

STUDY ON AIR QUALITY AT FARM LOCATION, BASED ON MEASUREMENTS AND ANALYSIS OF HARMFUL DISPERSION

Goal of the project

Environmental laws are part of those tools that combine the rational management of natural sources with pollution prevention and control. Presently, every European country has a large number of laws (at least 100), regulating the protection of each component of the environment. They try to prevent or limit the effects of environmental degradation caused by pollution phenomena. Their character is very complex and imperative – encompassing in large part obligations to DO AND or NOT TO DO.

Short description of the project

The purpose of the research focuses on a study for the emission inventory from the breeding area for calves and lambs of SC Barak Development SRL farm and their influence upon the vicinity. It is both an experimental research as well as an analysis by numerical modeling of the dispersions for the main pollutants produced by the cattle and sheep breeding in the Grabat village, in three variants of research: (i) the current situation (Situation I – for which one accomplished on-line measurements, used as proof of the present situation but also for the validation of the simulation), (ii) the authorized situation (Situation II) and (iii) the extension of the production capacity to 10000 calves and 8000 lambs heads (Situation III).

Project implemented by

The project is necessary for the private company SC BARAK DEVELOPMENT SRL

Implementation period

May 2017–September 2017

Main activities

1. Analysis of the potential polluting sources inside the farm and outside of it
2. Establishing the three situations for the dispersion analysis
3. Identification of the main pollutants to be analyzed, as specific for animal breeding farms: NO_x, PM, Non metal volatile organic compounds, benzene, methan.
4. Measuring on site, in 4 points of the air quality, with the RENAR accredited measuring system
5. Establishing of a dispersion model for the sources located in the farm and neighborhood
6. Validation of the dispersion according the results from the on line measurements and Dispersion modeling results for Situation I
7. Dispersion modeling for Situation II (approved situation already for the next future)
8. Dispersion modeling for Situation III (future planned extension/ development of the farm)

9. Identification of the pollutant concentrations in special points, located in the village (nearest house)
10. Conclusions and Recommendations

Applicability and transferability of the results

The applicability of the research consist of the complex analysis of possible strategies, assuring the local authorities that the farm, due to its activity is not polluting over the standard limits, and does not represent a danger. Also one revealed that the farm has to take measures, especially for the next situations (strategies of developing), by taking account of applying special models for the basins and other deposits needed in its activity as young animal.

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Research Centre

Research Center for Machinery and Thermal Equipment, Transport and Pollution Control, http://www.upt.ro/Informatii_centrul-de-cercetari-pentru-masini-si-echipamente-termice-tr_109_ro.html through LACIEDIN, meaning the RENAR accredited lab of the UPT (Accreditation according SR EN ISO/CEI 17025:2005, Certificat NB LI 1151 from 05.10.2017) for fuel analysis, environmental control and dispersion of pollutants www.mediu.ro

Research team

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