



HIA21 - Participative assessment of the health, environmental and socio-economic impacts resulting from urban waste treatment



LIFE10 ENV/IT/000331

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## **AZIONE D1**

# **Rapporto finale di sintesi dei risultati delle indagini ambientali**

*Final report summarizing the results of environmental assessment*

**Maggio 2014**

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## Summary

The results of the analyses of the soil matrices and atmospheric particulate collected in the S. Zeno area (Arezzo) were considered. No excesses of chemical pollutants in the land or in the air were recorded.

Soil analysis: the concentration values of dioxins, furans and BPCs detected in the soil samples collected are significantly lower than the Contamination Concentration Threshold; decreases in the overall and individual congener values were observed, both in concentration and as factors of equivalent toxicity, in relation to ARPAT's findings during previous years.

A total of 35 metals were determined, only some of which are regulated: none of these metals exceeds legal limits. The values appear to be rather homogeneous considering the various sites sampled.

Determination of metals in the atmospheric particulate (PM10): the concentration of regulated metals was always below the legal limits; in this sense the results corroborate what was observed for the soils.

The observed values for the soil and the atmospheric particles sampled in an area around the landfill in Lanciano, are very low. Concentrations of gaseous pollutants (VOC, H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>) and of dioxins and furans detected at the sampling points presented values almost always below the limit of quantification. In one sampling location the concentrations average of dioxins and furans showed to be higher (point C13). This site is relatively far from the landfill and its values are comparable to that observed in "white" sampling points used as outside of the study area reference locations. This situation is probably determined by the nearby industrial area of "Val di Sangro", which represents the largest productive site of the Province of Chieti.

In conclusion, as regards of the site of Arezzo, the concentration values for dioxins, furans and BPCs detected within HIA21 are significantly lower than the CSC. Moreover, a decrease is observed for each value, overall and for individual congeners, as both measured as concentrations and toxic equivalents. However, HIA21 sampling points are not exactly coincident with those used by ARPAT for its characterizations, and HIA21 samplings date back to 2013 while those of the Agency are referred to 2000, 2006 and 2011.

Less marked differences are found for around 55% of the congeners of polychlorinated biphenyls, and homogeneity is almost always highlighted for dioxin-like BPCs.

The average value of I-TEQ in Arezzo is found to be 0.10 pg / g dw, while the analogous value observed in Lanciano was 0.17. Regarding the total BPCs, it is observed a certain difference between the two sites, with Arezzo concentrations about 34% greater than Lanciano. The major differences between the two sites are observed for some non-dioxin-like congeners.

The goal of the phonometric campaign, was to ascertain and quantify the contribution of the incineration plant of San Zeno to the noise levels in the area. Sampling was conducted in accordance with the procedures and criteria required by the regulations, identifying the measuring points close to the plant and to potentially

"sensitive" areas. All monitored areas showed that the noise levels were below the limits provided by law and by the municipal acoustic zoning plan. The points of measurement were manned for the entire period of observation providing information about the major contributions to the definition of acoustic levels. They are mainly related to vehicular traffic and railway. Finding from the frequency analysis performed are "empirically" confirmed by residents in the area.

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