

## OIL CONDITION MONITORING REPORT SLNS GAJABAHU

<b>ENGINE PARTICULARS (Information provided by the customer)</b>	
	<b>No 01 Generator (Stbd)</b>
<b>Make :</b>	GENERAL MOTORS
<b>Model :</b>	EMD 8-645-E2
<b>Sr. No:</b>	67-K1-1010
<b>Date sampling :</b>	11 Jul 25
<b>Sampling point :</b>	Near lub oil strainer
<b>Sampling Method :</b>	Extraction
<b>Type of Lubricant :</b>	Shell Gadina S3 SAE 40
<b>System Capacity :</b>	300 USG

<b>RUNNING HRS DETAILS (Information provided by the customer)</b>	
	<b>No 01 Generator (Stbd)</b>
<b>Sample ID</b>	M010446
<b>Oil Running Hours</b>	2750.00
<b>After MOH (CSO)running hrs</b>	2750.00
<b>Total Running Hours of the Machinery</b>	115,055.20

### ANALYSIS RESULTS

#### Basic Properties

Description	Method	Fresh Oil (As per OEM data sheet)	Uncertainty	<b>No 01 Generator (Stbd)</b>
				<b>M010446</b>
Viscosity @ 40°C (cSt)	ASTM D 445	128.00	0.018 Cst	130.56
Viscosity @ 100°C (cSt)		13.7	0.018 Cst	14.02
Viscosity Index	ASTMD 2270	103	N/A	104.77

#### Elemental Concentration as per ASTM D5185 (ppm)

Element	Maximum Permissible Limit	Fresh Oil Sample	Uncertainty	<b>No 01 Generator (Stbd)</b>
				<b>M010446</b>
Fe	80	<1.000	2.191	11.992
Cr	10	<1.000	1.810	<1.000
Si	15	<1.000	1.021	<1.000
Al	20	<1.000	1.107	1.740
Pb	20	<1.000	2.918	1.666
Cu	25	<1.000	1.064	5.447
Sn	10	<1.000	0.131	<1.000
Ni	10	<1.000	0.090	<1.000

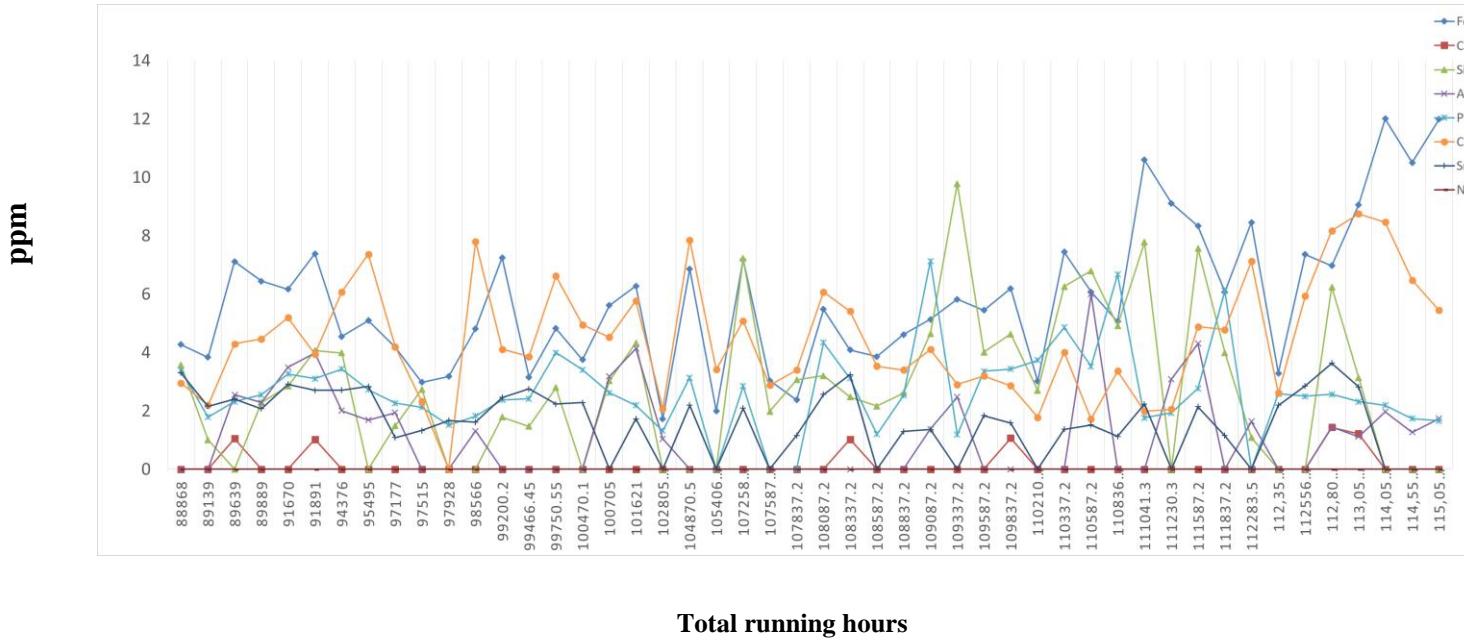
## TREND ANALYSIS WITH PREVIOUS REPORTS

	Fresh Oil Sample	No 01 Generator (Stbd)																		
		S/I-M00508	S/I-M00606	S/I-M00608	S/I-M00839	S/I-M01094	S/I-M01095	S/I-M01505	S/I-M002046	S/I-M02235	S/I-M02332	S/I-M02388	S/I-M02592	S/I-M02744	S/I-M002827	S/I-M02866	S/I-M002986	S/I-M003144	S/I-M003467	
Oil Running Hrs	-	1512	1802	2337	2587	4333	4554	7039	8158	439	777	1190	1828	2318.2	2729.10	3013.20	3732.35	3977.3	4894.0	
T/R/H of Machinery	-	88868	89139	89639	89889	91670	91891	94376	95495	97177	97515	97928	98566	99200.2	99466.45	99750.55	100470.1	100705	101621	
ViViscosity@ 40°C (cSt)	128.00	123.32	127.59	127.81	127.09	144.70	144.99	134.88	134.93	136.17	138.96	136.18	132.21	138.17	135.66	132.79	135.73	135.01	132.03	
Viscosity@ 100°C (cSt)	13.7	13.92	13.57	13.44	13.54	14.61	14.65	15.66	15.70	13.82	13.91	13.86	13.78	13.56	13.89	13.67	14.39	14.13	13.87	
Viscosity Index	103	110.81	101.73	101.70	101.81	99.52	99.72	121.07	121.50	97.36	96.18	97.81	100.10	92.54	98.57	98.54	104.59	101.98	101.43	
Total Base No. (mg KOH/g)	10.48*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.54	N/A	N/A	7.79	
Water content (%)	<0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Flash Point (°C)	230	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	185	N/A	N/A	195	
Element	Max. Permissible Limit																			
Fe	80	< 1.00	4.273	3.834	7.113	6.447	6.165	7.384	4.549	5.097	4.187	2.985	3.186	4.819	7.248	3.159	4.823	3.755	5.619	6.277
Cr	10	< 1.00	< 1.00	< 1.00	1.053	< 1.00	< 1.00	1.029	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
Si	15	<1.00	3.571	1.008	< 1.00	2.291	2.849	4.069	3.989	< 1.00	1.490	2.737	< 1.00	< 1.00	1.788	1.469	2.795	< 1.000	3.032	4.329
Al	20	< 1.00	< 1.00	< 1.00	2.552	2.283	3.494	3.986	2.007	1.690	1.943	< 1.00	< 1.00	1.308	< 1.00	< 1.000	< 1.000	< 1.000	3.186	4.142
Pb	20	< 1.00	3.396	1.789	2.317	2.556	3.263	3.111	3.431	2.728	2.268	2.125	1.522	1.820	2.376	2.423	3.996	3.411	2.623	2.196
Cu	25	< 1.00	2.952	2.190	4.300	4.469	5.192	3.944	6.077	7.370	4.197	2.326	< 1.00	7.807	4.115	3.861	6.620	4.954	4.527	5.778
Sn	10	< 1.00	3.300	2.160	2.411	2.079	2.917	2.703	2.714	2.835	1.083	1.331	1.673	1.613	2.462	2.751	2.233	2.284	< 1.000	1.731
Ni	10	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000

		No 01 Generator (Stbd)															
		S/I-M00373 6	S/I-M004496	S/I-M004772	S/I-M005279	S/I-M005438	S/I-M005462	S/I-M005561	S/I-M005603	S/I-M005663	S/I-M005667	S/I-M005726	S/I-M005748	S/I-M005815	S/I-M005834	S/I-M005916	S/I-M005968
Oil Running Hrs	6077.5	1529.05	N/I	3943.20	283.45	533.30	783.30	1033.30	1283.30	1533.30	1783.30	2033.30	2283.30	2533.30	2905.45	3033.30	
T/R/H of Machinery	102805.25	104870.50	105406.0	107258.05	107587.35	107837.20	108087.20	108337.20	108587.20	108837.20	109087.20	109337.20	109587.20	109837.20	110210.05	110337.20	
Viscosity@ 40°C (cSt)	133.89	134.80	141.15	139.95	134.35	132.37	134.13	140.96	135.60	140.95	140.79	149.17	143.09	145.95	142.61	139.80	
Viscosity@ 100°C (cSt)	14.02	13.89	15.41	14.68	14.42	14.05	14.70	15.14	15.04	15.95	15.34	16.27	15.87	15.85	15.61	15.19	
Viscosity Index	101.61	99.25	112.07	103	106.24	103.52	109.92	109.03	112.75	117.35	111.56	114.98	115.75	112.97	113.12	110.64	
TB No. (mg KOH/g)	14.02	N/A	N/A	10.48*	N/C	9.62	9.42	9.26	9.14	7.96	7.22	6.93	6.74	6.53	6.41	6.21	
Water content (%)	<0.1	N/A	N/A	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Flash Point (oC)	185	N/A	N/A	230	205	205	205	210	200	200	185	185	185	185	185	180	
Element	Max. Permissible Limit																
Fe	80	1.734	6.862	1.997	7.187	3.037	2.378	5.478	4.085	3.866	4.617	5.137	5.825	5.448	6.196	3.012	7.441
Cr	10	<1.00	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.028	<1.000	<1.000	<1.000	<1.000	<1.000	1.066	<1.000	<1.000
Si	15	<1.00	<1.000	<1.000	7.223	1.980	3.069	3.205	2.482	2.171	2.614	4.648	9.781	4.012	4.635	2.704	6.264
Al	20	1.045	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.380	2.475	<1.000	<1.000	<1.000	<1.000
Pb	20	1.321	3.144	<1.000	2.845	<1.000	<1.000	4.343	3.114	1.207	2.532	7.131	1.186	3.360	3.434	3.734	4.861
Cu	25	2.076	7.853	3.417	5.084	2.881	3.404	6.075	5.413	3.531	3.402	4.107	2.909	3.203	2.867	1.779	4.012
Sn	10	<1.00	2.196	<1.000	2.089	<1.000	1.161	2.562	3.243	<1.000	1.299	1.364	<1.000	1.838	1.592	<1.000	1.374
Ni	10	<1.00	<1.000	<1.000	<1.000	N/A	N/A	<1.000	<1.000	N/A							

		No 01 Generator (Stbd)															
		Fresh Oil Sample	S/I-M005997	S/I-M006082	S/I-M006221	S/I-M006272	S/I-006519	S/I-M007745	S/I-M008990	S/I-M009293	S/I-M009323	S/I-M009555	S/I-M009556	S/I-M009876	S/I-M010121	S/I-M010270	S/I-M010446
Oil Running Hrs	-	3283.30	3533.05	3737.40	3926.30	4282.40	4533.30	4980.00	50.00	250.00	500.00	750.00	1250.00	1750.00	2250.00	2750.00	
T/R/H of Machinery	-	110587.20	110836.55	111041.30	111230.30	111587.20	111837.20	112283.50	112355.20	112556.15	112,805.20	113,055.20	113,555.20	114,055.20	114,555.20	115,055.20	
Viscosity@ 40°C (cSt)	128.00	139.77	133.00	145.20	138.64	133.30	134.49	139.66	126.25	124.90	116.52	126.42	127.32	126.78	128.19	130.56	
Viscosity@ 100°C (cSt)	13.7	14.74	15.29	14.94	15.13	15.08	15.18	15.52	13.81	13.70	13.11	13.86	13.97	13.74	13.92	14.02	
Viscosity Index	103	105.23	118.39	102.94	111.00	115.52	112.54	114.75	106.28	106.15	106.97	106.77	107.32	104.81	103.51	104.77	
Total Base No. (mg KOH/g)	10.48*	N/C	6.89	6.45	6.32	8.07	8.02	8.05	9.96	N/C							
Water content (%)	<0.2	N/C	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	N/C							
Flash Point (°C)	230	N/C	190	200	195	190	196	198	214	N/C							
Element	Max. Permissible Limit																
Fe	80	<1.000	6.080	5.065	10.6	9.112	8.330	6.073	8.455	3.292	7.356	6.977	9.064	N/C	12.006	10.503	11.992
Cr	10	<1.000	<1.000	<1.000	<1.00	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.441	1.222	N/C	<1.000	<1.000	<1.000
Si	15	<1.000	6.799	4.922	7.778	<1.000	7.560	3.995	1.086	<1.000	<1.000	6.241	3.141	N/C	<1.000	<1.000	<1.000
Al	20	<1.000	6.005	<1.000	<1.00	3.094	4.310	<1.000	1.638	<1.000	<1.000	1.447	1.122	N/C	1.971	1.267	1.740
Pb	20	<1.000	3.528	6.673	1.765	1.936	2.772	6.116	<1.000	2.588	2.505	2.570	2.320	N/C	2.190	1.739	1.666
Cu	25	<1.000	1.723	3.364	1.995	2.058	4.884	4.786	7.124	2.611	5.933	8.174	8.751	N/C	8.463	6.477	5.447
Sn	10	<1.000	1.523	1.126	2.231	<1.000	2.143	1.153	<1.000	2.190	2.852	3.637	2.826	N/C	<1.000	<1.000	<1.000
Ni	10	<1.000	N/A	N/A	<1.00	N/A	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	N/C	<1.000	<1.000	<1.000

**Wear metal**  
**No 01 Generator**



**Viscosity**  
**At 40°C**



## At 100°C

cSt

