

OPINION

By Assoc. Prof. Silvia Kirilova-Yovcheva, PhD, Eng., Associate Professor in the Department of Hydraulics and Hydrology, Faculty of Hydraulic Engineering, University of Architecture, Civil Engineering and Geodesy, member of the scientific jury for the competition.

Regarding: the materials submitted for the competition for the academic position of Associate Professor in higher education area 5, Engineering Sciences, professional field 5.7, Architecture, Civil Engineering and Geodesy, at the Academy of the Ministry of Interior, for the courses “Hydraulics and Water Supply for Firefighting” and “Design of Fire Suppression Systems”.

The competition was announced by Order No. 4581z-805 of 8 April 2026 issued by the Rector of the Academy of the Ministry of Interior and published in the State Gazette, issue 42 of 8 May 2026. The candidate is Dr. Eng. Svilena Sevdalinova Arabadzhieva, Senior Lecturer in the Department of Tactics, Faculty of Fire Safety and Civil Protection, at the Academy of the Ministry of Interior.

1. Brief biographical information

Dr. Eng. Svilena Arabadzhieva obtained the educational and scientific degree of Doctor in 2024 in professional field 5.7, in the doctoral programme “Occupational Safety Engineering and Fire Protection Technology”. According to the official employment record submitted, she has worked at the Ministry of Interior since 1 November 2007, held the position of Assistant at the Academy of the Ministry of Interior from 5 March 2012, and has held the position of Senior Lecturer since 28 June 2021. The record states that no disciplinary penalties have been imposed on her. Her professional and teaching experience is relevant to the subject of the competition.

2. Overview of the submitted materials and compliance with the minimum national requirements

The competition materials include the diploma for the educational and scientific degree of Doctor, a habilitation monograph, 25 scientific publications, a citation record, a curriculum vitae, and documents concerning teaching activity and participation in a research project. Four publications connected with the defence of the doctoral dissertation are listed separately. A comparison of the lists shows that they have not been counted again among the 25 publications submitted for this competition.

Compliance with the minimum national requirements is assessed by groups of indicators, not solely by the total number of points. For the position of Associate Professor in higher education area 5, Engineering Sciences, the schedule to Article 1a(1) of the Regulations for the Implementation of the Act on the Development of the Academic Staff in the Republic of Bulgaria sets minimum scores of 50 points for Group A (doctoral dissertation), 100 points for Group B (habilitation work), 200 points for Group G (publications), and 50 points for Group D (citations). The candidate’s record reports 50, 100, 303.35, and 99 points, respectively, for these four groups. Groups A and B thus meet their respective thresholds, while Groups G and D exceed them by 103.35 and 49 points, respectively.

The publication score in Group G comprises two publications under indicator 7 and 23 publications under indicator 8. In Group D, five citations are claimed under indicator 12, thirteen under indicator 13, and five under indicator 14. The copies of the citing works provided allow bibliographic references to be identified for all five D12 entries, eleven of the D13 entries, and all five D14 entries. Under the classification claimed, these 21 entries carry 93 points, exceeding the

minimum of 50 points even without the two D13 entries whose supporting copies are incomplete. The classification and supporting evidence for individual indicators still need to be checked before the final tally is confirmed.

The candidate also claims 10 points in Group E for participation in a research project. There is no separate minimum threshold for this group for the position of Associate Professor; it therefore does not determine whether the four mandatory thresholds have been met. The participation adds to the assessment of her research activity and is supported by the annex to the administrative agreement, which names Dr. Arabadzhieva as a member of the research team.

3. Reception of the scientific publications in the literature

The citation record indicates that the candidate's findings have been used in publications on fire safety, technical training, and risk assessment. The copies reviewed support 21 of the 23 citations claimed, as their bibliographic entries can be located in the reference lists of the citing works. This is a meaningful indication that her research has reached other authors, although the number of citations alone is insufficient to assess the quality of every result.

For two entries under indicator D13, Nos. 1 and 12, the files provided do not contain the page showing the specific reference. That page should be supplied to confirm these entries. Even without them, the verifiable entries exceed the minimum threshold for Group D under the stated classification of the publications. The gap in documentation can therefore be distinguished from the assessment of whether the threshold has been met.

4. Scientific, applied research, and teaching activity

The monograph "Water Supply for Internal Firefighting: Internal Fire Hydrants" (Academy of the Ministry of Interior, 2026, ISBN 978-954-348-267-2) is directly related to the subject of the competition. It treats the internal fire hydrant as a system whose actual effectiveness depends on its design, hydraulic characteristics, technical condition, and readiness for use. The author compares technical requirements, analyses experimental tests of nozzles, presents surveys of 720 adults and 457 pupils, and examines cases in which internal fire hydrants were used. One finding of particular practical importance is that an identical nominal diameter does not guarantee identical hydraulic characteristics when a nozzle is replaced.

From the standpoint of hydraulics, the link the monograph draws between product requirements and performance in a particular building installation is especially valuable. Whether the fire jet reaches the required point depends on the available pressure head, losses in the network, flow rate, and nozzle characteristics. Distinguishing the product's effective water coverage range from the design check for a specific building supports appropriate equipment selection. Tests of differently designed nozzles show why replacement based only on nominal size, without a hydraulic check, can result in a different actual flow rate and reach.

The other publications address firefighting water supply and the measurement of hydrant flow rates, the properties of fire jets, railway fire safety, fire and evacuation modelling, risk assessment, and simulation-based training. They show sustained interest in both engineering and organisational aspects of fire safety. On the basis of the full texts and abstracts available, I consider the studies of water supply, fire hydrants, and nozzles the most closely related to the subject of this competition.

The study on monitoring fire hydrant flow rates focuses on measuring the water quantity actually supplied, rather than judging performance solely from the presence and condition of the equipment. The publication on the intensity of a concentrated jet complements this work with experimental analysis of different nozzles. The surveys concerning internal fire hydrants extend the

technical analysis: they indicate that visible signs and practical training affect readiness to respond correctly. Combining hydraulic, operational, and behavioural aspects gives these studies practical value.

The documents confirm teaching duties in the academic years 2020/2021, 2021/2022, 2022/2023, and 2024/2025; maternity leave is recorded for 2023/2024. The curriculum vitae records teaching in “Hydraulics and Water Supply for Firefighting” and supervision of ten cadet presentations. This work, together with her professional experience, provides a sound basis for teaching the courses named in the competition.

I view positively the potential to bring the experimental findings and analysis of real cases into teaching. They provide concrete examples of the relationship between calculated parameters and equipment performance in a fire. The publications on simulations in education also indicate an interest in methods of practical training. The research output is relevant to the course “Design of Fire Suppression Systems”, but the teaching-load record submitted does not establish separate teaching experience in that particular course.

5. Contributions (scientific, applied research, and practical)

I regard the systematic examination of the reliability of internal fire hydrants throughout their service life as the principal applied research contribution: from the design decision and equipment selection to installation, maintenance, and actual use. Technical serviceability is thus considered together with whether the installation provides the conditions needed for effective firefighting. The distinction between the characteristics of an individual product and the performance of the complete system is useful in design and inspection practice.

The experimental assessment of nozzles and the analysis of hydrant flow-rate measurement are directly applicable to checking firefighting water supply. Another practical strand combines these technical findings with evidence on people’s knowledge and use of internal fire hydrants. It supports the need for clear signs, accessibility, and practical training. In my view, the results can be used both to assess equipment performance and to train future specialists.

6. Critical remarks

The record of minimum requirements dates the first publication under indicator G7 to 2029, whereas the abstract and the original proceedings indicate 2019. The monograph is stated to have 130 pages, while the electronic copy provided ends at printed page 119; the length of the published edition should be clarified. These bibliographic discrepancies can be resolved by checking the original publications.

Incomplete supporting extracts have been provided for two entries in Group D13, and two entries have duplicate numbering. For D13-1, the record gives 2020, the year of the conference, whereas the proceedings were published in 2021. It is important to check primary evidence for the Group G full texts not provided here, as well as the claimed indexing status of the publications under indicators G7 and D12. These checks are needed to substantiate the final point totals, even though the figures submitted are above the minimum thresholds. I raise these points in the interest of accuracy and traceability in the competition documentation.

7. Personal impressions

I have no direct experience of working with the candidate. My assessment of her professional qualities is based on the scientific works submitted and the documents concerning her teaching and employment.

8. Conclusion

On the basis of the materials reviewed, I give a positive assessment of the scientific, applied research, and teaching activity of Dr. Eng. Svilena Sevdalinova Arabadzhieva. The monograph focuses on an important engineering problem in firefighting water supply, while the publications complement it with research on hydrants, nozzles, risk, and preparedness for action in a fire. Her teaching experience and professional practice provide a basis for working with cadets on the subject of the competition.

According to the record submitted, the minimum national requirements for the academic position of Associate Professor in professional field 5.7 have been met in each mandatory group of indicators. Even if the two citations with incomplete supporting copies are excluded, Group D remains above the minimum threshold under the claimed classification. Subject to clarification of the bibliographic discrepancies identified and confirmation of the classification and primary evidence for the publications, I give a positive opinion and recommend that the scientific jury support the candidacy of Dr. Eng. Svilena Arabadzhieva for the academic position of Associate Professor at the Academy of the Ministry of Interior.

Date: 29.09.2026

Member of the scientific jury:
Silvia Georgieva
Kirilova-Yovcheva

Digitally signed by Silvia Georgieva Kirilova-Yovcheva
DN: email=hydrocom@abv.bg, sn=Kirilova-Yovcheva,
givenName=Silvia,
serialNumber=PNOBG-7911173430, cn=Silvia
Georgieva Kirilova-Yovcheva, c=BG
Date: 2026.09.29 18:10:50 +03'00'

(Assoc. Prof. Silvia Kirilova-Yovcheva, PhD, Eng.)