
ANNOTATIONS OF THE ARTICLES

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FACTORS INFLUENCING EFFICIENCY OF AN ORGANIZATION'S PROCESSES

This paper focuses on the factors affecting the efficiency of an organization's processes. The factors are: applied materials and technology, human resources, equipment and working environment. Besides, it's necessary to take into account such factors as «customer requirements» and «preparedness degree» of consumers for evaluation and use of the process results. Consideration of these factors allows organizing a process that will effect in the most justified, optimal result for a particular consumer. In addition, the author notes that the factors impact is «distributed» on the elements of the process.

Particular attention is paid for the impact consideration of simultaneous multi-directional factors on performance criteria - costs and results. In this regard, the author proposes to focus on the principle of optimality, using «maximum integral index», considering the result obtained during the process and the necessary costs.

Keywords: process approach, process, process income, process outcome, factors affecting process efficiency, principle of optimality.

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RECOGNITION METHOD FOR CITIZENS ARE IN WAIT OF PROVISION OF HOUSING FACILITIES FOR SOCIAL NEEDS: SYNTHESIS OF REGIONAL PRACTICES

The paper presents analysis of regional legislation in the field of housing for citizens with low income through the use of non-profit rent. The study revealed that the main criteria for recognition of citizens housing needs are income and cost of property belonging to citizens on the property right. Systematization of methods for calculating

thresholds of the criteria allowed to reveal two approaches –standard and calculated for limit values determination, as well as to identify strengths and weaknesses of each approach.

The methods of comparison, systematization, data analysis, induction and others provide objective conclusion on legislation inadequacy in the field of determining limiting values of the criteria. On the basis of mathematical modeling an output on applicability of two approaches had been made. The author proposed to improve the regional methodology for choose of persons needy for social housing with the aim to adjust differences and tenants widening based on differentiation of property security.

Keywords: *housing fund of social needs, social housing, non-profit rent, maximum income level, maximum property cost, property security.*

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INFRASTRUCTURE SUPPORT OF BUSINESS INNOVATIVE DEVELOPMENT

The paper deals with theoretical aspects of infrastructure support for business, what is necessary for development of entrepreneurship in the innovative economy.

This study analyzes the state of infrastructure support of business innovative development on the basis of interaction of regional and business structures. To analyze this state, the following tasks are solved: specification of "infrastructure" concept, definition of objects and elements of business infrastructure support, criteria selection of advanced production technologies, identification and solution of problems of infrastructure support.

The choice of the main criteria for advanced production technologies is carried out by statistical methods. The issues and prospects of infrastructure support formation are defined based on analysis of innovative solutions.

The study results can be used for monitoring by regional authorities aimed on development and improvement of infrastructural maintenance for entrepreneurial activity in Orenburg region in the sphere of advanced production technologies and formation of effective system for cooperation of business and regional structures.

Keywords: *infrastructure, infrastructure support, innovation economy, entrepreneurship, interaction, operation, criteria of advanced production technologies.*

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SALES SYSTEM IMPROVING OF AGRICULTURAL PRODUCTS THROUGH WHOLESALE DISTRIBUTION CENTERS IN ORENBURG REGION

The problem of interaction between agricultural producers and consumers with the introduction of import substitution program has acquired the special urgency. «State program of agriculture development and regulation of markets for products, raw materials and food for 2013-2020» was approved by the Government of Russian Federation in connection with absence of organized distribution system of national agriculture producers in the regions, as well as with WTO requirements concerning support of agricultural complex.

The study purpose is a comprehensive evaluation of the agricultural market of Orenburg region, as well as scientific advice on the placement of wholesale distribution centers (WDC) of agricultural production in Orenburg region.

The following tasks reflect the line of the research: to develop a draft model of typical WDC, justifying its territorial distribution in the municipal districts of Orenburg region; and to identify tasks solving by WDC.

The method of successive iteration, as well as the gravity center method was used by the author to minimize the distances to WDC.

Keywords: *wholesale distribution center, goods exchange, Orenburg region.*

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ECONOMIC-LEGAL QUALITY AND EXPENSE OBLIGATIONS CLASSIFICATION OF PUBLIC LEGAL UNITS

The paper presents economic and legal aspects of «expense obligations» definition and its reflection in the budget law. The authors explored relationship between the concepts of «budget expenditures» and «expense obligations», classification of expense obligations for public legal units, grouping of expense obligations and sources of its financial support at various management levels in Russian Federation in accordance with the Budget Code of Russian Federation. The proportion of expense obligations and financial sources as well as the issues of discharging expense obligations are estimated in the context of consolidated budget of Orenburg region. Conclusions on the practical value of expenditure obligations' classification for public legal units identified by the authors are formulated to improve the quality of budget expenditures planning, complete and timely fulfillment of public obligations, improve the quality and accessibility of public and municipal services.

Keywords: budgeting focused on result, budget expenditures, expense obligations, classification features, register of expense obligations, fiscal revenue, expenditure powers.

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COMPREHENSIVE ASSESSMENT OF HUMAN CAPITAL AS A FACTOR OF REGIONAL ECONOMY DEVELOPMENT

Nowadays the modernization goals require new approaches to solve the problems for ensure the effective control of regional development. The central issue of regional management is to improve the efficient use of all available resources, including human assets. In this regard, the subject of the study is regional human capital. The level and quality of human capital asset of the region determines potential development of the region.

The paper deals with the evaluation of human capital in the region. Methods of qualitative, quantitative and value appraisal are developed and proved based on the studies; performance standards for human capital in the region are proposed. The author have designed and analyzed the integral indicators for the Volga federal district. It is concluded that proposed system of assessment indicators for regional human capital allows monitoring of formation, operation and implementation of regional human assets. And it helps to forecast and plan priority areas of the complex socio-economic development of the region.

Keywords: *assessment, human capital of a region, indicators, region, criteria.*

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PROBLEMS OF INCREASING THE COMPETITIVENESS OF RUSSIAN ENTERPRISES

The urgency of the problem increasing the competitiveness of Russian companies due to Russia's integration into the world economy and active development of competitive environment in the global economy. The article considers the problems of competitiveness of Russian enterprises: unavailability of cheap financial resources, the problems of starting and doing a business, the problems of introducing innovation and increasing technological gap between Russian enterprises and companies in developed countries. According to the authors, these problems are reflected in weak positions of Russian economy in the international rankings of competitiveness. However, the authors emphasize competitive advantages of national enterprises. The conclusion is made about necessity of development of competitive strategy development at the state level as the only possible way to effectively use all existing competitive advantages.

Keywords: *competitiveness, index of global competitiveness, financial resources, bureaucracy, corruption, innovations, wear of fixed assets, scientific and technical potential*

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STATISTICAL ANALYSIS OF PRODUCTION DYNAMICS OF MAIN AGRICULTURAL PRODUCTS IN RUSSIA AND USA FOR 1940–2012

The agriculture is the main source of the food for the country and national food security in many respects depends on agriculture effectiveness and farming possibilities. In this regard the purpose of the paper is the comparative analysis of production dynamics of the main agricultural products in Russia and USA for the long period in the context of food security. The statistical methods as: graphic, tabular, coefficient and analysis of time series were used for the purpose achievement. The statistical tools allowed uncovering the "gap" size of production as well as evaluating of food supply level for considered countries. On the basis of the study, the authors make a conclusion concerning sufficiency of internal sources for food security ensuring of Russian Federation.

Keywords: agriculture, dynamics, comparison, time series, food security.

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FEATURES AND IMPLEMENTATION ISSUES OF INNOVATIVE PROJECTS IN CLUSTERS

The paper describes the basic issues and features of innovative projects in clusters. The advantages of cluster structures for creation of competitive innovative projects are revealed. Particular attention is paid to the problems of supporting and high-quality selection of perspective projects.

The analysis of «innovative lift» as one of the main elements of state support and innovations development in Russian Federation is performed. The author identified the barriers restricting development and commercialization of innovations in Russian Federation and in the Republic of Tatarstan.

The reasons for inefficiency of the state support mechanism and innovative project as well as solution was presented.

The author proposes possible solutions for selection and support of innovative projects considering the machine-building cluster of the Republic of Tatarstan.

Keywords: clusters, synergy effect, innovative projects, project consortium.

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ECONOMETRIC MODELING OF RESIDENTIAL PROPERTY PRICES AT REGIONAL LEVEL: HIERARCHICAL APPROACH

The paper proposes a multilevel (hierarchical) approach to price modeling of residential real estate at the regional level: the price of the property is simultaneously formed under the influence of the object characteristics (micro-level - apartment area, presence of balconies, floor) and characteristics of the socio-economic state of the territorial unit, where it is located (mesolevel - wages level, unemployment rate, distance to regional center).

On the basis of the proposed approach, the authors presented results of a pilot study of regional housing market in Orenburg region on the example of one-bedroom apartments pricing in ten major regional centers. It was revealed that apartment's price is formed mainly under the influence of such factors as kitchen area and the distance to the regional center; apartment's location in the particular regional centers determines more than a half of variations of its value.

Keywords: housing pricing, regional housing market, multilevel modeling, hierarchical data structure.

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THE INTERACTION MECHANISM FOR PARTICIPANTS OF THE INNOVATIONS MARKET IN FOOD INDUSTRY ON THE BASIS OF TECHNOLOGY PLATFORMS

In the article the interaction mechanism for participants of the innovations market in food industry on the basis of technology platforms described. The relationship between the structure of innovations market of sectoral economic system and technological innovation is extremely relevant in the context of the modern market of goods and services. Currently innovative development of the enterprise is largely determined by the processes and changes in a particular sectoral market. Therefore, considering innovative policy of the enterprise, it is important to consider the structure of innovations market of sectoral economic system, within which this enterprise operates, as well, the model of behavior of enterprise at innovations market of sectoral economic system have a direct impact on the intensity and efficiency of innovation processes. The peculiarity of modern period – formation of a mixed economy – determines the relevance of creation of effective mechanism for management innovative activity at the enterprises in food industry. The exit from the crisis state of enterprises can be achieved through the development of new products that meet requirements of market economic system and innovation industry. Technological modernisation of key sectors in food processing industry is a necessary condition for innovative development and increasing the competitiveness of Russian products on domestic and foreign markets. Modernisation of food processing industry and increase the competitiveness of its products will allow Russia create a more sustainable position in WTO. For sustainable development of food processing industry it is needed to update and change the quality of material and technical base, which will significantly expand the use of innovative technologies. The author found that one of the main instruments for formation high utility and efficiency of participants' interaction in innovative activity ensuring the achievement of all goals of innovative development in food industry of Russian Central Federal District is performing of technology platform. The author found that the technology platform is the organizational form for implementation of public-private partnership, and is effective mean for implementation innovative and scientific-technical policy for priority directions of technological modernisation of companies in food industry of Russian Central Federal District.

Keywords: *technology platform, mechanism of interaction, innovation market, food industry, Russian CFD.*

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THE END OF POSTMODERNISM OR ITS CRISIS?

The paper analyzes the crisis of postmodern culture and the possibility of transition to a new era of «metapostmodern». In the first part the author provides definition and qualitative description of postmodern,

as well as its essential features based on opinions variety of reputable foreign and national experts. The study of cultural phenomena, which some researchers attributed to signs of postmodernism overcoming, leads to the conclusion of premature notifications about this period's completion. The experts shall discuss the crisis of the postmodern project, but not overcoming. The cultural phenomena claimed as postmodernism overcoming, such as technimages, glocalization, transsentimentalism and other, are in the field and in the spirit of postmodern discourse indeed. Therefore, the paper concludes that the momentum of postmodernism is far from its end.

Keywords: postmodern culture, metapostmodern, crisis, technimages, glocalization.

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SCIENTIFIC TRADITIONS AS A SOCIAL PHENOMENON

The paper studies scientific traditions in the context of its social functioning. The heuristic wealth of internalism and externalism for socio-cultural study of cognition as well as metodologism and sociologism for study of cognitive process are discussed. Comparing the theoretical intentions of the mentioned approaches, the author argues the limitations of each concept. The synthesis of the described approaches could become a solution in this situation by the author's opinion. Solving the synthesizing issue of these theoretical constructs, the author pays particular attention to understanding of its heuristic potential in terms of consideration for diverse elements of cognitive culture, and first of all - scientific traditions. The paper shows how the cognitive traditions, mediating human and materialized labor to a cognitive act, promote an adequate interpretation of social mechanics of the cognitive activity.

Keywords: tradition, human and materialized labor, social knowledge, internalism, externalism.

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TELEOLOGY AND SYNERGIC SCIENTISM, FREEDOM AND RANDOMNESS IN PURPOSE DISCOURSE

The author argues inefficiency of scientist attempts to transfer terminology and methodology of natural sciences in the humanities by the example of «humanitarian» synergy. Synergetic approach applied to humanitarian problems, shows a low resolving power dealing with the systems of consciousness. The possible solution of this problem is the teleology studying of such systems existence. Transition of humanitarian synergy to teleology allows creating a new sense not only in speculative knowledge areas but actualize its value for new topical areas. Perhaps the humanitarian version of synergetics is capable to update the outdated approach to teleological problematics so it may claim on methodology flexibility.

Keywords: teleology, synergetics, scientism.

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SCIENTIFIC COGNITION IN THE CONTEXT OF MODERN CULTURE

The paper deals with the issue of scientific cognition dynamics in conditions of modern culture. The author pays special attention to the structural aspect of scientific knowledge, underlining issues of interconnection between epistemological and methodological structures of scientific knowledge and such communicative aspects of human activity as objective-practical and instrumental-operational ones. The socio-cultural basis transforms to spectra of operational creative means of knowledge activity and realize in different stages and forms of cognition which are conceptual and categorical representation of an object, processes of interpretation and understanding. Analyzing different methodological concepts of scientific philosophy (for instance classical, new-positivistic,

postmodern and etc.), the author describes modern view on the nature of scientific knowledge related to the issues of modern subjective-objective aspect as the basic epistemological structure of cognitive process. The article contains research of metatheoretic scientific level as a kind of epistemic phenomenon which expresses its paradigm features influencing different forms and levels of scientific knowledge, formation of subjective and objective part of science, its practical basis, as well as ways of conceptual and essential perception of the reality.

Keywords: *scientific knowledge universum, subjective and objective view, methodological pluralism, internal existential context of cognition, postnonclassical condition, metatheoretic scientific level.*

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VALUE SYSTEM OF CULTURAL LANDSCAPE AS A CONDITION FOR ENVIRONMENTAL ETHICS FORMATION (in terms of FSBI Nechkinskiy National Park)

The paper studies the phenomenon of cultural landscape and actual issue of environmental ethics through the example of Federal State Budgetary Institution Nechkinskiy National Park. The author mentioned the special status of the park within the system of specially protected areas in Udmurt Republic; moreover the necessity of its cultural landscape studying is reasoned. The study suggests a classification of cultural landscapes in Nechkinskiy National Park and substantiates the role of cultural landscape in formation of vital, social, moral, political, religious and aesthetic human values. The paper summarizes the principles of cultural landscape forming for the national park, its compliance with different types of contemporary environmental ethics. The conclusion about significant role of the cultural landscape in establishing deep ecology ethics is drawn. The particular attention is given to the historical cultural landscape.

Keywords: *cultural landscape, values, environmental ethics, historical and cultural heritage, specially protected areas.*

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MULTI-AGENT MODEL OF CONTROL RESOURCES VIRTUAL DATA CENTER, BUILT ON THE BASIS OF SOFTWARE-CONFIGURABLE INFRASTRUCTURE

The article presents the results of a study on the development of model management software-defined infrastructure of the virtual data center (DC) to provide cloud-based applications and services. The novelty of this model is the use of methods of intellectual analysis and prediction of dynamic characteristics in the study of multicomponent systems. Flexibility built model provided by the agent-oriented approach. Set of the virtual center of objects modeled in the form of agents: the compute nodes are represented as the agent platform, acting as data center resources; applications and services act as resource consumers. A distinctive feature of the proposed model is a set of individual parameters reflected in the form of requirements to ensure the quality of service at the location of data applications and services in the system storage of the virtual data center; built on the basis of software-defined infrastructure.

Keywords: cloud computing, virtual data center, software-defined infrastructure, software-defined network.

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KNOWLEDGE-INTENSIVE PRODUCTION: OPTIMIZATION STRATEGY FOR OPERATOR COSTS

For industrial enterprises, especially enterprises of military-industrial complex, the costs optimization on maintenance phase becomes more and more important. The authors primarily consider collection, processing and distribution of collected operational statistics what requires special technical and economic data analysis methods. The paper proposes organizational and technical system, where the monitoring center performs data collection and processing function by the value analysis methodology in a single information space, organized by PDM-system under the terms, regulated by the contract of the life cycle.

Keywords: costs, value analysis, monitoring of product operation, product life cycle, PDM-system, contract of product life cycle.

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MATHEMATICAL MODELS FOR MULTIPLE CRITERIA AND ITS SOFTWARE FOR EVALUATING DECISIONS ON DEVELOPMENT OF ELECTRIC POWER SUPPLY OF INDUSTRIAL CITY'S DISTRICT

Electric power systems are difficult to manage what leads to the use of automated decision support systems (DSS). One of the stages of decision-making for DSS is evaluation of alternatives by multiple criteria.

The purpose of this study is development and implementation of software for calculating multiple criteria for evaluation of alternatives for development of electric power supply in industrial city's district.

The objectives are selection and justification of multiple criteria; development of mathematical models for multiple criteria; developing an algorithm for generating alternatives for development of electric power supply, software solution.

The theories of decision-making, mathematical and object-oriented modeling (UML) as well as application programming techniques were implemented.

The authors have developed mathematical models for multiple criteria - total discounted costs, annual loss of electricity, economic loss of electricity supply disturbances, withdraw area. The algorithm for generating alternatives and software of calculating the each multiple criteria was created. Reliability of results is confirmed by the correct operation of this program module.

Keywords: software module, UML-diagram, decision support system, electric power supply.

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COMBINATORIAL OPTIMIZATION FOR SELECTION OF SIGNS AND DECISION RULES OF OBJECTS IDENTIFICATION IN MEASURES SYSTEM

Identification problem arises when combining data from multiple sources, overlapping in space and time, particularly in air defense systems, air traffic control, environmental monitoring, and others.

The known methods of identification are usually reduced to the coordinate differences or motion parameters of identified objects with dimensions of corresponding gates, which are selected basing on the maximum measurement errors by information sources and normal distribution law.

It is clear that increasing spatial density of objects in the merged area of measures system, within a single strobe the measurements of multiple objects may appear; what can lead to errors and inefficiencies of existing identification algorithms.

The studies have shown the necessity to resolve this contradiction, on the one hand, between the increasing spatial density distribution of objects in measures systems, with intersecting zones, (for example, air defense systems in the modern anti-aircraft combat), and existing identification algorithms based on gating coordinate differences with «hard» critical rules such as «n from m», on the other.

Thus, identification system synthesis, which implements digital selection of features and decision rules for identifying the required quality parameters, is an actual task.

Application of combinatorial optimization method can solve the problem of optimal aggregation of identification features by selecting decision under required factors of identification quality.

The paper presents a block diagram of identification system according to identification features complex.

The examples of decision threshold selection by different combinations of estimated features are shown.

The results of simulation and statistical modeling of air objects in the united area during implementation process of existing algorithms, and system according to identification features complex, which have confirmed efficiency of developed system in high spatial density of air objects, are presented.

Keywords: *method of combinatorial optimization; objects identification system; criteria; decision rules; quality factors; spatial density of objects distribution.*

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MODERNIZATION OF SCREW PRESS – EXTRUDER

The paper discusses the process of extruding a protein-fiber-starch-containing raw material by the screw press-extruder. The authors proposed a design of the screw press-extruder, where the actuator is configured to control the angle of flight screw in relation to the center line that allows changing the effect parameters on the raw material hands-on depending on its structure. As a result, the production of extruded food and feed products by the designed press-extruder leads to deeper chemical transformation of processed material compared to the standard construction of the press-extruder.

The developed press-extruder design is equipped with measuring elements (sensors to measure torque and temperature) and control systems (actuator to regulate angle of flight screw). A detailed description of the device and the operating principle of the developed design press-extruder are presented.

The extrusion control tests of protein-fiber-starch-containing raw by the standard design and developed constructions of the press-extruder were held at OJSC «Orenburg feed mill». The grain mixture of: orzo - 70%, wheat - 10%, oat - 19%, salt - 1% was used as the raw material.

The experimental studies found that the developed press-extruder design can reduce energy consumption for production of extruded food and feed products and increase the quality of a finished product.

Keywords: *extrusion, complete feed, energy consumption, quality indicators.*

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EXPERIMENTAL RESEARCH OF END MILLING FOR FINISHING PROCESSING STAGES

The results of pilot studies of processing accuracy by method of end milling for finishing stages are presented in the paper. Cutting processing was carried out by two CNC-machines of vertical configuration. The measurements were performed on a coordinate measuring machine. The measurement results are given in form of graphs and tables. The research found a quantitative relationship between stock removal rate and error handling. For example, in the processing of steel workpieces (St3sp 4 mm width) the maximum of processing error for a 400V machine was set to 22 microns and for TM-IP machine - 44 microns. The value of positioning error was found experimentally for both machines. The quantitative data allow to select the maximum allowance depending on the requirements for processing accuracy, where a machine get particular blend of speed and accuracy. Three basic provisions for selection of end milling width for finishing stages are formulated.

Keywords: end milling, processing error, measurement results, machine tools, cutting conditions.

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DESIGNING OPTIMIZED SETS OF END MEASURES

The paper proposes an original algorithm and software tool for designing universal end measures sets with improved performance using computers. Sets designing algorithm is built from the terms of relations ensuring between number of measure groups set, number of measures in groups, dimensions and step of measures dimensions in groups that allow realizing the greatest number of composed sizes (block size less than 5 measures) with a specified step at lower metal consumption than currently available standard kits. A software tool, implementing the proposed algorithm, has a convenient interface and speed, allows determining characteristics of projected set, parameters of which are automatically optimized according to some optimization criteria used in the algorithm. The author present an example of performance improving for base universal set of 83 measures according to State Standard 9038-90 using the proposed algorithm design: reducing the measures number by 27 (83 to 56) and the set mass (reduction of total length by 8.24%); expansion of technological capabilities (expansion of boundaries series with a constant step size is composed of blocks in 0.41 mm and the increase in dimensions number is composed of blocks with a specified step on 82 size).

Keywords: slip end measure, set of measures, optimization of end measures set.

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SAFETY METHODS FOR GAS-TRANSPORT SYSTEMS

Industrial and ecological safety of hazardous production facilities for production, transportation and conversion of gas is the priority task national policy. It fully corresponds to Orenburg Oil and Gas Condensate Field which is an important link in the system of Russian energy and ecological safety. The method and algorithm of risk identification for Hydro-technical constructions (HTC) in multifactor conditions is developed for providing industrial and ecological safety of HTC objects with hydrogen sulfide-containing environments. The main units of the algorithm include: determination of potentially dangerous sites for HTC; assessment of factors exerting the greatest impact on a risk; risk identification of potentially dangerous sites by aggregative parameters and models; determination of an optimal technical solution by criterion of functioning efficiency. The method of theoretical assessment of potential danger for pipes defects and residual life of HTC defective sites is also provided in the paper. The offered methods for risk identification and potential danger assessment of defective pipes allow increasing industrial and ecological safety of HTC objects of hydrogen sulfide-containing environments.

Keywords: industrial and ecological safety, risk identification, assessment of defects potential danger.

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