EXPLOITATION OF MINERAL DEPOSITS

UDC 621.25

Koretsky M. K., Doctor of Public Administration, Professor, Acting Rector (National University of Water Management and Nature Resources Use, Rivne), **Klemens Budzowski, PhD, Professor, Chancellor** (Andrzej Frycz Modrzewski Krakow University, Kraków, Poland), **Malanchuk Y. Z.**, **Candidate of Engineering, Associate Professor, Peleh Y. V., Doctor of Pedagogical Sciences, Professor, Malanchuk Z. R., Doctor of Engineering, Professor** (National University of Water Management and Nature Resources Use, Rivne)

COPPER MINING POSSIBILITIES IN RIVNE AND VOLHYNIA REGION OF UKRAINE

The paper provide a rationale for the prospects of development of mineral resource base in Rivne, Volyn region, copper mining and related metals.
Key words: deposit, heavy metals, basalt, tuff, native copper.

UDC 622.831.327

Mashchenko V. A., Candidate of Physical and Mathematical Sciences, Associate Professor (Rivne State Humanitarian University)

ENERGY TRENDS OF MECHANICAL PROCESSES IN ROCK MASS UNDER DYNAMIC MANMADE PHENOMENA

To model the elastic deformation of arary rock evaluated energy state boundary layer isolated excavation. These results allow us to establish the basic laws of accumulation of potential energy in the boundary layer, depending on the size of excavation and physicomechanical properties of rocks.
Keywords: deformation, rock, potential energy, properties of rocks.

HYDROTECHNICAL RECLAMATION

UDC 631.674.4

Olkhovyk O. I., Candidate of Engineering, Associate Professor, Yatsuta A. M., Senior Student FWM (National University of Water Management and Nature Resources Use, Rivne)

IRRIGATION TECHNOLOGY WITH THE USE OF PUMPED HYDROSTORAGE FACILITIES

The present portfolio in the construction of irrigation systems that use pumped storage devices for subsoil moisture crops, proposed reasonable amendments to certain decisions and measures to reduce the cost of construction of suchsystems.
Keywords: hidrotrofic battery, membrane insertion.

UDC 502.65

Volkova L. A., Candidate of Engineering, Associate Professor (National University of Water Management and Nature Resources Use, Rivne)

USE OF AGRICULTURAL LAND IN RIVNE OBLAST (REGION)

Use of earth of region. Factors that influence on an ecological situation.
Keywords: earth of region, earth of agriculture, earth of the forests, anthropogenic activity, ecological situation.

UDC 004:631.6

Popovych V. F., Senior Research Fellow (Crimean Scientific and Research Centre of Institute of Hydraulic Engineering and Land Reclamation of the Ukrainian Academy of Agricultural Sciences)

USE OF AGROHYDROLOGICAL MODELS REGARDING THE APPRAISAL OF IRRIGATION MODULES' WATER SUPPLY AIMING TO PRIORITIZE MODERNIZATION AND RECONSTRUCTION OF IRRIGATION SYSTEMS

Provided schematic description of water availability evaluation for irrigated areas on the base of combining of the possibilities of agro-hydrological models and GIS model of irrigated system.
Keywords: model, water availability, irrigation, evaluation, GIS, rehabilitation.

UDC 631.432.3.41

Volkova L. A., Candidate of Agricultural Sciences, Associate Professor
(National University of Water Management and Nature Resources Use, Rivne)

STUDY OF FUNCTIONAL RELATIONS BETWEEN SOIL PERMEABILITY AND PHYSICAL CHARACTERISTICS OF SOIL

The mathematical analysis of connection of coefficient of filtration with physical properties of soddy-slilhtly-podzolic soils was conducted . The closest connections are set with by volume mass and porosity of soil. The mathematical analysis of plural correlation was here applied.

Keywords: coefficient of filtration, by volume mass of soil, porosity of soil, coefficient of correlation.

UDC 633.11:575.222.7:631.95:631.6 (477.7

Ivaniv M. O., Candidate of Agricultural Sciences, Associate Professor, Department of Mechanization and Life Safety, Sydiakina O. V., Candidate of Agricultural Sciences, Associate Professor, Department of Agriculture, Artiushenko V. V., Candidate of Agricultural Sciences, Associate Professor, Department of Mechanization and Life Safety
(Kherson State Agrarian University, Kherson)

ECOLOGICAL AND GENETIC VARIABILITY OF CORN HYBRIDS' YIELD FOR GRAIN OF DIFFERENT RIPENESS GROUPS IN RESPONSE TO IRRIGATION IN THE SOUTH OF UKRAINE

The reaction of corn hybrids of different groups of ripeness to agroecological factors of production process is shown in article; variability of corn productivity depending on the ecological site of growing and year weather conditions is defined.
Keywords: corn, hybrids, agroecological factors, productivity.

UDC 631.6:627.417.4

Huryn V. A., Doctor of Engineering, Professor, Radchuk M. I., Post-graduate (National University of Water Management and Nature Resources Use, Rivne)

ESTIMATING RELIABILITY OF RIBBED SLABS FOR SLOPE PROTECTION OF WATERWORKS FACILITIES

The basic parameters that influence the reliability of hydraulic structures and presents data field surveys ribbed plates fastening slope banks made their reliability analysis and quantitative indicators of safety.

UDC 502.6

Volkova L. A., Candidate of Agricultural Sciences, Associate Professor (National University of Water Management and Nature Resources Use, Rivne)

ANTHROPOGENIC CHANGES OF HEADWATER CATCHMENTS IN RIVNE OBLAST (REGION)

The features of change of structure of ecosystem of little river basin are examined as a result of anthropogenic activity. The indexes of ecological equilibrium are set for an ecosystem.

Keywords: little river basin, indexes of anthropogenic action, ecological equilibrium.

WATER SUPPLY AND WASTEWATER DISPOSAL

Sablii L. A., Doctor of Engineering, Professor (National University of Water Management and Nature Resources Use, Rivne)

USE OF AQUATIC ORGANISMS FOR WASTEWATER TREATMENT TO REMOVE ORGANIC POLLUTANTS

It is presented the results of researches of hydrobiocenose of anoxydic and aerobic bioreactors at high concentrated wastewater treatment. It is established biomass concentration in anaerobic stage to 20 g/dm^3, aerobic – to 3 g/dm^3, mineral quarter – to 50-60%.
Key words: wastewater, biological treatment, bioreactor.

UDC 628.35

Hornostal S. A., Lecturer (National University of Civil Protection of Ukraine, Kharkov)

ANALYSIS OF WASTEWATER AEROBIC BIOLOGICAL TREATMENT MODELS

The basic mathematical models describing the processes occurring in the aerobic biological treatment plants of wastewater.
Key words: biological treatment, wastewater, the mathematical model, the aeration tank.

UDC 628.16

Kunytskyi S. O., Post-graduate student (National University of Water Management and Nature Resources Use, Rivne)

GROUNDWATER TREATMENT DURING CONTACT DE-IRONING IN POLYSTYRENE FILTERS

The results of iron removal iron water on polystyrene filters with increased particle size granules.
Keywords: water aeration, polystyrene, de-ironing of water, head loss, filters.

UDC 628.16

Meddur M. M., Post-graduate Student, (National University of Water Management and Nature Resources Use, Rivne)

PHYSICAL CHARACTERISTICS OF SEDIMENT AND ITS REMOVAL FROM THE FILTER

These questions concerning the adhesion of sediment and removing it from the filter filling
Key words: adhesion, sediment, water purification, washing

UDC 628.3

Sivak V. M., Candidate of Engineering, Associate Professor, Rossinskyi R. M., Senior Lecturer (National University of Water Management and Nature Resources Use, Rivne)

STATISTICAL ANALYSIS OF WASTE TREATMENT PLANTS' WORK IN PRODUCTION ENVIRONMENT

The statistical analysis of the modes of operation of treatment facilities.
Keywords: water treatment, statistical analysis, histograms, bar graphs approximation of the variance.

UDC 628.16

Hirol A. M., Candidate of Engineering, Associate Professor (National University of Water Management and Nature Resources Use, Rivne)

IMPACT OF WATER AND SEWAGE UTILITIES' SYSTEMS ON THE QUALITY OF SURFACE AND UNDERGROUND WATERS

Analysis of anthropogenic factors such as water and sewage systems on the quality of groundwater and surface water was carried out.
Keywords: anthropogenic factors, quality, groundwater and surface water.

UDC 628.3:622.5

Rossinskyi V. M., Master in Water Supply and Disposal, Category I Engineer (National University of Water Management and Nature Resources Use, Rivne)

ASSESSMENT OF TECHNOLOGICAL OPTIONS OF MINE WATER PURIFICATION IN SELF-INDUCTING COIL WITH BIPOLAR ELECTRODES AT THE CHANGE OF THEIR STRUCTURAL CHARACTERISTICS

The experiment results for estimate of technological parameters of mine water treatment in electrochemical apparatus with bipolar electrodes when changing diameter of electrode and diameter of hole in the electrode, interelectrode distance, current density, volumetric current density are presented.

Keywords: active treatment, mine water, bipolar electrode, electrochemical reactor, current density, volumetric current density.

HYDRAULICS AND HYDRAULIC ENGINEERING

UDC 626.83:532

Nikolaichuk O. M., Assistant (National University of Water Management and Nature Resources Use, Rivne)

ACCELERATOR LEVER OPENING TIME OF LEVEL CONTROLLER WITH EXTENDED HYDRAULIC CONNECTION

The time of opening of accelerator sensor depending on the length of the hydraulic connection is determined. The regression equation is evaluated to determine the time of opening of the accelerator sensor.
Keywords: control, level sensor, the sensor accelerator, the hydraulic connection.

UDC 504.06:502.5

Dunaieva Y. A., Junior Research Fellow, Popovych V. F., Senior Research Fellow (Crimean Scientific and Research Centre of Institute of Hydraulic Engineering and Land Reclamation of the Ukrainian Academy of Agricultural Sciences), **Paniutìn V. M., Department Head** (Salgir Department of Water Management, State Committee of Water Management of the Autonomous Republic of Crimea)

SCHEME OF SUSTAINABLE ECOLOGICAL AND ECONOMIC USE OF WATER AND LAND RESOURCES

Proposed a methodological approach of scheme creation for rational using of water and land potentials of watersheds illustrated by the main water system of Crimea.
Key words: agro-hydrological modeling, MWSWAT, regional landscape park, Salgir, Simferopol reservoir.

UDC 556.332.52

Halik O. I., Candidate of Agricultural Sciences, Associate Professor, Brovko H. I., Senior Lecturer (National University of Water Management and Nature Resources Use, Rivne), **Brovko A. S., Post-graduate Student** (Taras Shevchenko National University of Kyiv)

STATISTICAL ANALYSIS OF TIME SERIES OF GROUNDWATER DEPTH: KUZNETSOVSK KARST GROUND CASE STUDY

The integral curves, that was received by using Finite Element Method (FEM), was appeywordslied for detection of groundwater level fluctuations.
Keywords: groundwater, integral curves.

MATERIALS SCIENCE

UDC 691.31

Dvorkin L. Y., Doctor of Engineering, professor, Myronenko A. V., Candidate of Engineering, Ishchuk O. O., Candidate of Engineering (National University of Water Management and Nature Resources Use, Rivne)

SILICATE BRICK BASED ON LIME AND BAZALT BINDING MATERIAL

The article presents the results of research autoclaved binder from waste crushing basalt and silica brick technology based on it. A mathematical model of technological factors on the properties of silica brick, the optimum value of the material composition of the raw mix
Keywords: autoclave, binder, waste, basalt, silica brick.

UDC 624.012

Chernetska O. I., Applicant (National University of Water Management and Nature Resources Use, Rivne)

COMPARATIVE DESIGN OF BENDING REINFORCED CONCRETE ELEMENTS BASED ON EXISTING STANDARDS

The article deals with different methods of calculating the flexural concrete elements based on the current rules.
Keywords: reinforced concrete elements, operating rules, calculation.

ENGINEERING SCIENCE

UDC 624.132.3

Kyrykovych V. D., Candidate of Engineering, Senior Lecturer (National University of Water Management and Nature Resources Use, Rivne)

EXPERIMENTAL STUDY OF CUTTER AQUEOUS SOIL FLUIDIZATION PROCESS

These tools and the results of the study of patterns of soil development processes based on rational parameters of mixing surfaces hruntoruynivnyh items to improve your milling bodies in the soil in the aquatic environment.
Keywords: slurryfication, breaking ground elements, milling, mixing surface, water environment.

UDC 631.372

Lukianchuk O. P., Candidate of Engineering, Associate Professor (National University of Water Management and Nature Resources Use, Rivne)

ANALYSIS OF THE QUALITY AND CAPACITY CRITERIA OF STRUCTURAL SOIL TILLAGE

Analysis of selection criteria quality for the structural loosening and Theoretical investigation of its energy by hypothesis Rehbinder.
Key words: soil, structure, quality criteria, energy.

HEAT AND GAS SUPPLY AND VENTILATION

UDC 697.93

Dovhaliuk V. B., Candidate of Engineering, Associate Professor, Shadura I. V., Post-graduate Student (Kyiv National University of Construction and Architecture)

PROCESSES IN INTEGRATED PACKAGE FOAM MACHINE FOR MUSEUM COLLECTIONS' STORAGE AND TRANSPORTATION

Carry out analytical examination of foam spray units, represent the construction of new combined compact foam unite for providing conditions of preservation and transportation museum specimen and processes that take place in it.
Keywords: museum specimen, foam unit, aerodynamic drag, the number of transfer units, head of foam, static fluid level, coefficient of heat transmission.

UDC 696.2

Hrytsyna O. O., Candidate of Engineering, Associate Professor (National University of Water Management and Nature Resources Use, Rivne)

SELECTION, JUSTIFICATION AND RATIONALIZATION OF DESIGN CONSIDERATIONS OF GAS-SUPPLY SYSTEMS (CASE STUDY OF KRAIV VILLAGE, OSTROH RAION (DISTRICT)

For example Kraiv shows that the choice of gas is advisable to not only by comparing the technical and economic performance, but also production and technology of gas leakage and the reliability of supply.
Keywords: in-process gas losses, reliability index.

UDC 628.38

Stepanov D. V., Candidate of Engineering, Associate Professor (Vinnitsa National Technical University)

PROCESS MODELLING FOR ORGANIC WASTE GASIFICATION BASED ON ACCOUNTING EQUATIONS

The model of wastes gasification process, which on equalizations of thermal and material balances is built, and which elementary composition of wastes or synthesis gas and adiabatic temperature in a gazogenerator allows to estimate, is offered. Adequacy of the developed model is confirmed by comparison of calculation and experimental results.
Keywords: gasification, hard organic wastes, mathematical model, adiabatic temperature.

LAND SURVEYING AND CADASTRE

UDC 332.3

Abramovych O. V., Post-graduate Student, Kornilov L. V., Candidate of Engineering, Associate Professor (National University of Water Management and Nature Resources Use, Rivne)

CERTAIN ASPECTS OF THE OPTIMIZATION OF LAND USE SCOPE

The article highlighted the main factors that influence the formation of the optimal size of land use. Is analyzed the state of agriculture in Ukraine.
Keywords: optimal size, land use.

UDC 378.1:332.3

Nikolaichuk K. M., Candidate of Engineering, Assistant (National University of Water Management and Nature Resources Use, Rivne)

LEGISLATIVE CHANGES IN TRAINING OF LAND SURVEY SPECIALISTS

The article discloses the problems of professional preparation and skilled providing in the field of organization of the use of land. Special attention is paid to the chart of receipt qualifying certificate of land engineer-surveyor.
Key words: qualifying certificate, land engineer-surveyor, education of land-management.

UDC 551.24:528.2/3

Tadieiev O. A., Candidate of Engineering, Associate Professor (National University of Water Management and Nature Resources Use, Rivne)

PECULIARITIES OF TECTONIC AND PHYSICAL INTERPRETATION OF GEODETIC DATA IN GEODYNAMIC STUDIES

The tectonophysical aspects of interpretation of the geodetic data into geodynamical research are dealt with. The prospects of the finite element method and some solving the problem into optimization have been disclosed.
Keywords: continuous medium, deformations, geodetic network.

UDC 332.3

Revutskyi V. R., Assistant, Lahodniuk O. A., Candidate of Engineering, Associate Professor (National University of Water Management and Nature Resources Use, Rivne)

ISSUES CONCERNING THE IMPLEMENTATION OF INTEGRATED CADASTRAL SYSTEMS

The author analyses modern experience in the field of automated information systems' application and proves the need to install automatic multifunctional registry. The registry is supposed to provide database formation, effective management and free access of the citizens, organizations and government bodies to the spatially distributed information.
Keywords: multi-inventory, automated information systems, spatial data infrastructure.

UDC 622.458(035):629.114

Sokur M. I., Doctor of Engineering, Professor, Sokur L. M., Senior Lecturer (Kremenchuk Mykhailo Ostrohradskyi National University, Kremenchuk)

REDUCING EXHAUST GASES CONCENTRATION IN PITS' ATMOSPHERE BY COORDINATING MOTION UNITS OF TRAFFIC FLOWS

The approach to determining patterns of reducing the concentration of harmful gases, depending on the distance to the target point relative motion of source emissions. These optimal distance between the moving vehicle career.
Keywords: dump truck, motor flows exhaust gases.

UDC 332:528.11

Tadieieva O. O., Post-graduate Student (National University of Water Management and Nature Resources Use, Rivne)

SURVEYING ARIAS WITH ACTIVE GEODYNAMIC PROCESSES ACCORDING TO THE FACTORS OF LAND SURFACE DEFORMATION

The tectonophysical aspects of interpretation of the geodetic data into geodynamical research are dealt with. The prospects of the finite element method and some solving the problem into optimization have been disclosed.
Keywords: zoning, deformation of surface mapping.

OCCUPATIONAL HEALTH AND LIFE SAFETY

UDC 331.45

Klemens Budzowski, Professor, PhD, Chancellor (Andrzej Frycz Modrzewski Krakow University, Kraków, Poland)

POLISH EMPLOYER'S RESPONSIBILITIES: WORKPLACE HEALTH AND SAFETY

The article is devoted to the questions of safety workplace, fire protection, according to Polish law.
Keywords: safety workplace, fire protection.

UDC 331.454

Tkachuk K. N., Doctor of Engineering, Professor, Tairova T. M., Candidate of Chemical Sciences (National Scientific and Research Institute of Industrial Security and Labour Protection, Kyiv)

MATHEMATICAL MODEL FOR OCCUPATIONAL SAFETY STATUS FORECASTING

The evaluation coefficients of machines, technological процесов, building danger and integral factor of safety are offered. The mathematical model of labour safety state prognostication is built.
Keywords: safety of labour, coefficient of danger, integral factorof safety.

UDC 622.012.2:621.311.1

Vasylets S. V., Candidate of Engineering, (Donetsk National Technical University, Donetsk)

MATHEMATICAL MODELING OF THE STATUS OF EARTH ELECTRIC CURRENT LEAKAGE THROUGH A HUMAN BODY IN POWER SUPPLY NETWORK OF MINE SECTION

The mathematical model of mine section power network was improved by taking into account frequency decreasing of motor back EMF, which maintaining ground leakage current after power network safety tripping, that allows to raise the estimation precision of network operation safety.
Keywords: simulation, coal mine, power network, matrix, voltage, leakage current, graph, frequency, magnitude.

APPLIED MATHEMATICS

UDC 512.64

Martyniuk P.M., Candidate of Physical and Mathematical Sciences, Associate Professor, Goshko O.V., Graduate Student (National University of Water Management and Nature Resources Use, Rivne)

COMPARATIVE ANALYSIS OF THE APPLICATION EFFECTIVENESS OF COMPUTATIONAL METHODS FOR SOLVING LARGE SYSTEMS OF LINEAR ALGEBRAIC EQUATIONS

The results of experimentaland theoretical researches of the different methods of solving large systems of algebraic equations generated by radial basis functions and algorithms for fast multiplication of large matrices have been shown.
Keywords: system of linear algebraic equations, radial basis functions, the method of Gauss, Jacobi method, Gauss-Seidel method, the method of upper relaxation method of symmetrical upper relaxation method Craig, the method of least squares algorithm Shtrasena, algorithm grape Shtrasena.