WaQuAC-NET Newsletter

Water Quality Asian Cooperation Network

http://www.waquac.net

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For Safe Water, Do Network.

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Question & Answer Corner

We welcome any opinions, and questions to this Q & A Corner. Please contact us.

Q: Recently, I heard discussions about PFOS and PFOA; organic fluorine compounds. Please tell me PFOS and PFOA. (Y.O, Japan）

【Question】

Ministry of the Environment Japan published a surveillance report regarding PFOS and PFOA in rivers and ground water across the country on 11th July 2020. Some results exceeded temporary target value of the aqueous environment at 37 sites of the 171 sites surveyed. Those 37 sites were not the source of drinking water, but I have a question about PFOS and PFOA.

-What kind of material are PFOS and PFOA?

-What kind of use were PFOS and PFOA used by?

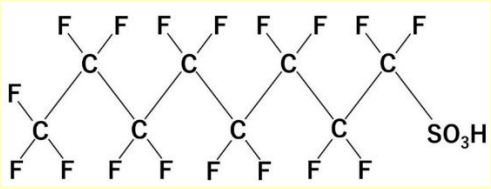
-The risk to health

-The regulation of PFOS and PFOA

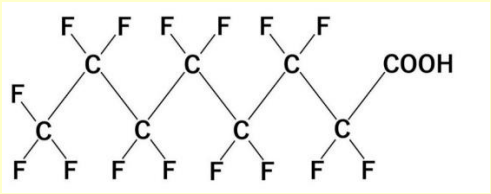
-The current status of water quality standard for drinking water

-Method of removing PFOS and PFOA in water treatment process

【Answer】



PFOS



PFOA

Outline, usage and risks

PFOS is perfluorooctane sulfonic acid and PFOA is perfluorooctanoic acid. Both are chemically synthesized organic fluorine compounds as shown above. They are not chemically degradable nor biodegradable. And they cannot be burnt by fire. PFOS was used as a surfactant for foam extinguisher, water repellent, etc. PFOA was used as a source material of producing Teflon or treating water repellent.

Risk to human health of PFOS and PFOA is not evident by academic ways yet. But Stockholm Convention on Persistent Organic Pollutants has restricted their production and usage under some situations and the compounds are undegradable and can be accumulated in human body. Major chemical engineering companies have stopped their usage since 2015. In Japan, their usage have been stopped already though water environment, especially ground water pollution is still serious problem.

Legal regulation and water quality standard for drinking water

In Japan, production, import and usage of PFOS are very restricted by the act*1 according to the decision of the Stockholm convention. Production and import are mostly inhibited. For usage, changing to alternative products are mostly completed. PFOA will be restricted by the same way as PFOS in 2020. Other 182 countries joined the convention are expected to be in the same condition.

The ministry of the environment, Japan noticed that PFOS and PFOA is newly included to the list of monitoring parameters which are not standard yet. Its goal value is provisionally 50ng/L as total value of two compounds.

*1: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

In Japan, "PFOS and PFOA" was added to the list "Complementary items of Water Quality Standard" in April 2020. Its target value is provisionally 50ng/L (0.00005mg/L) as the total concentration of PFOS and PFOA. Complementary items are not standard, which has to be ensured by water utilities, but expected to monitor by each water utility. Actually, all large scale water utilities and most of middle scale utilities are monitoring these items in Japan. By this adding, more information of PFOS and PFOA concentration in drinking water can be obtained.

In USA, health advisory levels by USEPA is 70ng/L as PFOS+PFOA. In Canada, standard values are 600ng/L as PFOS and 200ng/L as PFOA. In Germany, advisory value is 300ng/L as PFOS+PFOA. And International Agency for Research on Cancer evaluated PFOS as probably not carcinogenic and PFOA as possibly carcinogenic to human.

Water treatment and analytical method

Most popular removal way is activated carbon method, dosing PAC or GAS filter basin are used with good removal rate. Anion exchange resin and reverse osmosis methods are also studied and show good result.

Analytical method for PFOS and PFOA is liquid chromatograph mass spectrometry (LCMS) method.

(Answered by Mr. Sasayama Hiroshi;
Water Supply GLP Auditor)

Online Panel Discussion (14th Mini-talk)
"COVID-19 countermeasures of Waterworks Bureau in Japan"
7 August 2020

Online Panel discussion

The first online panel discussion of WaQuAC-NET was conducted due to the impact of the COVID-19.

The topic was "COVID-19 countermeasures of waterworks bureau in Japan". When WaQuAC-NET conducted a questionnaire survey to our members in last April, one of the world members suggested that we could share information on countermeasures to be taken by waterworks bureau for the COVID-19.

It has been eight months since the COVID-19 was found, and then spread to all over the world. Water utilities in various countries have taken various measures and continued supplying water, while strived to prevent the COVID-19 infection.

Therefore, this panel discussion focused on the COVID-19 infection countermeasures taken by Japanese Waterworks Bureaus, aiming to share experiences not only to Japanese members but also world members.

We invited four members who work in waterworks bureaus (Mr. Ono, Mr. Nagashio, Mr. Watanabe, and Mr. Fujii) as panelists to have panel discussion, and then had Q&A session with the participants.

Participants were Ms. Asami, Mr. Ishibashi, Mr. Kuroda, Mr. Sasayama, Mr. Iwao, Ms. Shoji, Mr. Igarashi, Mr. Hayashi, Mr. Matsubara, Ms. Kuniyasu, Mr. Kimura, Ms. Yariuchi as moderator, Mr. Yamamoto as commentator, Mr. Horie as recorder; 18 participants in total including panelists.

The countermeasures of the four Japanese waterworks bureaus that were presented by panelists under 4 themes were as follows.

Theme 1: Current Situation of Measures against COVID-19

1. Change of work system
(1) Work from home The staff was divided 2 teams for alternating between regular work and remote working. (2) Decentralization of the office was done by using the conference room as an office. (3) Staggered commuting (reduction of contact opportunities). (4) Bicycle and car commuting (reduction of contact opportunities)
2. Infection prevention and personal health management
(1) Use of mask (2) Temperature and fever management every morning, and reporting on physical condition (3) Scheduled ventilation (4) Severer restriction of entry of visitors (5) Wiping with a sodium hypochlorite solution and hand disinfection and wiping with ethanol Installation of shields at the counter, etc.
3. Preparation for the case that staff is infected (Business continuity)
(1) Review of the BCP (Busines Continuity Plan) Work prioritization into 4 stages Making list of experienced or retired person who have worked at the water treatment plant and conduct their medical check. (2) Expansion of support agreements with affiliated organizations (Limited to the case of disaster→unlimited) (3) Backup of chemical supply operations (4) Request for thorough health management of

subcontractors.
(5) Name and temperature checks for workers at the entrance of facilities
(6) Temporary suspension of construction work and carry-over

Theme 2: Customer Service

1. Public relations

(1) Encouragement of hand-wash, Publicizing the safety of tap water
(2) Launch of a special website on COVID-19 infection
(3) Production of posters to raise awareness of "new lifestyles".
(4) Cancellation of citizen participation events (e.g., water treatment plant tours)
(5) Warning about frauds related to COVID-19

2. Infection prevention

Three waterworks bureaus have no specific action to take. One bulk water supplier has raised its residual chlorine in supplied water（from 0.8mg/L to 0.85mg/L）

3. Water charge

(1) Postpone payment of water and sewerage fees (each city responds differently and for about 3-6 months)
(2) Reduction and exemption of charge
a) City A: As water tariff were scheduled to increase before COVID-19 crisis, No reduction.
b) City B: Exemption of 2 month basic charge for all contractors. It cost approximately 1.15 billion yen
c) City C: No exemptions.
d) City D: No exemptions. Among water utilities which our authority (bulk water supplier) supplies water to, some utilities offers exemptions.

4. Others

In order to reduce contact with customers, meter readers refrained from giving face-to-face explanations to customers on the suspected of leaking water. They explained in writing or by phone. In addition, various applications are now handled online. Door-to-door water leakage surveys were discontinued.

Theme 3: Impact on Water Supply Business

Impact of COVID-19 on Waterworks Bureau

(1) Water consumption;
Household consumption (e.g., residential areas): increased.
Industrial consumption (e.g., commercial areas): significantly decreased.
The consumption of many industries declined such as hotels/Inns, schools, general offices, restaurants, department stores, and entertainment facilities.
In April and May, a state of emergency was declared, and people refrained from going out for non-essential reasons. In addition, the promotion and spread of work from home also seem to have had an impact on demand in residential areas. On the other hand, in commercial areas, the water consumption declined due to refraining from business and working from home. In particular, water consumption in hotels and other facilities used by foreign tourists has decreased significantly.

(2) Revenue
(a) City A: The rate structure is such that the unit price increases according to the amount of water used. Water tariffs for households and other small lots (0-30 m^3/month) are lower, while water tariffs for large lots (30-1000 m^3/month) are higher. Overall, water consumption has increased slightly compared to last year, however billing revenues have decreased significantly, which is likely to have a significant impact on water utilities.
b) City B: Water consumption decreased by 2-3% in April and May and has remained at the same level as last year from June onwards, with a decrease in revenue from April to June compared to last year.
(c) City C: Revenues of domestic use increased by about 3%, but revenues of business use decreased by about 20%. Water bill revenues were down about 6% from April to June compared to last year.

Theme 4: Future challenges and lessons learned from the Covid-19 response

1. Business continuity challenges

(1) Operational priorities have been determined according to the BCP (Business continuity plan), but the timing and scale of application of BCP are not determined.
(2) Measures against the new influenza were applied, but it is necessary to create a manual specifically for COVID-19.
(3) Body temperature measurement is self-reported; however, it is necessary to introduce non-contact devices such as thermography and implement firm body temperature monitoring.

(4) It is necessary to consider the response and the scope of influence in the case of infection among staff members. (5) Securing an operations staff (rehiring retired staff)
2. Toward Workplace Reform
(1) Continuous work from home (WFH) is difficult due to information security restrictions, and there is no online meeting system. (2) Review of security policy (3) Creating an online working environment for expanding WFH (4) Standardization of work with consideration of WFH (5) Introduction of e-learning (6) Balancing countermeasures against infection and heat stroke
3. Customer Service
(1) Response to people with payment difficulties; taking careful consultation and extending moratorium period. (2) Introduction of electronic payments (3) Consideration of moratorium period for payment (4) Resumption of social studies field trips for elementary school students
4. Water supply services in general
(1) Decline in revenue and increase in countermeasure costs (2) Coordination with a municipal office (welfare department, economic measures department, and finance department) (3) Concerns about prolongation (4) Impact on the mutual support system in the event of a disaster (5) Delays in construction and other projects (6) The impact of a prolonged period of time on the business, and the dilution of relationships due to the cancellation of events, disaster drills, etc.

Note: Presentation materials for the day have been revised and are available on the website: http://www.waquac.net/english/pdf/data/related-to-covid-19.pdf

【Editor's note】

This time the Mini-talk was held online. The panelists prepared contents based on the list of topics from 1 to 4 in advance, and each topic was addressed by the panelists. Participants were able to ask questions freely via the chat function, and Ms. Yariuchi read out the questions at the end of the session and asked the panelists to answer them. It was a very productive and dense two-hour discussion.

1. Good points about doing Mini-talk online

1) Easy to participate

Usually, Mini-talks were held on weekday evenings in Tokyo. The number of participants was usually around 5-6. The nice thing about online meetings is that member can join at your free time and wherever the member is. Also, it can be hesitated for someone who has just become a member to attend usual Mini-talk. In that respect, online Mini-talk is easy to join. On the other hand, we don't have the opportunity to get to know each other in a post-Mini-talk drinking session because members don't have the opportunity to exchange information and discover unexpected commonalities. However, I would like to see more online drinking sessions after the online Mini-talk to increase opportunities for members to interact with each other. Later in the day, the panelists and organizing members had a chance to reflect on the conversation.

(2) Feeling free to ask questions.

At the face-to-face Mini-talks, it was difficult to ask questions due to the atmosphere of the place, or not so many questions. However, I thought it was good that the participants could use the chat function to ask questions whenever they had an idea in Online-Mini-talk.

2. The panelists focused on what they would

discuss in advance and gave explanations on each theme, which can help the participants understand, I think.
It was very useful information to hear directly from the persons of waterworks bureau about the COVID-19 measures taken by Japanese waterworks bureau. The number of participants was about three times as usual, indicating that this was a great interesting topic to them.

Two points of particular interest to me were the followings:

■ Water Consumption

While water consumption, in general, increased due to the effects of work from home (WFH) and STAY HOME, water consumption in the commercial sector decreased due to a decrease in water consumption in offices resulting from WFH, school closures, self-restraint in business, and a sharp decrease in the number of foreign tourists. As a result, revenue has also decreased from the previous year. Also, because the tariff structure is low for small amounts and high for large amounts, there has been a significant decrease in revenue compared to last year. In the case of a waterworks bureau, it was the first time for me to hear about a case in which the amount of water distributed as a whole increased, but the income decreased.

Each waterworks bureau has maintained its water tariff by reducing its workforce and improving the efficiency of its operations as appropriate measures to upgrade its facilities and make them quake resistant. However, these measures have reached their limits, and this is a corona disaster in the midst of explaining to their local council and other parties the increase in water tariff, and there is concern that COVID-19 will have a major impact on future water supply management.

■ Reduction and Exemption of Water Tariff

Only one of the four waterworks bureau of panellists has reduced or exempted their water charge. This is why that while other waterworks bureau around them offered exemptions, they had no choice but to reduce or exempt their water charge due to inquiries and requests from consumers. In general, waterworks bureau in Japan are facing many challenges, such as updating facilities, upgrading to earthquakes, flood prevention, staff reductions, and strengthening their management base, and the Water Supply Law Amendment Act was recently enacted in October 2019 aiming at strengthening the water supply infrastructure,. We have no choice but to raise the water rate rather than reduce it. As a water supply user, I am concerned about how the impact of the corona disaster will affect the business situation.
Although this was the first online conference, the panellists' concise and easy-to-understand presentations, as well as the well-balanced facilitation, allowed the participants to ask the necessary questions.
I would especially like to thank the panellists for taking the time out of their busy schedules to share their valuable information with us.
【The responsibility for the wording of this article lies with Mr. Toshiki HORIE】

Team members at the award ceremony, the center is Ms. Nisapas

Congratulations! MWA, Thailand!

"Chlorine Next" wins 1st prize International Innovation Awards 2019

The "Chlorine Next" was awarded as the winner of the International Innovation Awards 2019 (IIA 2019). It was an innovative mobile application for feeding chlorine into water distribution system to control residual chlorine in the entire pipeline system in accordance with the guidelines of the World Health Organization for the health and good hygiene of the people.

On 7 November 2019, Mr. Komkrit Dinakara Na Ayudhya, MWA Expert Level 10, and Mrs. Nisapas Wongpat, Assistant Governor (Waterworks Academic Development) with the team of inventors of the "Chlorine Next" welcomed the representatives of the IIA 2019 Innovation Award committee led by Mr. Kevin Vong, Executive Director of enterprise Asia, who visited MWA for final-round consideration. The "Chlorine Next" finally won the 1st prize in the Service & Solution category. The award ceremony was held on 4 December 2019 in Singapore.

More about "Chlorine Next" at;
https://innovationaward.org/portfolio-item/chlorine-next-2019/

Ms.Nisapas Wongpat,
Metropolitan Waterworks Authority, Thailand
(M-WIT e-mail magazine, 2020 April)

Kyushu Branch General Meeting

On 3 September 2020, Kyushu branch general meeting was held online. Participants were Mr. Nakajima, Mr. Kagata, Mr. Oda, Mr. Hirowatari from Kyushu, and Mr. Sasayama, Mr. Yamamoto, and Ms. Yariuchi from Kanto; 7 persons in total.. Every year, at this meeting, each member reports on recent overseas-related activities, but this year most of the activities were canceled or postponed due to the influence of COVID-19. Therefore, each participant focused on the recent situation, and after that, had a social gathering, we got excited about a wide range of topics.

Recent situation of each member

Mr. Nakajima: Although the main business is domestic, the business from July to August has been postponed due to the effects of heavy rain disasters in the Kyushu region and measures against COVID-19. Even when traveling from Fukuoka to other parts of Kyushu, submission of past activity history, restrictions on business trips and going out other than hotels are required, which has a large impact.

Mr. Oda: As an alumnus of the Fukuoka City Waterworks Bureau, I has been participating in the grassroots project in Fiji that the bureau is implementing, but I haven't been in the project site since last December. The project period is scheduled to be till the end of this year. And before then, I planned to work in the field again, but the activity schedule cannot be seen clearly at this time.

Mr. Kagata: Through the Kitakyushu Water Service, I have been consulted for a business trip to Vietnam since this October. My assignment is on water quality management work for newly constructed water treatment plant. The pandemic situation in Vietnam seems to be calm, so I think I can travel as planned.

Mr. Hirowatari: As writing an article on newsletter No. 45, I returned from Cambodia in April and lived in Japan with two children, while my wife could not leave Cambodia timely because she had a baby in April, and stays in Cambodia with two children. The family felled apart each other, living separately. In July, my family in Cambodia enabled to enter Japan and finally so that whole family can spend time together. In terms of work, I am in charge of advisory and supervisory work of construction project in Cambodia, in which the Kitakyushu City Water and Sewer Bureau participates, but due to the safety measures policy of the municipality, it is expected that it would take some time to travel to the site.

Mr. Sasayama: I am in charge of auditing the water supply GLP under the commission of the Japan Water Works Association. The audit schedule has been postponed this year, and the document audit finally resumed in September, and the on-site audit will resume in October.

Future overseas activities

+ In the situation, we can understand much clear what is "the works that can only be done locally". Even if we work remotely, it is essential to understand the situation and sites first and build relationships with counterparts. Especially for human resource development, it is necessary to work closely every day.

+ JICA is implementing and planning various COVID-19 measures in each country, and I was surprised at the speed.

Water supply and services in African water

+ In Africa, there are many areas where there is no customer meter and charges are not based

on consumption. While some customers leave a tap open and use water wastefully, there are areas where water does not reach, so it is unfair to collect fixed charges.

+ The water quality is not controlled, and muddy water is distributed. From the perspective of Japanese people, it is not established as a water supply business (safe, enough and anytime water supply), regarded as a “water supply facility”.

+ In some area, awareness of water quality and water supply services is low, moral hazard occurs in the water utility, and there is no incentive for improvement.

+ In order to improve the situation, Japanese ODA tends to construct a water treatment plant first and then start the development of a water distribution network. However, in order to ease unfairness in supplying water among customers, the first step might be the improvement of distribution network.

+ When providing support, there are many discussion points; which of WTP and distribution pipes comes first, the support for WTP is easy to implement as a package and the results are easy to see, and the only support for WTP cannot supply water to the residents.

(Reported by Yariuchi)

Participants of Kyushu branch online meeting

Introduction of new members

○ Mr. Kubota Hiroshi (Japan)

We welcome new members anytime
Please contact us

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(Yariuchi, Yamamoto)
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Next Activity

October 28 Webinar “GIS using Mapbox Vector Tiles for effective management of water”
November 13 7th Osaka Web Meeting
December 15 Newsletter vol.47 in Japanese
January 15 Newsletter vol.47 in English