Women in tailings

Dry stacked tailings at Cerro Verde mine in Peru

Amanda Adams, a Principal Geotechnical Engineer at Stantec in Denver with expertise in tailings, water and waste management for mining, outlines why this facet of the industry can help advance diversity goals

The need to attract more women to the mining profession is recognised across the industry. More & more companies are working to improve gender diversity by setting specific goals. The benefits of gender diversity, and diversity in general, have been demonstrated through multiple studies. At the same time, experienced tailings professionals are in high demand as the industry (and society) recognise the need for safe tailings management in the wake of recent failures. The recent release of the Global Industry Standard on Tailings Management in August 2020 has increased demand for experienced tailings professionals and led to an even shorter supply – given there is a huge need to staff up existing operations, legacy projects, and new tailings storage facilities. Add to that the requirements for tailings experts to serve on technical review boards, perform independent audits and provide regulatory oversight for tailings dams and the industry is facing an enormous gap – a gap that may offer a big opportunity, especially for women.

Amanda Adams, Principal Geotechnical Engineer - Stantec

Melanie Davis, Senior Associate & Principal Engineer - Stantec

Safe tailings management is a big deal

The number of existing tailings storage facilities worldwide has been estimated between 29,000 and 35,000 (*Estimate of World Tailings Portfolio 2020 - World Mine Tailings Failures - from 1915*). Safe tailings management is here to stay, but it will require technical experts to assess the safety of closed or legacy sites, manage existing operations and develop new designs. Regulators, mining companies and tailings experts are racing to catch up with the demand that increased governance requirements and higher standards have brought to the industry. As alternative tailings disposal technologies are more broadly adopted, experts in those types of facilities will also be in high demand. Safe tailings management is receiving attention at the highest levels of mining organisations. However, at many mine sites, tailings management is not yet a recognised career stream. Similar to Environmental and Safety, it appears that Tailings Managers will soon be in important leadership positions. This will create more leadership and management opportunities within mining companies. All of this means growth: new roles to be filled by new staff. The industry would be well served to look at attracting more women into these roles.

Attracting women to tailings

Tailings professionals come from a range of different backgrounds, because tailings projects require many facets of technical know-how. "I enjoy that tailings projects are technically challenging and require multi-disciplinary teams to execute the work," says Melanie Davis, a Senior Associate & Principal Engineer with Stantec who currently serves as Engineer of Record for several tailings storage facilities. Although her background is in geotechnical engineering, she works alongside a team of engineers and scientists with different technical specialties to execute projects. In addition to technical diversity, tailings projects also require coordination with teams across the mine, from permitting and environmental to long-term planning and production to closure and reclamation, tailings management is becoming more holistic.

Start early to attract talent

"Exposing women to tailings projects early on in their careers and highlighting the interesting aspects of the projects," is key to attracting more women to tailings management careers according to Davis. Unfortunately, stand-alone tailings design courses have not historically been taught as part of either mining engineering or civil engineering departments. Careers in tailings were more of an accident than an intentional choice because students were not exposed to tailings in school. Recently, significant efforts have been made by several universities in the US, Canada and Australia to develop comprehensive tailings curriculums and even degree programs. By attracting female students to tailings at the university level, the industry will be even better positioned to continue the momentum it has gained and introduce more women to tailings as a career path. This is critical to filling the growing staff shortage and developing a sustainable pipeline of tailings experts to address the industry's tailings management needs now and in the future.

Increasing visibility of female experts in tailings

As safe tailings management becomes more visible, tailings training courses, discussion panels, webinars and conferences are gaining prominence. These are high profile discussions and experts in tailings have been tapped to present on best practices, develop new policies and guidelines and drive the industry forward to its ultimate goal of zero failures. Women have been visibly present on many of the tailings expert panels and this change has not gone unnoticed. "I used to be one of the only, if not the only, women involved on tailings projects or tailings committees" says Adams, who is also the Chair of the US Society on Dams (USSD) Tailings Dams Committee. "Now, I have many female colleagues and clients, who are recognised experts in the field. I work with talented and dedicated young women who want to follow that career path as well. Having women as role models at top levels in the industry makes all the difference."