Висновок. Таким чином, при виробництві пелет перш ніж розпочати перевірку обґрунтованості формування і правильності обліку витрат виробництва необхідно оцінити слабкі і сильні сторони внутрішнього контролю процесу виробництва і витрат.

Tychkov V. V., *Cand. Sc. (Eng.), Assoc. Prof.,*
Halchenko V. Ya., *Dc. Sc. (Eng.), Prof.,*
Trembovetska R. V., *Cand. Sc. (Eng.), Assoc. Prof.,*
Litvinenko P. Yu., *master student,*
department of instrumentation, mechatronics and computerized technologies,
Cherkasy State Technological University

ASSESSMENT OF TAP WATER QUALITY USING MULTIVARIATE CONTROL CHARTS

The authors have devoted works [1-5] to the issues of assessing the of natural water quality.

In works [1-2], metrological aspects of uncertainty assessment by electrochemical methods of measuring the parameters of hazardous objects are proposed. The authors used ion-selective electrodes as measuring sensors. The components of uncertainty at individual stages of analysis are given.

The work [3] contains a study on the creation of methods for the manufacture of ion-selective electrodes and the method of flow-injection analysis method taking into account the ultrasonic sample preparation of natural water.

In studies [4-6], in the context of a computational experiment for measurement using primary sensors for the purpose of making decisions, a two-parameter regression analysis is proposed. A visualization of the behavior of the potential function of the measuring sensor is presented. At the grid nodes, the applicate matrix of this function is calculated.

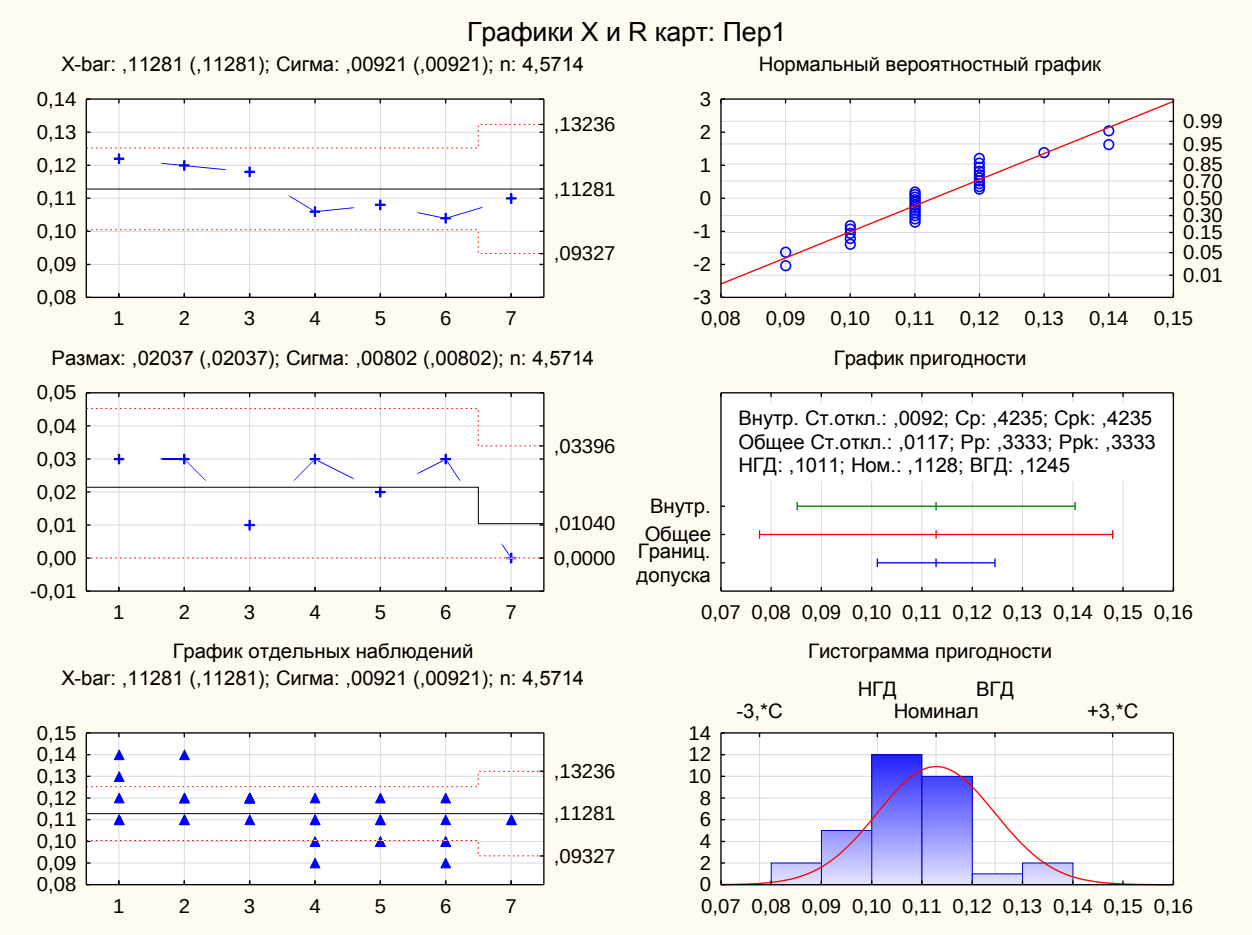
The work [7] presents technical solutions for the construction of technological equipment for automation of process water quality control at possible technogenic hazardous facilities, which include the chemical industry of Ukraine.

For further studies of the of natural water quality, a complex of daily, weekly and monthly studies and the development of its automated control system are proposed. The parameters of natural water are divided into three groups - physical, chemical and organoleptic indicators and elements. We consider such indicators and elements as daily ones - smell at 20 and 60 °C, color, turbidity, taste and aftertaste, residual free chlorine and residual associated chlorine. To the weekly we also add pH, total iron, dry residue, aluminum, ammonium, nitrites, permanganate oxidizability, chloroform, polyacrylamide. An analysis of the quality of natural water is carried out monthly by 58 indicators and elements.

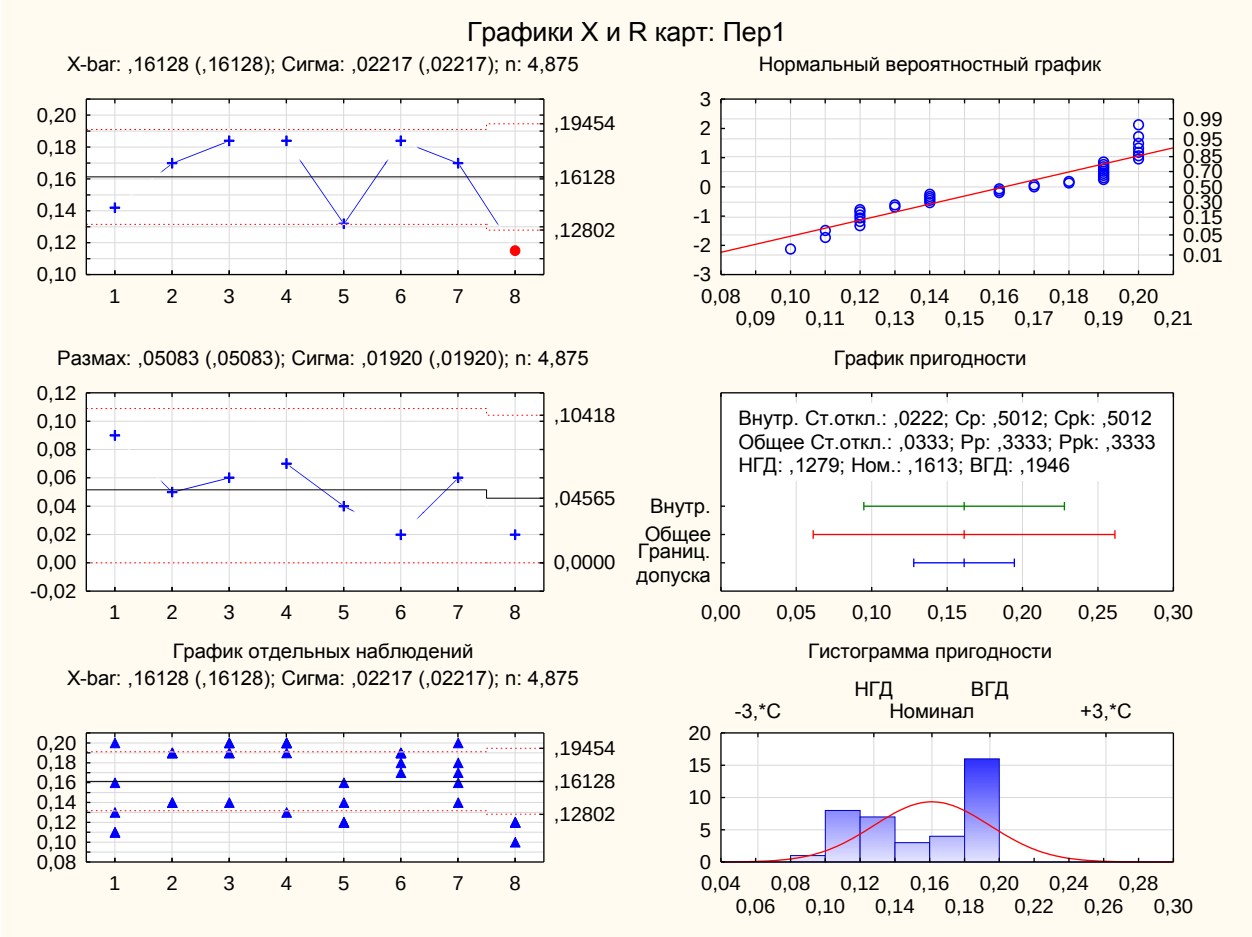
To track the progress of values of indicators and elements, we propose to use Shugart's quality control charts [8].

Quality control charts allow one to find deviations in the quality of natural water and to carry out optimization interventions at critical values of indicators and elements.

The results of using the maps for weekly measurements (03.02.2020 – 13.07.2020) of the residual iron concentration, mg/^{dm3} are shown in Figure 1.



The results of using maps for monthly measurement (12.2016-06.2020) of the residual iron concentration, mg/dm^3 are shown in Figure 2. We can note about two measurements, 0.19 and 0.2 mg/dm^3. The first case indicates the concentration of residual iron at the maximum permissible concentration, and in the second case, the measurement showed the maximum permissible concentration. The measurements were recorded in February and March 2018.



The use of one-dimensional Shugart's quality control charts allows for a timely response to the output of the residual iron value above the normalized limit.

References:

1. Metrological aspects of uncertainty assessment by electrochemical methods of measuring parameters of dangerous objects / Tychkov V. V., Trembovetska R. V. // Metrological aspects of decision making in terms of work on technogenic dangerous objects: materials of the All-Ukrainian scientific-practical Internet conference young scientists. - Kharkiv: KhNADU, 2016. – P. 115 - 117. http://er.chdtu.edu.ua/handle/ChSTU/805f

2. Estimation of uncertainty of preparation of buffer solutions / Tychkov V. V., Trembovetska R. V. // Metrological aspects of decision-making in the conditions of work on technogenic dangerous objects: materials of the All-Ukrainian scientific-practical conference of applicants for higher education and

young scientists. - Kharkiv: KhNADU, 2017. – P. 53 - 55. http://er.chdtu.edu.ua/handle/ChSTU/806

3. Using Ion-selective Electrodes in Environmental Monitoring / Tychkov V. V., Trembovetska R. V., Kisil T. Yu., Bondarenko Yu. Yu. // 10th International Conference “Environmental Engineering”: 10th ICEE. - Selected papers. - April 27–28, 2017. Vilnius, Lithuania. - P. 1 – 8. https://doi.org/10.3846/enviro.2017.052

4. Criteria for the Selecting Parameters Anode Polarization Process of Substances on the Ion-Selective Electrodes Surface / V. V. Tychkov, R. V. Trembovetska, V. Ya. Halchenko // Environmental Sciences. – 2018. – № 1 (20). - T. 2. – P. 107–117. URL:http://www.ecoj.dea.kiev.ua/archives/2018/1/part_2/25.pdf

5. Regression Analysis Application for the Uncertainty Estimation of the Ionometric Converters Graduation / [V. V. Tychkov, R. V. Trembovetska, V. Ya. Halchenko, L. H. Kunytska] // Information Technologies in Education, Science and Technology" (ITEST-2018) : IV International Scientific-Practical Conference, Cherkasy, 17–18 May, 2018 : proceedings. – Cherkasy: ChSTU, 2018. – P. 143-146.
URL:http://lib.iitta.gov.ua/710573/1/%D0%97%D0%B1%D1%96%D1%80%D0%BD%D0%B8%D0%BA_%D1%82%D0%B5%D0%B7_%D0%86%D0%A2%D0%9E%D0%9D%D0%A2-2018_14_05_18.pdf

6. The use of a single-parametric regeptional analysis for chrome(VI)-selective electrode manufacture parameters of modeling and optimization / V. V. Tychkov, V. Ya. Halchenko, R. V. Trembovetska, L. H. Kunytska // Comprehensive quality assurance of technological processes and systems (KZYATPS-2018): VIII International Scientific and Practical Conference, Chernihiv, May 10-12, 2018: in 2 volumes - [rep. by issue: Yeroshenko Andriy Mykhailovych and others]. : abstracts. - Chernihiv: ChNTU, 2018. - Vol. 2. - P.

139–141. URL:http://www.stu.cn.ua/media/files/conference/Tezy%20-%202018%20Part%202.pdf

7. Technical and technological bases for achieving environmental safety of sustainable development / V. V. Tychkov, V. Ya. Galchenko, R. V. Trembovetskaya / Global Partnership for Local Sustainable Development: Modern Trends and Best Practices: monograph / [ed. by L. O Petkova, O. Yu. Berezina, Andrzej Kryński] – Czestochowa, 2018. – P. 160-171. https://doi.org/10.23856/W1708

8. DSTU ISO 8258-2001 IDT. Statistical inspection. Shewhart control charts.

***Вересовська А. В.**, студентка групи ЕА 21-19*

***Кравцов М. М.**, доцент кафедри МБЖД*

Харківський національний автомобільно-дорожній університет

ВИХЛОПНІ ГАЗИ ТА ЇХ ВПЛИВ НА ОРГАНІЗМ ЛЮДИНИ І МІСЬКЕ СЕРЕДОВИЩЕ

Часто вихлопними газами називають усі викиди в міську атмосферу, у тому числі котельних, заводів і інших промислових підприємств. Насправді цим терміном правильно називати тільки транспортні викиди, які з’являються в результаті переробки палива. Також їх називають газами, що відходять. Вихлопні гази - продукт роботи двигунів внутрішнього згорання, і, враховуючи стрімке зростання кількості транспорту за останні 50 років і, зокрема, приріст особистого автотранспорту в містах, вихлопні гази в повітрі міст влаштувалися серйозно і надовго, а кількість їх тільки росте.

Зараз гази, що саме відходять, є головною причиною забруднення повітря в місті і постійно роблять вплив на здоров’я людини. Отже, з термінологією розібралися, давайте дізнаємося, що саме регулярно