

ENVIRONMENTAL AUDIT OF THE SITES IMPACTED BY THE “PROBO KOALA” TOXIC WASTE DUMPING IN ABIDJAN, CÔTE D’IVOIRE

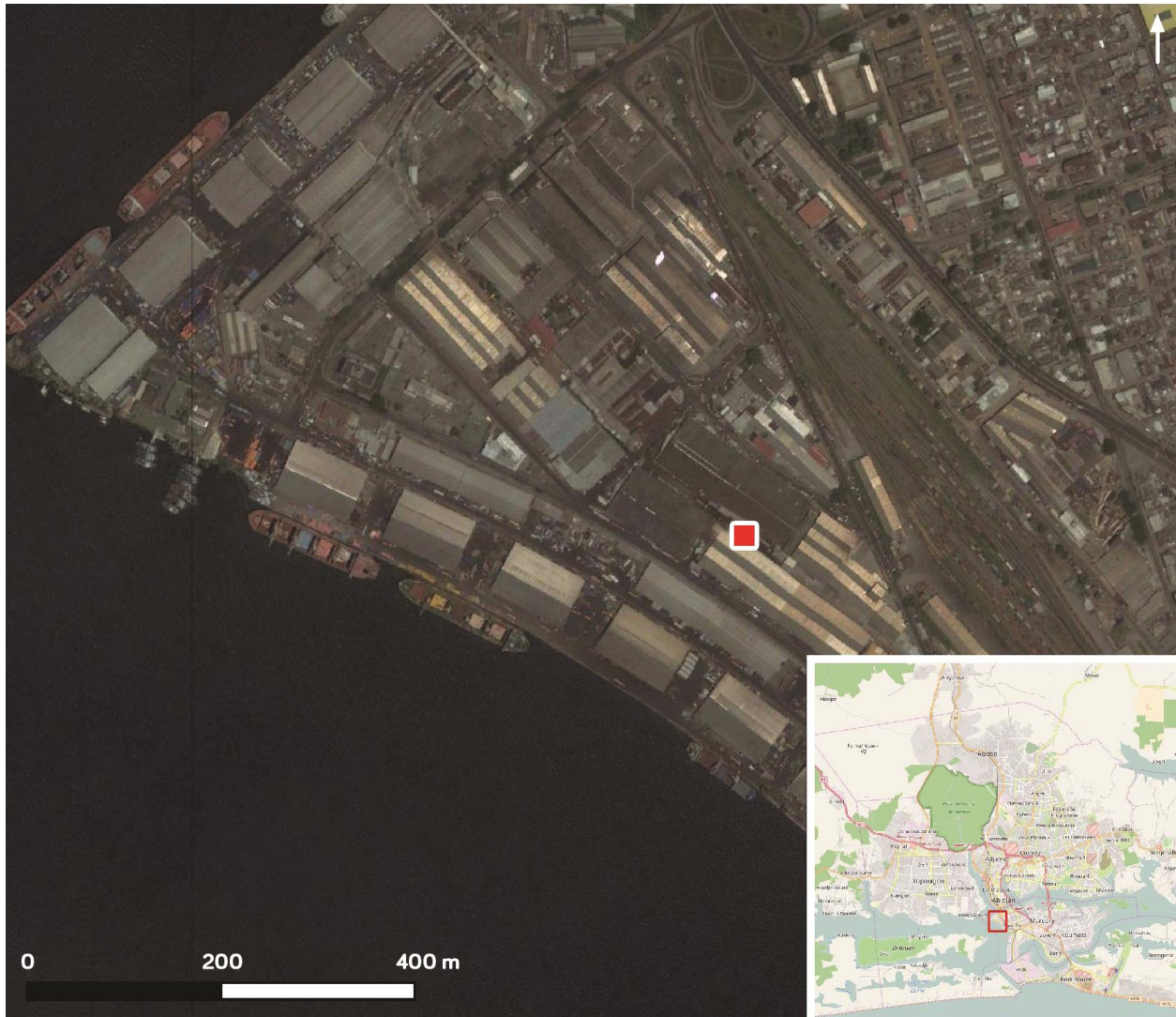


This series of fact sheets was prepared as part of UN Environment's environmental audit of the sites impacted by the “Probo Koala” toxic waste dumping in Abidjan, Côte d'Ivoire. The fact sheets provide complete analysis results, observations and the recommendations for each of the sampling sites. They should be read in conjunction with the full assessment report, available at: www.unep.org/CotedIvoire

Site Description

Site name: Treichville

UN Environment site reference no: 1



Spill History

This concreted industrial site is located within the autonomous port of Abidjan, in an area of the city known as Treichville.

No waste was dumped at this location. Rather, the objects of interest were four silos owned by the PKL company, which between 2006 and 2012 were used to store a stock of maize originally destined for the production of baby food. This maize, which was moved here after the dumping event, was thought to have been potentially contaminated through airborne pollution while it was stored in a silo in proximity to the Vridi Canal sites at the time of the dumping.

The maize, in dry kernel form, was transported to a site near Agboville (see Site 8) in 2012 for elimination by composting. The silos were then cleaned by Envipur, but the stigma associated with the Probo Koala wastes was so powerful that they remained empty for years.

The objective of UN Environment's analysis was to verify whether any contamination could be detected in the silos. It must be added that in addition to the fact that the silos had been cleaned, there was no expectation that the pollutants of concern would be found, as these are highly transient by nature.

Approach

One air sample was taken using a stainless steel passivated canister located within the small opening of one of the metal storage silos. Samples of soil and other media were not collected due to the concreted nature of the site.

Assessment Criteria

Based on the different analyses of the chemical composition of the samples taken onboard the Probo Koala in 2006, as well as those undertaken on samples collected on the dumping sites, UN Environment considered the following groups as the key contaminants of interest for the audit:

- Petroleum hydrocarbons;
- Sulfur compounds; and
- Heavy metals.

Parameters for air quality analysis were selected based on the most likely composition of the wastes. No national standards exist for these elements in Côte d'Ivoire. The air quality results from Treichville were therefore compared against control site values. Site 17 (Plateau Dokoui 2) was selected as the control site due to its comparable central urban location.

Laboratory Analysis Findings

Air		Site 1	Site 17
Parameters/units		Treichville	Plateau Dokoui 2
Dimethyl sulfide	ppm v/v	< 0.1	< 0.1
Ethyl mercaptan	ppm v/v	< 0.1	< 0.1
Methyl ethyl sulfide	ppm v/v	< 0.1	< 0.1
Carbonyl sulfide	ppm v/v	< 0.1	< 0.1
Tertiary butyl mercaptan	ppm v/v	< 0.1	< 0.1
Hydrogen sulfide	ppm v/v	< 0.1	< 0.1
Methyl tert-butyl ether	µg/m ³	ND	ND
Benzene	µg/m ³	ND	ND
Toluene	µg/m ³	10	4
Ethylbenzene	µg/m ³	ND	ND
Xylene	µg/m ³	ND	ND
Naphthalene	µg/m ³	ND	ND
TPH (C4-C6)	µg/m ³	18	27
TPH (C6-C8)	µg/m ³	59	34
TPH (C8-C10)	µg/m ³	35	29
TPH (C10-C12)	µg/m ³	23	ND
TPH (C4-C12)	µg/m ³	130	100
Aliphatic (C4-C6)	µg/m ³	18	27
Aliphatic (C6-C8)	µg/m ³	47	28
Aliphatic (C8-C10)	µg/m ³	26	19
Aliphatic (C10-C12)	µg/m ³	22	ND
Aromatic (EC5-EC7)	µg/m ³	ND	ND
Aromatic (EC7-EC8)	µg/m ³	10	4
Aromatic (EC8-EC10)	µg/m ³	ND	ND
Aromatic (EC10-EC12)	µg/m ³	ND	ND

Conclusions and Recommendations

The laboratory results do not show any presence of hydrogen sulfides or mercaptans in the silo. A number of hydrocarbons can be found in the air sample, but their concentration is comparable to those observed at other urban locations within the city, including at Site 17, which is a comparable urban site. As there are multiple possible sources of air pollution present (fugitive emissions from the port, overall urban traffic, oil tankers in the harbor as well as refining and storage facilities), it is not possible to discern any specific source or suggest specific remedial measures.

Site Photos



Source: UN Environment



Source: UN Environment



Source : UN Environment