



Vol. 63, 2023 Autumn issue

JSPE Magazine Quarterly

The Japan Society of Professional Engineers



Special Feature

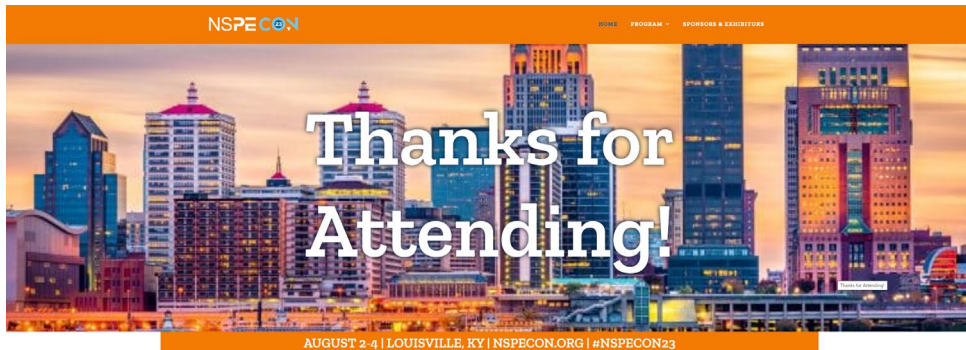
- Special Feature-1: NSPECON2023 Participation Report
- Special Feature-2: Engineers20 Summit

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Fall foliage

This is a photo of vivid autumn leaves. In order for vivid autumn leaves to occur, a large temperature difference of 20~25°C is required during the day and 5~10°C at night, and it is said that the high north latitude makes the light color clearer. When the average temperature rises due to global warming, the temperature difference decreases, and the vividness of autumn leaves may be lost.



1. summary

JSPE was invited to the NSPECON2023 held in Louisville, Kentucky on 2023/8/2-2023/8/5 and Nishikubo has participated as chairman. The outline of the meeting is as follows.

Date: 2023/8/2 ~ 8/5

Location: Marriott Louisville Hotel, Louisville, Kentucky, USA

Participants: 249 (from the list of participants on the official NSPE app)

JSPE Participant: (President) Toko Nishikubo



Former Chairman Britt Smith and Nishikubo

2. The city of Louisville originated in the United States

Louisville is a city in northwestern Kentucky, United States. With a population of about 6million, the city is the largest in Kentucky and 29th in the United States. Named Louisville in honor of King Louis XVI of France, who was supportive of the American Revolutionary War, it grew with the Ohio River boats and grew into Kentucky's commercial, economic, financial, and distribution center and transportation hub. Traditional industries included bourbon whiskey brewing and baseball bat making, as well as machinery industries such as electrical appliances and agricultural machinery. Also known for horse racing, Churchill Downs, which I visited on my tour, hosts the Kentucky Derby and



the Kentucky Oaks every year. Recently, the number of PE registrations among JSPE members has increased, and it can be said that it is a state that is familiar to us.



3. Overview of NSPECON2023

NSPECON will be held in Kansas City in 2019, with a reception the day before, a seminar and networking on the 2nd. Finally, it consisted of three days that also served as an event for P E Day. At NSPECON2023, P E Day will be held on the first day of August 2, The return of the tour, which didn't run until last year, now offers full content.

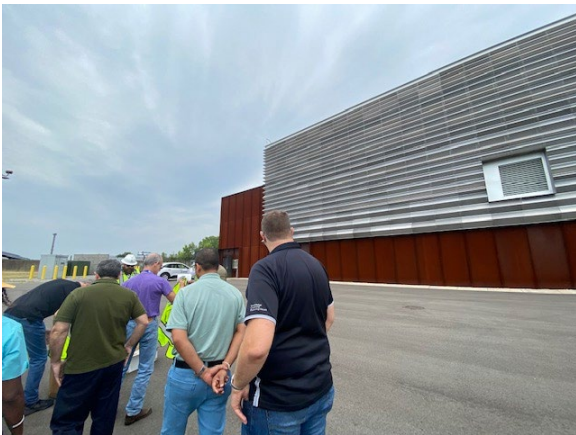
At the welcome reception, we met Mr. and Mrs. Cozy Baerhellen, past NSPE presidents who have visited Japan in the past. It is clear that JSPE exchanges are active across generations. A total of 25 seminars, including general sessions including Opening/Closing, were held as follows. For convenience, the lectures are classified as Education for those closely related to technology, Leadership for those related to management, and It can be seen that education and leadership consist of almost 2:1 and focus on the latest technology as P E.

Schedule summary of NSPECON2023

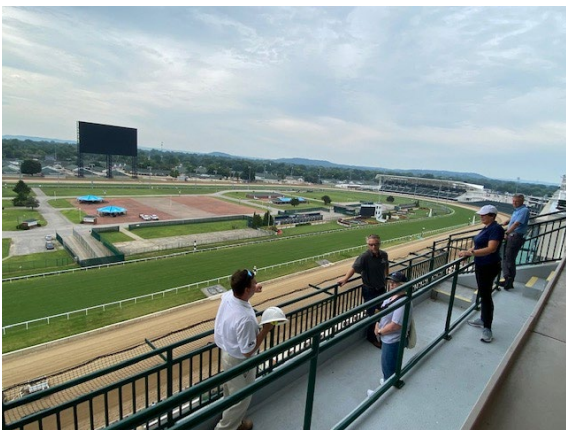
Time	8/2	8/3	8/4	8/5
8:00	8 th PE day	Opening session	Keynote session	
9:00		Seminar - 1	Seminar - 5	
10:30		Seminar - 2	Seminar - 6	Tour
12:00	Tour	NSPE Recognition and Installation Luncheon	Networking Luncheon	
14:00		Seminar - 3	Seminar - 7	
15:30		Seminar - 4	Closing session	
17:00	First time attendee reception	Order of Engineer celemony		
19:00	Opening reception			



The atmosphere of the Welcome reception



Rowan Pump Station tour



Churchill Downs tour

Classification and title of talks in NSPECON2023

Sessions	Presentation titles
General	<ul style="list-style-type: none"> • OPENING KEYNOTE SESSION: Trials and Tribulations of a Failed Aerospace Engineer • KEYNOTE SESSION: Beyond the Blueprint: Mastering the Most Important Project of Your Life • NSPE Recognition & Installation Luncheon • CLOSING KEYNOTE SESSION: The Key to Meeting Workforce Needs: Weaving Students Into Engineering Versus Weeding Them Out • We Need YOU to Protect the License! • Opening Reception: PE Day and All Things Louisville
Education	<ul style="list-style-type: none"> • Top Proven Renewable Energy and Energy Storage Technologies • Ethical Obligations and Engineering Through a Diversity, Equity, and Inclusion Lens • Engineering Unplugged – The Simplest Solution to the Biggest Challenge • How Understanding Geomorphic Conditions Can Inform Resiliency Planning • The Engineer’s Blueprint: Success Principles for Winning at Work and at Home • Speculative Technology and Exploratory Engineering for Designing the Future • Lithium: The Race for North American EV Dominance But at What Cost to the Industry? • A Playbook for Successfully Launching a Consultant Firm • Recognizing and Valuing Trade-offs in Large Infrastructure and Development Projects • A Prelude to the Future of Engineering – History, Evolution, and Impact of Professional Engineering • The Imperative to Prioritize and Rehabilitate Critical Pressurized Pipeline Infrastructure
Governance	<ul style="list-style-type: none"> • Order of the Engineer Ceremony
Leadership	<ul style="list-style-type: none"> • The Social Manager: Building up the Next Generation of Engineers • What You Said is NOT What I Heard • Paving the Way for Diversity and Equality in the Workforce • The Three Little Pigs and Commissioning • La Jefa (The Boss) • Finding the Funds for Your Infrastructure Project • Transition From the Classroom to the Boardroom: Career Path Possibilities • Leaders Leading Leaders
Tour	<ul style="list-style-type: none"> • Rowan Pump Station • Churchill Downs



NSPE 2023-24 Board of Directors

4. Former Chairman Britt Smith

After the seminar on August 3, a memorial party was held for former President Britt Smith who had completed his term, and Nishikubo was invited as JSPE President. While each guest presented words of gratitude and gifts, Nishikubo said, "At last year's NSPECON, we discussed why Japan engineers are trying to obtain a PE license and what are the hurdles in doing so. PE licenses are valuable both as a self-improvement and as a job opportunity, and NSPE's activities maintain and promote the social value of PE licenses. Thank you for taking the lead."



5. Impressions and lessons learned

This was the seventh time we participated in NSPECON2023. The purpose of participating in the general meeting has been to strengthen the network, expand the base of knowledge, and improve one's own motivation, but this is especially because it is the second time I have participated as JSPE president, and it is the first time that face-to-face exchange has resumed in earnest. Networking was an emphasis on participation. I was the only participant from overseas, but I felt that one of my important missions as JSPE Chairman was to add the network I had newly built to the network that my predecessors had built and pass it on to the next generation.

I also felt that it was important not to forget to be playful. The photo on the right is part of the Tag attached to the participant's name tag, but until last year, "I'll shake with a picture of a dog in his hand" and "Oneday, I'll be In addition to some of the most funny words like "your boss" and "big cheese," there were also more and more jokes. JSPE is a perspective that allows you to interact from a single tag tag and make the conference enjoyable to the fullest.

I felt that it was necessary to further revitalize it.

This year's conference was held in early August and it was difficult to take a break before Obon holidays, so I was the only participant from JSPE. I understand that business coordination is one of the hurdles to participation, but I would like other directors and members to participate in meetings and work as JSPE in the future. In that sense, next year's conference can be treated as an early Bon holiday in North Carolina on 8/7~9. I hope that the hurdles to participation will be lowered. (It seems that there will be a hurdle in terms of cost due to the high season + weak yen, From next year, participation in NSPECON will be open to the public, and we will consider expanding the subsidy.)

For members who have a PE license at JSPE, the annual fee of NSPE may seem a little high, but through this participation, we will support activities that maintain and increase the value of the PE license itself by joining. I strongly felt that it was not a

necessary expense. It is necessary to discuss separately whether the amount is reasonable, but considering that if the PE license itself becomes meaningless, there will be no original or child, I think it is a one-sided omission to participate only in JSPE. In that sense, I feel that participating in NSPE activities was one of the opportunities.

Finally, I would like to take this opportunity to express my deepest gratitude to JSPE for giving me this opportunity, although I have received support from JSPE for participating in the NSPE General Assembly, which was originally the membership fee of JSPE people.





1. summary

2023/8/2 Engineer held as a side event of the G20 in Hyderabad, India on 4~26 We were invited to the s 20 Summit (E20), and JSPE President Nishikubo participated online. The outline is as follows.

Date: 2023/8/22 ~ 8/24

Location: Hyderabad, Telangana, India

Institution of Engineers, India (IEI)

Participants: Approx. 60 (on-site participants)

JSPE Participant: (President) Toko Nishikubo



E20 Summit

2. Hyderabad, India's leading IT city

On a vast site in the northwestern suburbs of the city, there is a special economic zone Hi-Tech City, which is not only home to major Indian companies such as Infosys, Wipro, Sathyam and Tata Consultancy Services, but also Microsoft, Apple, Amazon, Google, IBM, Yahoo!, Oracle, Dell, Facebook, Cisco Systems, It attracts giant IT companies from all over the world, such as Analog Devices, and has more than 1,300 IT and ITES companies. It has been ranked as the second-best Indian city for doing business by the World Bank Group.



3. Overview of the E20 summit

This will be the second E20 Summit, following Indonesia in 2022. The conference consisted of a discussion on how engineering organizations can contribute to the Climate Change on the first day, a seminar on the second and third days on examples of efforts in India towards Net zero, and networking among participants. As an engineering organization Japan on the first day, JSPE said that in order to respond to the Climate Change, the power of all engineers regardless of age or field is required, so how important is education to improve the quality of engineers. He also explained that we hold seminars on the theme of the environment to support the continuing education of our members.

In the seminar from the second day onwards, we were introduced to the AI in administrative services being promoted in Hyderabad and the development and utilization of building materials with a lower environmental impact, and I felt that India, which has one of the world's largest populations, is trying to maintain the global environment by reducing the impact of economic development.

Regarding the content of the seminar, we have inquired with the organizer IEI about whether or not to share materials. It contains the latest examples of Climate Change and is very useful for JSPE members, so I hope you will use it as a teaching material if permission is granted.

<Main themes at E20 Summit>

1. Building and Smart Cities: Design low-energy buildings with sustainable materials and retrofitting strategies.
2. Oil and Gas: Tackle GHG emissions by reducing methane flaring, promoting electrification, and adopting advanced technologies.
3. Chemicals: Encourage recycling, minimize nitrogenous fertilizer usage, and utilize low-carbon electricity for process heating.
4. Cement: Collaborate with other industries to utilize waste materials and reduce emissions.
5. Iron and Steel: Focus on energy efficiency, residual energy utilization, and explore biomass and hydrogen as alternatives.
6. Information and Communications Technology (ICT): Improve data center efficiency, manage energy consumption, and reduce 5G energy usage.

<E20 Summit Dates>

PROGRAM OUTLINE FOR E20 SUMMIT
24 August 2023 (Evening)

6:00 PM - 6:30 PM: Arrival & Registration
 6:30 PM - 7:00 PM: Opening Ceremony
 7:00 PM - 8:00 PM: Discussion on E20 as a formal G20 engagement group
 8:00 PM - 8:30 PM: Felicitation of Foreign Delegates
 8:30 PM onwards: Gala Dinner, Networking and Cultural Performances.

TWO DAYS TECHNICAL PROGRAMME SCHEDULE
25 & 26 August 2023
Day 1: 25 August 2023

0900 hrs-1000 hrs	REGISTRATION	
1000 hrs-1130hrs	INAUGURAL SESSION Lighting of Lamp Presentation of Bouquets Welcome Address About Conference Theme Address Address by the Chief Guest Vote of Thanks	President, IEI Dr Ajay Mathur, Director General, International Solar Alliance Maj Gen M J S Syali, VSM (Retd) Secretary and Director General, The Institution of Engineers (India)
1130hrs – 1200 hrs	TEA	
1200hrs – 1330hrs	Plenary Session - I TOPIC: The Strategy for Attaining Net Zero	
1330hrs-1430hrs	LUNCH	
1430hrs – 1600hrs	Plenary Session - II TOPIC: Buildings and Smart Cities	
1600hrs-1630hrs	TEA	
1630hrs – 1800hrs	Plenary Session - III TOPIC: Oil & Gas and Chemicals	

Day 2: 26 August 2023

1000hrs – 1130hrs	Plenary Session - IV TOPIC: Cement & Iron and Steel	
1130hrs-1200hrs	TEA	
1200hrs – 1330hrs	Plenary Session - V TOPIC: Information and Communication Technology	
1330hrs-1430hrs	LUNCH	
1430hrs – 1600hrs	Panel Discussion TOPIC: Decarbonization of Industrial Sector	
1600 hrs-1730hrs	Valedictory Session Welcome Address Rapporteur Address by the Guest of Honour Address by the Chief Guest Vote of Thanks	President, IEI Maj Gen M J S Syali, VSM (Retd) Secretary and Director General, The Institution of Engineers (India)

4. Participants' impressions

Continuing from last year, we participated in the E20 summit, which was a wonderful opportunity to reconsider what we engineers must do in response to recent changes in the environment. To be honest, it would have been nice to be able to participate on-site instead of online because the members I interacted with in Indonesia last year participated on-site, but N SPECON2023 in early August and E20 in the second half of August are physically tough and scheduled. This time, I decided to participate online. Only we engineers can take measures against environmental changes, which is an important fact that we should not forget as engineers. Not only has the opportunity to discuss such an important topic with overseas engineers has been beneficial for my own career, but as a J SPE, it is also beneficial to have exchanges with overseas organizations other than NSPE. I felt that it was meaningful from the point of view of being able to obtain information quickly. The E20 summit will be held again next year, and it will be possible to participate not only on-site but also online, so interested JSPE members are welcome to participate and have discussions.

Members who have newly registered or passed the FE/PE exam are as follows. Congratulations to all of you.

*Autumn 2018 (Vol. 43) The text of the experience report has been posted on the web.

<https://www.jspe.org/member/magazine/magazine-index/>

* Some browsers may not be able to open the file properly. If it fails, please reopen the file in a different browser.

(Verified browsers: Google Chrome, Microsoft Edge, Internet Explorer)

* The latest exam information and the path to passing and registering are very valuable information, so if you are a member who can provide information, please contact the Public Relations Subcommittee (public.2007@jspe.org).

PE Registration

Membership Number identity	State of registration field	Date of registration	Testimonial URL
PE-0336 Eita Mizukami	Washington Electrical	2023/7	https://www.jspe.org/member/wp-content/uploads/sites/2/2023/09/2023007_WA_Electrical.pdf
PE-0337 Takanori Sato	Washington Civil	2023/7	https://www.jspe.org/member/wp-content/uploads/sites/2/2023/09/202307_WA_Civil.pdf

PE Update

Membership Number identity	State of registration field	Date of registration	Testimonial URL
PE-0335 Kenichi Kawano	Kentucky Civil	2021	https://www.jspe.org/member/wp-content/uploads/sites/2/2023/09/202307_KY_Renew.pdf

SPRING 2023

On Ethics: Drinking Water Safety

What should a PE do when a government agency wants to disregard critical safety recommendations?

SITUATION: Engineer Santos is a professional engineer who serves as the superintendent and chief engineer for the Metropolitan Water Commission (MWC). In order to reduce municipal expenditures and lower water rates, the MWC has been considering changing its water supply source from purchasing water from remote reservoirs to using a local water source. Engineer Jones, a consulting engineer retained by the MWC charged with evaluating water treatment needs for the change in water source, provided a report to Engineer Santos recommending extensive capital investments and a three-year timeline for further evaluation of water quality, design, and construction of improvements. The improvements are needed prior to the change in water source to ensure that sufficient corrosion control is provided so that old service pipes don't leach lead at levels in excess of drinking water standards. Engineer Santos and Engineer Jones met with the MWC at a meeting sparsely attended by the public and recommended that the change in water source be substantially delayed until improvements could be completed. Despite those recommendations, the MWC voted to proceed simultaneously with the

2023年 春号

倫理: 飲料水の安全確保

政府機関が重大な安全対策の推奨を無視した場合の PE の対応は？

状況

Santos PE は都市水道委員会 (MWC) の管理官且つ主任技術者を請け負っている。自治体の経費削減と水道料金低減のために MWC は飲料水の水源を遠隔地の貯水槽から地元の水源に変更する事を検討している。

Consulting engineer である Jones PE は MWC と雇用契約を結んでおり、水源の変更に必要な水道設備の評価を行っている。

Jones は Santos に対して大規模な投資と更に 3 年間かけて水質、設計及び建設の改善を行うことを推奨するレポートを提出した。

古い水道管が飲料水基準を超える鉛を浸出しないように、十分な腐食管理を確実に行うため、それらの改善は水源変更前に必要である。

Santos PE と Jones PE は公にはほとんど参加者がいない会議で MWC と会い、水源の変更を大幅に遅らせ改善の完了を待つ必要があると推奨した。

これらの推奨をしたにもかかわらず、MWC は必要な水処理改善のための評価と設計を急がせ、水源の変更と同時に進める事を承認した。

accelerated evaluation and design of needed water treatment improvements and the change in water source.

What Do You Think?

What are the ethical obligations of Engineer Santos and Engineer Jones in this circumstance?

What the Board of Ethical Review Said

The role of the professional engineer in protecting the public health, safety, and welfare is fundamental to the practice of engineering and is the overriding charge in the NSPE Code of Ethics. This fundamental canon has been considered many times in past cases.

BER Case No. 00-5 centered on the reopening of a dangerous, closed bridge by a nonengineer public works director. The BER stressed the importance of holding the public safety paramount. In BER Case No. 19-10, Engineer A was hired by Client B to provide a building investigation after a fire. Engineer A determined that the building was unstable. Additionally, Engineer A determined that recent structural changes to the building, which was issued a certificate of occupancy, might have caused new structural problems. In its conclusion, the BER wrote, "Engineer A had an obligation to continue to pursue a resolution of the matter by working with Client B and in contacting in writing the supervisor of the county official, the fire marshal, or any other agency with jurisdiction, advising them of the structural deficiencies."

あなたはどうか考えるか？

本状況下で技術者 Santos PE と Jones PE はどのような倫理責務があるか？

NSPE 倫理審査委員会の見解

公共の健康、安全、福祉を守る PE の役割はエンジニアリングの活動の根幹であり、NSPE 倫理規範の最も重要な義務である。

この基本の規範は過去の事例で何度も検討されてきた。

BER 事例 00-5 は、危険のため閉鎖されていた橋を PE でない公共事業の監督により再開した問題が中心である。

BER（倫理審査委員会）は公共の安全を常に最優先することの重要性を強調した。

BER 事例 19-10 では PE(エンジニア) A は火災発生後、雇用主 B と契約し、ビルの調査を行った。PE A はそのビルは安全上問題があると判断した。更に、そのビルには建物使用許可証が発行されていたが、最近の構造変更が新たな構造問題を引き起こしていると判断した。

結論として、BER は次のように記述した。「PE A は構造上の問題を顧客 B と協力して、地方局及び消防署もしくは司法関連当局に対し書面で連絡し、この問題の解決を追求し続ける義務があった。」

structurally sound, Engineer A was informed that there were deficiencies in Previous cases have also addressed the duty to report when safety concerns exist. In BER Case No. 89-7, Engineer A was retained to investigate the structural components of an apartment building. While the building was electrical and mechanical systems that violated applicable codes and standards. The agreement between the client and Engineer A indicated that the structural report was to remain confidential. Engineer A did not report the electrical and mechanical deficiencies to the appropriate authorities. In this case, the BER determined that "it was unethical for Engineer A not to report the safety violations to the appropriate public authorities."

As stated in the previous cases, the need to hold paramount public safety, health, and welfare is well established. The remaining referenced Code sections provide a path forward in this case for Engineer Santos and Engineer Jones with Section II.1. in mind. It is important to note that they presented the recommendations jointly and, as such, their actions should be in concert, although not identical.

The engineering judgments of Engineers Santos and Jones were overruled by the MWC. If they believe life or property is endangered, Section II.1.a. provides that not only shall the employer or client be notified, but also all other appropriate authorities. It appears that the state

以前の事例に関しても、安全上の問題がある場合は報告書を提出する義務がある、としている。

BER 事例 89-7 では、PE A は共同住宅の構造用部品の調査のため雇用された。

PE A は、その建物は、構造的には安全であるが、適用すべき基準及び標準に違反している電気及び機械的な欠陥がある、と知らされた。

顧客と PE A との間では構造に関するレポートに対して守秘義務がある。

PE A は電気及び機械的な欠陥を関連当局に報告しなかった。

この事例の場合、倫理審査委員会は「関連当局に安全上の違反があることを報告しなかった PE A は技術者倫理に反している」と結論した。

これまでの事例で述べたように、公共の安全、健康、福祉を常に最優先する必要性は十分確立されている。これ以外に、今回の事例で Santos PE と Jones PE は倫理規範 Section II.1 を念頭に置き、今後の活動を進めなければならない。

彼らが共同で推奨案を提出したこと、またそれゆえに、彼らの行動は同一でないとしても、連携すべきである、ということには充分留意する必要がある。

Santos PE と Jones PE の技術判断は MWC に却下された。彼らが生命と財産が危険にさらされると考えるのであれば、Section II.1.a に示すように雇用主や顧客にとどまらず、他の関連当局に連絡をしなければならない。州の規制当局にはコンタクトしたようだが、事実、調査結果及び推奨を公式な報告書として提出すべきである。

regulatory agency has been contacted; however, there should be a formal presentation of the facts, findings, and recommendations. This action may also address Section II.1.c. as Engineers Santos and Jones are required to hold paramount the safety, health, and welfare of the public, and as this duty is a fundamental canon of the Code, the consent of the MWC is not required.

Additionally, if project success is defined as "the public will not be endangered at all," then Engineers Santos and Jones should advise their client that they believe the project will not be successful.

The formal presentations satisfy Engineer Santos' and Engineer Jones' duty to report. However, in the event that these formal presentations fail to sway the MWC to change its plans, given the gravity of the danger to the public, they have an obligation to further pursue the matter.

Conclusions

1. In fulfillment of their ethical obligations, Engineers Santos and Jones should formally communicate their concerns to the MWC.
2. Both Engineers Santos and Jones have ethical obligations to notify the MWC and other appropriate authorities that prematurely changing the water source puts the public health and safety at risk. They have independent obligations to

Santos PE と Jones PE は公共の安全、健康及び福祉を最重要として守らなければならない。

この行動は Section II.1.c に記されている。

この義務は、技術者倫理規範の基本であるので、この行動について MCW の了解を取る必要は無い。

さらに、もしこのプロジェクトの成功が「住民に対して全く危険ではない」と定義される場合、Santos PE と Jones PE は顧客に対して、このプロジェクトは成功しないと忠告すべきである。

Santos PE と Jones PE が公式な報告書を提出すれば報告の義務を果たしていることになるが、それでもなお、公共を危険な状態にするにもかかわらず、MWC がその計画を変更し取りやめない場合、彼らは本件を更に追求する義務がある。

結論

1. Santos PE と Jones PE は MWC に、彼らの懸念を公式に伝える倫理義務がある。
2. Santos PE と Jones PE の両名は、時期尚早に水源を変更することは公共の健康と安全を脅かす危険性がある事を MWC 及び関連当局に通知する倫理義務がある。

3. formally report their concerns to the state regulatory agency. While they may provide a joint and cooperative report, each has an independent obligation. Neither the consent nor opposition of the client is a factor in fulfillment of this obligation.

3. 彼らはそれぞれに州の規制当局に懸案事項を公式に報告する義務がある。彼らは共同で協力して報告書を作成するかもしれないが、それぞれ別個に倫理義務は果たさなければならない。この責務の遂行は顧客の同意や反対とは関係ない。

NSPE Code References

II.1., II.1.a., II.1.c., III.1.b.

Translate PE0081 H.Kanno

Translation Supervisor PE0145 Y.Suzuki

参考 NSPE Code

II.1., II.1.a., II.1.c., III.1.b.

翻訳 PE0081 神野

監訳 : PE0145 鈴木

<Ethics reviewer's comments on this NSPE article>

In past cases, if you disagree with the customer, it was recommended to obtain the consent of the customer and report it to the relevant authorities, but in this case, the ethical review committee states that the customer's consent must be reported to the relevant authorities regardless of the customer's consent. It is understandable that actions are special when public health, safety and welfare are threatened.

This time, from the August issue of NCEES' web magazine "Licensure Exchange", we will introduce topics that may be especially useful for PE and PE examinees in Japan.

<https://ncees.org/wp-content/uploads/2023/07/August-2023-LEx-flip-1.pdf>

Before you read this article after NCEES' 2023 annual meeting in Boston, CEO David Cox highlighted the following achievements over the past year:

- Completion of a comprehensive five-year review of model laws and rules, including PE
- Requirement development of a single Public Land Survey System (PLSS) module for PS testing
- Completed 3 years of work on the Engineering License Model Task Force
- Outreach activities to provide Medals of Honor to engineering and surveying graduates who pass the FE or FS exam
- FE Ambassador Program with Engineering Students Representing Campus

Having worked on these initiatives, you can get a glimpse of the situation of US PEs.

I imagine securing licensing liquidity between U.S. states, finding solutions to the discrepancy between recent technological innovation and traditional exam subjects, and retaining and strengthening interest in licensing among young people. There are some issues that are common to engineers in Japan, so we will continue to pay close attention to trends.

By the way, this time I would like to introduce this article.

1. **A National Snapshot helps provide stronger and more united licensure framework** (pp.8)
2. **Use of artificial intelligence in engineering and surveying – ethical or not, what are the boundaries?** (pp.10-11 “What are the ethical boundaries of using artificial intelligence in engineering or surveying?”)

1. 1. **A National Snapshot helps provide stronger and more united licensure framework**

The PE licensing situation in the U.S. is not always rock-solid, and there seems to be always market demand for deregulation. To continue to secure license coverage and protect public safety, we need to continue to show that this is a truly useful entity, not a vested interest. As part of this effort, **NCEES surveyed all states and jurisdictions on the following three questions, and mapped the results into graphics.**

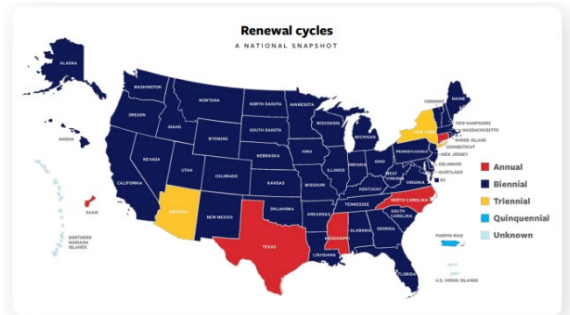
- (1) Update cycle
- (2) Examination approval process
- (3) Separation of work experience from PE and PS (Principles & Practice of Surveying) examination requirements

These efforts are called "A National Snapshot – Best PracticesIt is called. These maps are designed to serve as a reference for states and jurisdictions to evaluate and improve their current processes. They are also designed to monitor the law and to liaise with legislative committees on licensing barriers and threats to public protection. It can be used as a console. These maps are also useful for people who want to become PEs in Japan. There was no material that collected

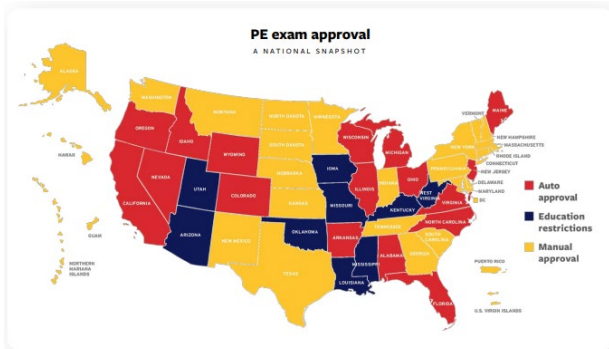
this kind of information, so now I would like to expect future public releases and updates.



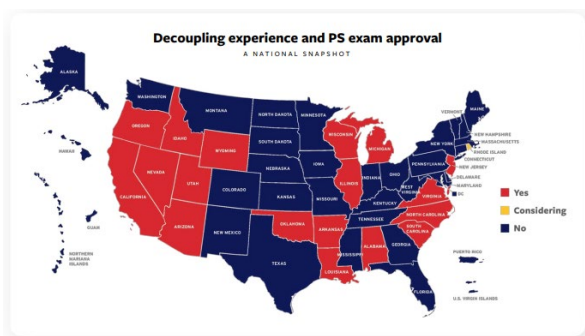
NCEES' New Initiative: A National Snapshot – Best Practices



Mapping by update cycle



Mapping with PE test approval



Mapping showing the separation between PS work

2. Use of artificial intelligence in engineering and surveying – ethical or not, what are the boundaries?

Ron Willey, Ph.D., P.E., professor of chemical engineering, was involved in the discussion that artificial intelligence (AI) was hindering the ability of engineering students to assess their performance. For example, is it unethical for students to use ChatGPT? Professor Willey said, "Why not use a calculator instead of a slide rule, and AutoCAD instead of a drafting work on the drawing table?" I beg the question. But whether it is really useful and suitable for use in engineering and surveying is another rather complex question.

How useful is ChatGPT?

The professor conducted the real estate surveys necessary for the extension of his home. Massachusetts I asked a state surveying company, ChatGPT I tried to see if I could make a lower cost proposal. ChatGPT created the following answer: "Sorry, but as an AI text-based model, we don't have the ability to access specific real-time data or generate visual content like survey maps. We can provide general information and guidance on survey parcel planning, but for specific locations, you can contact a professional land surveyor who can provide accurate and up-to-date information. We recommend that you consult with your local authorities." **In other words, a licensed surveyor cannot make a proper proposal without the intervention.** In addition, it is possible to piece together the history of real estate in the past from registration information that goes back a long time, but these are not unethical because they are only public information.

The potential of "AI surveyors"

But what if you hired an "AI surveyor" to create a parcel plan from a combination of these registration information and sanitary images, and received it at one-tenth the cost of a surveying



RON WILLEY, PH.D., P.E.
MASSACHUSETTS BOARD OF REGISTRATION OF
PROFESSIONAL ENGINEERS AND PROFESSIONAL
LAND SURVEYORS MEMBER

The use of AI, ChatGPT, etc. is unstoppable, says Ron Willey, Ph.D., P.E.

company? Professor Wiley says, "**It's unethical because we didn't go to the scene to check and create physical evidence.**" AI does not have a mechanism to take responsibility when an accident occurs. It is not desirable, but if accidents caused by inaccuracies in AI occur in the future, the need for a management system that clarifies where the responsibility lies seems to increase.

How to deal with AI in the future

The use of AI may not spread, but it won't go away. Can a professor stop using calculators in engineering class and force students to use slide rules? The answer is no. To legislate the management of AI and continue to protect the public, we need to understand AI from end to end and ensure that the human element remains responsible. We must also think about how to deal with AI in our work without waiting.

When you write specifications, instruction manuals, technical papers, etc. in English, do you draft them in English from the beginning? If you have that level of English proficiency, you may not need to read this article (laughs). It may be prejudice, but I think there are many engineers, including myself, who are resistant to English. I imagine that such people draft in Japanese and use translation sites to learn English.

Beware of such people! Japanese tend to be very emotional, and they tend to be very long. If you put it on a translation site as it is, the sentence tends to be too long for a technical document.

As a way to check this, we will introduce **"fog counting"**. The following is a quote (1) from "Industrial Eiken Level 1 Preparation". It's a bit long, but please stay with me.

(begin quote)

To find out the difficulty of the finished sentence, you can count each word in the sentence as one concept. You count the number of words, you count the number of concepts. In the following sentence, four concepts are expressed.

I am a man. (I am a man.))

If you think of one word in a sentence as one point, the number of fogs is 4. Then use the following formula to calculate your educational level: The educational level is a number that indicates how many grades can understand the content of the text.

If the fog count is less than 20, use the following formula:

$$(\text{Education level}) = (\text{Fog Count} - 2) \div 2$$

If the fog count is greater than or equal to 20, use the following formula:

$$(\text{Education Level}) = (\text{Fog Count}) \div 2$$

The above sentence, "I am a man.", the educational level is $\{(4-2)\div 2\}=1$. It is a sentence that can be understood by a first grader.

"I am a man who lives in Japan., the education level is $\{(8-2)\div 2\}=3$. It is a sentence that a third grader can understand. (...)

Similarly, words that describe difficult concepts tend to be longer. Words with three or more syllables often represent difficult concepts. Therefore, when doing a fog count, words with more than three syllables are counted as three points.

For instance...

The computer arbitrarily assigns exclusive values in a relatively short time.(The computer arbitrarily assigns an exclusive value in a relatively short period of time.))

There are only 11 words in this sentence, but the fog count is 17. "Arbitrarily," "exclusive," and "relatively" are words with more than three syllables.

The special rules for fog counting are as follows:

1. Even if it is a long word, do not give it a difficult point to proper nouns or titles. For example, the count of "Prime Minister Hosokawa" is 1.
2. Place names should not be given difficult points. "Sacramento" has four syllables, but a count of one.
3. The count of numbers shall be 1.
4. Think of hyphenated words as one word.

To estimate the educational level of the resulting manuscript:

1. Randomly pick a few sentences. Don't choose all long sentences or all short sentences.
2. Add up the fog count of each sentence to find the total fog count.
3. Divide the total fog count by the number of sentences to get the average fog count.

4. If the average fog count is 20 or higher, divide by 2 to get the education level.
5. If the average fog count is less than 20, first subtract 2 and then divide by 2 to get the educational level.

Usually, when writing, the educational level should be between 8 and 9. Fog counts help you check if a sentence is too long or uses too many difficult words.

(end of quote)

Now, let's take the sentence I wrote in the first paragraph into English by translating it into Google. The results are as follows. Put a circle number at the beginning of the sentence.

(1) When you write specifications, instruction manuals, technical papers, etc. in English, do you draft them in English from the beginning? (2) If you have that level of English ability, you may not need to read this article (lol). (3) I may be biased, but I think there are many engineers, including myself, who are reluctant to speak English. (4) I imagine that such people draft their documents in Japanese and translate them into English using translation sites.

The fog counts are (1) 28, (2) 19, (3) 23, (4) 2 2 (I think). The total is 92. Divide this by the number of sentences 4 and 23. Since it is over 20, divide by 2, the educational level is 11.5. It's disqualifying for technical writing. Splitting sentences or using "iF" clauses to express similar meanings will lower your educational level.

How about the following text (excerpted) from the Spring 2023 issue of N SPE Magazine? ⁽²⁾

(begin quote)

(1) OpenAI's ChatGPT came on the scene in November 2022. (2) This generative artificial intelligence technology processes written or spoken human conversation and can generate information in response to various queries and requests. (3) This type of generative AI has made a noticeable impact in a brief period of time and other versions of chatbots (Bard, Bing, ChatSpot, Drift, etc.) have been released. (4) And just in case you're wondering, this article was not written with the assistance of a chatbot.

(end of quote)

The fog count is (1) 9, (2) 30, (3) 33, (4) 24 respectively (I think/(4) you're counted as 2). Total is 96. Divide this by the number of sentences 4 and 2 4. Since it is over 20, divide by 2 to get an educational level of 12. This is an article, not a technical document, so I don't think simplicity is required so much, but I wonder if it can't be written a little simpler. I feel that it is not an easy-to-read sentence by any means.

(Citation and reference)

- (1) Ministry of Education, Culture, Sports, Science and Technology Certified Industrial Eiken Level 1 Preparation (Japan Industrial English Association) page 99~101
- (2) NSPE (National Society of Professional Engineers) members-only site
<https://www.nspe.org/resources/pe-magazine/spring-2023/the-chatter-about-ai>

Have you ever heard of the Setouchi Triennale, a contemporary art festival held every three years on the islands of the Seto Inland Sea? I was able to go to almost the entire area three times, in the fall of 2019 and the summer and fall of 2022, so I will write an introductory article in a series of three from now on.

The National Conference of the Japan Society of Civil Engineers was held in Takamatsu at the beginning of September 2019. This time, the special lecture on the second day was shocking. The speaker was Fram Kitagawa, general director of the Setouchi International Arts Festival. He spoke mainly about the Setouchi Triennale, a contemporary art festival held on islands in the Seto Inland Sea, such as Teshima, which was said to be an island of garbage, and Oshima, a remote island sanatorium for leprosy patients, in areas with problems of depopulation and a declining birthrate and aging population, but I was moved to tears, and I had the urge to go see those islands. On the way home, I bought an official guidebook at a bookstore at JR Takamatsu Station.

After returning home, I immediately consulted with my wife and made a plan to take one day off for the consecutive holidays in early November and take the sleeper train from Yokohama to Takamatsu on Thursday.

The purpose here is not to write travelogues, only itineraries. Teshima and Inujima on the first day, and Megijima and Ogijima on the second day. Day 3 was Oshima and Takamatsu. While visiting contemporary art, it made me think about many things. I was particularly impressed by the museum built on the site of the former copper smelter on Inujima and the Oshima National Sanatorium Oshima Seimatsuen. The former was a place where we couldn't help but think about the state of modernization of Japan, and the latter about the prejudices and foolish policies of policymakers that lurked in our minds.

"It's pathetic that today's art has become a mere object of speculation, and it's strange that the translation of art has been applied to art. Art is not natural, but man-made. There is more that can be done," Kitagawa emphasized in his lecture.

"But what does it really mean to revitalize a region through art?" I don't think you can understand the answer to this question unless you see it with your own eyes and feel it with your five senses. I understood what Mr. Kitagawa meant, "Without the revitalization of Teshima and Oshima, there will be no success of the Setouchi Triennale," and I was very lucky to be able to visit those two islands this time.

When you go on a trip, you will meet various things and people, and you will have more opportunities to research various things in the preparation stage and look at related materials after the fact. In 2018, the previous year, I took a refreshment leave for 30 years of service at the same time as this trip, and went on a cruise around the Mediterranean, which was my long-cherished dream. Midori Wakakuwa's "Quattro Ragazzi" depicting the Tensho envoy to Europe. Led by Father Valignano, they departed Kyushu and sailed long to Portugal. Four boys traveled from Alicante in Spain to Livorno in Italy, and from there they headed overland to Rome. We live in different times and positions, but it's fun to think about such things. At the Museum of Mediterranean Civilizations in Marseille, I was also impressed by the depth of European history education by reading explanatory articles on tablets and watching French children quizzes online in front of an exhibition along Bloodel's book *The Mediterranean*.

This time, I understood the sense of distance between the islands of the Seto Inland Sea, so I re-read Natsuki Ikezawa's "Atomic Box". The details are detailed, and a story that should be fiction looms before your eyes with an overwhelming sense of reality.

About a year ago, in a special lecture on work style reform at my previous job, I remembered that President Deguchi of Ritsumeikan Pacific University said that he wanted to "learn from people," "learn from books," and "learn from travel."

Have a good trip and learning. Bon voyage.

Board Topics

The items deliberated at the ordinary board meeting in July and September are as follows. Details of each matter can be found on the member site – JSPE Board Meeting Minutes.

<https://www.jspe.org/member/report/>

The Board of Directors meeting in November will be Saturday, January 5, 2022 March 1. If you wish to participate in the Board of Directors as an observer, please contact the Secretariat managers@jspe.org.

【July Ordinary Board of Directors】**Agenda items**

- ◇Changes in the number of members
- ◇Consideration of participants in NSPECON2023

Matters to be reported

- ◇Follow-up matters after the Annual General Meeting
- ◇Educational seminars and events
- ◇Examination briefing session in collaboration with JPEC
- ◇Confirmation of those who wish to attend the E20 summit
- ◇Publication of the summer issue of the magazine

【September Ordinary Board of Directors】**Agenda items**

- ◇Changes in the number of members
- ◇JSPE Day
- ◇Tour of the outer spillway (Saitama Prefecture)
- ◇Seminar Achievements

Matters to be reported

- ◇NSPECON2023 participation advertisement
- ◇E20 summit participation report
- ◇Sharing the progress of HP revision
- ◇Sharing the contents of the autumn issue of the magazine
- ◇Comparison of forecasts and actual results for the first quarter

Homepage, SNS, Member Email

Thank you for using the JSPE website and SNS. The Public Relations Subcommittee strives to provide useful information to everyone through its website, such as updating PE exam registration, but if you have any comments or comments such as how convenient it would be to post something like this on the JSPE website or if the information posted on the JSPE website was useful, please contact the Public Relations Subcommittee public.2007@jspe.org Please do.

FY2023 2nd Engineer's Salon

Date: 2023 7 月 5Sun(Wed) 19:30~20:30

Participants: 21 (18 PE members, 2 PEN members, 1 FE member, including lecturers)

Format: Web delivery only

Title: Trends in Energy Conservation Policy

Lecturer: Yuta Sasaoka, PE member

Positioned as a sequel to the study session by volunteer members that started in fiscal 2021, we received an explanation of the trends in energy conservation policies based on the contents obtained from the study session on the theme of "New Energy Domains and Energy Conservation." Recently, we often hear about carbon neutrality and renewable energy, but the topic of energy conservation seems to be rarely reported. Under such circumstances, he explained in an easy-to-understand manner the current Japan initiatives, the revised Energy Conservation Act, and international developments. In particular, in emerging and developing countries, high-efficiency air conditioners are often not always chosen due to the high initial cost, which seemed to symbolize the difficulty of this problem. It was a valuable opportunity for me to recognize that energy conservation is an issue that there are things that we should do as individuals, as companies, and as a country, and that it is an issue that is both near and far.

FY2023 1st English Seminar

Date & Time: Sunday, July 16, 2023 9:00~12:00

Participants: 22 (PE members: 21, PEN members, 1 non-member, including lecturers)

Format: Web delivery only

Effects of climate change in Canada

Current climate change adaptation projects

Ongoing research on climate change adaptation

Lecturer: Colin Dale

As in the previous year, we invited Prof. Colin as a lecturer and held the first English seminar of this year. This time, he focused on climate change in Canada. Through the exercises, I gained valuable experience by examining raw data and experiencing how environmental conditions such as temperature, humidity, frequency of natural fires, and precipitation in various parts of Canada will change over the past 50 years →→ now to 2050. Furthermore, he explained that due to climate change, the environmental conditions of various infrastructures have changed since they were designed, and that they are gradually updating not only from the perspective of simple aging, but also from the perspective of environmental response. In addition, I learned how much electricity we focus on from natural energy. In addition, jobs are being recruited across Canada to respond to these environmental updates, and I felt once again that engineers from all fields need to fight climate change. I would like to take this opportunity to thank Dr. Colin for providing us with useful information.

FY2023 3rd Engineers Salon

Date & Time: Wednesday, July 19, 2023 19:00~20:10 (Reception until before 21:00)

Participants: 26 (24 PE members, 2 FE members, including lecturers)

Format: Web delivery only

Title: Commentary on CCUS and Latest Trends

Lecturer: Hiroshi Ito, PE member

Following the 2nd Engineer's Salon held on July 5, the study session on the theme of "New Energy Domains and Energy Conservation" was titled "Commentary on CCUS and Latest Trends," in which he explained the technical system and the efforts and trends of Europe, the United States, China, Japan, and other countries.

The technology to encapsulate CO2 underground is called EOR (Enhanced Oil Recovery), and I learned that it is a relatively old technology developed in the United States in the 1970s to increase oil production, and that the potential for underground storage is higher in deep underground called deep saline layers than in depleted gas and oil fields. Since there is no suitable land for underground storage in Japan, I heard that pipelines will be laid as far as Southeast Asia and other countries.

There was also an interesting mention that while many countries are contributing policy budgets to demonstration experiments and projects, the United States is promoting it in the form of tax credits.

It is widely known that this technology is indispensable for achieving net zero by 2050, and I strongly felt that this is an area where we should continue to follow up on information.

[FY2023 1st Onikin Seminar](#)

Date & Time: Saturday, September 2, 2023 14:00~17:00

Participants: 21 (18 PE members, 1 PEN member, 2 non-members, including lecturers)

Format: Takinogawa Kaikan, Kita-ku, Tokyo + Web distribution

Title: PMBOK Guide 7th Edition Project Management Driving Change – Choosing and Evolving Work Styles Using PMBOK Guide –

Lecturer: Kimimi Nakatani, Axis International

We asked Mr. Kimimi Nakatani of Axis International Co., Ltd. to give a lecture titled "PMBOK Guide 7th Edition Commentary: Project Management Driving Change – Choosing and Evolving Work Styles Using PMBOK Guide –". The 7th edition has changed from "process-oriented" to "principle-oriented" and is significantly more compact (6th edition 756p⇒7th edition 250p).

Along with this, "Process Group: A Practice Guide" has been published in 2022 as a waterfall-type practical guide, similar to the "Agile Practice Guide" published at the time of the sixth edition (the Japanese edition will be published in December 2023).

This time, it was a venue + web participation format, but out of 20 participants, 4 participated at the venue. I thought that if more people participated in the venue, the instructors would feel rewarded and excited.

Please check the following URL for the latest information on this year's events.
<https://www.jspe.org/events/>

The events of the last three months are as follows.

< Engineering Salon>

December 13, 2023

<OnikinSeminar>

December 23, 2023

< Technology CPD Seminar>

2023 Oct 14

November 5, 2023

November 18, 2023 JSPE Day 2023 – Day 1

November 25, 2023 JSPE Day 2023 – Day2

<PE/FE Examination and Registration Consultation>

October 28, 2023

< Board of Directors>

November 5, 2023

- Name: Kenichi Kawano
- Membership number: PE-0335
- Qualifications: Engineer (Construction), PE Civil Diplomatic (Kentucky)
- Field of Specialization: Soil Mechanics, Geotechnical Engineering
- Motivation for joining: Information gathering, technical exchange
- Self-introduction: Development of construction methods based on soil mechanics in the research and development department of a general contractor



We are involved in technical support on site.

Without forgetting to be sure, I enjoy the unsung heroic position of civil engineering.

- What we hope for JSPE: Introduction of the latest technologies being worked on in the United States and around the world
-

On August 2 and 3, the news that "Indian unmanned probe will land at the south pole of the moon" was published in Japan. Has India's technological level improved dramatically?" When I looked it up, I learned that India launched its first satellite with the cooperation of Russia in 1975, launched a domestic satellite in 1980, and has been continuously refining its rocket launch technology since then. Rocket launches by the United States, Russia, Europe, China, and North Korea, including satellite launches by North Korea, are often reported in Japan, but I was surprised to learn that India had accumulated its own technology. In addition, the United Nations Department of Economic and Social Affairs estimates that by the end of April 2023, "India's total population was more than 1,425.77 million, surpassing China to become the world's most populous country." I feel that the day when we will take the top spot in both technology (quality) and population (number) is near.

In this issue's special issue, we have published an article on E20 held in Nippon and India. JSPE demonstrated its presence as the only overseas participant at NSPECON, and at E20, we had exchanges with overseas engineering associations. Technology has an aspect of competition, which leads to armed conflicts between nations and is sometimes used for tragedies such as wars and conflicts, but engineers can interact with each other and how to use technology for the peace of mankind and promote it. I felt that it was important to discuss this.

2023/10/01

Hisakazu Sato (Magazine Editor)

If you have any concerns, suggestions, questions, or contributions, please contact the Public Relations Committee public.2007@jspe.org.

【Editorial Committee】

Nishikubo (Chief Planning Editor)

Inaba (Board of Trustees Topics, Education Subcommittee CPD Seminar Report, Coming Events)

Sato (Ikoino Hiroba), Fujimura (FE/PE pass, PE registration experience, introduction of new members)

Kamino (Ethics), Suzuki (Ethics Reviewer),

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