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**“QURILISHDA YASHIL IQTISODIYOT, SUV VA ATROF-MUHITNI ASRASH
TENDENSIYALARI, EKOLOGIK MUAMMOLAR VA INNOVATSION
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Compositional analysis of treated wastewater at the Termez city wastewater treatment plant

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Abstract: Water is the main resource that ensures the continuation of life. Rapid population growth, industrialization, urbanization and widespread agricultural expansion have led to the production of contaminated wastewater. Millions of people die every year from diseases caused by drinking water contaminated with harmful microorganisms. 80% of child deaths and diseases worldwide are associated with poor water quality. The environment is seriously threatened by these pollutants. Removing harmful substances from wastewater is a major problem. Traditional treatment methods allow only 30-40% purification of contaminated water. In our research work, samples were taken from a depth of 20 cm from the outlet of relatively purified wastewater into an open water body to conduct a chemical analysis of sewage wastewater from three-stage treatment processes at the Termez city wastewater treatment plant of Surkhondaryo Water Supply A/J. The samples were tested in the laboratory of the Surkhondaryo Regional Department of Ecology, Environmental Protection and Climate Change. The results were analyzed and compared with the state standards for the discharge of wastewater into open water bodies.

Keywords: Wastewater treatment plant, wastewater analysis, pH indicator, state standard, oils, solids, KBBE, KBKE, petroleum products.

Termiz shahar oqova suvlarni tozalash inshootida tozalangan oqova suvning tarkibiy tahlili

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Annotatsiya: Suv hayotni davomiyligini ta'minlovchi asosiy resursdir. Aholining tez o'sishi, sanoatlashtirishning o'sishi, urbanizatsiya va qishloq xo'jaligining keng tarqalishi mavjud ifloslangan oqova suvlarni ishlab chiqarishga olib keldi. Har yiliga millionlab odamlar zararli mikroorganizmlar bilan ifloslangan ichimlik suvi sabab bo'lgan kasalliklardan vafot etadi. Dunyo bo'ylab bolalar o'limi va kasalliklarning 80% yomon suv sifati bilan bog'liq. Atrof-muhit bu ifloslantiruvchi moddalar tomonidan jiddiy xavf ostida. Zararli moddalarni chiqindi suvdan olib tashlash muhim muammo hisoblanadi. An'anaviy tozalash usullari ifloslangan suvni faqat 30-40% tozalash imkonini beradi. Tadqiqot ishimizda Surxondaryo suv taminoti A/J ga qarashli, Termiz shahar oqova suvlarni tozalash inshootida uch bosqichda tozalash jarayonlaridan chiqayotgan kanalizatsiya oqova suvlarining kimyoviy tahlilini olib borish uchun nisbatan tozalangan oqova suvning ochiq suv havzasiga chiquvchi qimidan 20 sm chuqurlikda namunalar olindi. Olingan namunalar Ekologiya, atrof-muhitni muhofaza qilish va iqlim o'zgarishi Surxondaryo viloyati boshqarmasi huzuridagi laboratoriyada eksperimentlar olib borildi. Olingan natijalar oqova suvni ochiq suv havzasiga quyish uchun ruhsat etilgan davlat standartlaridagi me'yor ko'rsatkichlari bilan taqqoslanib tahlil qilindi.

Kalit so'zlar: Oqova suv tozalash inshooti, oqova suv tahlili, pH ko'rsatkich, davlat standarti, yog'lar, qattiq moddalar, KBBE, KBKE, neft mahsulotlari.

1. Kirish

Oqova suvlarning tarkibi va xossalari bo'yicha ruxsatnomalar, texnik reglamentlar, tashkiliy standartlar bilan belgilangan yoki tegishli deklaratsiyaga kiritilgan standartlarga muvofiqligini tasdiqlash va baholash jarayoni Surxondaryo suv ta'minoti A/J ga qarashli Termiz shahar oqova suv tozalash inshootida o'rganish ishlari olib borildi. Tozalash inshooti 9.30 gektar maydonda joylashgan. Suv tozalash inshootining sutkalik suv tozalash hajmi 25 000 m³ bo'lib, bugungi kunda 23 000 m³ suv tozalanib amudaryo ochiq suv havzasiga oqizib yuborilmoqda. Oqova suv

tozalash inshootida oqova suvlar 4 xil usullar yordamida tozalash jarayonlari olib boriladi. Jumladan: mexanik usulida 2x4 mm li panjaralar hamda qumtutgichlar (10 000 m³/sutka)dan, biologik tozalash usulida esa aerotenklarda (25 000 m³/sutka) 75 % li faol loyqa qo'llaniladi va kimyoviy usulda gipoxlorid eritmasi yoki kukun xolatidagi xlor soatiga 7 kg miqdorida qo'shilgan holda tozalash ishlari olib boriladi, undan so'ng oqova suvlar biologik havzalarga yuboriladi u yerda oqova suvlar qamishzorlar, suv o'tlari yordamida tabiiy usulda tozalanadi. Ushbu tozalash jarayonlaridan so'ng oqova suvlar Amudaryo ochiq suv havzasiga oqizib yuboriladi.

2. Tadqiqot metodologiyasi

Surxondaryo suv ta'minoti A/J ga qarashli Termiz shahar oqova suv tozalash inshootida tozalangan oqova suvlarning tarkibiy jihatdan monitoring olib borish jarayonida quyidagi metodlardan foydalanildi.

Oqova suvlardan namunani olishda GOST 17.1.5.04 talablariga muvofiq laboratoriya idishlaridan foydalanildi, namunani laboratoriya tekshiruviga qadar GOST 31861-2012 talablariga muvofiq saqlandi.

1-jadval

Namunalarni saqlash yo'riqnomasi

№	Namuna tarkibi	Namuna idishlari	Namunani saqlash va saqlash vaqti
1	pH ko'rsatkich	Shisha idishlarda amalga oshirildi	Saqlash temperaturasi 2-5 C° gacha 24 soat ichida aniqlandi.
2	KBKE (kislorodga bo'lgan biokimyoviy ehtiyoj)	Shisha idishlarda amalga oshirildi	Saqlash temperaturasi 2-5 C° Namuna 24 soat ichida aniqlandi
3	KBKE (kislorodga bo'lgan kimyoviy ehtiyoj)	Shisha idishlarda amalga oshirildi	Sulfat kislota bilan kislotalash pH 2 dan past, 2-5 C° gacha sovutish va qorong'i joyda saqlandi

4	To'xtatilgan qattiq moddalar	Shisha idishlarda amalga oshirildi	Namuna 24 soat ichida aniqlandi
5	Sulfatlar	Shisha idishlarda aniqlandi	Namuna 24 soat ichida aniqlandi

Tadqiqot uchun [PND F 12.15.1-08](#) Oqava suvlarni tahlil qilish uchun namuna olish bo'yicha ko'rsatmasidagi oqava suvlarning tarkibi va xossalari bo'yicha ruxsatnomalar, texnik reglamentlar, tashkiliy standartlar bilan belgilangan yoki tegishli deklaratsiyaga kiritilgan standartlarga muvofiqligini tasdiqlash va baholash maqsadida namunalar olindi. Oqova suvlarni tozalash inshootidan namunalar ko'rsatmaning 4-bandiga muvofiq va GOST 51592-2000 me'yoriy hujjatlar yordamida amalga oshirildi.

Laboratoriya ishlari Ion meter (PXSJ-216F), jihozi yordamida GOST 32385-2013 talablariga muvofiq suvning qattiqligi (Mg^{+2} , Ca^{+2}), pH ko'rsatkichi va tarkibidagi NO_3 ionlari aniqlandi.

Oqova suv tarkibidagi tuzlarning qoldiqlarini va suvning kimyoviy kislorodga ehtiyojini (ISO 15705: 2002) Spektrofotometr (UV755YK) qurilmasida aniqlandi.

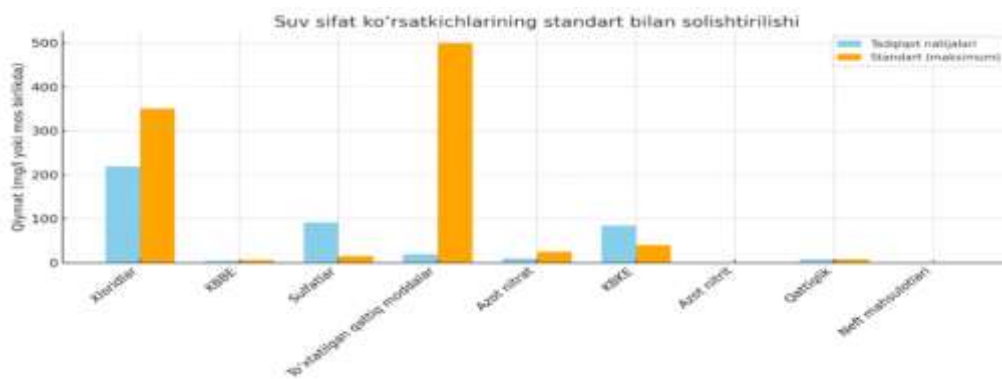
3. Natija va muhokamalar

Tadqiqot natijalari (1-jadval) O'z RH 84.3.5: 2004, 18-jadval Shahar va sanoat oqova suvlari aralashmasini tozalash uchun texnik jihatdan erishiladigan ko'rsatkich bilan solishtirilganda quyidagi ifloslantiruvchi moddalar normadan ortiqcha ekanligi aniqlandi.

2-jadval

Tadqiqot va standart ko'rsatkichlari

Tarkibiy qismlar	Xloridlar	KBKE	Sulfatlar	To'xtatilgan qattiq moddalar	Azot nitrat	KBKE	Azot nitrit	Qattiqlik	Neft mahsulotlari
Tadqiqot natijalari	219	4.1	92	18.7	9.4	84.3	0.02	7	0.29
O'z RH 84.3.5:2004 standarti	0-350	3-6	0-15	0-500	0-25	0-40	0-0.5	7-7.1	0-0.3



1-rasm. Suv sifat ko'rsatkichlarini standart bilan solishtirish

Quyidagi diagramma suv sifatining asosiy ko'rsatkichlari bo'yicha tadqiqot natijalari va O'z RH 84.3.5:2004 standartlari bilan taqqoslanishini ko'rsatadi:

4. Xulosa va takliflar

Termiz oqova suvlarni tozalash inshootidagi tozalangan oqova suvlar ustida olib borilgan laboratoriya natijalari shuni ko'rsatdiki; Oqova suvlar tarkibida qattiq

zarrachalar, neft mahsulotlari, xloridlar, azot nitrit, azot nitrat, sulfat, KBKE, suvning qattiqligi va pH ko'rsatkichlari aniqlandi. "O'z RH 84.3.6:2004- Tabiatni muhofaza qilish. Texnik jihatdan erishiladigan oqava suvlarni tozalash ko'rsatkichlarini hisobga olgan holda ifloslantiruvchi moddalarni suv havzalariga tushirishni tartibga solish bo'yicha ko'rsatma"da oqova suvlardagi moddalarning me'yor talablaridan ortiqcha ifloslantiruvchi moddalar aniqlandi. Ushbu oqova suv tarkibida ifloslantiruvchi ingridientlar me'yor darajasidan ko'pligi sababli yashil hududlarni sug'orishda yaroqsizligi xulosa qilindi. Keyingi tadqiqotlarimiz ushbu ifloslantiruvchi moddalarni tozalashga qaratiladi.

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