

**REPORT OF
MONITORING OF
WATER QUALITY AND
SEDIMENTS OF
PROJECT:
'DREDGING OF THE
SPRINGS 1, 2, 3, 4, 5
AND
6, ZONE OF
MANEUVER AND
CHANNEL
PORT ACCESS
BOLIVAR'.**

**December
2020**

**Environmental
Consultant SAMBITO C.
Ltda. MAE-
SUIA-0026-CC**

1 TECHNICAL DATA SHEET

CONTROL SUBJECT INFORMATION	
Company	YILPORT TERMINAL OPERATIONS YILPORTECU S.A.
RUC	0992982047001
Legal representative	Alfredo José Jurado Von Buchwald
Ranking	Terminal Facilities Operation Activities, such as Ports
Address	Bolivar M. Vargas Av. s/n. Port Authority Building of Puerto Bolivar.
Phone	+593 995083333
Type of company	Public Private Partnership

PROJECT DATA	
Project name	Dredging of Piers 1, 2, 3, 4 and 5, 6, Maneuvering area and Canal de Access to Puerto Bolivar.
Environmental license	MAE-RA-2017-297974
CCAN Code	CONSTRUCTION AND/OR OPERATION OF WORKS FOR DREDGING OF FLUVIAL AND/OR SEA SOURCES
Period	December 2020
Technical Manager	Jaime Vanegas
Location Map	

	MAPA DE UBICACIÓN LEYENDA Acuerdos de Uso Sostenible y Custodia de manglar - MAE 2017 ■ Asoc. de Mujeres Artesanas "Estero Portaflo" ■ Coop. de Prod. Pesquera Artesanal "Vikingos del Mar" ■ Org. Comunitario de Servicios turísticos "La Playita de Jambeli" --- Licencia Ambiental MAE-RA-2017-297974 --- Área del Proyecto --- División política ■ Límites administrativos MAPA DE UBICACIÓN DEL PROYECTO "DERRAGADO DE LOS MUELLES 1, 2, 3, 4, 5, 6, ZONA DE MANIOBRA Y CANAL DE ACCESO DE PTD. BOLIVAR" Datum WGS 84 Coordenadas UTM Zona 17 S Elaborado por: SAMBITO Escala: 1 : 150,000 Fuentes: Anexo 1.1.1. Licencia Ambiental MAE RA 2017 297974 Acuerdos de Uso Sostenible y Custodia del Manglar, MAE-2017 Proyecto: YILPORT-TECU Fecha: marzo 2019 Prepared by: SAMBITO C. Ltda. Location: Parroquia Puerto Bolivar, Machala - El Oro Date: March 2018																																																									
Coordinates	Projection U.T.M. World Geodetic Reference System WGS 84 - Zone 17 South																																																									
	<table><tr><th>Points</th><th>Latitude (X)</th><th>Length (Y)</th></tr><tr><td>1</td><td>610956</td><td>9639311</td></tr><tr><td>2</td><td>610478</td><td>9639203</td></tr><tr><td>3</td><td>609957</td><td>9639327</td></tr><tr><td>4</td><td>610347</td><td>9639925</td></tr><tr><td>5</td><td>610216</td><td>9640713</td></tr><tr><td>6</td><td>609917</td><td>9642098</td></tr><tr><td>7</td><td>609498</td><td>9644527</td></tr><tr><td>8</td><td>608686</td><td>9646508</td></tr><tr><td>9</td><td>608189</td><td>9647676</td></tr><tr><td>10</td><td>605878</td><td>9648244</td></tr><tr><td>11</td><td>605974</td><td>9648726</td></tr><tr><td>12</td><td>608511</td><td>9648113</td></tr><tr><td>13</td><td>609175</td><td>9646587</td></tr><tr><td>14</td><td>609970</td><td>9644652</td></tr><tr><td>15</td><td>610433</td><td>9642109</td></tr><tr><td>16</td><td>610654</td><td>9640792</td></tr><tr><td>17</td><td>611014</td><td>9640712</td></tr><tr><td>18</td><td>610931</td><td>9639816</td></tr></table>	Points	Latitude (X)	Length (Y)	1	610956	9639311	2	610478	9639203	3	609957	9639327	4	610347	9639925	5	610216	9640713	6	609917	9642098	7	609498	9644527	8	608686	9646508	9	608189	9647676	10	605878	9648244	11	605974	9648726	12	608511	9648113	13	609175	9646587	14	609970	9644652	15	610433	9642109	16	610654	9640792	17	611014	9640712	18	610931	9639816
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	20	611697	9640103	
	21	611804	9640152	
	22	611854	9640142	
	23	611923	9640297	
	24	611766	9640387	
	25	611866	9640633	
	26	612023	9640556	
	27	612171	9640506	
	28	612139	9640341	
	29	612088	9640197	
	30	612036	9640065	
	31	611852	9640125	
	32	611804	9640149	
	33	611699	9640100	
	34	611234	9639805	
	35	610931	9639814	
	1	583544	9649248	
	2	583880	9651278	
	3	585837	9651184	
	4	585560	9649187	

ENVIRONMENTAL CONSULTANT INFORMATION

Consultant	SAMBITO C. LTDA.
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CONSULTANT TEAM

Tania Fernandez	Technical Management
Fabrizio Tapia	Project Coordinator

2 BACKGROUND

By Resolution No. MAE-DPAEO-2017-009, dated December 19, 2017, and based on Technical Report No. 007857-DPAEO-2017 dated November 16, 2017, the Provincial Directorate of Environment of El Oro grants - in favor of the company YILPORT TERMINAL OPERATIONS (YILPORTECU) S.A. - the Environmental License No. MAE-RA-2017-297974 for the Project "DRAGING OF SPRINGS 1, 2, 3, 4, 5 AND 6, MANOEUVER ZONE AND ACCESS CHANNEL OF PUERTO BOLIVAR", where it specifies the technical and legal conditions that must be fulfilled by the Project, in accordance with the provisions of current environmental legislation.

3 OBJECTIVES

YILPORTECU has been executing since 2018 various monitoring in compliance with the EMP programs.

In order to obtain more information related to the reservoir basin and to form a history of certain parameters that have not been previously evaluated, in December 2020, a complementary campaign was conducted considering 02 monitoring points in the reservoir basin and considering the dispersion plume. The water resource and sediment soil quality are monitored, where the following parameters were specifically evaluated:

4 MONITORING POINTS

The points were located: one within the dredged sediment deposit area (P1) and one outside this area as a control (P2). The coordinates and location of the sampling points are shown in Table 5-1 and Table 5-2.

Table 5-1 Water quality monitoring point locations

Site	Coordinates
P1. Sediment storage basin	(585628, 9651120)
P2. Sediment storage basin	(588826, 9650866)

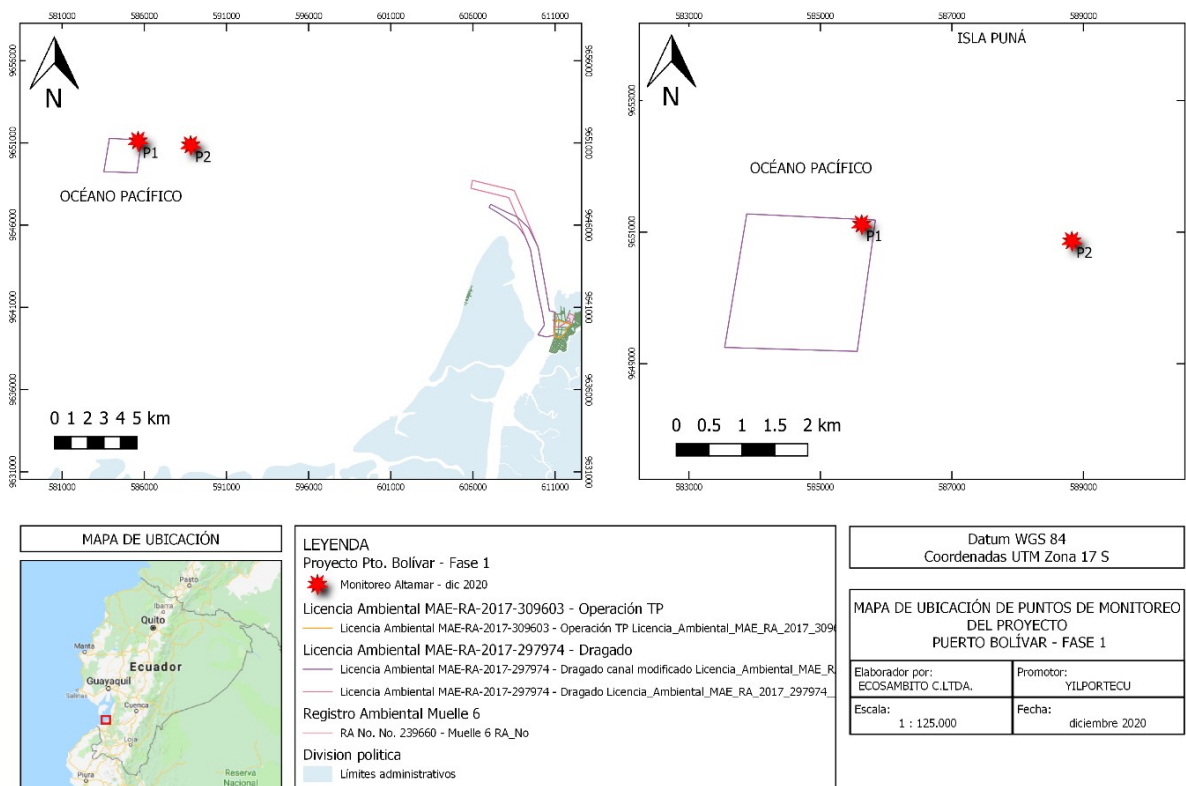
Source: Water Quality Analysis, Laboratorio Gruntec Cía. Ltda.

Prepared by: ECOSAMBITO C. Ltda.

Location: Province of El Oro

Date: December 16, 2020

Illustration 5-1 Location of sampling points



Prepared by: ECOSAMBITO C. Ltda.

Location: Parroquia Puerto Bolívar, Machala - El Oro

Date: December 16, 2020

5 WATER QUALITY MONITORING

5.1 Technical team responsible for water quality monitoring

Sampling for water quality analysis was performed between 10h00 and 12h00 on December 07, 2020, at two points located within the area established as a dredge sediment basin, offshore, by technicians from GRUENTEC Laboratory with Accreditation No. SAE LEN 18-004 for Testing Laboratories.

5.2 Methodology

Sampling of liquid matrices is based on the following standards, according to the matrix under study:

- Chapter 1060. Sample collection and preservation, standard method for water and wastewater analysis. Edition 22, 2012.
- STANDARD ISO 5667: 2006-01. Sampling. Part 1: Guidance on the design of sampling programs and

sampling techniques.

- STANDARD ISO 5667: 2006-09. Marine water sampling guidelines.

The adapted Reference Methods and Internal Laboratory Methods are indicated in the respective Analysis Reports (see Annex 1).

5.3 Weather conditions at the sampling site

From the visual evaluation performed by the sampler, the meteorological conditions at all sampled points were:

Rainfall: None

Humidity: Medium

Wind: Low

5.4 Characteristics of the samples

From the visual evaluation performed by the sampler, the physical characteristics of the samples were as follows:

Table 5-1 Characteristics of the seawater samples

Features	P1	P2
Odor	--	--
Color	--	--
Foam	--	--
Turbidity	--	--
Solids	--	--
Floating matter	--	--
Oils and fats	--	--
Others (algae, etc.)	--	--

Source: Water Quality Analysis, Laboratorio Gruntec Cía. Ltda.

Prepared by: ECOSAMBITO C. Ltda.

Date: December 16, 2020

5.5 Water quality analysis results

The results of the analyses performed are included in the respective Gruentec Analysis Reports: SAM-2012387-AG001/ 002 (see Annex 1).

Table 5-3 shows the results of the analyses performed by the laboratory on the water samples taken.

The values shown in the "Baseline Value" column correspond to the results of the monitoring conducted on April 21, 2017 at coordinate (585628, 9651120), as part of the Project EIA.

In the case of organonitrogen pesticides and carbamates, the highest value per specific pesticide reported is shown. The detailed results for each specific pesticide can be found in Annex 1.

Table 5-2 Water Quality Monitoring Results

Parameters	Unit	LMP*	Baseline value	Results		Compliance
				P1	P2	
pH		[6,5 – 9,5]		8,240	8,200	comply
Conductivity	uS/cm			50.400	48.500	N/A
Temperature	°C			25,300	25,300	N/A
Dissolved oxygen	mg/l		6,02	8,200	8,000	N/A
Oxygen saturation	%	> 60		99,7	97,7	comply
SST	mg/l			22,0	32,0	N/A
Turbidity FAU/NTU				4,000	6,000	N/A
Ammonium	mg/l	0,4		0,040	0,040	comply
Ammonium as ammonia	mg/l	0,4	0,034	0,030	0,030	comply
Oils and Fats	mg/l	0,3	<0,44	<0,300	<0,300	comply
BOD	mg/l		4,02	<2,0	<2,0	N/A
COD	mg/l		16,0	<50,0	<50,0	N/A
HTP	mg/l	0,5	<0,04	<0,300	<0,300	comply
Surfactants Detergents	mg/l	0,5	<0,023	0,140	0,150	comply
Fecal Coliforms	nmp/ 100 ml		<1	230,0	90,0	N/A
Total metals:						
Arsenic	mg/l	0,05	<0,0031	<0,01	<0,01	comply
Cadmium	mg/l	0,005	<0,0004	<0,002	<0,002	comply
Copper	mg/l	0,005	<0,0024	<0,1	<0,1	--
Tin	mg/l			<0,01	<0,01	comply
Total Chromium	mg/l	0,05	<0,0037	<0,004	<0,004	comply
Iron	mg/l	0,3	<0,0047	<0,4	<0,4	--
Mercury	mg/l	0,0001	<0,0050	<0,002	<0,002	--
Lead	mg/l			<0,01	<0,01	--
Zinc	mg/l			<0,1	<0,1	--
Non-chlorinated aliphatics:						
1,2-Dibromoethane	mg/l			<0,002	<0,002	N/A
Bromoform	mg/l			<0,002	<0,002	N/A
Bromomethane	mg/l			<0,005	<0,005	N/A
Dibromomethane	mg/l			<0,005	<0,005	N/A
Styrene	mg/l			<0,001	<0,001	N/A
BTEX in water:	mg/l					
Benzene	mg/l			<0,001	<0,001	N/A
Ethylbenzene	mg/l			<0,001	<0,001	N/A
m+p Xylene	mg/l			<0,001	<0,001	N/A
O-xylene	mg/l			<0,001	<0,001	N/A
Toluene	mg/l			<0,001	<0,001	N/A
Aliphatic Chlorinated Aliphatics in water:	mg/l					
1,1,1,1-Trichloroethane	mg/l			<0,001	<0,001	N/A

Parameters	Unit	LMP*	Baseline	Results		Compliance*
				P1	P2	
1,1,2,2-Tetrachloroethane	mg/l			<0,002	<0,002	N/A
1,1,2-Trichloroethane	mg/l			<0,005	<0,005	N/A
1,1-Dichloroethane	mg/l			<0,002	<0,002	N/A
1,1-Dichloroethene	mg/l			<0,002	<0,002	N/A
1,2-Dichlorobenzene	mg/l			<0,001	<0,001	N/A
1,2-Dichloroethane	mg/l			<0,005	<0,005	N/A
1,2-Dichloropropane	mg/l			<0,005	<0,005	N/A
1,3-Dichlorobenzene	mg/l			<0,001	<0,001	N/A
1,4-Dichlorobenzene	mg/l			<0,001	<0,001	N/A
Bromodichloromethane	mg/l			<0,002	<0,002	N/A
cis-1,2-Dichloroethene	mg/l			<0,002	<0,002	N/A
cis-1,3-Dichloropropene	mg/l			<0,002	<0,002	N/A
Chlorobenzene	mg/l			<0,001	<0,001	N/A
Chloroethane	mg/l			<0,005	<0,005	N/A
Chloroform	mg/l			<0,140	<0,020	N/A
Chloromethane	mg/l			<0,005	<0,005	N/A
Chloride of methylene	mg/l			<0,002	<0,002	N/A
Chloride of vinyl	mg/l			<0,002	<0,002	N/A
Dibromochloromethane	mg/l			<0,002	<0,002	N/A
Dichlorodifluoromethane	mg/l			<0,005	<0,005	N/A
Tetrachloroethene	mg/l			<0,002	<0,002	N/A
Tetrachloride of carbon	mg/l			<0,002	<0,002	N/A
trans-1,2-Dichloroethene	mg/l			<0,002	<0,002	N/A
trans-1,3-Dichloropropane	mg/l			<0,005	<0,005	N/A
Trichloroethene	mg/l			<0,005	<0,005	N/A
Trichlorofluoromethane	mg/l			<0,002	<0,002	N/A
Pesticides:						
Organochlorides Totales	mg/l	0,01		<0,0001	0,0001	comply
Organophosphates Totales	mg/l	0,01		<0,001	<0,001	comply
Organonitrogenated**	mg/l			<0,001	<0,001	N/A
Carbamates**	mg/l			<0,0005	<0,0005	N/A

* AM 097A, Annex 1: Environmental Quality Standard and Effluent Discharge to Water Resources, Table 2: Admissible Quality Criteria for the Preservation of Aquatic and Wildlife in Fresh, Marine and Estuarine Waters.

** Highest value detected per pesticide type.

0.00 If the result exceeds the LMP * (LMP - maximum permissible limit)

-- It cannot be established whether or not it complies with the LMP*.

Source: Water Quality Analysis, Laboratorio Gruntec Cía. Ltda.

Prepared by: ECOSAMBITO C. Ltda.

Date: December 16, 2020

For each parameter analyzed in P1 and P2, it has been established whether or not it complies with the established "LMP" (Ministerial Agreement 097A, Annex 1: Environmental Quality Standard and Effluent Discharge to Water Resources, Table 2: Admissible Quality Criteria for the preservation of aquatic and wildlife in Fresh, Marine and Estuarine Waters), when there is a defined "LMP". The nomenclature "N/A" is used when there is no defined "LMP", and "--" when compliance cannot be established because the result obtained in the laboratory corresponds to an accredited limit value of quantification (value of the result is preceded by the symbol "<" and read "less than").

5.6 Conclusions to water quality monitoring

In general, all parameters that have a defined "LMP" comply with current regulations.

In the case of the metals Copper, Iron, Mercury, and Lead (from the Total Metals group), the results obtained correspond to the "quantification limit value" accredited by the laboratory, so we know that the real value is below this. As for the latter, although it has not been possible to establish their actual concentration in the water samples analyzed, their concentration in the body of water may vary depending on the anthropic activities carried out in the estuary and its basin, as well as geological processes of natural origin given the coastal lithography. In the specific case of mercury, this situation is not new when compared to the baseline value measured before starting the dredging project.

As for pesticide content, the results appear as constant - always less than (<) an accredited laboratory limit of quantification - and are a few orders of magnitude lower than the "LMP" in force (total organochlorines and total organophosphates). The same happens for the Organonitrogen and Carbamate pesticides, although these do not have established "LMP".

6 MONITORING OF ENVIRONMENTAL SOIL QUALITY IN SEDIMENTS

6.1 Technical team responsible for soil sediment monitoring

Sampling for soil sediment quality analysis was performed between 10:00 a.m. and 12:00 p.m. on December 7, 2020, at two points located within the area established as a dredge sediment basin, at sea, by technicians from GRUENTEC Laboratory with Accreditation No. SAE LEN 18-004 for Testing Laboratories.

The results of the analyses performed are included in the respective Gruentec Analysis Reports: 2012387-S001/ 002 (see Annex 1).

6.2 Methodology

Sampling of solid matrices is based on the following standards:

- ASTM Standard Designation: D6044 - 96. Standard guide for representative sampling for the management of wastes and contaminated media.
- ASTM Standard Designation: D6044 - 96. Standard practice for sampling contaminated soils and media with hand augers.
- Standard NTE INEN-ISO 5667-15: 2014-01. Water quality. Part 15: Guide for conservation.

and handling of mud and sediment samples.

6.3 Characteristics of the samples

The observed in-situ characteristics of the samples taken are summarized in Table 6-1.

Table 6-1 Characteristics of the samples taken

Characteristics	P1	P2
Odor	Absence	Absence
Color	Light brownish gray - 2.5Y6/2	Light brownish gray - 2.5Y6/2
Humidity	Presence	Presence
Roots	Absence	Absence
Stones/rocks	Absence	Absence
Texture	Silt	Silt
Compact or disaggregated	Disaggregated	Disaggregated

Source: Soil Quality Analysis Laboratory Gruntec Cía. Ltda.

Prepared by: ECOSAMBITO C. Ltda.

Date: December 16, 2020

6.4 Weather conditions at the sampling site

From the visual evaluation performed by the collector, the meteorological conditions at all sampled points were:

	P1	P2
Rain:	null	null
Humidity:	medium	medium
Wind:	under	under

Source: Soil Quality Analysis Laboratory Gruntec Cía. Ltda.

Prepared by: ECOSAMBITO C. Ltda.

Date: December 16, 2020

6.5 Soil quality analysis results for sediments

Table 6-3 shows the results of the laboratory analysis of the sediment samples taken.

In the case of pesticides, the result of the highest value by type of pesticide (organochlorine, organophosphate, organonitrogen, and carbamates) is included, with the exception of those with established Maximum Permissible Limits "LMP", in which case, the appropriate comparison is made.

Detailed results for each specific pesticide can be found in Annex 1.

Table 6-2 Sediment analysis results

Parameters	Unit	LMP *	Results		Compliance*
			P1	P2	
pH		[6, 8]	8,8	8,3	Do not comply
HTP	mg/kg	150,00	<50	<50	comply
Organic matter	%		12,3	11,3	
Metals dry weight:					
Arsenic	mg/kg	12,00		3,3	comply
Cadmium	mg/kg	0,50	0,2	<0,1	comply
Copper	mg/kg	25,00		8,5	comply
Total Chromium	mg/kg	54,00			comply
Tin	mg/kg	5,00	<0,5	<0,5	comply
Iron	%		2,2	1	N/A
Mercury	mg/kg	0,10	<0,1	<0,1	comply
Lead	mg/kg	19,00	9.9	3,5	comply
Zinc	mg/kg	60,00			comply
Organotin compounds:					
Tributyltin (TBT)	mg/kg		<0,2	<0,2	N/A
Non-chlorinated aliphatics:					
1,2-Dibromoethane	mg/kg	0,30	<0,03	<0,03	comply
Bromoform	mg/kg	0,30	<0,03	<0,03	comply
Bromomethane	mg/kg	0,30	<0,03	<0,03	comply
Dibromomethane	mg/kg	0,30	<0,03	<0,03	comply
Styrene	mg/kg	0,30	<0,03	<0,03	comply
BTEX in soil (dry weight):					
Benzene**	mg/kg		<0,03	<0,03	N/A
Ethylbenzene**	mg/kg		<0,03	<0,03	N/A
m+p Xylene**	mg/kg		<0,03	<0,03	N/A
O-xylene**	mg/kg		<0,03	<0,03	N/A
Toluene	mg/kg	0,10	<0,03	<0,03	comply
Aliphatic Chlorinated Aliphatics in soil (dry weight):					
1,1,1,1-Trichloroethane	mg/kg	0,10	<0,03	<0,03	comply
1,1,2,2,2-Tetrachloroethane	mg/kg	0,10	<0,03	<0,03	comply
1,1,2-Trichloroethane	mg/kg	0,10	<0,03	<0,03	comply
1,1-Dichloroethane	mg/kg	0,10	<0,03	<0,03	comply
1,1-Dichloroethene	mg/kg	0,10	<0,03	<0,03	comply
1,2 Dichloropropane	mg/kg	0,10	<0,03	<0,03	comply
1,2-Dichlorobenzene	mg/kg	0,10	<0,03	<0,03	comply
1,2-Dichloroethane	mg/kg	0,10	<0,03	<0,03	comply
1,3-Dichlorobenzene	mg/kg	0,10	<0,03	<0,03	comply
1,4-Dichlorobenzene	mg/kg	0,10	<0,03	<0,03	comply
Bromodichloromethane	mg/kg	0,10	<0,03	<0,03	comply
Cis 1,3 Dichloropropene	mg/kg	0,10	<0,03	<0,03	comply
cis-1,2-Dichloroethene	mg/kg	0,10	<0,03	<0,03	comply

Parameters	Unit	LMP *	Results		Compliance*
			P1	P2	
Chlorobenzene	mg/kg	0,10	<0,03	<0,03	Comply
Chloroethane	mg/kg	0,10	<0,03	<0,03	Comply
Chloroform	mg/kg	0,10	<0,03	<0,03	Comply
Chloromethane	mg/kg	0,10	<0,03	<0,03	Comply
Methylene chloride	mg/kg	0,10	<0,03	<0,03	Comply
Vinyl chloride	mg/kg	0,10	<0,03	<0,03	Comply
Dibromochloromethane	mg/kg	0,10	<0,03	<0,03	Comply
Dichlorodifluoromethane	mg/kg	0,10	<0,03	<0,03	Comply
Tetrachloroethene	mg/kg	0,10	<0,03	<0,03	Comply
Carbon tetrachloride	mg/kg	0,10	<0,03	<0,03	Comply
Trans 1,3 dichloro propene	mg/kg	0,10	<0,03	<0,03	Comply
trans-1,2-Dichloroethene	mg/kg	0,10	<0,03	<0,03	Comply
Trichloroethene	mg/kg	0,10	<0,03	<0,03	Comply
Trichlorofluoromethane	mg/kg	0,10	<0,03	<0,03	Comply
Pesticides:					
Organochlorine***	mg/kg		<0,01	<0,01	N/A
Organochlorines					
Dieldrin	mg/kg		<0,01	<0,01	N/A
Endrin	mg/kg		<0,01	<0,01	N/A
Heptachlor	mg/kg		<0,01	<0,01	N/A
pp'DDE	mg/kg		<0,01	<0,01	N/A
pp'DDT	mg/kg		<0,01	<0,01	N/A
pp'DDD	mg/kg		<0,01	<0,01	N/A
Organophosphates***	mg/kg	<0,01	<0,01	<0,01	N/A
Organonitrogenous ***.	mg/kg	<0,01	<0,01	<0,01	N/A
Carbamates***.	mg/kg		<0,01	<0,01	N/A

* AM 097A, Annex 2, Table 1: Soil Quality Criteria

** AM 097-A, Annex 2, Table 2: Remediation Criteria

*** Highest value obtained by type of pesticides in this group

0.00 If the result exceeds the LMP * (LMP - maximum permissible limit)

Source: Soil Quality Analysis Laboratory Gruntec Cía. Ltda. Prepared

by: ECOSAMBITO C. Ltda.

Date: December 16, 2020

6.6 Conclusions on soil quality monitoring in sediments

- The samples analyzed correspond to soils with an alkaline tendency (pH>7).
- The Total Petroleum Hydrocarbons parameter is below the "LMP". The samples have an organic matter content of more than 10%.
- The metals Arsenic, Cadmium, Copper, Total Chromium, Tin, Mercury, Zinc and Lead are below the established "LMP", while Iron is found in normal concentrations for this environment.

- In the group of non-chlorinated aliphatic parameters, the results obtained are below the established LMP.
- In the group of BTEX parameters, the results obtained are below the established "LMP".
- In the group of aliphatic chlorinated parameters, the results obtained are below the established "LMP".
- As for the content of the organochlorine pesticides Dieldrin, Endrin, Heptachlor, pp'DDE, pp'DDD, and pp'DDT, their results appear as a constant value that corresponds to the accredited limit of quantification; and although this value is higher than the "LMP" established for these pesticides in the Canadian regulations, it is not possible to evaluate with certainty whether or not they are in compliance.
- As for the content of organophosphorus, organonitrogen and carbamate pesticides (and all pesticides within these groups), their results appear as a constant value that corresponds to the accredited limit of quantification.
- For the parameter *Tributyltin* (TriButyltin or TBT), values below the detection limit of 0.2 mg/kg are reported. In the absence of a local standard setting "LMP" for TBT, and taking as reference values those proposed by the Dutch National Institute for Coastal and Marine Management (RIKZ) in their sediment quality guidelines an MPL = 0.0007 mg/kg, and a negligibility value of 0.000007 mg/kg (in a standard sediment with 10% organic matter, or equivalently 5% organic carbon) (Stronkhorst & van Hattum, 2003); (Stronkhorst & van Hattum, 2003); (Stronkhorst & van Hattum, 2003); it is established that the TBT contained in samples P1 and P2 exceed the reference "LMP". At the Ecuadorian level, this result would be comparable to that obtained in the Puntilla de Santa Elena Marine Reserve with 0.05 mg/kg of TBT, the same result as that obtained in Concepción in Chile, and those obtained in Atacama and Isla Grande also in Chile, with a concentration of up to 0.5 mg/kg of TBT (Braga Castro, Bender Machado, Tavares de Sousa, Paz-Villarraga, & Fillmann, 2021). Other results of TBT measurements in sediments obtained in port areas show the following results: Barcelona - Port Vell, between 0.326 and 4.702 mg/kg (Martínez-Lladó, Gibert, Martí, Díez, & Romo, 2007); Port of Barcelona dry dock 9.26 mg/kg, Marina Masnou 2.420 mg/kg, and Toronto Bay 0.539 mg/kg (Tolosa, Merlini, De Bertrand, Bayona, & Albaiges, 1992); Basque Country (several ports), concentrations between 0.002 mg/kg and 3.13 mg/kg were found (Rodríguez, Franco, Borja, & Valencia, 2008). The results obtained could be associated with dredging and sediment transport from the aprons of docks and maneuvering area of Puerto Bolivar, considering that in this port cleaning and painting of hulls have been carried out in a semi-artisanal way since the eighties of the last century and until 2017, when this activity was prohibited inside the Port Terminal.

Tributyltin (TBT)

TBT is an organic functional group consisting of three butyl groups bonded to a tin atom by covalent bonds, which can be decomposed in water by light (photolysis) and by microorganism (biodegradation) into di- and mono-butyltin. Its half-life varies from a few days to several weeks (35), although decomposition is slower when TBT has accumulated in sediments; if oxygen is completely lacking, the life of tributyltin can reach up to 15 years (Stewart & Mora, 1990). Its toxicity to environment, as well as its effects on biota (especially for mollusks and gastropods) have been studied in depth since the mid-1970s, and there are reports of its presence and distribution in Latin America (Braga Castro, Bender Machado, Tavares de Sousa, Paz-Villarraga, & Fillmann, 2021). TBT is exclusively an anthropogenic chemical, which has been widely used as

wood preservatives, as biocides and pesticides (algaecide, fungicide, insecticide and acaricide) with a broad spectrum of action, and also in antifouling paints applied in ship hulls, ports, the latter uses being the main form of entry of TBT into the marine environment by the release of antifouling paints. Thus, port areas or areas with high maritime traffic, and areas near shipyards, are generally where the highest concentrations of this compound are found. The International Maritime Organization banned the use of organic tin compounds in antifouling paints on ships, and established a mechanism to prevent the possible future use of other harmful chemicals in antifouling systems, a resolution adopted on October 5, 2001, which came into force internationally on September 18, 2008 (IMO, 2001). It has also been banned by the Rotterdam Convention (FAO, 2013) including all known TBT compounds (tributyltin oxide, tributyltin fluoride, tributyltin methacrylate, tributyltin benzoate, tributyltin chloride, tributyltin linoleate, tributyltin naphthenate).

7 References

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8 ANNEXES

Annex 1. Results Report

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizio Tapia

Project: Water Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG001

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 1	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG001		
Field parameters:			
Dissolved oxygen mg/l ^(1,2,3)	8.2	N/A	SM 4500 O ₂ G / MM-AG-03
Oxygen saturation % ^(1,2,3)	99.7	> 60	SM 4500 O ₂ G / MM-AG-03
Parameters performed in the laboratory			
Physical-Chemical:			
Total Suspended Solids mg/l ^{(1,2) ^}		N/A	SM 2540 D / MM-AG-05
Turbidity FAU/NTU ^{(1,2) ^}	<4	N/A	HACH 8237 / MM-AG-04
Anions and Non-Metals:			
Ammonium mg/l ^{(1,2) ^}	0.04	N/A	SM 4500 Norg / MM-AG-15
Ammonium as Ammonia mg/l ^(1,2) ^ c1)	0.03	0.4	SM 4500 Norg / MM-AG-15
Organic Parameters:			
Oils and Fats mg/l ^{(1,2) ^}	<0.3	0.3	EPA 1664 / MM-AG/S-32
Biochemical Oxygen Demand mg/l ^{(1,2) ^}	<2	N/A	SM 5210 B,D / MM-AG-19
Chemical Oxygen Demand mg/l ^{(1,2) ^}	<50	N/A	SM 5220 D / MM-AG-18
Total hydrocarbons of oil (C8-C40) mg/l ^{(1,2) ^}	<0.3	0.5	EPA 8015 D / MM-AG-23
Surfactant substances mg/l ^{(1,2) ^}	0.14	0.5	SM 5540 / MM-AG-26
Non-chlorinated aliphatics:			
1,2-Dibromoethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Bromoform mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Bromomethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Dibromomethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Styrene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
BTEX in water:			
Benzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Ethylbenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
m+p Xylene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
O-xylene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Toluene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Aliphatic Chlorinated Aliphatics in water:			
1,1,1,1-Trichloroethane mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
1,1,2,2-Tetrachloroethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
1,1,2-Trichloroethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
1,1-Dichloroethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
1,1-Dichloroethene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Water Analysis at Altamar - Puerto Bolívar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG001

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 1	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG001		
Aliphatic Chlorinated Aliphatics in water:			
1,2-Dichlorobenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
1,2-Dichloroethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
1,2-Dichloropropane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
1,3-Dichlorobenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
1,4-Dichlorobenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Bromodichloromethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
cis-1,2-Dichloroethene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
cis-1,3-Dichloropropene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Chlorobenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Chloroethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Chloroform mg/l ^{(1,2) ^}	0.14	N/A	EPA 8260 C / MM-AG-31
Chloromethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Methylene chloride mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Vinyl chloride mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Dibromochloromethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Dichlorodifluoromethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Tetrachloroethene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Carbon tetrachloride mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
trans-1,2-Dichloroethene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
trans-1,3-Dichloropropane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Trichloroethene mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Trichlorofluoromethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Microbiological parameters:			
Fecal Coliforms (E. coli) NMP/100 ml ^{(1,2) ^}	230	N/A	SM 9223 A,B / MM-AG/S-20
Total metals:			
Arsenic mg/l ^{(1,2) ^}	<0.01 l1)	0.05	EPA 6020 B / MM-AG/S-39
Cadmium mg/l ^{(1,2) ^}	<0.002 l1)	0.005	EPA 6020 B / MM-AG/S-39
Copper mg/l ^{(1,2) ^}	<0.1 l1)	0.005	EPA 6020 B / MM-AG/S-39
Chromium mg/l ^{(1,2) ^}	<0.004 l1)	0.05	EPA 6020 B / MM-AG/S-39
Tin mg/l ^{(1,2) ^}	<0.01 l1)		EPA 6020 B / MM-AG/S-39
Iron mg/l ^{(1,2) ^}	<0.4 l1)	0.3	EPA 6020 B / MM-AG/S-39
Mercury mg/l ^{(1,2) ^}	<0.002 l1)	0.0001	EPA 6020 B / MM-AG/S-39

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Water Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG001

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 1	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG001		
Total metals:			
Lead mg/l ^{(1,2) ^}	<0.01 l1)	0.001	EPA 6020 B / MM-AG/S-39
Zinc mg/l ^{(1,2) ^}	<0.1 l1)	0.015	EPA 6020 B / MM-AG/S-39
Total Organochlorine Pesticides mg/l:	<0.0001	0.01	EPA 8270 D / MM-AG/S/VEG-27
a-BHC mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
a-Chlordane mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Alachlor mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Aldrin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
b-BHC mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Butachlor mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorothalonil mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorthal-dimethyl mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
d-BHC mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dieldrin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan I mg/l ^{(1,2) ^}	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan II mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan Sulfate mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endrin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endrin Aldehyde mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
g-BHC mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
g-Chlordane mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Heptachlor mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Heptachloro-Epoxide mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metolachlor mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methoxychlor mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Oxyfluorfen mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDD mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDE mg/l ^{(1,2) ^}	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDT mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Quintocene mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Total Organophosphorus Pesticides mg/l:	<0.001	0.01	EPA 8270 D / MM-AG/S/VEG-27
Acephate mg/l * ^	<0.001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Cadusafos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorpyrifos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas

S/N Telf: 2466-002

Attn: Eng. Fabrizio Tapia

Project: Water Analysis at Altamar - Puerto Bolívar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG001

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 1	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG001		
Total Organophosphorus Pesticides mg/l:	<0.001	0.01	EPA 8270 D / MM-AG/S/VEG-27
Diazinon mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dichlorvos+Trichlorfon mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dimethoate mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Disulfoton mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Ethyl parathion mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Ethoprophos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Phenclorophos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Phorate mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Malathion mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methamidophos mg/l * ^	<0.001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methyl parathion mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Mevinphos mg/l ^{(1,2) ^}	<0.0005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Terbufos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Organonitrogenous Pesticides:			
Ametryn mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Atrazine mg/l ^{(1,2) ^}	<0.0002	N/A	EPA 8270 D / MM-AG/S/VEG-27
Benalaxyl mg/l ^{(1,2) ^}	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Diuron+Liuron mg/l * ^	<0.0002	N/A	EPA 8270 D / MM-AG/S/VEG-27
Hexaconazole mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metalaxyl mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metribuzin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Penconazole mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Pendimethalin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Simazine mg/l ^{(1,2) ^}	<0.0002	N/A	EPA 8270 D / MM-AG/S/VEG-27
Terbutryn mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiabendazole mg/l * ^	<0.001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiometon mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Triadimefon mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Triadimenol mg/l ^{(1,2) ^}	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Trifluralin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27



ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.
El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizio Tapia

Project: Water Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG001

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 1	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG001		
Carbamates:			
Carbaryl mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Carbofuran mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methiocarb mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Pirimicarb mg/l ^(1,2) ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Propoxur mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiobencarb mg/l ^(1,2) ^	<0.0005	N/A	EPA 8270 D / MM-AG/S/VEG-27

Registration and Accreditation:

⁽¹⁾ SAE Accreditation No. SAE LEN 05-008

⁽²⁾ SA / MDMQ Registration No. LEA-R-005

⁽³⁾ A2LA Accreditation Cert. No.4290.01

Tests marked with (*) are not within SAE's scope of accreditation Tests marked with

(^) are not within A2LA's scope of accreditation N/A - Not Applicable

a1) Admissible quality criteria for the preservation of aquatic life and wildlife in fresh, marine and estuarine waters. c1) The value expressed considers Ammonium plus dissolved Ammonia as ammonium.

l1) The sample presents characteristics that made it necessary to apply 20X dilution.

All parameters presented were performed at Matriz Quito Laboratory, except those marked with the letters r),

s) or t).

UNCERTAINTY (U):

Oils and Fats in Water = 10%; Ammonium = 10%; Biochemical Oxygen Demand = 16%; Chemical Oxygen Demand = 9%; Metals in Water

= 18%; Field Oxygen = 12%; Pesticides in Water = 22%; Total Suspended Solids = 18%;

Surfactants = 11%; Turbidity = 15%; TPH = 24%; VOC's = 26% Calculation: C +/-

(UxC/100) where: C=measured value; U= uncertainty %.

Isabel Estrella

Operations Manager

Note 1: These analyses, opinions and/or interpretations are based on the material and information provided by the client for whom this report has been prepared on an exclusive and confidential basis. This information could affect the validity of the results, Gruentec Cía. Ltda. is not responsible for such information.

Note 2: Sampling was carried out by the technical personnel of Gruentec Cía. Ltda.

part of the report. The sample identification and project name is information provided by the client, Gruentec.

is not responsible for the same.

Note 3: The client may request the date of analysis of the parameters if required.

GENERAL INFORMATION							
COMPANY:	YILPORT TERMINAL OPERATIONS YILPORTECU S.A.						
ACTIVITY OF THE COMPANY:	Activities related to the operation of terminal facilities, such as ports and harbors.						
PROJECT:	Water Analysis at Altamar - Puerto Bolivar						
SAMPLING DIRECTION:	Province of El Oro, Machala canton, Puerto Bolivar parish, Altamar.						
TECHNICAL COMPANY:	Eng. Fabrizio Tapia						
TECHNICAL GRUENTEC:	Dannes Satián / Eng. Erick Moreno						
SAMPLE IDENTIFICATION							
Sample identification:	ITEM 1		Gruentec identification:	SAM-2012387-AG001			
Date and time of sampling:	16/12/2020 11:15		Chain of Custody No:	17868			
Date of analysis completed ⁽¹⁾ :	27/12/2020		Date of issue ⁽²⁾ :	31/12/2020			
Geographical coordinates ⁽³⁾ :			17 M		E	585628	Error: ± 3 m
					N	9651120	Datum: WGS84

METHODOLOGY					
Water sampling is based on reference standards and methodologies: - Environmental Quality Standard and Effluent Discharges: Water Resource, ANNEX 1, A.M. 097, BOOK VI, TULSMA. - Technical Norm for the Control of Liquid Discharges (NT002). Municipal Code for the Metropolitan District of Quito. -Standard Methods, 23rd Edition, 2017. Chapter 1060. Sample collection and preservation, Standard method for water and wastewater analysis. - ISO 5667:2006-01. Water quality. Sampling. Part 1: Guidance for the design of sampling programs and sampling techniques. - ISO 5667:2006-05. Guidance on sampling of drinking water from treatment works and piped distribution systems. ISO 5667:2006-06. Guide on sampling of rivers and streams. ISO 5667:2006-09. Guide on marine water sampling. -NTE INEN 1108:2014-01. Drinking water. Requirements. NTE INEN 2169:98 Water: Water quality, sampling, handling and conservation of samples. NTE INEN 2176:98 Water: Water quality, sampling, sampling techniques.					
SAMPLE TYPE					
Sample matrix:	Sea water				
Sampling site facilities:	Site accessible by marine transportation.				
Type of discharge:	Frequency of discharge (hours of discharge per day):	Type of receiving body to which it is discharged:	Type of treatment (physical, chemical, biological):	Treatment time per day (hours):	Days of operation per week:
N/A	N/A	N/A	N/A	N/A	N/A
SAMPLING SITE					
Physical description and observations of the sampling site					
* Surface water sample taken at Altamar. * The sample was taken at a depth of 0.6 m. * Dissolved oxygen measured directly from the water body.					
Weather conditions (High-Medium-Low-Absence)	Rain:	Absence	Humidity:	Medium	Wind: Under

SAMPLE IDENTIFICATION			
Sample identification:	ITEM 1	Gruentec identification:	SAM-2012387-AG001

SAMPLE APPEARANCE ⁽⁴⁾ (Absence or Presence)			
Odor	Absence	Solids suspended	Absence
Color	Absence	Floating matter	Absence
Foam	Absence	Oils and fats	Absence
Turbidity	Absence	Other (algae, etc.)	Absence
EQUIPMENT VERIFICATION			
Equipment used:			Remarks:
Equipment:	Probes:	Time:	
MULP 14	ELEC 201	8:00	pH [N/A]: 7 ≈ 7.03 8 ≈ 8.07 Verification of the pH parameter
MULP 14	ELEC 140	8:00	Conductivity [μS/cm]: 1000 ≈ 1012 1412 ≈ 1428 Verification of the Conductivity parameter
MULP 14	N/A	8:00	Temperature [°C]: OK Verification of the Temperature parameter
MULP 14	ELEC 89	8:00	Oxygen Saturation [%]: 100 ≈ 97.8 Verification of the Oxygen parameter of

IN SITU PARAMETER MEASUREMENT							
Parameter	Units	Value	Duplicate	Parameter	Units	Value	Duplicate
pH	-	8.24	8.30	Turbidity	[NTU]	n.a.	n.a.
Conductivity	[uS/cm] [uS/cm]	50400	50000	Dissolved Oxygen	[mg/l] [mg/l] [mg/l] [mg/l] [mg/l] [mg/l]	8.15	8.10
Sample temperature	[°C]	25.3	25.3	% Oxygen saturation	[%]	99.7	99.1
Corrected temperature	[°C]	25.5	25.5	Redox Potential	[mV] [mV] [mV] [mV] [mV] [mV]	n.a.	n.a.
Ambient temperature	[°C]	n.a.	n.a.	Free residual chlorine	[mg/l] [mg/l] [mg/l] [mg/l] [mg/l] [mg/l]	n.a.	n.a.
Flow rate	[l/s] [l/s]	n.a.	n.a.	Total residual chlorine	[mg/l] [mg/l] [mg/l] [mg/l] [mg/l] [mg/l]	n.a.	n.a.
Sulfide	[mg/l] [mg/l] [mg/l] [mg/l] [mg/l] [mg/l]	n.a.	n.a.	Color	Pt Co	n.a.	n.a.

Flow measurement:

N/A

Remarks:

Flow rate parameter not requested by the customer.

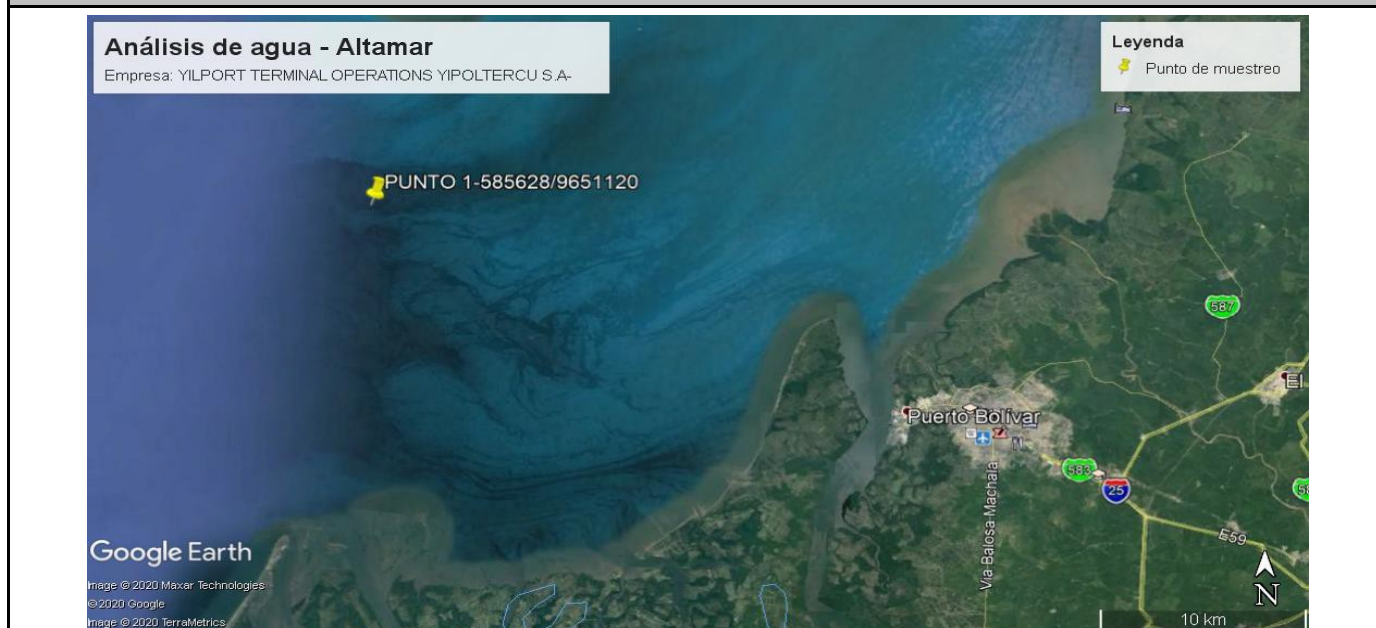
APPEARANCE OF THE SAMPLE (Perception of the technician in charge)
Specify appearance of the sample: No additional observations are evident in the appearance of the sample.
Preservation/storage conditions: Sample stored at 4 ±2 °C

REGISTRO DE TOMA DE MUESTRA DE AGUA SIMPLE

Sodium Hydroxide NaOH 6M			NaOH 6M + Acetate Zinc $\text{ZnC}_4\text{H}_6\text{O}_4$ 2N	Phosphoric acid H_3PO_4 (c)	Nitric Acid HNO_3 (c)	Sulfuric Acid H_2SO_4 1:1		
Surfactants	Hexavalent chromium	Cyanide	Sulfide	Phenols	Metals	Total nitrogen Kjeldahl	Ammonium	COD
Sampling criteria								
The location of the sampling point, the type of sample, and the frequency and/or date of sampling has been defined by the client.								
Notes: (1) Date of completion of the field record. (2) Date of report of results to the client by Gruentec Cía Ltda. (3) Geographic coordinates provided by the client may differ up to 30 meters from the GPS equipment, which may be due to the appreciation of the equipment, topographic conditions and available satellite signals. (4) Physical characteristics of the sample observed by the technician in the field. (5) Raw sample data obtained from the measurement equipment. (6) Correction of the parameter according to the standard thermometer. N/A: not applicable; n.a.: not determined.								

SAMPLE IDENTIFICATION			
Sample identification:	ITEM 1	Gruentec identification:	SAM-2012387-AG001

LOCATION MAP OF THE SAMPLING POINT



PHOTOGRAPHS OF THE SAMPLE COLLECTION

	
Panoramic view of the sampling area.	Photograph 2. Sample collection site.
	
Photograph 3. Appearance of the sample.	Photograph 4. Labeled, packaged and preserved sample.

Isabel Estrella
Operations Manager

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizio Tapia

Project: Water Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG002

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 2	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG002		
Field parameters:			
Dissolved oxygen mg/l ^(1,2,3)	8.0	N/A	SM 4500 O ₂ G / MM-AG-03
Oxygen saturation % ^(1,2,3)	97.7	> 60	SM 4500 O ₂ G / MM-AG-03
Parameters performed in the laboratory			
Physical-Chemical:			
Total Suspended Solids mg/l ^{(1,2) ^}		N/A	SM 2540 D / MM-AG-05
Turbidity FAU/NTU ^{(1,2) ^}		N/A	HACH 8237 / MM-AG-04
Anions and Non-Metals:			
Ammonium mg/l ^{(1,2) ^}	0.04	N/A	SM 4500 Norg / MM-AG-15
Ammonium as Ammonia mg/l ^(1,2) ^ c1)	0.03	0.4	SM 4500 Norg / MM-AG-15
Organic Parameters:			
Oils and Fats mg/l ^{(1,2) ^}	<0.3	0.3	EPA 1664 / MM-AG/S-32
Biochemical Oxygen Demand mg/l ^{(1,2) ^}	<2	N/A	SM 5210 B,D / MM-AG-19
Chemical Oxygen Demand mg/l ^{(1,2) ^}	<50	N/A	SM 5220 D / MM-AG-18
Total hydrocarbons of oil (C8-C40) mg/l ^{(1,2) ^}	<0.3	0.5	EPA 8015 D / MM-AG-23
Surfactant substances mg/l ^{(1,2) ^}	0.15	0.5	SM 5540 / MM-AG-26
Non-chlorinated aliphatics:			
1,2-Dibromoethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Bromoform mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Bromomethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Dibromomethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Styrene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
BTEX in water:			
Benzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Ethylbenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
m+p Xylene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
O-xylene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Toluene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Aliphatic Chlorinated Aliphatics in water:			
1,1,1,1-Trichloroethane mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
1,1,2,2,2-Tetrachloroethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
1,1,2-Trichloroethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
1,1-Dichloroethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
1,1-Dichloroethene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Water Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG002

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 2	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG002		
Aliphatic Chlorinated Aliphatics in water:			
1,2-Dichlorobenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
1,2-Dichloroethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
1,2-Dichloropropane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
1,3-Dichlorobenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
1,4-Dichlorobenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Bromodichloromethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
cis-1,2-Dichloroethene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
cis-1,3-Dichloropropene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Chlorobenzene mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8260 C / MM-AG-31
Chloroethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Chloroform mg/l ^{(1,2) ^}	0.02	N/A	EPA 8260 C / MM-AG-31
Chloromethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Methylene chloride mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Vinyl chloride mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Dibromochloromethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Dichlorodifluoromethane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Tetrachloroethene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Carbon tetrachloride mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
trans-1,2-Dichloroethene mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
trans-1,3-Dichloropropane mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Trichloroethene mg/l ^{(1,2) ^}	<0.005	N/A	EPA 8260 C / MM-AG-31
Trichlorofluoromethane mg/l ^{(1,2) ^}	<0.002	N/A	EPA 8260 C / MM-AG-31
Microbiological parameters:			
Fecal Coliforms (E. coli) NMP/100 ml ^{(1,2) ^}		N/A	SM 9223 A,B / MM-AG/S-20
Total metals:			
Arsenic mg/l ^{(1,2) ^}	<0.01 l1)	0.05	EPA 6020 B / MM-AG/S-39
Cadmium mg/l ^{(1,2) ^}	<0.002 l1)	0.005	EPA 6020 B / MM-AG/S-39
Copper mg/l ^{(1,2) ^}	<0.1 l1)	0.005	EPA 6020 B / MM-AG/S-39
Chromium mg/l ^{(1,2) ^}	<0.004 l1)	0.05	EPA 6020 B / MM-AG/S-39
Tin mg/l ^{(1,2) ^}	<0.01 l1)		EPA 6020 B / MM-AG/S-39
Iron mg/l ^{(1,2) ^}	<0.4 l1)	0.3	EPA 6020 B / MM-AG/S-39
Mercury mg/l ^{(1,2) ^}	<0.002 l1)	0.0001	EPA 6020 B / MM-AG/S-39

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas

S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Water Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG002

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 2	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG002		
Total metals:			
Lead mg/l ^{(1,2) ^}	<0.01 l1)	0.001	EPA 6020 B / MM-AG/S-39
Zinc mg/l ^{(1,2) ^}	<0.1 l1)	0.015	EPA 6020 B / MM-AG/S-39
Total Organochlorine Pesticides mg/l:	<0.0001	0.01	EPA 8270 D / MM-AG/S/VEG-27
a-BHC mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
a-Chlordane mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Alachlor mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Aldrin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
b-BHC mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Butachlor mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorothalonil mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorthal-dimethyl mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
d-BHC mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dieldrin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan I mg/l ^{(1,2) ^}	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan II mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan Sulfate mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endrin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endrin Aldehyde mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
g-BHC mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
g-Chlordane mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Heptachlor mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Heptachloro-Epoxyde mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metolachlor mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methoxychlor mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Oxyfluorfen mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp' DDD mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDE mg/l ^{(1,2) ^}	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDT mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Quintocene mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Total Organophosphorus Pesticides mg/l:	<0.001	0.01	EPA 8270 D / MM-AG/S/VEG-27
Acephate mg/l * ^	<0.001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Cadusafos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorpyrifos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizio Tapia

Project: Water Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG002

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 2	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG002		
Total Organophosphorus Pesticides mg/l:	<0.001	0.01	EPA 8270 D / MM-AG/S/VEG-27
Diazinon mg/l ^{(1,2) ^}	<0.001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dichlorvos+Trichlorfon mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dimethoate mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Disulfoton mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Ethyl parathion mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Ethoprophos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Phenclorophos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Phorate mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Malathion mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methamidophos mg/l * ^	<0.001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methyl parathion mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Mevinphos mg/l ^{(1,2) ^}	<0.0005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Terbufos mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Organonitrogenous Pesticides:			
Ametryn mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Atrazine mg/l ^{(1,2) ^}	<0.0002	N/A	EPA 8270 D / MM-AG/S/VEG-27
Benalaxyl mg/l ^{(1,2) ^}	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Diuron+Liuron mg/l * ^	<0.0002	N/A	EPA 8270 D / MM-AG/S/VEG-27
Hexaconazole mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metalaxyl mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metribuzin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Penconazole mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Pendimethalin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Simazine mg/l ^{(1,2) ^}	<0.0002	N/A	EPA 8270 D / MM-AG/S/VEG-27
Terbutryn mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiabendazole mg/l * ^	<0.001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiometon mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Triadimefon mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Triadimenol mg/l ^{(1,2) ^}	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Trifluralin mg/l ^{(1,2) ^}	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27



ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.
El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizio Tapia

Project: Water Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Seawater sample

Analysis Completed: 29-Dec.-20

Gruentec report number: 2012387-AG002

Date of Issue: 31-Dec.-20

Sample identification:	ITEM 2	Maximum Permissible Limit Table 2. Marine and estuarine water Annex 1, Ministerial Agreement 097-A, TULSMA ^{a1)}	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-AG002		
Carbamates:			
Carbaryl mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Carbofuran mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methiocarb mg/l * ^	<0.00005	N/A	EPA 8270 D / MM-AG/S/VEG-27
Pirimicarb mg/l ^(1,2) ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Propoxur mg/l * ^	<0.0001	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiobencarb mg/l ^(1,2) ^	<0.0005	N/A	EPA 8270 D / MM-AG/S/VEG-27

Registration and Accreditation:

⁽¹⁾ SAE Accreditation No. SAE LEN 05-008

⁽²⁾ SA / MDMQ Registration No. LEA-R-005

⁽³⁾ A2LA Accreditation Cert. No.4290.01

Tests marked with (*) are not within SAE's scope of accreditation Tests marked with

(^) are not within A2LA's scope of accreditation N/A - Not Applicable

a1) Admissible quality criteria for the preservation of aquatic life and wildlife in fresh, marine and estuarine waters. c1) The value expressed considers Ammonium plus dissolved Ammonia as ammonium.

l1) The sample presents characteristics that made it necessary to apply 20X dilution.

All parameters presented were performed at Matriz Quito Laboratory, except those marked with the letters r),

s) or t).

UNCERTAINTY (U):

Oils and Fats in Water = 10%; Ammonium = 10%; Biochemical Oxygen Demand = 16%; Chemical Oxygen Demand = 9%; Metals in Water = 18%; Field Oxygen = 12%; Pesticides in Water = 22%; Total Suspended Solids = 18%;

Surfactants = 11%; Turbidity = 15%; TPH = 24%; VOC's = 26% Calculation: C +/-

(UxC/100) where: C=measured value; U= uncertainty %.

Isabel Estrella

Operations Manager

Note 1: These analyses, opinions and/or interpretations are based on the material and information provided by the client for whom this report has been prepared on an exclusive and confidential basis. This information could affect the validity of the results, Gruentec Cía. Ltda. is not responsible for such information.

Note 2: Sampling was carried out by the technical personnel of Gruentec Cía. Ltda. part of the report. The sample identification and project name is information provided by the client, Gruentec. is not responsible for the same.

Note 3: The client may request the date of analysis of the parameters if required.

REGISTRO DE TOMA DE MUESTRA DE AGUA SIMPLE

GENERAL INFORMATION							
COMPANY:	YILPORT TERMINAL OPERATIONS YILPORTECU S.A.						
ACTIVITY OF THE COMPANY:	Activities related to the operation of terminal facilities, such as ports and harbors.						
PROJECT:	Water Analysis at Altamar - Puerto Bolivar						
SAMPLING DIRECTION:	Province of El Oro, Machala canton, Puerto Bolivar parish, Altamar.						
TECHNICAL COMPANY:	Eng. Fabrizio Tapia						
TECHNICAL GRUENTEC:	Dannes Satián / Eng. Erick Moreno						
SAMPLE IDENTIFICATION							
Sample identification:	ITEM 2		Gruentec identification:	SAM-2012387-AG002			
Date and time of sampling:	16/12/2020 10:45		Chain of Custody No:	17868			
Date of analysis completed (1):	27/12/2020		Date of issue (2):	31/12/2020			
Geographical coordinates (3):			17 M		E	588826	Error: ± 3 m
					N	9650866	Datum: WGS84

METHODOLOGY							
Water sampling is based on reference standards and methodologies: - Environmental Quality Standard and Effluent Discharges: Water Resource, ANNEX 1, A.M. 097, BOOK VI, TULSMA. - Technical Norm for the Control of Liquid Discharges (NT002). Municipal Code for the Metropolitan District of Quito. - Standard Methods, 23rd Edition, 2017. Chapter 1060. Sample collection and preservation, Standard method for water and wastewater analysis. - ISO 5667:2006-01. Water quality. Sampling. Part 1: Guidance for the design of sampling programs and sampling techniques. - ISO 5667:2006-05. Guidance on sampling of drinking water from treatment works and piped distribution systems. - ISO 5667:2006-06. Guide on sampling of rivers and streams. - ISO 5667:2006-09. Guide on marine water sampling. - NTE INEN 1108:2014-01. Drinking water. Requirements. - NTE INEN 2169:98 Water: Water quality, sampling, handling and conservation of samples. - NTE INEN 2176:98 Water: Water quality, sampling, sampling techniques.							
SAMPLE TYPE							
Sample matrix:	Sea water						
Sampling site facilities:	Site accessible by marine transportation.						
Type of discharge:	Frequency of discharge (hours of discharge per day):	Type of receiving body to which it is discharged:	Type of treatment (physical, chemical, biological):	Treatment time per day (hours):	Days of operation per week:		
N/A	N/A	N/A	N/A	N/A	N/A		
SAMPLING SITE							
Physical description and observations of the sampling site							
* Surface water sample taken at Altamar * The sample was taken at a depth of 0.6 m. * Dissolved oxygen measured directly from the water body.							
Weather conditions (High-Medium-Low-Absence)		Rain:	Absence	Humidity:	Medium	Wind:	Under

SAMPLE IDENTIFICATION			
Sample identification:	ITEM 2	Gruentec identification:	SAM-2012387-AG002

SAMPLE APPEARANCE ⁽⁴⁾ (Absence or Presence)			
Odor	Absence	Solids suspended	Absence
Color	Absence	Floating matter	Absence
Foam	Absence	Oils and fats	Absence
Turbidity	Absence	Other (algae, etc.)	Absence
EQUIPMENT VERIFICATION			
Equipment used:			Remarks:
Equipment:	Probes:	Time:	
MULP 14	ELEC 201	8:00	pH [N/A]: 7 ≈ 7.03 8 ≈ 8.07 Verification of the pH parameter
MULP 14	ELEC 140	8:00	Conductivity [μS/cm]: 1000 ≈ 1012 1412 ≈ 1428 Verification of the Conductivity parameter
MULP 14	N/A	8:00	Temperature [°C]: OK Verification of the Temperature parameter
MULP 14	ELEC 89	8:00	Oxygen Saturation [%]: 100 ≈ 97.8 Verification of the Oxygen parameter of

IN SITU PARAMETER MEASUREMENT							
Parameter	Units	Value	Duplicate	Parameter	Units	Value	Duplicate
pH	-	8.20	8.18	Turbidity	[NTU]	n.a.	n.a.
Conductivity	[uS/cm] [uS/cm]	48500	49000	Dissolved Oxygen	[mg/l] [mg/l] [mg/l] [mg/l] [mg/l] [mg/l]	7.97	8.01
Sample temperature	[°C]	25.3	25.4	% Oxygen saturation	[%]	97.7	
Corrected temperature	[°C]	25.5	25.6	Redox Potential	[mV] [mV] [mV] [mV] [mV] [mV]	n.a.	n.a.
Ambient temperature	[°C]	n.a.	n.a.	Free residual chlorine	[mg/l] [mg/l] [mg/l] [mg/l] [mg/l] [mg/l]	n.a.	n.a.
Flow rate	[l/s] [l/s]	n.a.	n.a.	Total residual chlorine	[mg/l] [mg/l] [mg/l] [mg/l] [mg/l] [mg/l]	n.a.	n.a.
Sulfide	[mg/l] [mg/l] [mg/l] [mg/l] [mg/l] [mg/l]	n.a.	n.a.	Color	Pt Co	n.a.	n.a.

Flow measurement:

N/A

Remarks:

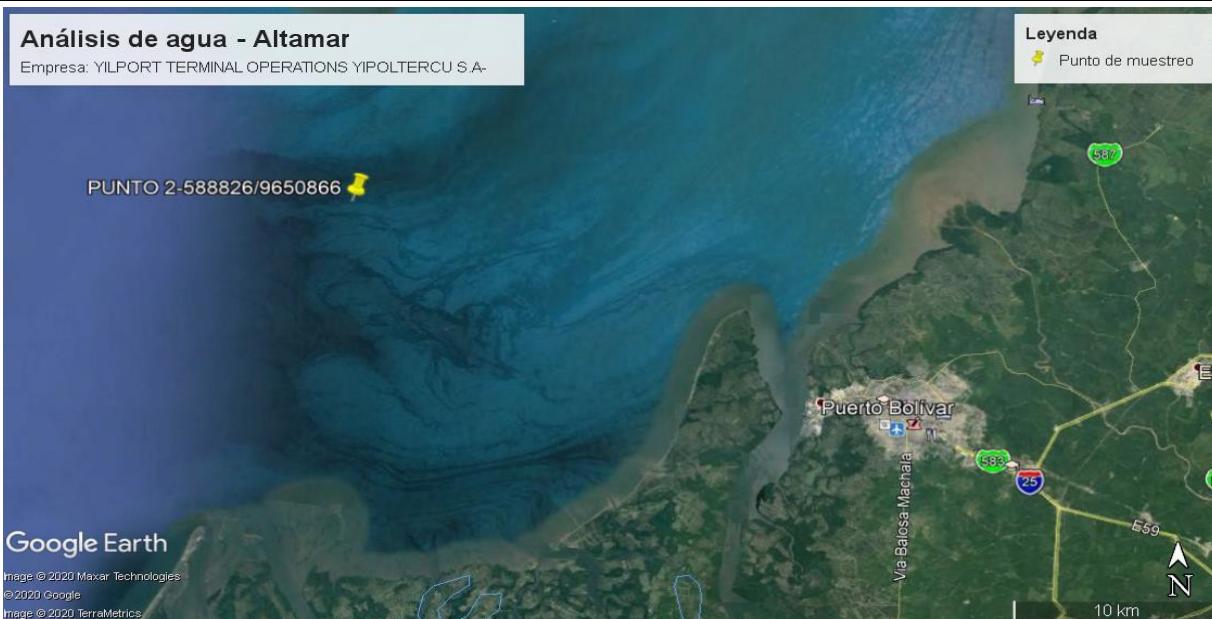
Flow rate parameter not requested by the customer.

APPEARANCE OF THE SAMPLE (Perception of the technician in charge)
Specify appearance of the sample: No additional observations are evident in the appearance of the sample.
Preservation/storage conditions: Sample stored at 4 ±2 °C

REGISTRO DE TOMA DE MUESTRA DE AGUA SIMPLE

Sodium Hydroxide NaOH 6M			NaOH 6M + Acetate Zinc ZnC ₄ H ₆ O ₄ 2N	Phosphoric acid H ₃ PO ₄ (c)	Nitric Acid HNO ₃ (c)	Sulfuric Acid H ₂ SO ₄ 1:1		
Surfactants	Hexavalent chromium	Cyanide	Sulfide	Phenols	Metals	Total nitrogen Kjeldahl	Ammonium	COD
Sampling criteria								
The location of the sampling point, the type of sample, and the frequency and/or date of sampling has been defined by the client.								
Notes: (1) Date of completion of the field record. (2) Date of report of results to the client by Gruentec Cía Ltda. (3) Geographic coordinates provided by the client may differ up to 30 meters from the GPS equipment, which may be due to the appreciation of the equipment, topographic conditions and available satellite signals. (4) Physical characteristics of the sample observed by the technician in the field. (5) Raw sample data obtained from the measurement equipment. (6) Correction of the parameter according to the standard thermometer. N/A: not applicable; n.a.: not determined.								

SAMPLE IDENTIFICATION			
Sample identification:	ITEM 2	Gruentec identification:	SAM-2012387-AG002

LOCATION MAP OF THE SAMPLING POINT
 Análisis de agua - Altamar Empresa: YILPORT TERMINAL OPERATIONS YIPOLTERCU S.A. PUNTO 2:5888826/9650866 Google Earth Image © 2020 Maxar Technologies © 2020 Google Image © 2020 TerraMetrics Legenda Punto de muestreo Puerto Bolívar Via Balboa Machala 10 km

PHOTOGRAPHS OF THE SAMPLE COLLECTION	
 Panoramic view of the sampling area.	 Photograph 2. Sample collection site.
 Photograph 3. Appearance of the sample.	 Photograph 4. Labeled, packaged and preserved sample.

Isabel Estrella
Operations Manager

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas

S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S001

Date of Issue: 06-Jan.-21

SECTION I

Sample identification:	ITEM 1	Maximum Permissible Limit	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20	Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	
No. Gruentec Report:	2012387-S001		
Parameters performed in the laboratory			
Parameters in aqueous extraction 2:1:			
pH ^(1,2)	8.8	6 - 8	EPA 9045 D / MM-AG/S-01
Metals in dry weight:			
Arsenic mg/kg ^(1,2)	8.0		EPA 6020 B / MM-AG/S-39
Cadmium mg/kg ^(1,2)	0.2	0.5	EPA 6020 B / MM-AG/S-39
Copper mg/kg ^(1,2)			EPA 6020 B / MM-AG/S-39
Chromium mg/kg ^(1,2)			EPA 6020 B / MM-AG/S-39
Tin mg/kg *	<0.5	5	EPA 6020 B / MM-AG/S-39
Iron % ^(1,2)	2.2	N/A	EPA 6020 B / MM-AG/S-39
Mercury mg/kg ^(1,2)	<0.1	0.1	EPA 6020 B / MM-AG/S-39
Lead mg/kg ^(1,2)	9.9		EPA 6020 B / MM-AG/S-39
Zinc mg/kg ^(1,2)			EPA 6020 B / MM-AG/S-39
Non-chlorinated aliphatics:			
1,2-Dibromoethane mg/kg * * 1,2-Dibromoethane mg/kg	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Bromoform mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Bromomethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Dibromomethane mg/kg *	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Styrene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
BTEX in soil (dry weight):			
Benzene mg/kg ^(1,2)	<0.03	0.03	EPA 8260 C / MM-AG/S-31
Ethylbenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
m+p-xylene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
O-xylene mg/kg ^(1,2)	<0.03		EPA 8260 C / MM-AG/S-31
Toluene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Aliphatic Chlorinated Aliphatics in soil (dry weight):			
1,1,1,1-Trichloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,1,2,2,2-Tetrachloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,1,2-Trichloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,1-Dichloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,1-Dichloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,2 Dichloropropane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,2-Dichlorobenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,2-Dichloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas

S/N Telf: 2466-002

Attn: Eng. Fabrizio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S001

Date of Issue: 06-Jan.-21

Sample identification:	ITEM 1	Maximum Permissible Limit Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-S001		
Aliphatic Chlorinated Aliphatics in soil (dry weight):			
1,3-Dichlorobenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,4-Dichlorobenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Bromodichloromethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Cis 1,3 Dichloropropene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
cis-1,2-Dichloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Chlorobenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Chloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Chloroform mg/kg ^(1,2)	0.14	0.1	EPA 8260 C / MM-AG/S-31
Chloromethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Methylene chloride mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Vinyl chloride mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Dibromochloromethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Dichlorodifluoromethane mg/kg *	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Tetrachloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Carbon tetrachloride mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Trans 1,3 Dichloro propene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
trans-1,2-Dichloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Trichloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Trichlorofluoromethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Organic Parameters in dry weight:			
Total Hydrocarbons of petroleum (C8-C40) mg/kg ^(1,2)	<50		EPA 8015 D / MM-S-23
Organic Matter % ** Organic Matter % ** Organic Matter % ** Organic Matter % ** Organic Matter	12.3	N/A	Internal Method
Organochlorine pesticides in wet weight:			
a-BHC mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
a-Chlordane mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Alachlor mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Aldrin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
b-BHC mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Butachlor mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorothalonil mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlrotal-dimethyl mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
d-BHC mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dieldrin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan I mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan II mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S001

Date of Issue: 06-Jan.-21

Sample identification:	ITEM 1	Maximum Permissible Limit	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20	Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	
No. Gruentec Report:	2012387-S001		
Organochlorine pesticides in wet weight:			
Endosulfan sulfate mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endrin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endrin aldehyde mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
g-BHC mg/kg ^(1,2)	<0.01	0.01	EPA 8270 D / MM-AG/S/VEG-27
g-chlordane mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Heptachlor mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Heptachlor epoxide mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methoxychlor mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metolachlor mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Oxyfluorfen mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDE mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDT mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'DDD mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Quintozene mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Organophosphorus pesticides on a wet weight basis:			
Acephate mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Cadusafos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorpyrifos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Diazinon mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dichlorvos+Trichlorfon mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dimethoate mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Disulfoton mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Enthoprophos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Fenchlorphos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Malathion mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methamidophos mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methyl parathion mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Mevinphos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Parathion mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Phorate mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Terbufos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Organonitrogen pesticides on wet weight basis:			
Ametryn mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Atrazine mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Benalaxyl mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas

S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S001

Date of Issue: 06-Jan.-21

Sample identification:	ITEM 1	Maximum Permissible Limit	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20	Table 1 Annex 2. Ministerial Agreement 097-A TULSMA a1)	
No. Gruentec Report:	2012387-S001		
Organonitrogen pesticides on wet weight basis:			
Diuron+Liuron mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Hexaconazole mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metalaxyl mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metribuzin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Penconazole mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Pendamethanil mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Simazine mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Terbutryn mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiabendazole mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiometon mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Triadimefon mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Triadimenol mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Trifluralin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Carbamates in wet weight:			
Carbaryl mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Carbofuran mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methiocarb mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Pirimicarb mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Propoxur mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiobencarb mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27

Registration and Accreditation:

⁽¹⁾ SAE Accreditation No. SAE LEN 05-008

⁽²⁾ SA / MDMQ Registration No. LEA-R-005

Tests marked with (*) are not within SAE's scope of accreditation N/A - Not

Applicable

a1) Soil Quality Criteria.

All parameters presented were performed at Matriz Quito Laboratory, except those marked with the letters r), s) or t).

UNCERTAINTY (U) for pH = 0.2 units

UNCERTAINTY (U):

Volatile Organic Compounds in soils = 39%; Organic Matter = 5%; Metals in solids = 28%; Pesticides in Soil = 50%; TPH soil = 26% Calculation: C

+/- (UxC/100) where: C=measured value; U= uncertainty %.

Isabel Estrella

Operations Manager

Note 1: These analyses, opinions and/or interpretations are based on the material and information provided by the client for whom this report has been prepared on an exclusive and confidential basis. This information could affect the validity of the results, Gruentec Cía. Ltda. is not responsible for such information.

Note 2: Sampling was performed by Gruentec Cía. Ltda. technical personnel, the sampling log is attached as part of the report.

The identification of the sample, and the name of the project is information provided by the customer, Gruentec is not responsible for it.

Note 3: The client may request the date of analysis of the parameters if required.

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.
El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Sediment Analysis at Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S001

Date of Issue: 06-Jan.-21

SECTION II

Sample identification:	ITEM 1	Maximum Permissible Limit	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20	Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	
No. Gruentec Report:	2012387-S001		
Outsourced parameters § :			
Tributyltin (TBT) mg/kg	<0.20	N/A	Restek Cat #59550 m

(§) Parameters performed in specialized laboratories. Gruentec is responsible for the results issued.

N/A - Not Applicable

a1) Soil Quality Criteria.

Isabel Estrella

Operations Manager

Note 1: These analyses, opinions and/or interpretations are based on the material and information provided by the client for whom this report has been prepared on an exclusive and confidential basis. This information could affect the validity of the results, Gruentec Cía. Ltda. is not responsible for such information.

Note 2: Sampling was performed by Gruentec Cía. Ltda. technical personnel, the sampling log is attached as part of the report.

The identification of the sample, and the name of the project is information provided by the customer, Gruentec is not responsible for it.

Note 3: The client may request the date of analysis of the parameters if required.

REGISTRO DE TOMA DE MUESTRA SIMPLE SUELOS/SEDIMENTOS



GENERAL INFORMATION							
COMPANY:		YILPORT TERMINAL OPERATIONS YILPORTECU S.A.					
ACTIVITY OF THE COMPANY:		Activities related to the operation of terminal facilities, such as ports and harbors.					
PROJECT:		Sediment analysis in Altamar- Puerto Bolívar					
DIRECTION OF SAMPLE:		Province of El Oro, canton Machala, parish of Puerto Bolivar, Altamar					
TECHNICAL COMPANY:		Eng. Fabrizio Tapia					
TECHNICAL GRUENTEC:		Eng. Erick Moreno / Eng. Dannes Satián					
SAMPLE IDENTIFICATION							
Sample identification:	ITEM 1			Gruentec identification:	SAM-2012387-S001		
Date and time of sampling:	16/12/2020 11:20			Chain of Custody No:	17868		
Date of analysis completed (1):	27/12/2020			Date of issue (2):	06/01/2021		
		Geographical coordinates (3):	17 M	E	585628	Error:	± 3
				N	9651120	Datum:	WGS

METHODOLOGY							
Water sampling is based on reference standards and methodologies: - Environmental Quality Standard for the Soil Resource and remediation criteria for contaminated soils, ANNEX 2, A.M. 097, BOOK VI, TULSMA. - Soil Technical Standard (NT004). Municipal Code for the Metropolitan District of Quito. - Chapter 1 (section 3, 4 and 5) and chapter 2 (section 1) of the Manual for water and sediment sampling, Environment Directorate. - ASTM Standard Designation: D6044 - 96. Standard guide for representative sampling for the management of wastes and contaminated media. - ASTM Standard Designation: D6044 - 96 Standard practice for sampling contaminated soils and media with hand augers. - ASTM Standard Designation: D4687 - 95 Standard guide for general waste sampling planning. - Standard NTE INEN-ISO 10381-4: 2014-01. Soil quality. Sampling. Part 4: Procedural guide for the Investigation of natural, near-natural and cultivated sites.							
SAMPLING CRITERION							
Soil characterization according to customer requirements.							
The sampling criteria have been defined by the customer.							
SAMPLING SITE							
Physical description and observations of the sampling site							
Sediment monitoring conducted in Altamar							
Weather conditions (High-Medium-Low-Absence)	Rain:	Absence	Humidity:	Medium	Wind:	Under	
SAMPLE CHARACTERISTICS (4) (Absence or Presence)							
Weight approximate sample (kg)	1.5kg						
Odor	Absence		Roots	Absence			
Color (5)	Light brownish gray 2.5Y6/2		Stones/Rocks	Absence			
Depth (m)			Texture	Limoso			
Humidity	Presence		Compact or Disaggregated	Disaggregated			
Equipment and materials used:	Van Veen type manual dredge, gloves, zip lock bag, camera, GPS, shovel, shovel, etc.						
Appearance of the sample (perception of the technician in charge)							
Sample has no additional characteristics							

REGISTRO DE TOMA DE MUESTRA SIMPLE SUELOS/SEDIMENTOS

SAMPLE IDENTIFICATION			
Sample identification:	ITEM 1	Gruentec identification:	SAM-2012387-S001

Notes:

- (1) Date of completion of the field record.
- (2) Date of report of results to the client by Gruentec Cía Ltda.
- (3) Geographic coordinates provided by the client may differ up to 30 meters from the GPS equipment, which may be due to the appreciation of the equipment, topographic conditions and available satellite signals.
- (4) Physical characteristics of the sample observed by the technician in the field.
- (5) Munsell notation system and chromatic attributes in wet and dry soil. N/A: not applicable; n.a.: not determined.

LOCATION MAP OF THE SAMPLING POINT



PHOTOGRAPHS OF THE SAMPLING POINT

	
Panoramic view of the sampling site.	Photograph 2. Sample collection site
	
Photograph 3. Homogenization of the sample	Photograph 4. Sample collected

Isabel Estrella
Operations Manager

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolívar

Sample Received: 17-Dec.-20

Type of specimen: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec Report Number: 2012387-S002

Date of Issue: 06-Jan.-21

SECTION I

Sample identification:	ITEM 2	Maximum Permissible Limit	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20	Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	
No. Gruentec Report:	2012387-S002		
Parameters performed in the laboratory			
Parameters in aqueous extraction 2:1:			
pH ^(1,2)	8.3	6 - 8	EPA 9045 D / MM-AG/S-01
Metals in dry weight:			
Arsenic mg/kg ^(1,2)	3.3		EPA 6020 B / MM-AG/S-39
Cadmium mg/kg ^(1,2)	<0.1	0.5	EPA 6020 B / MM-AG/S-39
Copper mg/kg ^(1,2)	8.5		EPA 6020 B / MM-AG/S-39
Chromium mg/kg ^(1,2)			EPA 6020 B / MM-AG/S-39
Tin mg/kg *	<0.5	5	EPA 6020 B / MM-AG/S-39
Iron % ^(1,2)	1.0	N/A	EPA 6020 B / MM-AG/S-39
Mercury mg/kg ^(1,2)	<0.1	0.1	EPA 6020 B / MM-AG/S-39
Lead mg/kg ^(1,2)	3.5		EPA 6020 B / MM-AG/S-39
Zinc mg/kg ^(1,2)			EPA 6020 B / MM-AG/S-39
Non-chlorinated aliphatics:			
1,2-Dibromoethane mg/kg * * 1,2-Dibromoethane mg/kg	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Bromoform mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Bromomethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Dibromomethane mg/kg *	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Styrene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
BTEX in soil (dry weight):			
Benzene mg/kg ^(1,2)	<0.03	0.03	EPA 8260 C / MM-AG/S-31
Ethylbenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
m+p-xylene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
O-xylene mg/kg ^(1,2)	<0.03		EPA 8260 C / MM-AG/S-31
Toluene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Aliphatic Chlorinated Aliphatics in soil (dry weight):			
1,1,1,1-Trichloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,1,2,2,2-Tetrachloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,1,2-Trichloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,1-Dichloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,1-Dichloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,2 Dichloropropane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,2-Dichlorobenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,2-Dichloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas

S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S002

Date of Issue: 06-Jan.-21

Sample Identification:	ITEM 2	Maximum Permissible Limit Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-S002		
Aliphatic Chlorinated Aliphatics in soil (dry weight):			
1,3-Dichlorobenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
1,4-Dichlorobenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Bromodichloromethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Cis 1,3 Dichloropropene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
cis-1,2-Dichloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Chlorobenzene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Chloroethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Chloroform mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Chloromethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Methylene chloride mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Vinyl chloride mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Dibromochloromethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Dichlorodifluoromethane mg/kg *	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Tetrachloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Carbon tetrachloride mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Trans 1,3 Dichloro propene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
trans-1,2-Dichloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Trichloroethene mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Trichlorofluoromethane mg/kg ^(1,2)	<0.03	0.1	EPA 8260 C / MM-AG/S-31
Organic Parameters in dry weight:			
Total Hydrocarbons of petroleum (C8-C40) mg/kg ^(1,2)	<50		EPA 8015 D / MM-S-23
Organic Matter % ** Organic Matter % ** Organic Matter % ** Organic Matter % ** Organic Matter	11.3	N/A	Internal Method
Organochlorine pesticides in wet weight:			
a-BHC mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
a-Chlordane mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Alachlor mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Aldrin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
b-BHC mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Butachlor mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorothalonil mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlrotal-dimethyl mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
d-BHC mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dieldrin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan I mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endosulfan II mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S002

Date of Issue: 06-Jan.-21

Sample identification:	ITEM 2	Maximum Permissible Limit	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20	Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	
No. Gruentec Report:	2012387-S002		
Organochlorine pesticides in wet weight:			
Endosulfan sulfate mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endrin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Endrin aldehyde mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
g-BHC mg/kg ^(1,2)	<0.01	0.01	EPA 8270 D / MM-AG/S/VEG-27
g-chlordane mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Heptachlor mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Heptachlor epoxide mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methoxychlor mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metolachlor mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Oxyfluorfen mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDE mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'-DDT mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
pp'DDD mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Quintozone mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Organophosphorus pesticides on a wet weight basis:			
Acephate mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Cadusafos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Chlorpyrifos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Diazinon mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dichlorvos+Trichlorfon mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Dimethoate mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Disulfoton mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Enthoprophos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Fenchlorphos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Malathion mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methamidophos mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methyl parathion mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Mevinphos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Parathion mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Phorate mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Terbufos mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Organonitrogen pesticides on wet weight basis:			
Ametryn mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Atrazine mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Benalaxyl mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.

El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas

S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S002

Date of Issue: 06-Jan.-21

Sample identification:	ITEM 2	Maximum Permissible Limit	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20	Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	
No. Gruentec Report:	2012387-S002		
Organonitrogen pesticides on wet weight basis:			
Diuron+Liuron mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Hexaconazole mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metalaxyl mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Metribuzin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Penconazole mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Pendamethanil mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Simazine mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Terbutryn mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiabendazole mg/kg *	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiometon mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Triadimefon mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Triadimenol mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Trifluralin mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Carbamates in wet weight:			
Carbaryl mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Carbofuran mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Methiocarb mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Pirimicarb mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Propoxur mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27
Thiobencarb mg/kg ^(1,2)	<0.01	N/A	EPA 8270 D / MM-AG/S/VEG-27

Registration and Accreditation:

⁽¹⁾ SAE Accreditation No. SAE LEN 05-008

⁽²⁾ SA / MDMQ Registration No. LEA-R-005

Tests marked with (*) are not within SAE's scope of accreditation N/A - Not

Applicable

a1) Soil Quality Criteria.

All parameters presented were performed at Matriz Quito Laboratory, except those marked with the letters r), s) or t).

UNCERTAINTY (U) for pH = 0.2 units

UNCERTAINTY (U):

Volatile Organic Compounds in soils = 39%; Organic Matter = 5%; Metals in solids = 28%; Pesticides in Soil = 50%; TPH soil = 26% Calculation: C

+/- (UxC/100) where: C=measured value; U= uncertainty %.

Isabel Estrella

Operations Manager

Note 1: These analyses, opinions and/or interpretations are based on the material and information provided by the client for whom this report has been prepared on an exclusive and confidential basis. This information could affect the validity of the results, Gruentec Cía. Ltda. is not responsible for such information.

Note 2: Sampling was performed by Gruentec Cía. Ltda. technical personnel, the sampling log is attached as part of the report.

The identification of the sample, and the name of the project is information provided by the customer, Gruentec is not responsible for it.

Note 3: The client may request the date of analysis of the parameters if required.

ANALYSIS REPORT

Client: YILPORT TERMINAL OPERATIONS YILPORTECU S.A.
El Oro, Machala, Puerto Bolívar, Av. Bolívar Madero Vargas
S/N Telf: 2466-002

Attn: Eng. Fabrizzio Tapia

Project: Sediment Analysis in Altamar - Puerto Bolivar

Sample Received: 17-Dec.-20

Type of sample: 1 Sediment sample

Analysis Completed: 06-Jan.-21

Gruentec report number: 2012387-S002

Date of Issue: 06-Jan.-21

SECTION II

Sample identification:	ITEM 2	Maximum Permissible Limit Table 1 Annex 2 . Ministerial Agreement 097-A TULSMA a1)	Adapted Reference Method / Internal Method
Sampling Date:	16-Dec.-20		
No. Gruentec Report:	2012387-S002		
Outsourced parameters § :			
Tributyltin (TBT) mg/kg	<0.20	N/A	Restek Cat #59550 m

(§) Parameters performed in specialized laboratories. Gruentec is responsible for the results issued.

N/A - Not Applicable

a1) Soil Quality Criteria.

Isabel Estrella

Operations Manager

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Note 3: The client may request the date of analysis of the parameters if required.

REGISTRO DE TOMA DE MUESTRA SIMPLE SUELOS/SEDIMENTOS



GENERAL INFORMATION						
COMPANY:	YILPORT TERMINAL OPERATIONS YILPORTECU S.A.					
ACTIVITY OF THE COMPANY:	Activities related to the operation of terminal facilities, such as ports and harbors.					
PROJECT:	Sediment analysis in Altamar- Puerto Bolívar					
DIRECTION OF SAMPLE:	Province of El Oro, canton Machala, parish of Puerto Bolivar, Altamar					
TECHNICAL COMPANY:	Eng. Fabrizio Tapia					
TECHNICAL GRUENTEC:	Eng. Erick Moreno / Eng. Dannes Satián					
SAMPLE IDENTIFICATION						
Sample identification:	ITEM 2	Gruentec identificati on:	SAM-2012387-S002			
Date and time of sampling:	16/12/2020 10:30	Chain of Custody No:	17868			
Date of analysis completed (1):	27/12/2020	Date of issue (2):	06/01/2021			
Geographical coordinates (3):		17 M	E	588826	Error:	± 3
			N	9650866	Datum:	WGS

METHODOLOGY						
Water sampling is based on reference standards and methodologies: - Environmental Quality Standard for the Soil Resource and remediation criteria for contaminated soils, ANNEX 2, A.M. 097, BOOK VI, TULSMA. - Soil Technical Standard (NT004). Municipal Code for the Metropolitan District of Quito. - Chapter 1 (section 3, 4 and 5) and chapter 2 (section 1) of the Manual for water and sediment sampling, Environment Directorate. - ASTM Standard Designation: D6044 - 96. Standard guide for representative sampling for the management of wastes and contaminated media. - ASTM Standard Designation: D6044 - 96 Standard practice for sampling contaminated soils and media with hand augers. - ASTM Standard Designation: D4687 - 95 Standard guide for general waste sampling planning. - Standard NTE INEN-ISO 10381-4: 2014-01. Soil quality. Sampling. Part 4: Procedural guide for the Investigation of natural, near-natural and cultivated sites.						
SAMPLING CRITERION						
Soil characterization according to customer requirements.						
The sampling criteria have been defined by the customer.						
SAMPLING SITE						
Physical description and observations of the sampling site						
Sediment monitoring conducted in Altamar						
Weather conditions (High-Medium-Low-Absence)	Rain:	Absence	Humidity:	Medium	Wind:	Under
SAMPLE CHARACTERISTICS (4) (Absence or Presence)						
Weight approximate sample (kg)	1.5kg					
Odor	Absence		Roots	Absence		
Color (5)	Light brownish gray 2.5Y6/2		Stones/Rocks	Absence		
Depth (m)			Texture	Silt		
Humidity	Presence		Compact or Disaggregated	Disaggregated		
Equipment and materials used:	Van Veen type manual dredge, gloves, zip lock bag, camera, GPS, shovel, shovel, etc.					
Appearance of the sample (perception of the technician in charge)						
Sample has no additional characteristics						

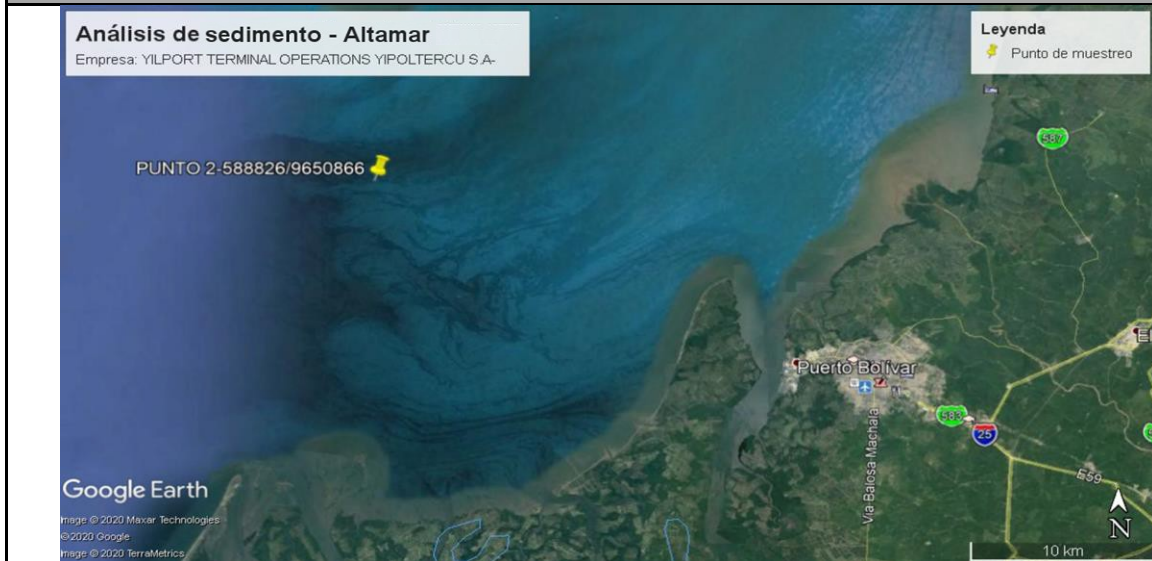
REGISTRO DE TOMA DE MUESTRA SIMPLE SUELOS/SEDIMENTOS

SAMPLE IDENTIFICATION			
Sample identification:	ITEM 2	Gruentec identification:	SAM-2012387-S002

Notes:

- (1) Date of completion of the field record.
- (2) Date of report of results to the client by Gruentec Cía Ltda.
- (3) Geographic coordinates provided by the client may differ up to 30 meters from the GPS equipment, which may be due to the appreciation of the equipment, topographic conditions and available satellite signals.
- (4) Physical characteristics of the sample observed by the technician in the field.
- (5) Munsell notation system and chromatic attributes in wet and dry soil. N/A: not applicable; n.a.: not determined.

LOCATION MAP OF THE SAMPLING POINT



PHOTOGRAPHS OF THE SAMPLING POINT

	
Panoramic view of the sampling site.	Photograph 2. Sample collection site
	
Photograph 3. Homogenization of the sample	Photograph 4. Sample collected

Isabel Estrella
Operations Manager