

PARMA UNIVERSITY

International University Master

***SCIENCE AND TECHNOLOGY FOR SUSTAINABLE
DEVELOPMENT OF CONTAMINATED SITES***

**DRAFT DOCUMENT ON CHARACTERIZATION
PLAN FOR A PRIMARY INDUSTRY
PRODUCING ALLUMINIUM OXIDE.
INVESTIGATION ON POSSIBLE POLLUTION
FROM PCE DUE TO THE ACTIVITY OF DRY
LAUNDRIES IN TORINO PROVINCE**

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ABSTRACT

Thanks to the stage experience during the second level International Master Cours, I had the opportunity to collaborate with big dimension environmental consultant company: Golder Associates presents in Turin. In this company I had the opportunity to capitalise my knowledge and acquire experience in different sectors not only the remediation of contaminated sites.

In this thesis I will describe the two major works that I've performed last summer during the two months stage in this consultant company in Turin. They are the following:

- 1. The production of a Draft document on Characterization Plan (a phase of remediation project) and then the initial study to produce Integrate Pollution Prevent Control Document for a primary industry that produce aluminium oxide from bauxite;*
- 2. A preliminary investigation on the possible puntual emission of Perchloroethylene by dry laundries facilities on Turin area. This presentation will be integrated with GIS map.*

They are quite dissimilar works.

For the first project, I've personally written the first introductory document ("bozza di un piano della caratterizzazione"), with all the informations that I have acquired on productive processes, on the risks related to the phases of the productive process, on historical data, on maps and on precedent monitoring information done on the same industry.

It's a huge bibliographical research. Data can be searched inside the industry (from the plant technical director, from the administrative office), or outside it (municipality land register offices), or from other industry with the same productive capacity inside the country or abroad, or on the network.

The Draft, is a document that at the beginning is done to be utilised from the consultant company technicians. It's absolutely necessary to them, because they have to visit the site and they have to have well in mind what could be the real pollution sources, or they have to be aware of some more environmental impactants process phases. After their visits to the site, this draft will be then implemented with cartographical maps, with the results of the obtained data and with the technical report produced from the experts.

Since now, this work is still going on. Numerous respites are been requested.

It's a common case in Italy, only few remediations of complex polluted industrial site has been made. For the same industry we were requested to produce the Integrated Pollution Prevent Control documents as said by Italian law, D. Lgs. 372/9.

Instead the second project was related to an initial investigation and a monitoring plan on the dry laundry facilities in Turin area (North-West Of Italy), and their eventual production of perchloroethylene pollution. I had the possibility to follow this project from the beginning to the end.

In total twelve dry laundries has been monitored, among them there were industrial and artisanal ones.

The waste obtained from the dry laundries is made up by muds obtained from the cleaning process. These muds can contain still the 50 % of the initial solvent. They are considered from Italian law (D.Lgs. 22/1997 and follows integrations) "dangerous wastes" and they have to be manipulated, stored and stocked from authorized personel.

I've measured perchloroethylene vapours concentration emitted by the exhausted mud obtained from the cleaning process through a portable gas detector. Samplings results, also with the presence of some uncertainties due to some interferent molecules as acetone or unsaturated alogenate hydrocarbons near the measurement points or due to instrument inaccuracy, are reliable.

These measurements that I've performed were difficult to obtain especially at the beginning. The owners of the dry cleaning facilities were suspicious.

In every shop the distillation equipment was working well. Not clear is instead the situation of the waste discharge, especially what is regarding the final destination of these dangerous wastes.

Are they homogenized in a waste disposal repository, are they incinerated or what else? Some investigations are required from the Public Authorities.