INTERNATIONAL WATER CONFERENCE

OVERVIEW

An abstract is an overview of what a reader is to expect if they decide to read your paper. It should be enticing enough to make someone take the extra step to find your paper or continue reading. If the abstract lacks information the reader will not continue reading and the information you wanted to disseminate will not be utilized.

WHY WRITING A STRONG ABSTRACT IS IMPORTANT

- Helps the conference organizers decide if your project/study/analysis fits the conference criteria
- Helps the conference attendee decide whether to attend your presentation

TITLE

Although, the abstract is important, the title is a close second. A short, concise title is most effective. Make sure the title focuses on the overall theme of the paper. You should limit the length of the title to no more than 10-15 words.

KEYWORDS

Today people search for papers in archives based on keywords or phrases. The goal is to select 6 or less keywords that emphasis different topics mentioned in your paper. Again, these keywords should appear more than once throughout your paper.

ABSTRACT

The abstract should describe the entirety of your paper and also give a concise summary of the findings. The Abstract should not include diagrams or references. The abstract length should be a minimum of 150 words with a maximum of 400 words for the International Water Conference.

Make sure you focus on the following:

- What is the topic, purpose, or research question you are discussing?
- What method/research did you use?
- Describe the finding from your method/research.
- What were your conclusions or recommendations?

The IWC does not permit abstracts or papers containing marketing commercialization and does not allow more than one use of trade names or logos in papers and presentations. Thereafter, generic identification is required for all products, processes and companies. Examples are provided in the appendix.

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INTERNATIONAL WATER CONFERENCE TIPS

We encourage the following:

- New and/or innovative content rather than rehash of prior work
- Technical rather than commercial presentation
- Make sure to read the abstract submission instructions
- Don't wait until the last day to prepare your abstract
- Have someone with experience review your abstract before submission
- Double check for spelling errors and typos
- Meet the word count limitation set by the IWC

ADDITIONAL RESOURCES

ACPI - Academic Conferences and Publishing International Limited (2013) "Abstract Guidelines for Papers" http://www.academic-conferences.org/policies/abstract-guidelines-for-papers/

Koopman, Philip (1997)"How to Write an Abstract" Carnegie Mellon University https://users.ece.cmu.edu/~koopman/essays/abstract.html

Purdue OWL staff (2017) "Writing Scientific Abstracts" https://www.google.com/search?q=how+to+write+a+scientific+abstract&rlz=1C1GCEA_enUS765US765&oq=how+&aqs=chrome.0.69i59l3j69i57j69i60l2.2071j0j7&sourceid=chrome&ie=UTF-8

APPENDIX

EXAMPLES

IWC 20-58: The Value (and the Challenges) of Corrosion Transport Monitoring

Colleen Scholl, HDR, Whitewater, WI

KEYWORDS: Corrosion transport, power plant, condensate, feedwater, monitoring

ABSTRACT: Monitoring of corrosion products in power generating facilities is a key indicator of the success of the plant's cycle chemistry program. However, as plants strive to reduce operating costs, many facilities are left operating without onsite chemistry personnel skilled in conducting bench tests and understanding the primary indicators of cycle chemistry issues.

This paper will discuss the value to a facility that may be obtained by developing and instituting a formal corrosion transport monitoring program and will detail the effort that is involved in tailoring a program to ensure that the full benefit can be gained. It will review the various methods available for corrosion transport monitoring in steam generator cycles including the benefits and limitations associated with the options currently available. Case studies from two facilities will be utilized to illustrate the process and the obtainable benefits.

IWC 20-33: Making It Work – Brine Recovery System Case Study and Improvement Options

Dan Sampson, HDR, Walnut Creek, CA

KEYWORDS: brine, wastewater, RO, ZLD, reuse, recovery

ABSTRACT: A large industrial facility in the south operates two similar brine recovery systems (BRS) designed to process blowdown from two separate cooling towers. Each cooling tower has its own, dedicated brine recovery system. Each system includes the following general process steps:

- Lime Softeners
- Weak Acid Cation Ion Exchange
- Decarbonation
- High Efficiency Reverse Osmosis (HERO)
- Brine Crystallization
- Liquid/Solid Separation (belt filter press)

It is important to note that these are serial processes – they must all work at the same time for the BRS as a whole to function properly. Though similar in basic design, the two separate brine recovery systems differ in the detailed design of their respective reverse osmosis systems.

The brine recovery systems remove concentrated suspended and dissolved solids and return recovered water (HERO permeate or crystallizer distillate) to the plant for reuse. While the two brine recovery systems have been able to support plant operation in the past, cooling tower heat loads have been increasing as a consequence of market conditions. Increased heat load resulted in an increase in tower blowdown flow requiring treatment. In addition, the plant experienced significant turnover in the operations staff most of the BRS operators are new. These and other operational challenges adversely impacted BRS capacity and reliability. The plant requested a "third eye" assessment of the plant's brine recovery systems to include recommendations for training, staffing, and process changes to improve BRS capacity and reliability.

IWC 20-64: Selenium Removal Isn't Cheap or Easy: A Review of 30 Full Scale Operating Plants

Tom Rutkowski, Golder Associates, Lakewood, CO

KEYWORDS: selenium, industrial, wastewater, biological, technology review

ABSTRACT: Significant progress has been made in the past decade on selenium removal from industrial wastewater including installation of full-scale systems, compliance with stringent discharge limits for selenium, and development of new technologies.

This update on the state of selenium treatment was commissioned by includes:

- providing a view on the operation and performance of new plants installed over this period
- describing the advancements of technologies
- describing the importance and strategies for residue management
- providing capital and operating costing information

A survey of end users, vendors and consultants was developed and distributed in order to collect information on operating plants. The responses included detailed information on thirty full scale plants and provided a treasure trove on technologies deployed, their performance, and operating problems.

Survey results indicate that thirty full scale selenium removal systems have been installed since 2007 with design flow rates ranging from 75 gpm to 2,800 gpm (410 m3/day to 15,260 m3/day). Core selenium removal technologies vary and include physical/chemical processes or a biological process or a combination of the two. Since 2008, biological treatment for selenate has emerged as the leading technology and is the core removal process in 70%, or 21 of the 30 full scale systems documented herein.

There are a wide array of biological systems ranging from active to passive to in situ. Although they share a common treatment mechanism, they differ greatly in level of maturity, cost, and complexity. Detailed case studies from two such systems indicated the ability to generally achieve high rates of selenium removal with occasional upsets due to backwashing and de gassing. The variability in influent water quality and variety of biological system treatment components results in each installation being rather unique. Operational challenges also differ between systems and can include management of reduced or organic selenium species in effluent which can exhibit greater toxicity than selenium species influent to the plant.

Despite numerous installations, selenium technologies should still be regarded as developmental and have not reached maturity. In some instances, systems are consistently capable of meeting stringent limits of less than 10 micrograms per liter, for example, and in other instances this has not been achievable. Capital costs are highly variable and largely driven by site specific factors and not necessarily by the cost of the core selenium removal technology.