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CONTENT AND ABSTRACTS

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***Abstract** - There are presented the researches performed on the pilot plants to implementation of the technological lines able to assure the removal of the NOM from raw water in order to assure the requested parameters of drinking water quality to Law 458/2002 and EU Directive 98/83/EC.*
There are analyzed the conventional technological line for the treatment water plants: Chirita – Iasi, Tg. Mures and Pitesti related to: coagulation – flocculation process, clarified, post-oxidation and adsorption to GAC and on-line correction of the pH. In this paper are presented the researches concerning uses of the ultra filtration process in ammonium and hydrogen sulphide removal from karsts water. The technical – economical comparison for conventional technological line and ultra filtration process are presented for different raw water qualities and water flows.
***Keywords**: drinking water, Romanian standards*

***Abstract** - The study presents the method of monitoring the dumps of wastes resulting from the iron and steel industry and their impact on the environment. The case study carried out at a metallurgical group of enterprises emphasizes the negative impact of the waste dumps on the environment. The monitoring was performed on the following fields: the wastes storage in the environment, the operation of the dump, the impact on the environment etc. The analysis carried out referred to the dumps running and the ones in conservation. The present paper analyzes also the new regulations regarding the environmental agents monitoring and the ecologic reconstruction of the area.*
***Keywords**: dump, industrial waste, monitoring, environment, ecologic reconstruction*.

***Abstract** - Salt exploitation from mineral deposits may affect the environment from the extraction area. The preservation of salt deposits can cause a high risk if there are no prevention measures. The artificial and natural phenomena's that were in Ocnele Mari salt exploitation have initiated an ecological disaster. As a result of cavern differential slide ram there was created a salty wave. This wave has affected in differential ways villages, rivers and lakes from the area.*
***Keywords**: ecological disaster, salt exploitation, salty wave relevant keywords)*

***Abstract** - Chlorine is one of the most widely used disinfectants. It is very applicable and very effective for the deactivation of pathogenic microorganisms. Chlorine can be easily applied, measures and controlled. Is is fairly persistent and relatively cheap. Unluckily, iron and manganese can often be quite difficult to treat. This is due primarily to the fact that iron can be present in several forms, and each form can potentially require a different method of removal. Iron bacteria can be controlled by periodic well chlorination or it can be treated in the building. The treatment involves the following: Chlorination, retention, filtration. Activated carbon is usually used as the filter material so the excess chlorine can also be removed.*
***Keywords**: chlorination-filtration, iron, drinking water*

*Abstract: Within this paper work, we shall study the processes of optimization of the descendent and ascendant **filters, equipped with multiple homogeneous and non homogeneous layers. The comparative experimental researches revealed the performances of the ascendant filters equipped with multiple homogeneous layers.***
***Keywords**: multiple layers, descendant filtration, ascendant filtration, optimization, homogeneous and non homogeneous layers.*

***Abstract* – The present paper offers a short instructive material about a complex subject regarding pre-treatment and pre-cleaning of industrial residual waters before releasing them to urban sewage system. Lack of pre-cleaning could lead to malfunction of exhaust water cleaning facilities. This article deals with a review of these malfunctions and with a method to eliminate them from the practice of collecting, transporting and cleaning of industrial residual waters.**
***Keywords*: industrial residual water, pre-cleaning, biological cleaning, pollution with organic substances**

***Abstract* - The paper presents some of the studies and technical solutions achieved by the members of the "Hydraulics and Environmental Protection" Department, Technical University of Civil Engineering of Bucharest, regarding the protection of aquifers. Through the presented studies the constant interest of the members of the department for environmental protection problems, especially the protection of groundwater can be observed. In this respect original contributions and recommended technical solutions used in certain cases of groundwater pollution were described.**
***Keywords*: petroleum products, drainage, impermeable screens, passive treatment**

***Abstract* - Evaluating natural attenuation as remediation method of contaminated aquifers implies estimating the required time for the natural attenuation process to take place in order to reduce the mass of contaminant to levels accepted by health and environment standards.**
Natural attenuation employs the physic-chemical and biological processes in order to reduce the concentrations of pollutant to accepted levels in the subterranean environment.
Evaluating natural attenuation as remediation method of contaminated is a necessary stage in the design of remediation systems.
***Keywords:* natural attenuation, aquifers, remediation methods**

***Abstract*- Numerical methods used in the groundwater flow modelling recorded a large development within last years because of continuously development of the methods and users skills. The accuracy of the results depend on the input data, used numerical model an the new incoming techniques. In the vicinity of the singularities large errors are encountered which can arise at the values of 30-40% depending on the cells size in both horizontally and vertically directions. Such, let say, quantitative problems consisting in water levels and discharge rate was solved in 2007 by an appropriate modelling technique. The greater influence on the accuracy results consists in the space discretization and other modelling techniques. The paper presents the influence of the space discretization on the accuracy of the results of pollutants transport in the case of numerical models using finite volumes method. Especially the authors pay attention in the travel time of twenty days which is subject of the sanitary protection zones instituted around pumping wells, in concordance with the Romanian law.**
***Keywords*: fully penetrating well, numerical model, Finite Volume Method, travel time**

***Abstract*: A short description of the stages necessary for the regional water and sewerage operator Aquatim in its attempt to create a data base of the assets which make up the water and sewerage networks in its management using real information, from becoming aware of the need for change until the so-called "technological flux" of updating the data base, thus fulfilling the proposed scope.**
***Keywords*: water and sewerage operator Aquatim, GIS, data base, coordinates**

***Abstract*: Wave-generated pressures on structures are functions of the wave conditions and geometry of the structure. This work is focused on structural elements with vertical wall subjected on action of broken wave. In contrast with nonbreaking waves for witch the pressure at the wall has a gentle variation in time and wave forces of this type are treated as static loads, if wave breaking takes place directly on the wall face some short duration, but very large, slamming forces can occur and these are called impact or impulsive forces. If natural period of structures close to the same period of peaked part of the loading, dynamic amplification of the wave load might occur.**
***Keywords*: breaking wave, wave loadings, vertical wall, impulsive force, dynamic amplification**

***Abstract* – This article presents the testing rig and the characterstic curves for a Double-Flux water turbine, SDC-125. The Double-Flux turbine has the runner diameter D=125 mm and the width l=115 mm and it's guide vane has the shape of a closing flap. The tests were made in the Laboratory of Hydraulic Machinery of "Politehnica" University of Timisoara.**
***Keywords:* Double-Flux water turbine, characteristic curves, testing rig, electronic sensors, cross-flow hydraulic turbines**.

***Abstract*: In order to use and understand better calculation programs tools for design and analyses of sewerage systems the understanding of the hydraulic and numerical aspects are very important. This paper shortly presents the SewerGEMS software, developed by Bentley System Inc., used at AQUATIM. Also, remarks are made related to the stability of the four-point scheme used as a numerical basis for elaborating the software.**
***Keywords*: SewerGEMS, basic equations, four-point scheme, sewer, model, engine.**

***Abstract* – The Paper present unconfined groundwater flow and solute transport modeling under landfill (case studies – landfill Parta) using the PMWIN applications. Modeling purpose is to constitute extending pollution zone of aquifers in space and time generated of polluted infiltration in landfill Parța, Timiş country. Knowledge of extending of pollution zone is necessary to settle technical measures to closing nonconformity landfill. The companion software Processing Modflow for Windows (PMWIN) offer a totally integrated simulation system for modeling groundwater flow and transport processes with MODFLOW-88, MODFLOW-96, PMPATH, MT3D, MT3DMS, MOC3D, PEST and UCODE.**
***Keywords*: groundwater, flow, solute transport, landfill, pollution**

***Abstract* - This paper proposes a modern method for designing ring-shaped hydraulic networks and especially for their extension when localities spread. The hydraulic network designing is approached on the basic of a new concept, i.e. its optimizing that starts from any proposed cost related criterion. At present, in the majority of the network design cases, the starting point is the traditional methods used for calculations and the results reached (with reference to the pipe diameters) are in the real numbers set. The rounding of the results to (standard) commercial diameter means a smaller or grater approximation, function of the expertise of the specialist, to improve their accuracy. The method envisaged by the author is based upon the cost optimizing of the network (investments energy etc.) using discrete programming and aims at reaching an optimal variant for the commercial diameters, with no resort to end approximations or rounding .This method can be applied to new methods to be designed or to check the existing ones or to design extended networks. The results obtained demonstrate their benefits for secure outcomes as well as its flexibility according to practical situations.**
***Keywords:* Ring-shaped, Commercial diameters, Discrete mixed-integer, Pseudo-Boolean, Head losses, Power balance.**

***Abstract* - A numerical method for modeling transient, two phase flow in fractured porous medium, called 'Multiple Interacting Continua' method, or simply MINC method, is going to be presented together with an efficient numerical procedure for implementation. The essence of the model lies in the observations that the fractures have very large permeabilities and, therefore, they essentially act as the conduits to fluid flow, while the matrix with much greater volume and storage capacity feeds the fractures associated with it. The MINC concept is being implemented and developed by using the vertex centered finite volume method in the numerical toolbox DuMu^x currently under development in the University of Stuttgart. Of considerable interest is the coupling between the fracture and the matrix continua through the so-called "interporosity flow", which has to account for the transient characteristics of the multiphase flow.**
***Keywords:* multiphase flow, fractured porous medium, multiple interacting continua, interporosity flow, vertex-centered finite volume method.**