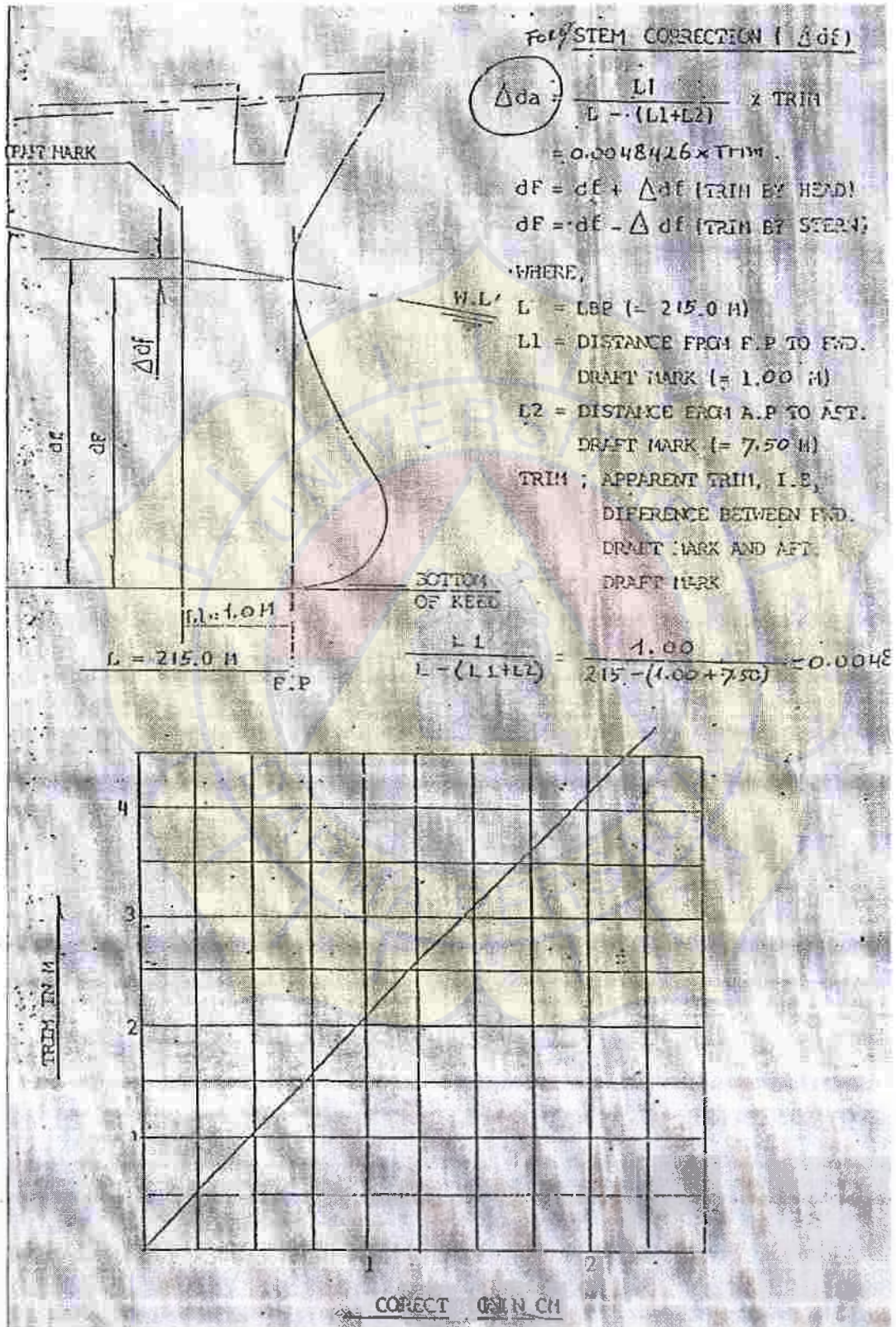
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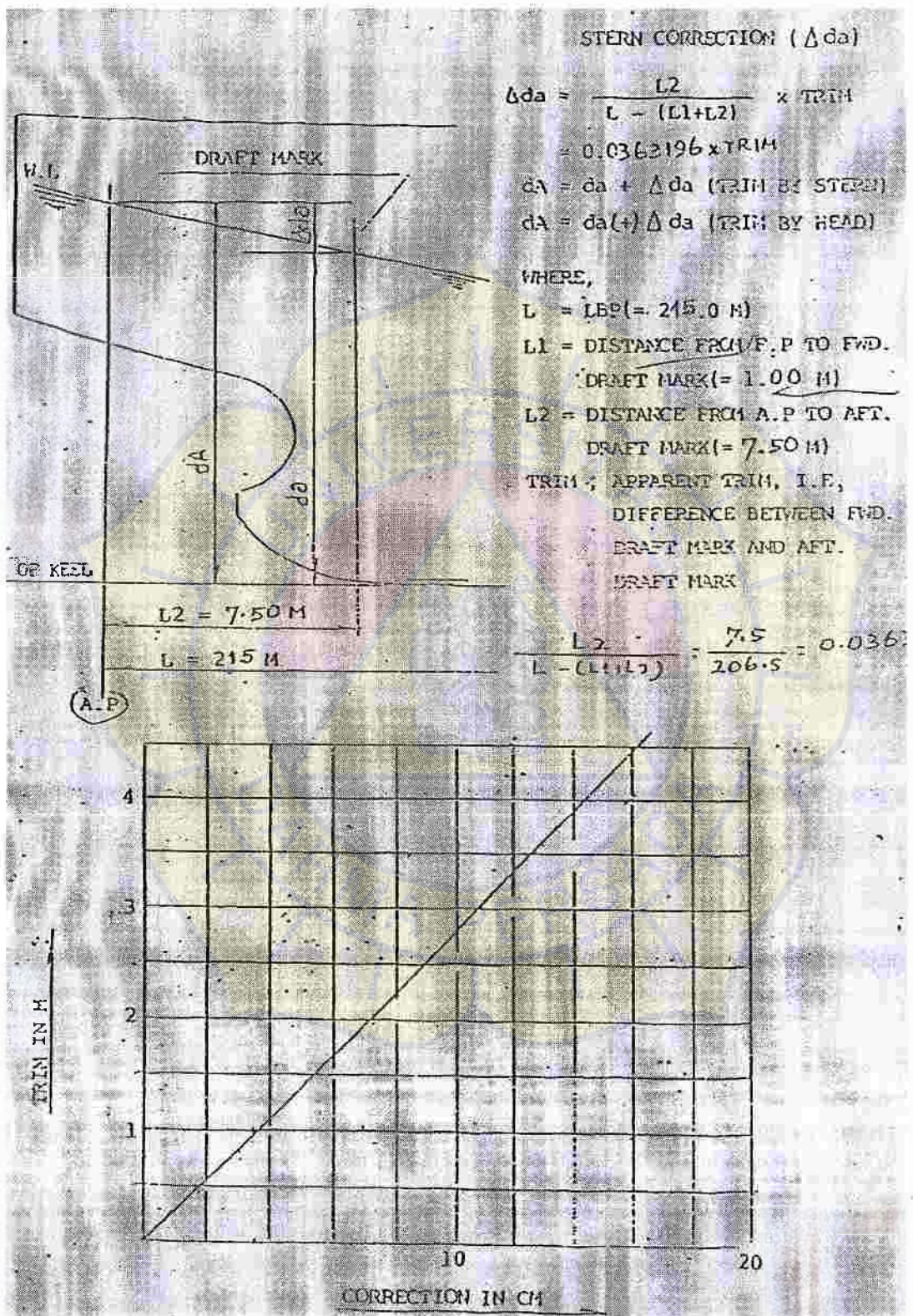
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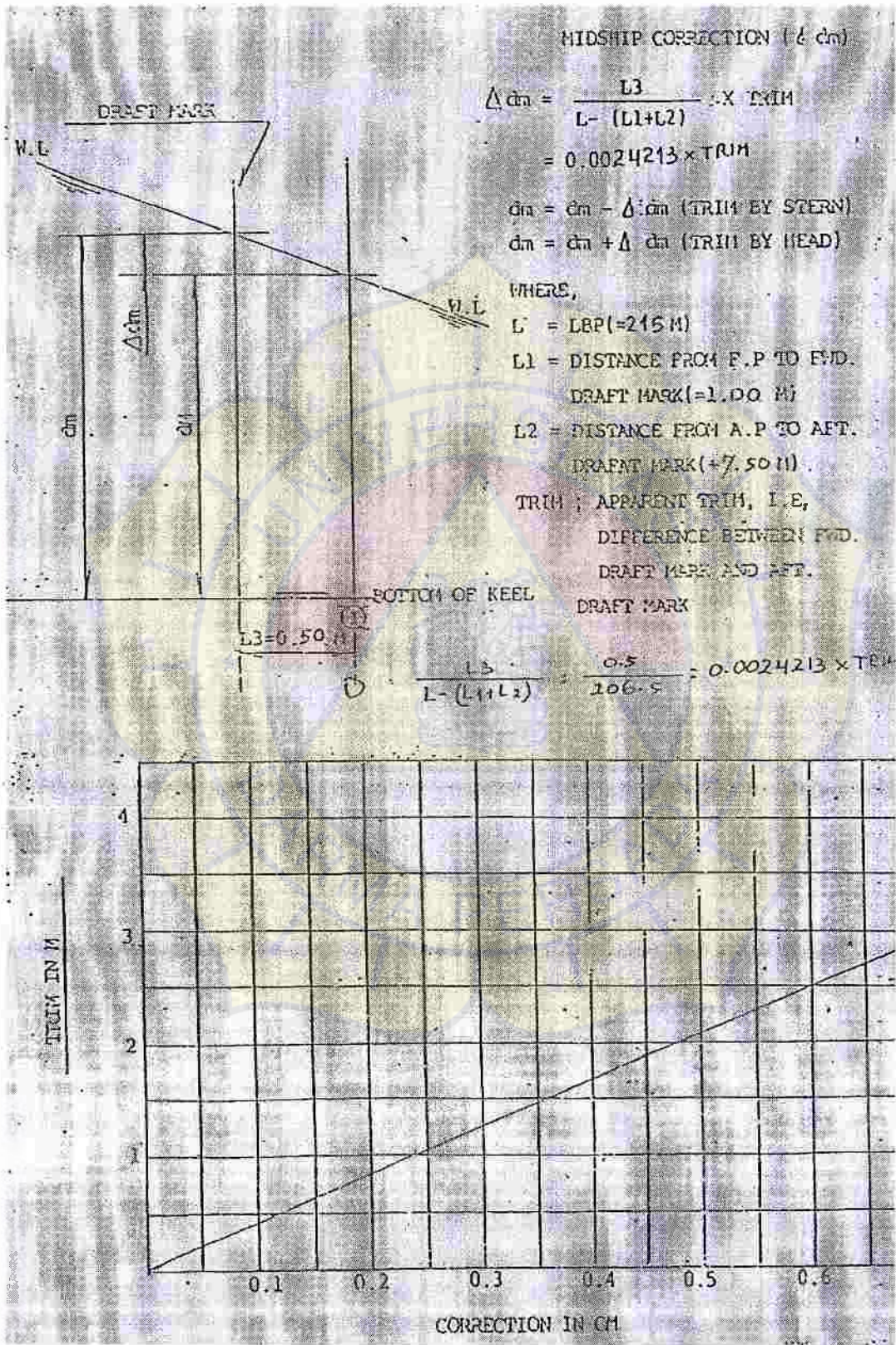
Lampiran 1. Tabel Hidrostatik untuk Koreksi Sarat Air Depan



Lampiran 2. Tabel Hidrostatik untuk Koreksi Sarat Air Belakang



Lampiran 3. *Midship Correction*



Lampiran 4. *Principal Dimensions*

**(15) HYDROSTATIC TABLE**

Principal Dimensions

Length between perpendiculars .....	215.00 m
Breadth, molded .....	32.20 m
Depth, molded .....	18.60 m
Designed draft, molded .....	12.40 m
Scantling draft, molded .....	13.43 m

Abbreviations:

DIS.(A) : Displacement (with appendages) in sea water (1.025 specific gravity)

DIS.(N) : Displacement (naked hull) in sea water (1.025 specific gravity)

T.K.M. : Transverse metacenter above base line = titik kesetabilan

L.K.M. : Longitudinal metacenter above base line " "

M.B. : Center of buoyancy from midship

M.F. : Center of floatation from midship

T.P.C. : Tons per centimeter immersion

M.T.C. : Moment to change trim one centimeter

(+) ..... Aft of midship

(-) ..... Forward of midship

NOTE: Draft of this table is measured from the bottom of keel.  
The thickness of keel plate is 20.5 mm.



Lampiran 5. Tabel Hidrostatik untuk Displasemen, TPC dan LCF (Awal)

DRAFT (M)	DIS. (A) (MT)	DIS. (H) (M <sup>3</sup> )	TKM (M)	LKM (M)	M. D (M)	M. F (M)	TPC (T)	HTC (T-M)
5.50	31,663	31,509	17.67	553.20	-6.91	-6.83	60.22	806.58
5.51	31,724	31,569	17.64	552.25	-6.91	-6.83	60.23	806.74
5.52	31,784	31,629	17.62	551.31	-6.91	-6.83	60.23	806.90
5.53	31,844	31,689	17.60	550.39	-6.91	-6.83	60.23	807.05
5.54	31,905	31,749	17.58	549.47	-6.91	-6.83	60.24	807.20
5.55	31,965	31,810	17.56	548.55	-6.91	-6.83	60.24	807.35
5.56	32,025	31,870	17.54	547.63	-6.91	-6.83	60.25	807.50
5.57	32,086	31,930	17.52	546.72	-6.91	-6.82	60.25	807.65
5.58	32,146	31,990	17.50	545.81	-6.91	-6.82	60.26	807.80
5.59	32,206	32,051	17.48	544.91	-6.91	-6.82	60.26	807.95
5.60	32,267	32,111	17.46	544.00	-6.91	-6.82	60.27	808.10
5.61	32,327	32,171	17.44	543.10	-6.91	-6.82	60.27	808.25
5.62	32,387	32,232	17.42	542.20	-6.91	-6.82	60.28	808.40
5.63	32,448	32,292	17.40	541.31	-6.91	-6.82	60.28	808.55
5.64	32,508	32,352	17.38	540.41	-6.91	-6.81	60.28	808.70
5.65	32,569	32,412	17.36	539.53	-6.91	-6.81	60.29	808.85
5.66	32,629	32,473	17.34	538.64	-6.91	-6.81	60.29	809.01
5.67	32,689	32,533	17.32	537.75	-6.91	-6.81	60.30	809.16
5.68	32,750	32,593	17.30	536.87	-6.91	-6.81	60.30	809.31
5.69	32,810	32,654	17.28	536.00	-6.91	-6.81	60.31	809.46
5.70	32,871	32,714	17.26	535.12	-6.91	-6.81	60.31	809.62
5.71	32,931	32,774	17.24	534.25	-6.91	-6.80	60.32	809.77
5.72	32,991	32,835	17.22	533.38	-6.91	-6.80	60.32	809.93
5.73	33,052	32,895	17.20	532.51	-6.91	-6.80	60.33	810.08
5.74	33,112	32,955	17.18	531.65	-6.91	-6.80	60.33	810.23
5.75	33,173	33,016	17.16	530.79	-6.91	-6.80	60.33	810.39
5.76	33,233	33,076	17.14	529.93	-6.91	-6.79	60.34	810.54
5.77	33,294	33,136	17.12	529.07	-6.91	-6.79	60.34	810.70
5.78	33,354	33,197	17.11	528.22	-6.91	-6.79	60.35	810.85
5.79	33,415	33,257	17.09	527.37	-6.91	-6.79	60.35	811.01
5.80	33,475	33,317	17.07	526.52	-6.91	-6.79	60.36	811.16
5.81	33,535	33,378	17.05	525.68	-6.91	-6.79	60.36	811.32
5.82	33,596	33,438	17.03	524.84	-6.91	-6.78	60.37	811.48
5.83	33,656	33,499	17.01	524.00	-6.91	-6.78	60.37	811.63
5.84	33,717	33,559	17.00	523.16	-6.90	-6.78	60.38	811.79
5.85	33,777	33,619	16.98	522.30	-6.90	-6.78	60.38	811.95
5.86	33,838	33,680	16.96	521.50	-6.90	-6.77	60.38	812.11
5.87	33,898	33,740	16.94	520.68	-6.90	-6.77	60.39	812.26
5.88	33,959	33,800	16.92	519.85	-6.90	-6.77	60.39	812.42
5.89	34,019	33,861	16.91	519.03	-6.90	-6.77	60.40	812.58
5.90	34,080	33,921	16.89	518.21	-6.90	-6.77	60.40	812.74
5.91	34,140	33,982	16.87	517.40	-6.90	-6.76	60.41	812.90
5.92	34,201	34,042	16.85	516.59	-6.90	-6.76	60.41	813.06
5.93	34,261	34,103	16.83	515.77	-6.90	-6.76	60.42	813.21
5.94	34,322	34,163	16.82	514.97	-6.90	-6.76	60.42	813.37
5.95	34,382	34,223	16.80	514.16	-6.90	-6.75	60.43	813.53
5.96	34,443	34,284	16.78	513.36	-6.90	-6.75	60.43	813.69
5.97	34,503	34,344	16.76	512.56	-6.90	-6.75	60.44	813.85
5.98	34,564	34,405	16.75	511.77	-6.90	-6.75	60.44	814.01
5.99	34,624	34,465	16.73	510.97	-6.90	-6.74	60.44	814.17

Lampiran 6. Tabel Hidrostatik untuk MTC (Awal)

DRAFT (M)	DIS. (A) (MT)	DIS. (M) (T)	TKM (M)	LKM (M)	H B (M)	H F (M)	TPC (T)	MTC (T-M)
6.00	34,685	34,526	16.71	510.18	-6.90	-6.74	60.45	814.34
6.01	34,746	34,586	16.69	509.40	-6.90	-6.74	60.45	814.50
6.02	34,806	34,646	16.68	508.61	-6.90	-6.74	60.46	814.66
6.03	34,867	34,707	16.66	507.85	-6.90	-6.73	60.46	814.82
6.04	34,927	34,767	16.64	507.08	-6.90	-6.73	60.47	814.98
6.05	34,988	34,828	16.63	506.32	-6.90	-6.73	60.47	815.14
6.06	35,049	34,889	16.61	505.56	-6.90	-6.72	60.48	815.30
6.07	35,109	34,949	16.59	504.80	-6.90	-6.72	60.48	815.47
6.08	35,170	35,009	16.58	504.05	-6.90	-6.72	60.49	815.63
6.09	35,230	35,070	16.56	503.29	-6.90	-6.72	60.49	815.79
6.10	35,291	35,130	16.55	502.54	-6.90	-6.71	60.50	815.95
6.11	35,352	35,191	16.53	501.79	-6.90	-6.71	60.50	816.12
6.12	35,412	35,251	16.51	501.03	-6.90	-6.71	60.50	816.28
6.13	35,473	35,312	16.50	500.30	-6.90	-6.70	60.51	816.44
6.14	35,533	35,372	16.48	499.56	-6.90	-6.70	60.51	816.61
6.15	35,594	35,433	16.48	498.82	-6.90	-6.70	60.52	816.77
6.16	35,655	35,493	16.45	498.08	-6.90	-6.69	60.52	816.94
6.17	35,715	35,554	16.43	497.35	-6.90	-6.69	60.53	817.10
6.18	35,776	35,614	16.42	496.62	-6.90	-6.69	60.53	817.27
6.19	35,837	35,675	16.40	495.89	-6.90	-6.68	60.54	817.43
6.20	35,897	35,735	16.39	495.16	-6.89	-6.68	60.54	817.60
6.21	35,958	35,796	16.37	494.43	-6.89	-6.68	60.55	817.76
6.22	36,019	35,856	16.35	493.71	-6.89	-6.67	60.55	817.93
6.23	36,079	35,917	16.34	492.99	-6.89	-6.67	60.55	818.10
6.24	36,140	35,977	16.32	492.27	-6.89	-6.67	60.56	818.26
6.25	36,201	36,038	16.31	491.55	-6.89	-6.66	60.57	818.43
6.26	36,261	36,098	16.29	490.83	-6.89	-6.66	60.57	818.60
6.27	36,322	36,159	16.28	490.12	-6.89	-6.66	60.58	818.77
6.28	36,383	36,220	16.26	489.41	-6.89	-6.65	60.58	818.94
6.29	36,443	36,280	16.25	488.70	-6.89	-6.65	60.58	819.11
6.30	36,504	36,341	16.23	488.00	-6.89	-6.65	60.59	819.27
6.31	36,565	36,401	16.22	487.29	-6.89	-6.64	60.59	819.44
6.32	36,626	36,462	16.20	486.59	-6.89	-6.64	60.60	819.61
6.33	36,686	36,523	16.19	485.89	-6.89	-6.63	60.60	819.78
6.34	36,747	36,583	16.17	485.20	-6.89	-6.63	60.61	819.95
6.35	36,808	36,644	16.16	484.50	-6.89	-6.63	60.61	820.12
6.36	36,868	36,704	16.14	483.81	-6.89	-6.62	60.62	820.30
6.37	36,929	36,765	16.13	483.12	-6.89	-6.62	60.62	820.47
6.38	36,990	36,826	16.11	482.43	-6.89	-6.62	60.63	820.64
6.39	37,051	36,886	16.10	481.74	-6.89	-6.61	60.63	820.81
6.40	37,111	36,947	16.08	481.06	-6.89	-6.61	60.64	820.98
6.41	37,172	37,008	16.07	480.38	-6.89	-6.61	60.64	821.16
6.42	37,233	37,068	16.05	479.70	-6.89	-6.60	60.65	821.33
6.43	37,294	37,129	16.04	479.02	-6.89	-6.60	60.65	821.50
6.44	37,354	37,189	16.03	478.35	-6.89	-6.59	60.66	821.67
6.45	37,415	37,250	16.01	477.68	-6.89	-6.59	60.66	821.85
6.46	37,476	37,311	16.00	477.01	-6.89	-6.59	60.67	822.02
6.47	37,537	37,371	15.99	476.34	-6.89	-6.58	60.67	822.20
6.48	37,598	37,432	15.97	475.67	-6.89	-6.58	60.68	822.37
6.49	37,659	37,493	15.96	475.01	-6.89	-6.57	60.68	822.55
6.50	37,719	37,554	15.94	474.35	-6.89	-6.57	60.69	822.72

Lampiran 7. Tabel Hidrostatik untuk Displasemen, TPC dan LCF (Akhir)

DRAFT (M)	DIS. (A) (MT)	DIS. (B) (MT)	TXH (M)	LKM (M)	M B (M)	M F (M)	TPC (T)	MTC (T-M)
13.00	70,659	78,431	13.30	288.54	-4.93	0.86	65.49	1,028.20
13.01	70,725	78,496	13.30	288.39	-4.93	0.87	65.49	1,028.51
13.02	70,790	78,562	13.30	288.25	-4.92	0.88	65.50	1,028.81
13.03	70,856	78,627	13.30	288.10	-4.92	0.89	65.51	1,029.10
13.04	70,922	78,693	13.30	287.95	-4.91	0.89	65.51	1,029.39
13.05	70,988	78,758	13.30	287.80	-4.91	0.90	65.52	1,029.67
13.06	70,054	78,824	13.30	287.65	-4.90	0.91	65.53	1,029.96
13.07	70,120	78,889	13.30	287.50	-4.90	0.92	65.53	1,030.25
13.08	70,186	78,955	13.30	287.35	-4.89	0.92	65.54	1,030.54
13.09	70,252	79,020	13.30	287.20	-4.89	0.93	65.55	1,030.83
13.10	70,318	79,086	13.30	287.05	-4.88	0.94	65.55	1,031.11
13.11	70,383	79,152	13.31	286.90	-4.88	0.95	65.56	1,031.40
13.12	70,449	79,217	13.31	286.75	-4.87	0.96	65.57	1,031.69
13.13	70,515	79,283	13.31	286.61	-4.87	0.96	65.57	1,031.98
13.14	70,581	79,348	13.31	286.46	-4.86	0.97	65.58	1,032.26
13.15	70,647	79,414	13.31	286.31	-4.86	0.98	65.59	1,032.55
13.16	70,713	79,479	13.31	286.16	-4.85	0.98	65.59	1,032.84
13.17	70,778	79,545	13.31	286.02	-4.85	0.99	65.60	1,033.12
13.18	70,844	79,611	13.31	285.87	-4.84	1.00	65.61	1,033.41
13.19	70,910	79,676	13.31	285.72	-4.84	1.01	65.61	1,033.70
13.20	70,975	79,742	13.31	285.57	-4.83	1.01	65.62	1,033.98
13.21	80,042	79,807	13.31	285.43	-4.83	1.02	65.63	1,034.27
13.22	80,107	79,873	13.31	285.28	-4.82	1.03	65.63	1,034.56
13.23	80,173	79,939	13.32	285.13	-4.82	1.04	65.64	1,034.84
13.24	80,239	80,004	13.32	284.99	-4.82	1.04	65.65	1,035.13
13.25	80,304	80,070	13.32	284.84	-4.81	1.05	65.65	1,035.42
13.26	80,370	80,136	13.32	284.70	-4.81	1.06	65.66	1,035.70
13.27	80,436	80,201	13.32	284.55	-4.80	1.06	65.67	1,035.99
13.28	80,502	80,267	13.32	284.40	-4.80	1.07	65.67	1,036.27
13.29	80,567	80,333	13.32	284.26	-4.79	1.08	65.68	1,036.56
13.30	80,633	80,398	13.32	284.11	-4.79	1.08	65.69	1,036.84
13.31	80,699	80,464	13.32	283.97	-4.78	1.09	65.69	1,037.13
13.32	80,764	80,530	13.32	283.82	-4.78	1.10	65.70	1,037.42
13.33	80,830	80,595	13.32	283.68	-4.77	1.11	65.71	1,037.70
13.34	80,896	80,661	13.33	283.54	-4.77	1.11	65.71	1,037.99
13.35	80,961	80,727	13.33	283.39	-4.76	1.12	65.72	1,038.27
13.36	81,027	80,792	13.33	283.25	-4.76	1.13	65.73	1,038.56
13.37	81,093	80,858	13.33	283.10	-4.75	1.13	65.73	1,038.84
13.38	81,158	80,924	13.33	282.96	-4.75	1.14	65.74	1,039.13
13.39	81,224	80,990	13.33	282.82	-4.74	1.15	65.75	1,039.41
13.40	81,289	81,055	13.33	282.67	-4.74	1.15	65.75	1,039.70
13.41	81,355	81,121	13.33	282.53	-4.73	1.16	65.76	1,039.98
13.42	81,421	81,187	13.33	282.39	-4.73	1.17	65.76	1,040.26
13.43	81,486	81,253	13.33	282.25	-4.72	1.17	65.77	1,040.55
13.44	81,552	81,318	13.33	282.10	-4.72	1.18	65.78	1,040.83
13.45	81,617	81,384	13.34	281.96	-4.71	1.19	65.78	1,041.12
13.46	81,683	81,450	13.34	281.82	-4.71	1.19	65.79	1,041.40
13.47	81,748	81,516	13.34	281.68	-4.71	1.20	65.80	1,041.68
13.48	81,814	81,582	13.34	281.54	-4.70	1.20	65.80	1,041.97
13.49	81,879	81,647	13.34	281.39	-4.70	1.21	65.81	1,042.25
13.50	81,945	81,713	13.34	281.25	-4.69	1.22	65.82	1,042.54

Lampiran 8. Tabel Hidrostatik untuk MTC (Akhir)

DRAFT (M)	DIS. (A) (MT)	DIS. (N) (MT)	TKM (N)	LKM (M)	M B (M)	M F (M)	TPC (T)	MTC (T-M)
13.50	81,945	81,713	13.34	281.25	-4.69	1.22	65.82	1,042.54
13.51	82,010	81,779	13.34	281.11	-4.69	1.22	65.82	1,042.82
13.52	82,076	81,845	13.34	280.97	-4.68	1.23	65.83	1,043.10
13.53	82,140	81,911	13.34	280.83	-4.68	1.24	65.84	1,043.39
13.54	82,205	81,977	13.35	280.69	-4.67	1.24	65.84	1,043.67
13.55	82,269	82,042	13.35	280.55	-4.67	1.25	65.85	1,043.96
13.56	82,334	82,108	13.35	280.41	-4.66	1.25	65.86	1,044.24
13.57	82,398	82,174	13.35	280.27	-4.66	1.26	65.86	1,044.53
13.58	82,463	82,240	13.35	280.13	-4.65	1.27	65.87	1,044.81
13.59	82,527	82,306	13.35	279.99	-4.65	1.27	65.87	1,045.09
13.60	82,592	82,372	13.35	279.85	-4.64	1.28	65.88	1,045.38
13.61	82,656	82,438	13.35	279.72	-4.64	1.29	65.89	1,045.66
13.62	82,721	82,504	13.35	279.58	-4.63	1.29	65.89	1,045.94
13.63	82,786	82,569	13.36	279.44	-4.63	1.30	65.90	1,046.23
13.64	82,851	82,635	13.36	279.30	-4.62	1.30	65.91	1,046.51
13.65	82,915	82,701	13.36	279.16	-4.62	1.31	65.91	1,046.79
13.66	82,980	82,767	13.36	279.02	-4.61	1.31	65.92	1,047.08
13.67	83,045	82,833	13.36	278.89	-4.61	1.32	65.93	1,047.36
13.68	83,110	82,899	13.36	278.75	-4.61	1.33	65.93	1,047.64
13.69	83,175	82,965	13.36	278.61	-4.60	1.33	65.94	1,047.92
13.70	83,240	83,031	13.36	278.47	-4.60	1.34	65.95	1,048.20
13.71	83,305	83,097	13.36	278.34	-4.59	1.34	65.95	1,048.49
13.72	83,370	83,163	13.37	278.20	-4.59	1.35	65.96	1,048.77
13.73	83,435	83,229	13.37	278.06	-4.58	1.35	65.96	1,049.05
13.74	83,500	83,295	13.37	277.93	-4.58	1.36	65.97	1,049.33
13.75	83,565	83,361	13.37	277.79	-4.57	1.37	65.98	1,049.61
13.76	83,631	83,427	13.37	277.65	-4.57	1.37	65.98	1,049.89
13.77	83,696	83,493	13.37	277.52	-4.56	1.38	65.99	1,050.17
13.78	83,761	83,559	13.37	277.38	-4.56	1.38	66.00	1,050.45
13.79	83,827	83,625	13.37	277.25	-4.55	1.39	66.00	1,050.74
13.80	83,892	83,691	13.38	277.11	-4.55	1.39	66.01	1,051.02
13.81	83,957	83,757	13.38	276.97	-4.54	1.40	66.02	1,051.30
13.82	84,023	83,823	13.38	276.84	-4.54	1.40	66.02	1,051.58
13.83	84,088	83,889	13.38	276.70	-4.53	1.41	66.03	1,051.86
13.84	84,154	83,955	13.38	276.57	-4.53	1.41	66.03	1,052.14
13.85	84,219	84,021	13.38	276.43	-4.53	1.42	66.04	1,052.41
13.86	84,285	84,087	13.38	276.30	-4.52	1.42	66.05	1,052.69
13.87	84,351	84,153	13.39	276.16	-4.52	1.43	66.05	1,052.97
13.88	84,416	84,219	13.39	276.03	-4.51	1.43	66.06	1,053.25
13.89	84,482	84,285	13.39	275.89	-4.51	1.44	66.07	1,053.53

**Lampiran 9. Daftar Pemeriksaan Sebelum Survey**

<b>CHECK LIST OF PRA DRAFT SURVEY</b>					
No.	BARANG (ITEM)	YES	NO	JUMLAH (Q'TY)	REMARK
<b>Kelengkapan Pelindung Diri (Personal Protection Equipment)</b>					
1.	Pelindung pernapasan (Masker)				
2.	Sarung Tangan (Rubber Glove)				
3.	Kaca Mata (Safety Glasses)				
4.	Helm Keselamatan (Safety Helmet)				
5.	Pelampung (Life Jacket)				
6.	Sepatu Keselamatan (Safety Shoes)				
7.	Seragam/Rompi keselamatan (Safety Coat)				
8.	Jas hujan (Rain Coat)				
<b>Peralatan &amp; Dokumen Survey</b>					
1.	Senter (Flash Light)				
2.	Hydrometer				
3.	Sounding Tape				
4.	Pasta air ( Water Finding Paste)				
5.	Pasta minyak (Oil Finding Paste)				
6.	Kamera				
7.	Papan penjepit alat tulis (Clipboard)				
8.	Kalkulator				
9.	Laptop				
10.	Form Hold Cleanliness Inspection Tank				
11.	Form Manual Draft Survey Calculation				
12.	Form Provisional Report Draft Survey				
14.	Form Surat ( diperlukan untuk buat Statement of Fact)				
PREPARED BY:			CHECKED BY:		

**Lampiran 10. Formulir Laporan Inspeksi Kebersihan Ruang Muat**

---

To Accompany Cert. No. :

**HOLD CLEANLINES INSPECTION REPORT**

THIS IS TO REPORT THAT, The undersigned surveyor to PT. SURVEYOR INDONESIA, did carry out attend on board

On \_\_\_\_\_ MV. \_\_\_\_\_  
at \_\_\_\_\_ LT while she was lying afloat  
at \_\_\_\_\_ Jetty / Anchorage,  
schedule for carriage of cargo of coal in bulk.

Report:

The cargo was to be loaded into the following ship's holds : No. \_\_\_\_\_ up  
to No. \_\_\_\_\_

It was noted that previous cargo was : \_\_\_\_\_

And method of cleaning were carried out as follows :

The above hold(s) in our opinion, as far as could be ascertained without  
the use of staging was found to be clean and in a fit condition to receive  
the cargo intended.

---

Master/ Chief Officer

---

Surveyor

Lampiran 11. Formulir untuk perhitungan secara manual

FORM MANUAL DRAFT SURVEY CALCULATION			
VESSEL :		PLACE :	
CARGO :		DATE & TIME :	
LPP =	LWT =	CONSTANT =	
			INITIAL
Forward			dF (P)
			dF (S)
			Mean
	$d = \frac{\text{Apparent T} \times (L1)}{LPP - (L3 + L1)}$	Stem correction	
Forward Mean After corr.			
After			dA (P)
			dA (S)
			Mean
	$d = \frac{\text{Apparent T} \times (L3)}{LPP - (L3 + L1)}$	Stem Correction	
After Mean After corr.			
Mean Fwd & Aft			
Midship			dM (P)
			dM (S)
			Mean
	$d = \frac{\text{Apparent T} \times (L2)}{LPP - (L3 + L1)}$	Midship correction	
Midship Mean After corr.			
Apparent Trim = dA Mean - dF Mean		Apparent T	
Trim Corr. = T dA Mean After corr. - dF Mean After corr.		T	
$\frac{(\text{Mean Fwd \& Aft} + \text{Midship After corr.})}{2}$		Mean of Means	
$\frac{\text{Mean of Means} + \text{Midship Mean after corr.}}{2}$		Draft corr. For Deformation	
Corresponding Dis placement ( $\Delta$ 1)			
LCF			
TPC			
MTC at = d corr + 05 Metre (A)			
MTC at = d corr - 05 Metre (B)			
dm/dz = Selisih (A)-(B)			
$\text{Trim Corr. 1} = \text{TC 1} = \frac{\text{TPC} \times \text{LCF} \times T \times 100}{LPP}$		Trim Correction 1	
$\text{Trim Corr. 2} = \text{TC 2} = \frac{50 \times T^2 \times dm/dz}{LPP}$		Trim Correction 2	
Displacement corr. For Trim ( $\Delta$ 2)			
Density Observed = $\gamma$			
$\frac{\gamma - 1025 \times (\Delta) 2}{1.025}$		Density Correction	
Displacement corr. For Density ( $\Delta$ 3)			
Total Deductibe Weight			
Net Displacement			
Remark		( SURVEYOR)	

**Lampiran 12.** Formulir untuk perhitungan muatan dalam tangki

FORM SOUNDING TANK					
VESSEL :		PLACE :			
CAR GO :		DATE & TIME :			
N.O.	TANK	SOUNDING (M)	VOLUME (M <sup>3</sup> )	DENSITY (T/ M <sup>3</sup> )	WEIGHT (Ton)
					(SURVEYOR)



Lampiran 13. Formulir Laporan Sementara *Draft Survey*



PT. SURVEYOR INDONESIA

PROVISIONAL REPORT OF DRAFT SURVEY

To Accompany Cert.No. :  
 Order No. :  
 Applicant :

VESEL NAME	:	DATE	:
PROD/CARGO	:	VOYAGE	:
LOADING PORT	:	SEA CONDITION	:
DISCHARGE PORT/TO	:	B/L QUANTITY	:
LPP	:	M	CONSTANT
		INITIAL	FINAL
Date & Time			
Draft Reading		PORT STB MEAN	PORT STB MEAN
Forward			
Stem Correction			
Forward Mean After Corr'd			
After			
Stem Correction			
After Mean After Corr'd			
Mean Fwd & Aft			
Midship			
Midship Correction			
Midship Mean After Corr'd			
Mean of Means			
Draft Correction for Deformation			
Corresponding Displacement			
Trim & Trim Correction (1)			
Trim Correction (2)			
Displacement Corr. for Trim			
Density & Density Corr.			
Displacement Corr. for Density			
Deductible Weight			
Ballast Water (BW)			
Fresh Water (FW)			
Fuel Oil (FO)			
Diesel Oil (DO)			
Lubricating Oil (LO)			
Others :			
TOTAL DEDUCTIBLE WEIGHT			
CORRECTED NET DISPLACEMENT			
TOTAL CARGO DISCHARGED /LOADED	=	M/T	
B/L FIGURE	=	M/T	
DIFFERENT	=	M/T	
PERCENTAGE	=	%	
REMARK	:		
Dated	( VESSEL REPRESENTATIVE )	Dated	( SURVEYOR )

This report reflects our finding at time and place of inspection and does not refer to any other matter. This report is issued without prejudice and on the understanding that it does not relieve parties from their contractual obligations. All inspection is

**Lampiran 14.** Contoh format sertifikat untuk berat

**CERTIFICATE OF WEIGHT**  
COW-xxxxxxxxxxx

THIS IS TO CERTIFY that the undersigned surveyor to PT. xxxxxxxxxxxxxxxx did carry out a draft survey on board the following vessel and based on either measurements or scales and tables produced by the said vessel, the total cargo loaded on board this vessel was determined and reported as follows :

**GENERAL PARTICULARS**

- |                                  |   |  |
|----------------------------------|---|--|
| 1. Client                        | : | xx |
| 2. Shipper                       | : | xx |
| 3. Consignee                     | : | xx |
| 4. Description of Goods          | : | xx |
| 5. Vessel                        | : | xx |
| 6. Loading Port                  | : | xx |
| 7. Discharging Port              | : | xx |
| 8. Start Loading Date            | : | xx |
| 9. Completion Loading Date       | : | xx |
| 10. Date of Initial Draft Survey | : | xx |
| 11. Date of Final Draft Survey   | : | xx |

This draft survey was done with the Chief Officer of the said vessel in attendance. From the figures obtained by mean of the vessel's draft checked at the time initial and final draft surveys it was conclude that the total weight of cargo loaded on board the above vessel, proved to be:

**xxxxxxxxxxxxxxxx Metric Tons**

Date of Issued : xxxxxxxx,xxxx

**XXXXXXXXXXXXXXXXXX**  
**Manager**

Lampiran 15. Contoh format Laporan Surveyor

**LAPORAN SURVEYOR (LS)  
SURVEYOR'S REPORT**

PERATURAN MENTERI PERDAGANGAN RI NO. 14/M-DAG/PER/5/2008 TANGGAL 5 MEI 2008 REGULATION OF TRADE MINISTRY NO. 14M-DA G/PER/5/2008 DATED MAY 5 <sup>th</sup> , 2008						
A. KANTOR PENERBIT: ISSUING OFFICE		NO. LS : LSPT-0000000000	TGL. TERBIT DATE OF ISSUED	: 00-00-0000	TGL. LAMA KAJI DATE OF EXPIRY	: 00-00-0000
B. PERHYATAAN EKSPORTIR (EXPORTER'S STATEMENT)						
EKSPORTIR (NPWP, NAMA, ALAMAT): EXPORTER (NPWP, NAME, ADDRESS)		NO. W/O (PVE): VE PT-00000000	TGL (DATE) : 00-00-0000			
XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX		TEMPAT PEREBSAAN SURVEY LOCATION	TGL (DATE) : 00-00-0000			
XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX		XX				
JIN. PERMIT IUP	NO. : 00100100001000100000000000000000	NO. PACKING LIST	000000000000000000000000	TGL (DATE) : 00-00-0000		
	TGL (DATE) : 00-00-0000	NO. INVOICE	000000000000000000000000	TGL (DATE) : 00-00-0000		
IMPORTIR (NAMA DAN ALAMAT): IMPORTER (NAME AND ADDRESS)		VALUTA CURRENCY	USD	NILAI FOB FOB VALUE	00,00000	
JINAN MING FANG Import And Export Trading Co., Ltd No. 16, SHANG DA SOUTH ROAD JINAN CITY, CHINA		PELABUHAN MUAT, LOADING PORT	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	TGL (DATE) : 00-00-0000		
		PELABUHAN TURJAN DESTINATION PORT	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
URAIAN BARANG: DESCRIPTION OF GOODS		TGL. PENGAPALAN DATE OF SHIPPING	00-00-0000			
LEAD ORE		NAMA KAPAL, VESSEL NAME	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
C. HASIL SURVEY (SURVEY RESULT)						
JENIS PENGANGKUTAN (MODE OF TRANSPORT): VESSEL			TIPE PEMUATAN (CARGO TYPE): CARGO			
NO	HS	URAIAN PRODUK (DESCRIPTION OF PRODUCT)	JUMLAH (QUANTITY)	SATUAN (UNIT)	ASAL BARANG (ORIGIN)	
1	0000.00.00.00	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	0000000000	MT	XXXXXXXXXXXXXXXXXXXX	
NO. PETI KEMAS DAN SEGEL (CONTAINER NUMBER AND SEAL):						
CATATAN PEMERIKSAAN (SURVEY NOTES):						
KESIMPULAN PEMERIKSAAN (SURVEY CONCLUSION):			PT. SURVEYOR INDONESIA GRAHA SURVEYOR INDONESIA JL. JEND. GATOT SUBROTO KAV.56 JAKARTA SELATAN TELP: 021-5255525 FAX : 021-57930657			
BARANG YANG DIPERIKSA SESUAI PERATURAN MENTERI PERDAGANGAN NOMOR 14M-DAG/PER/5/2008 TANGGAL 05 MEI 2008 GOODS VERIFICATED FOUND IN COMPLIANCE WITH THE REGULATION OF TRADE MINISTRY NO. 14M-DAG/PER/5/2008, MAY 5 <sup>th</sup> , 2008			MANAGER			
Laporan ini diterbitkan untuk memenuhi ketentuan ekspor produk pertambangan. Di laporan ini merupakan hasil pemeriksaan terhadap produk pertambangan tertentu yang akan diekspor. Laporan Surveyor ini tidak membebaskan ekspor dari kewajiban dan tanggung jawab hukum yang tercantum dalam kontrak jual beli.						
This report is made fulfil the export requirements of certain mining product. This report contains the result of survey on certain mining product will be exported. This report does not release the exporter from his/her obligations and responsibilities stated in the sales-purchase contract.						

8.	Peralatan kerja	-	Mebutuhkan <i>media elektronik computer</i> (sejenisnya) dan Printer	+	Hanya membutuhkan kalkulator dan pena
9.	Fasilitas untuk perhitungan	-	Mebutuhkan daya listrik	+	Hanya membutuhkan <i>battery</i> untuk kalkulator
10.	Sumber daya manusia	+	Mudah untuk membuat surveyor memiliki kepercayaan diri dalam melakukan pekerjaan <i>Draft Survey</i> , walaupun belum memiliki pengalaman yang cukup	-	Diperlukan pengalaman yang cukup untuk melakukan pekerjaan <i>Draft Survey</i>
		-	Mebutuhkan surveyor yang memiliki ketrampilan mengoperasikan komputer	+	Hanya mengoperasikan kalkulator

## V.2. SARAN

Penulis sebagai mahasiswa jurusan Teknik Perkapalan dan juga sebagai seorang Surveyor untuk pekerjaan yang berkaitan dengan kapal laut terutama *Draft Survey* memberikan saran sebagai berikut:

- Sumber Daya Manusia yang mengerjakan *Draft Survey* harus memiliki bekal kemampuan yang memadai.
- Sumber Daya Manusia yang mengerjakan *Draft Survey* harus memiliki kondisi fisik dan mental yang sehat.
- Harus melakukan segala persiapan dengan baik seperti persiapan peralatan, dokumen, peralatan keselamatan dan lainnya yang berkaitan dengan pekerjaan *Draft Survey*