



APEGA Recommended Discipline Order

APEGA members and permit holders are required to practise engineering and geoscience skillfully, ethically, and professionally. They must meet all prescribed requirements and follow all applicable legislation and regulations, such as the [Engineering and Geoscience Professions Act, General Regulation, Code of Ethics, and APEGA bylaws](#). Investigation and enforcement—followed by, when necessary, judgment based on a fair hearing of the facts—are requirements of ours in service to the public interest. For more information, please visit www.apega.ca/enforcement/discipline-decisions.

Date: December 23, 2021

Discipline Case Number: 21-020

**IN THE MATTER OF A RECOMMENDED DISCIPLINE ORDER OF THE ASSOCIATION OF
PROFESSIONAL ENGINEERS AND GEOSCIENTISTS
OF ALBERTA**

Pursuant to the Engineering and Geoscience Professions Act,
being Chapter E-11 of the Revised Statutes of Alberta 2000
Regarding the Conduct of [AN APEGA REGISTRANT]

The Investigative Committee of the Association of Professional Engineers and Geoscientists of Alberta (APEGA) has conducted an investigation into the conduct of [Name Withheld] (the “Registrant”) with respect to a complaint initiated by APEGA (the Complainant) dated February 10, 2021 (the Complaint).

A. THE COMPLAINT

On May 7, 2019, there was a catastrophic collapse of a newly installed frac sand storage bin located south of Fox Creek, Alberta. The 48’ x 100’ bin contained approximately 5100 tonnes of frac sand that was released during the collapse, burying and killing two workers on the site. The bin was the first of two that were being commissioned.

After learning of the event, the Complainant felt there was adequate information to determine that engineering was likely causative in the failure of the bin. Of particular note was the absence of authenticated drawings for the frac sand storage bin.

The Complainant identified the Registrant under investigation (the “Registrant”), as a professional engineer who had been employed as the Director of Construction at Company A. The Complainant also identified other individuals and companies related to the project, however they were not investigated as part of this complaint.

The Registrant indicated they were hired as a project management professional and their role was to manage the project on behalf of Company A. They claimed that the engineering



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required for the project was provided by other vendors who had their own engineering teams and who were trusted to provide products that would meet the design specifications.

The Registrant has managed and executed various projects in Canada over a 10-year span.

B. THE ALLEGATIONS:

The Investigative Committee conducted an investigation with respect to the following allegations outlined in the Complaint:

1. Whether the Registrant failed in their professional duties to ensure that the design and construction of the bin was done so in compliance with the requirements of the Alberta Building Code.
2. Whether the Registrant failed to review and/or ensure that the bin drawing(s) were authenticated in compliance with APEGA's EGP Act, Standards and/or Guidelines.
3. Whether the Registrant in their duties as a professional engineer, contravened any part of Section 44(1) of the *Engineering and Geoscience Professions Act*.

C. AGREED STATEMENT OF FACTS

As a result of the investigation, it is agreed by and between the Investigative Committee and the Registrant that:

(a) Background:

1. The Registrant holds a Bachelor of Science degree in Mechanical Engineering (De La Salle University, 1988).
2. The Registrant has been a member of APEGA since 2011.
3. In January 2018, Company A had retained the services of the Registrant as a professional project manager to be their Director of Construction for major projects.
4. The Registrant was retained to provide a structured management system and to ensure that project schedules and costs were being monitored and adhered to.
5. In the fall of 2018, Company A undertook an expansion project to increase their frac sand storage and dispensing facility.



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6. The expansion project required the design and construction of two, new large and unique frac sand storage bins which required authentication.
7. The Registrant, on behalf of Company A, retained the services of Engineering Firm 1, to complete the front-end engineering design study and detailed engineering for foundations, support structures, electrical and automation and to act as the Owner's representative on general engineering matters.
8. The Registrant, on behalf of Company A, issued a purchase order to Company B for the supply and delivery of the frac sand storage bins.
9. Company B provided shop drawings of the bin that were not authenticated. These were the only bin drawings provided to the Registrant.
10. The shop drawings were not thoroughly reviewed and accepted by an APEGA member, nor were they authenticated by an APEGA member.
11. The bin assembly was completed near the end of April 2019. Preparations for commissioning followed.
12. On Saturday May 4, 2019, while commissioning the bins, the Construction Company identified a bulge located above the hopper's mid-support ring. They reported the condition to the Registrant and to Company B's Director of Global Technical Support.
13. Company B had reviewed the matter and on the morning of May 6, 2019, Company B's Director of Global Technical Support notified the Registrant, in an official email response, that they are "...clear to keep filling."
14. The bin (Bin #2) was filled to an estimated weight of 5142 tonne of sand. The bin had a capacity of 5300 tonne.
15. Testing of the dispensing gate was the next step in commissioning. On Monday, May 6, 2019, almost immediately after the bin's dispensing gate was opened, the hopper on Bin #2 failed catastrophically.
16. The event resulted in the fatalities of two workers who were working at the dispensing gate located beneath the bin.
17. Engineering Firm 2, was retained to determine the cause of the failure. In their report dated July 22, 2020, the Inspecting Engineer's structural analysis determined that the failure of Bin #2 was due to the:



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“...inadequacy of this silo to resist the internal pressures of the sand and the sand overpressures created during unloading.” And

“...resulted from the hopper structure, as designed, not being capable of supporting the sand loads to which it was subjected.”

(b) Facts Relating to the Allegation:

Whether the RUI failed in their professional duties to ensure that the design and construction of the bin was done so in compliance with the requirements of the Alberta Building Code.

1. The Municipal District of Greenview No. 16 was the authority having jurisdiction for the project. They only required a development permit which was applied for by Engineering Firm 1 and received for the Company A project.
2. The development permit provided the general arrangement and location of the project's facilities.
3. As none of the structures were designated for occupancy, no building permit or Alberta Building Code schedules were required for the project.
4. No further investigation was required for this allegation as it was not applicable to the project.

(c) Facts Relating to the Allegations #1 and #2:

Whether the RUI failed to review and/or ensure that the bin drawing(s) were authenticated in compliance with APEGA's EGP Act, Standards and/or Guidelines. and,

Whether the RUI in their duties as a professional engineer, contravened any part of Section 44(1) of the *Engineering and Geoscience Professions Act*.

1. The only seal to appear on the drawings was an “APPROVED” stamp that contained the Registrant's name, the date and time. The PDF stamp was applied by the Registrant as required by Company B to comply with their purchase order processing procedure.
2. The 2 bin drawings were labelled as Shop Drawings in the title block. They



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were completed by Company B staff whose initials were placed in the checked and approved boxes located on the title block.

3. Section 49(a)(ii) of the Engineering and Geoscience Professions Regulation states that all final plans of a professional nature, prepared by others, are to be signed and sealed by the professional who has thoroughly reviewed and accepted professional responsibility for them.
4. Because Company B was not a valid permit holder in Alberta, a member of APEGA was required to validate the design prior to construction to comply with APEGA's authentication requirements.
5. Company B's drawings were not authenticated and should not have been considered complete.
6. APEGA's Guideline for Relying on Work Prepared by Others states: "It is recommended that work prepared by others should not be used in situations where the author is unavailable to take responsibility for the work..."
7. The Registrant was not the designer of the bins and was not personally responsible to review, validate or authenticate the Company B drawings. However, that does not alleviate the Registrant from their duty as a professional engineer.
8. The Registrant ought to have known, communicated, and insisted that the bin drawings be authenticated as per the requirements for outsourced professional work products.
9. It was the Registrant's responsibility as a professional engineer to ensure APEGA's authentication requirements were upheld.
10. Although the Registrant played an important role in the project, they are not solely responsible for the noted authentication deficiencies. Others, who are also being investigated, had a greater and more impactful role and responsibility to ensure the documents were authenticated.

D. CONDUCT

1. The Registrant freely and voluntarily admits that at all relevant times the Registrant was an APEGA Professional Member and was bound by the *Engineering and Geoscience Professions Act* and the *APEGA Code of Ethics*.



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2. Section 44(1) of the Act states:

Any conduct of a professional member, licensee, permit holder, certificate holder or member-in-training that in the opinion of the Discipline Committee or the Appeal Board

- (a) is detrimental to the best interests of the public;
- (b) contravenes a code of ethics of the profession as established under the regulations;
- (c) harms or tends to harm the standing of the profession generally;
- (d) displays a lack of knowledge of or a lack of skill or judgment in the practice of the profession or;
- (e) displays a lack of knowledge or lack of skill or judgment in the carrying out of any duty or obligation undertaken in the practice of the profession.

Whether or not that conduct is disgraceful or dishonorable, constitutes either unskilled practice of the profession or unprofessional conduct, whichever the Discipline Committee or the Appeal Board finds.

3. The Rules of Conduct of the *APEGA Code of Ethics* state:

1. Professional engineers and geoscientists shall, in their areas of practice, hold paramount the health, safety and welfare of the public and have regard for the environment.
2. Professional engineers and geoscientists shall undertake only work that they are competent to perform by virtue of their training and experience.
3. Professional engineers and geoscientists shall conduct themselves with integrity, honesty, fairness and objectivity in their professional activities.
4. Professional engineers and geoscientists shall comply with applicable statutes, regulations and bylaws in their professional practices.
5. Professional engineers and geoscientists shall uphold and enhance the honour, dignity and reputation of their professions and thus the ability of the professions to serve the public interest.

4. The Registrant acknowledges that the conduct described above is constitutes



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unprofessional conduct as defined in Section 44(1)(b) of the Act, Code of Ethics Rule #4 which states:

4. Professional engineers and geoscientists shall comply with applicable statutes, regulations and bylaws in their professional practices.

E. RECOMMENDED ORDERS

On the recommendation of the Investigative Committee, and by agreement of the Registrant with that recommendation, and following a discussion and review with the Discipline Committee Case Manager, the Discipline Committee hereby orders that:

1. The Registrant shall be reprimanded for their conduct and this order shall serve as the reprimand.
2. The Registrant shall provide the Director, Enforcement, within eight (8) months of the date that this order has been approved by the Discipline Committee Case Manager, proof of attendance and or successful completion of the following:
 - a. The Registrant shall complete, and successfully pass the NPPE exam. National Professional Practice Examination | APEGA. The Registrant shall provide the Director, Enforcement, within eight (8) months of the date that this order has been approved by the Discipline Committee Case Manager, proof of successful completion.
3. The Registrant shall provide the Director, Enforcement, within three (3) months of the date that this order has been approved by the Discipline Committee Case Manager, proof of attendance and or successful completion of the following:
 - a. The Registrant shall complete the online course that outlines the requirements and obligations of licensed professionals related to the Authenticating Professional Work Products Standard.: Authenticating Professional Work Products | APEGA
 - b. The Registrant shall complete the online course that outlines the requirements and obligations of licensed professionals related to the Relying on the Work of Others and Outsourcing Standard. Relying on the Work of Others and Outsourcing | APEGA
 - c. The Registrant shall complete the APEGA Permit to Practice Seminar. Permit to Practice Seminars | APEGA



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4. If the Registrant fails to provide the Director, Enforcement with proof that he has completed the requirements noted above in Paragraph 2 (a) and Paragraph 3 (a, b & c) within the timelines specified, the Registrant's APEGA membership will be suspended. If there are extenuating circumstances, the Registrant may apply to the Director, Enforcement for an extension prior to the deadline.
5. This matter and its outcome will be published by APEGA as deemed appropriate and such publication will not name the Registrant.

Although the Investigative Committee and the Registrant understand and acknowledge that APEGA's usual policy is to publish Recommended Discipline Orders in a manner that identifies the Registrant by name, the parties understand that the decision to publish with or without name is discretionary.

The parties submit that publication without name is appropriate given the specific facts in this case:

1. Although there is an admission of unprofessional conduct, the Investigative Committee determined that the actions of the Registrant, in their specific role, were not directly related to the underlying cause of the bin collapse. Further, that the authenticated drawings would not have guaranteed that the design flaws would have been caught and the collapse prevented. Other professional members, retained for specific engineering roles, held a greater responsibility to ensure drawings were accurate and completed in compliance with APEGA's authentication standards.
2. The Registrant fully cooperated with the investigation and admitted to a lapse in judgement that affected their obligations related to authentication.
3. The Committee found the likelihood of those circumstances and events to occur again, highly unlikely.
4. The Registrant, during their 10-year registration with APEGA, has had no prior complaints or investigations regarding their conduct.



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IN WITNESS WHEREOF the undersigned agrees with the Agreed Statement of Facts and Acknowledgement of Unprofessional Conduct in its entirety.

Signed,

[REGISTERED MEMBER]

MR. JIAN YAO, P.Eng.
APEGA Investigative Committee

DR. DEAN MULLIN, Ph.D., MBA, P.Eng.
Case Manager, APEGA Discipline Committee

Date: December 23, 2021