Spring 5-4-2024

MPEM Capstone Presentation

Jason Schneider

MPEM Capstone Presentation

JASON SCHNEIDER, P.E.

Biographical Info
Jason Schneider

- Born & Raised in the Yakima Valley
- Undergraduate: Washington State Civil Engineering, 2004
- USAF 2004 – 2007
- Quadra Engineering 2007 – 2008
- Indian Health Service 2009 – Present
  - Bremerton 2009 – 2014
  - Toppenish 2014 – 2016
  - Billings 2016 - Present


Tesla Supercharger
Holiday Inn Express & Suites Sequim, an I


Honey Maid

Benefits of the MPEM program

- Increased knowledge in project & program management
  - MPEM 5020
  - Financial classes w/Tim
- Increased exposure to other disciplines
  - Legal considerations
  - Toxicology
  - Injury prevention

Communications

- Non-verbal
- Verbal
- Visuals
- Feedback
- Determine your Goal

Non-Verbal Communication

- Expressions
- Movements
- Tone
- Posture
- Eye Contact

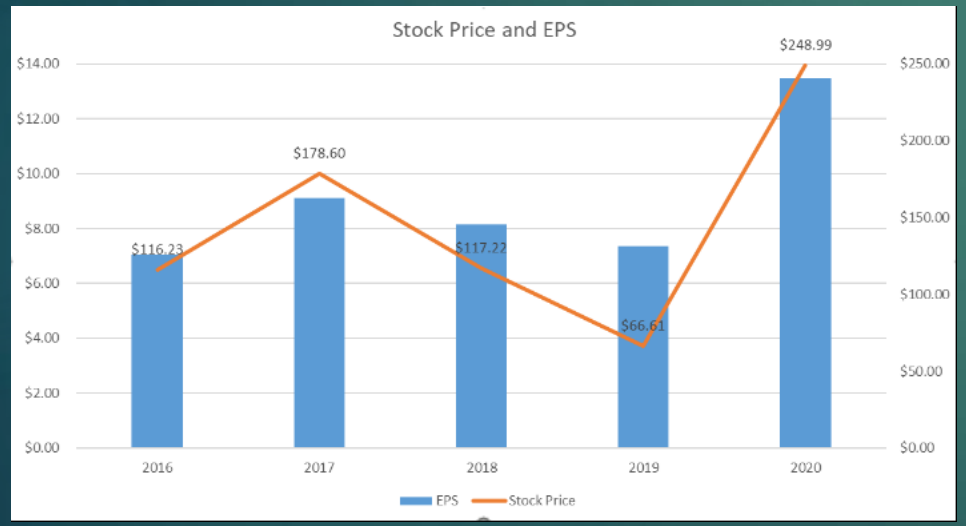
https://socialsci.libretexts.org/Bookshelves/Communication/Interpersonal_Communication/I.C.A.T_Interpersonal_Communication_Abridged_Textbook_(Gerber_and_Murphy)/06%3A_Nonverbal_Communication/6.03%3A_Types_of_Nonverbal_Communication

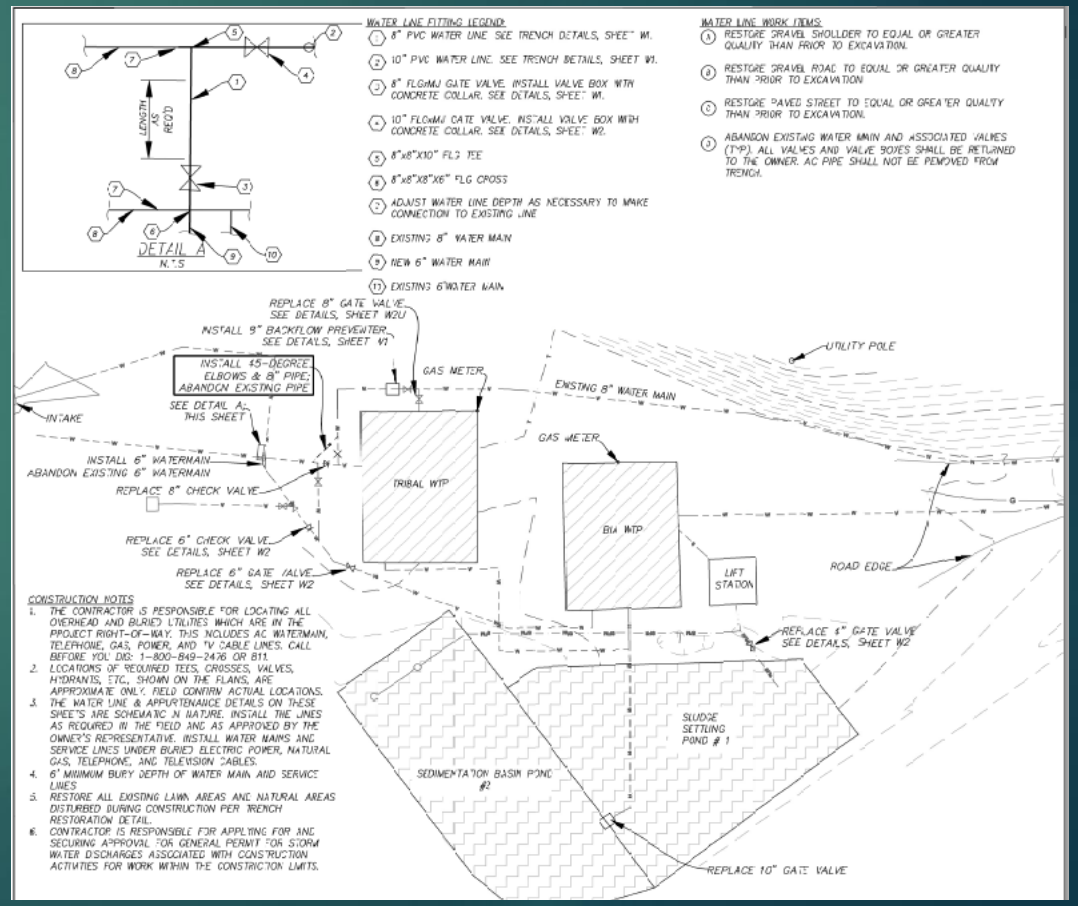
Verbal

- The Actual Message
  - Spoken
  - Written
- Tailor to the audience
  - EPAs definition of a CWS and requirements for DBPs especially TTHMs and HAA5s
  - To get rid of tiny ‘bugs’ in water we add chlorine, but the chlorine also adds some things we don’t want

Visuals

- Complement the verbal message
- Often more efficient





Feedback

- Audience response
- Practiced speakers pay attention
- M516 exercise

Everything Else Supports the **Goal**

- Inform
- Persuade
- Inspire Action

Communication References

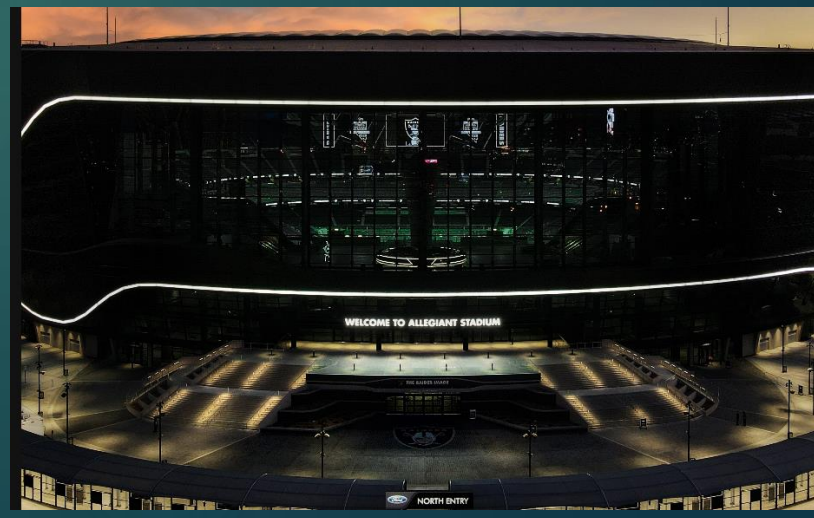
- https://socialsci.libretexts.org/Bookshelves/Communication/Interpersonal_Communication/I.C.A.T_Interpersonal_Communication_Abridged_Textbook_(Gerber_and_Murphy)/06%3A_Nonverbal_Communication/6.03%3A_Types_of_Nonverbal_Communication

Allegiant Stadium Sustainability

- Incorporates numerous sustainability practices
  - Renewable energy sources
  - Energy tracking and efficiency
  - Water efficient fixtures & tracking
  - Public outreach on sustainable practices
- LEED Gold certification
- Super Bowl LVIII
  - 28 MWH of electricity

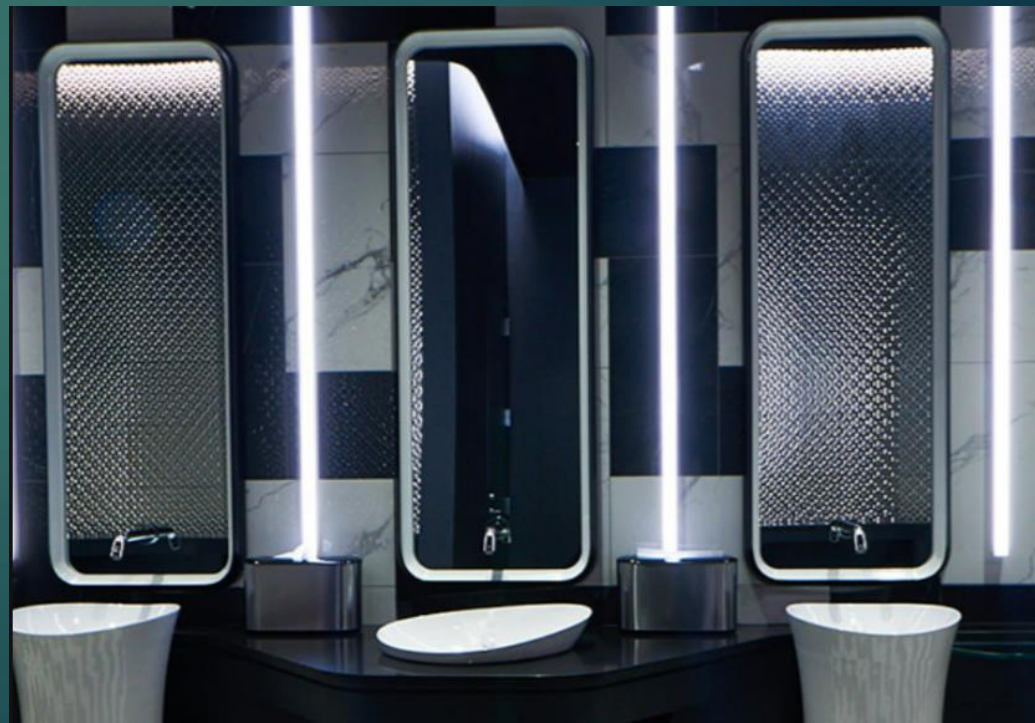
Allegiant Stadium Energy

- NV Energy's Arrow Canyon Solar Project
- LED lights w/ sensors
- Efficient cooling towers/chillers
- High energy efficient roof
- BMS -> real time energy management



Allegiant Stadium Other Sustainability

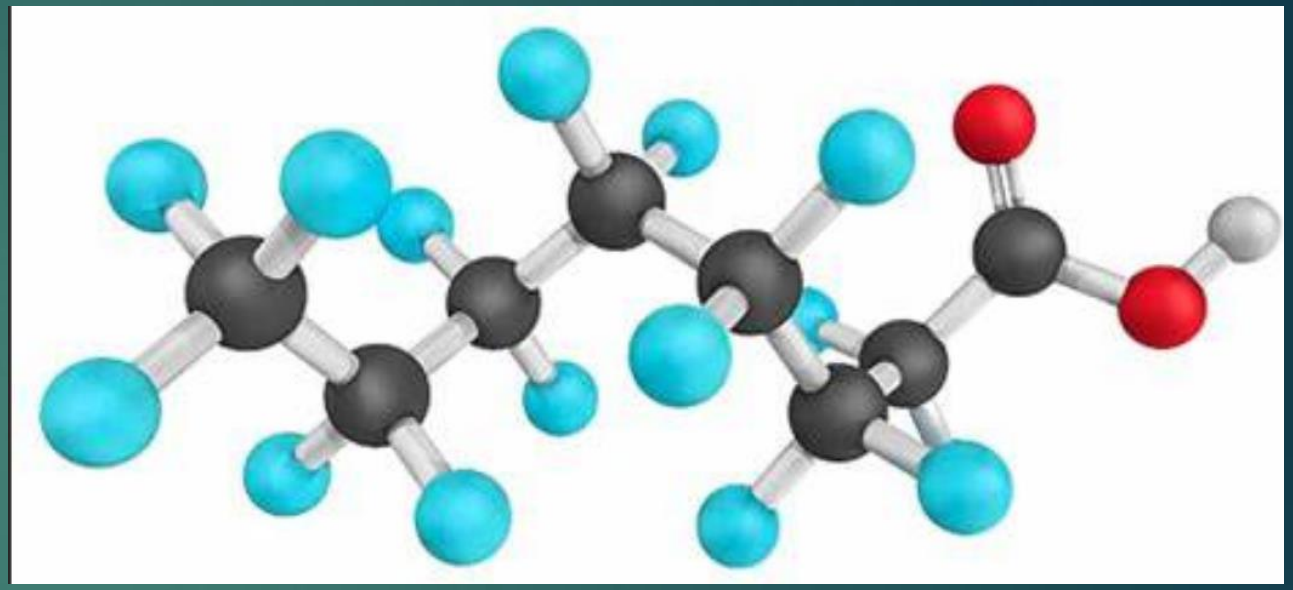
- Water efficient fixtures
- Water meters for tracking/ management
- Landscaping
- Waste reduction
  - Recycling
  - Diversion of cigarette waste for energy
  - Composting



Allegiant Stadium Sustainability References

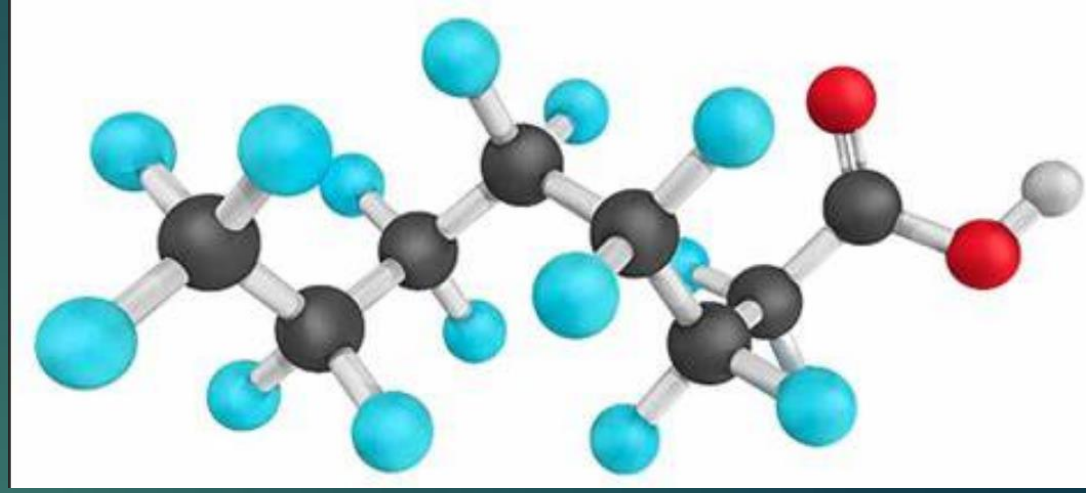
- https://www.allegiantstadium.com/stadium/sustainability
- https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/cleanenergy/sustainability/2022-sustainability-nvenergy.pdf
- https://www.businessinsider.com/super-bowl-allegiant-stadium-renewable-energy-solar-2024-2#:~:text=The%20stadium%20will%20use%20about%2028%20megawatt%20hours,the%20company%20tracking%20the%20stadium%E2%80%99s%20greenhouse%20gas%20emissions.
- https://www.hpbmagazine.org/sports-sustainability-behind-allegiant-stadiums-energy-efficient-building-systems/

Per- and Polyfluoroalkyl Substances PFAS



- Forever chemicals
- Sources
  - Firefighting
  - Industrial processes
  - Wastewater treatment
  - Landfills
- Suspected effects on human and environmental health
- Treatment for PFAS

PFAS Molecules



- Highly stable due to the carbon chain and fluorine bonds
- Hydrophobic
- Lipophobic
- Ionic functional group -> water solubility -> easy movement in surface and groundwater

PFAS Health Concerns

- Reproductive defects
- Thyroid dysregulation
- Kidney tumors
- Cancer
  - Breast
  - Testicular

PFAS Environmental Concerns

- Contamination of water and food

- Effects to wildlife

Treatment and Removal Technologies

- Physical
  - Filtration
  - Media adsorption
  - Ion exchange resin
- Chemical
  - Deflourination
  - Coagulation/flocculation
  - Photocatalytic ozonation
- Biological
  - Microbial
  - Bacterial
  - Phytoremediation

PFAS References

- Sharma, N. et al. (2024). A comprehensive review on the need for integrated strategies and process modifications for per- and polyfluoroalkyl substances (PFAS) removal: Current insights and future prospects. *Case Studies in Chemical and Environmental Engineer,* 9, 1-17. doi:100623
- Currell, M. et al. (2024). Examining changes in groundwater PFAS contamination from legacy landfills over a three-year period at Australia's largest urban renewal site. *Chemosphere, 352,* 1-10. doi:141345
- de Souza, B. Meegoda, J. (2024). Insights into PFAS environmental fate through computational chemistry: A review. *Science of the Total Environment*, 1-45. doi:171738
- Kirkwood-Donelson, K. et al. (2024). Investigating mouse hepatic lipidome dysregulation following exposure to emerging per- and polyfluoroalkyl substances (PFAS). *Chemosphere, 354,* 1-12. doi:141654
- Beale, D. et al. (2024). Metabolic disruptions and impaired reproductive fitness in wildcaught freshwater turtles (Emydura macquarii macquarii) exposed to elevated per- and polyfluoroalkyl substances (PFAS). *Science of the Total Environment,* 1-50. doi:171743
- Ehsan, M. et al. (2024). PFAS contamination in soil and sediment: Contribution of sources and environmental impacts on soil biota. *Case Studies in Chemical and Environmental Engineering, 9,* 1-12. doi:100643

Improvements to MPEM

- A class specifically geared towards operations and maintenance for facilities and or utilities
- Financial/management course geared towards concerns for a consulting/design firm

Questions?

Thank You