

EPA/WDNR/Tyco Meeting  
Tyco Fire Products LP Site  
Pump Down Program  
July 25, 2017

Agenda

Attendees:

Conor Neal – USEPA	Joe Janeczek – JCI
Jose Cisneros – USEPA	Rich Mator - JCI
Mollie Finn – USEPA	Ryan Suennen - Tyco
Kristin DuFresne – WDNR	Jeff Danko – Tyco
Judy Fassbender - WDNR	

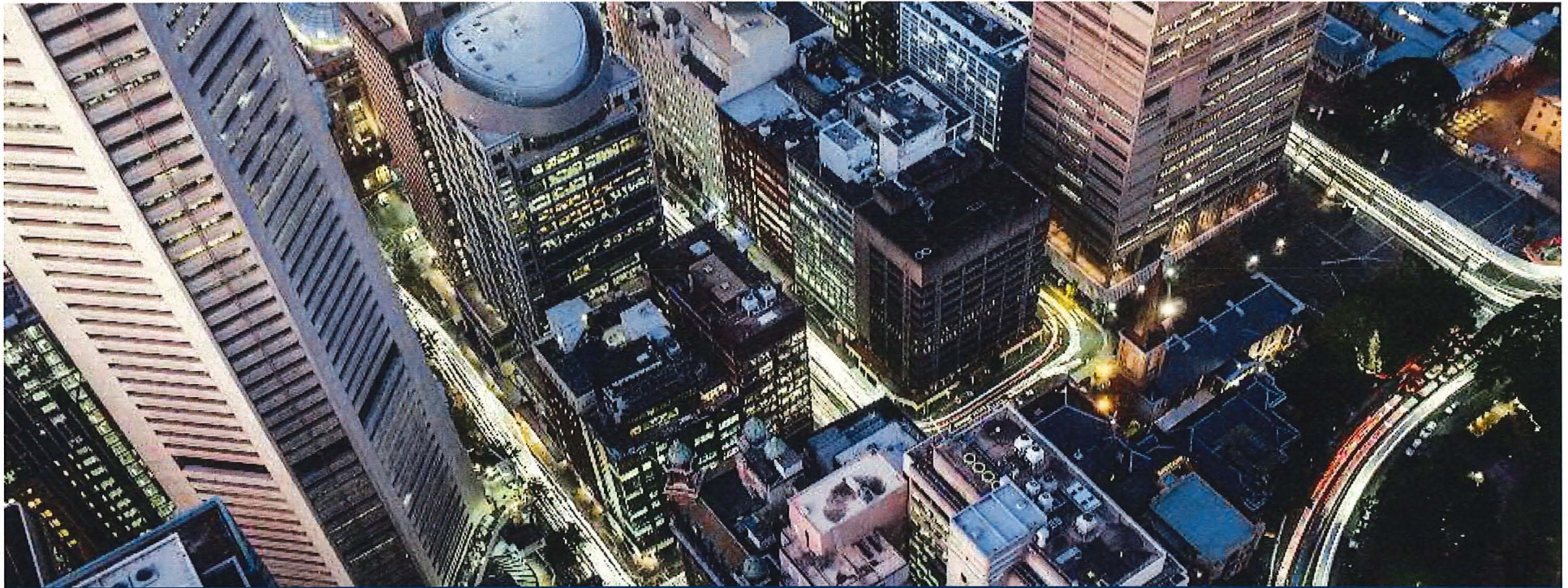
1. Introductions
2. Meeting Purpose
  - a. Resolve path forward plan for pump down program
3. History/Assumptions
  - i. Containment Structure Integrity
  - ii. Groundwater Collection and Treatment System
  - iii. Assumptions at Time of AOR
4. 2016 Pump Down Activities
5. 2016/2017 Findings
6. Obstacles to Implementing AOR
7. Proposed Path Forward
  - a. GW treatment system testing
  - b. Conveyance system
8. Agreement on Resolution
9. Summary/Closing

EPA/Tyco Meeting

Chicago, IL

July 25, 2017

<u>Name</u>	<u>Phone</u>	<u>Organization</u>
Conor Neal	312-886-7193	US EPA
Jeff Douko	262-951-6888	Tyco
JOE JANECEK	609-216-8697	JCI
Rich Mator	609-216-6894	JCI
Ryan Swensen	715-587-6670	JCI
Molly Finn	312-886-6173	USEPA
Jose Cisneros	312-886-6945	USEPA
Kristen Dotreane	920-662-5443	DNR
Judy Fassbender	608-266-7278	DNR



# Fire Suppression Products

**Tyco Fire Product LP – Marinette, WI**  
*Pump Down Program*





## Fire Suppression Products


Tyco Fire Product LP – Marinette, WI  
*Pump Down Program*



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## Introductions


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## Meeting Purpose


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## Meeting Purpose

- Resolve path forward plan for pump down program
- Provide history summary and site assumptions associated with pump down program
- Review 2016/2017 pump down operations and findings
- Provide rationale for Tyco proposal on path forward
- Discuss Agreement on Resolution
- Obtain agency approval of path forward



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## History / Assumptions

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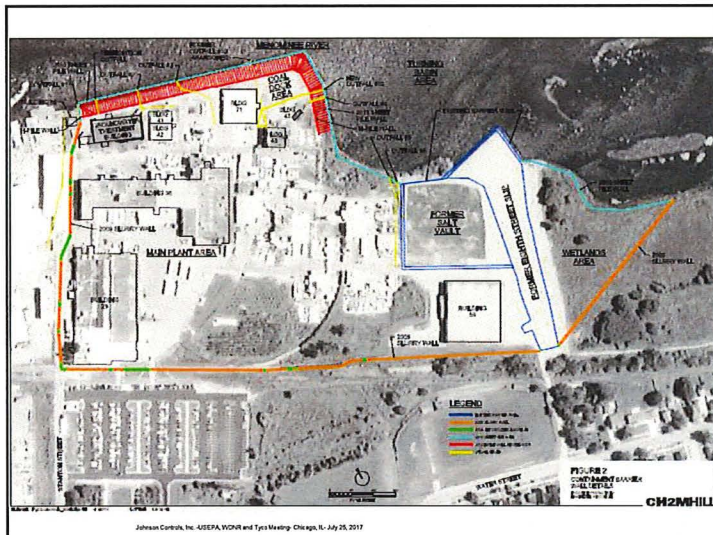


## History / Assumptions

- Containment Structure Integrity
  - Slurry Wall
    - Interim Wall in Salt Vault area – 1998-1999
    - Site Containment – 2009
    - Installed to bedrock
    - Low permeability
    - Approximately 4 inches thick
  - Sheet Pile Wall
    - Interim wall in Slip and Salt Vault area – 1998-1999
    - Site Containment – 2010
    - Installed to bedrock
    - Adeka joint seal
    - Low permeability
- Site-wide barrier system is working as intended

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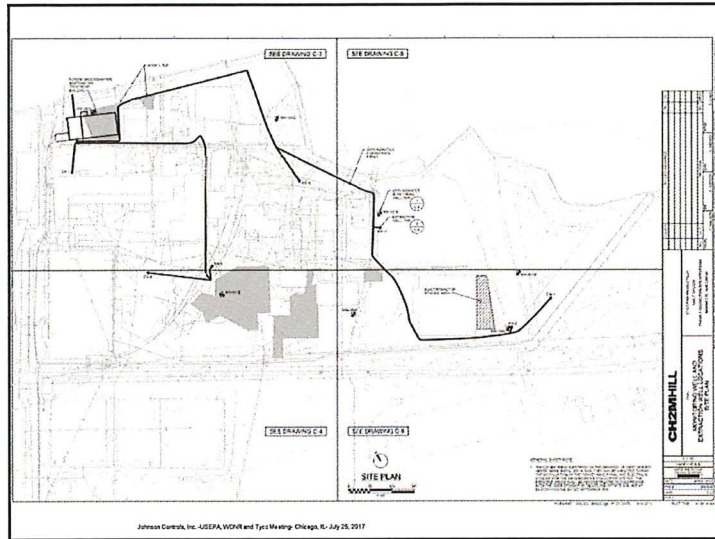
## History / Assumptions

- Groundwater Collection and Treatment System
  - Designed to prevent plant flooding
  - Limited extraction capabilities
    - Meets requirements for primary intent of system
    - Existing system well placement
    - EW-2 (Slip) and EW-3 (Salt Vault) long-term extraction capacity of ~0.5 gpm
  - Designed to treat combined arsenic concentration of 25 ppm
  - Upgrades to system installed and tested in Fall 2016
  - Pump down operation not a component of AOC at time of system construction
  - System being asked to do something it was not designed to do

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### History / Assumptions

- Assumptions at time of Agreement on Resolution Negotiations
  - No water movement into/out of wall system
    - Meaning it was likely possible to reach target elevation with limited withdrawals
    - Target elevation would be easily maintained
  - Existing groundwater extraction system could manage long-term withdrawal needs
    - Meaning target level could easily be reached and maintained in 2-year period
  - No additional long-term input to groundwater treatment system
  - The need for a permanent system modification was not apparent until completion of the 2016 pump down program

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2016 Pump Down Activities

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### 2016 Pump Down Activities

- Construction commenced June 13, 2016
- Installed temporary conveyance and storage system
  - Designed for temporary aggressive pump down – not a long-term solution
- Conveyed water from each area to temporary tanks
- Transferred some Slip water to treatment system
- Transferred Salt Vault and remaining Slip water for offsite disposal
- Approximately 1.05 million gallons withdrawn from area

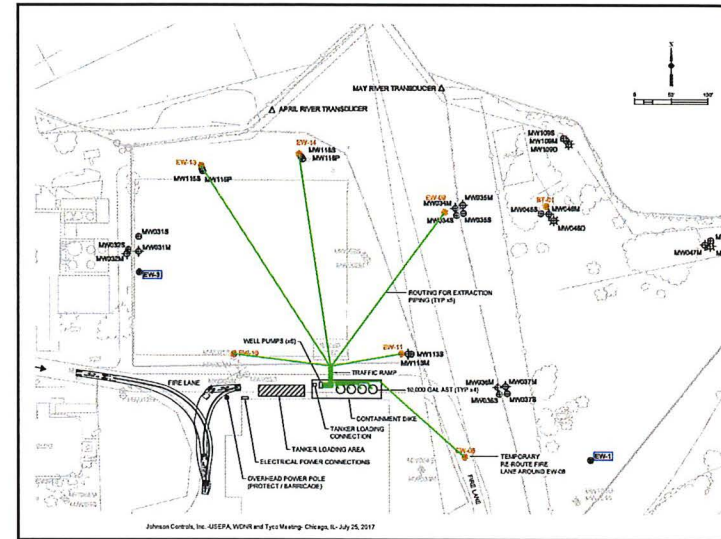
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## 2016 Pump Down Activities (cont'd)

- Temporarily reached target water elevation in Salt Vault and Slip during pumping operations
  - Adjusted flow rates and extraction well usage to evaluate long-term pumping needs
- Winter shut down and water level monitoring completed

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## 2016/2017 Pump Down Findings

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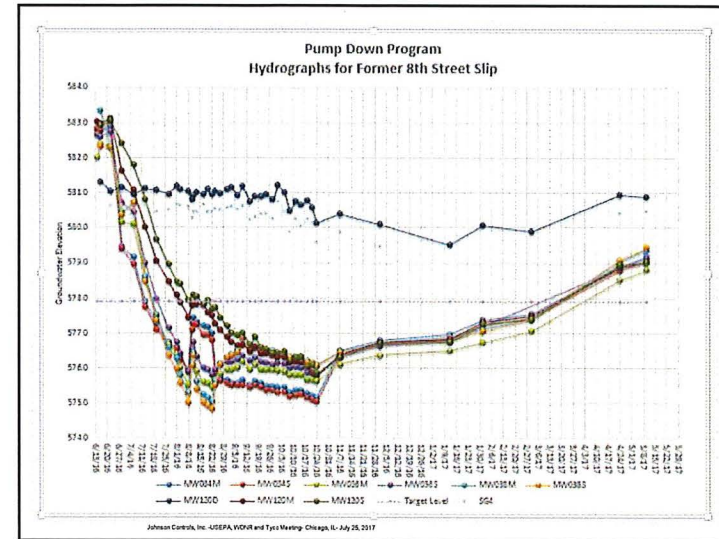
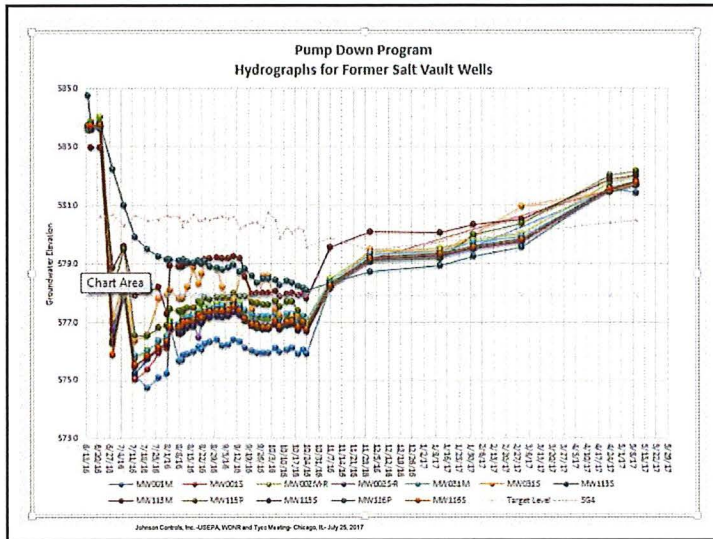


## 2016/2017 Pump Down Findings

- Initial pumping rates approximately 4 gpm in each area
- Apparent area recharge rate of approximately 1.5 gpm in each area based on pumping rate and winter period monitoring
- Total recharge in Slip less than in Salt Vault
- Salt Vault water elevation approximately same as main plant area
- River level is lower than pump down area at this time
- Recent cover inspection documented structural damage to cover, likely due to subsidence following groundwater withdrawal period

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### 2016/2017 Pump Down Findings

- Assumption that no water movement into cells disproved
- Extraction capability of existing permanent infrastructure unable to maintain target levels
- Long-term operation system necessary to maintain target elevation
- Groundwater treatment system capabilities still unknown – system enhancements not completed until following completion of 2016 pump down

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### Obstacles to Implementing AOR

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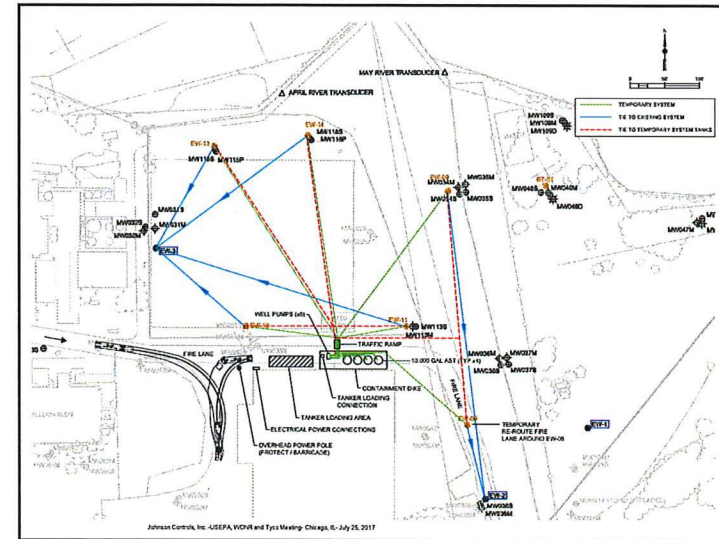
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## Obstacles to Implementing AOR

- Permanent system needs not fully understood
- Footprint of temporary system overlays area of conveyance piping install
- Existing pump down system is not sustainable (seasonal in nature)

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## Proposed Path Forward

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## Proposed Path Forward

- Complete groundwater treatment system testing
  - Testing plan approved by WDNR
  - Determine flow rate treatment capabilities
  - Determine water management cycle based on testing
    - Limited pump down of Slip and Salt Vault
      - All water may be treated through system
      - Portion may be treated
      - All may need to go offsite
  - Prepare design and operations plan
    - Piping to convey water
    - Augmentation of existing groundwater treatment system
    - Design/construct pre-treatment system

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## Proposed Path Forward

- Conveyance system
  - Design options based on groundwater treatment testing results
  - Install permanent conveyance piping system to groundwater treatment plant from existing extraction wells
  - Install permanent conveyance system from existing extraction wells to temporary tanks for offsite disposal
  - Install horizontal well network in pump down area
  - Manifolding to control conveyance rate in each area

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## Agreement on Resolution Pump Down Program

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## Agreement on Resolution

- April 2014 AOR between Tyco Fire Products LP and USEPA
- One component of AOR is pump down of former Salt Vault and 8<sup>th</sup> Street Slip areas
- Target water level – 577.5 feet above mean sea level (IGLD 85) (low water datum) – converts to 577.9 feet above mean sea level (NAVD 88)
- Monitor a network of wells during pump down, during interim phases, and post pump down
- Achieve and maintain target elevation by December 31, 2017
  - USEPA interpretation that target level reached by July 27, 2016 and must be maintained as of that date
  - Tyco interpretation that target level achievement and long-term compliance date is December 31, 2017

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## Agreement on Resolution (cont'd)

- Further, AOR stipulates that actions be taken to restore target levels
  - Tyco has complied with this requirement by
    - Proposing approach to do so
    - Notified EPA of exceedence of target level during winter shut down period
    - Presented a plan to gather necessary information for design and construction of permanent approach to restore and maintain target levels
    - Presented a timeline for achievement of target levels

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## Agreement on Resolution (cont'd)

- EPA directive (June 26, 2017 correspondence) to restore target levels by September 8, 2017 does not consider Technical Impracticability of management approach to maintain target levels
  - Technical Impracticability "involves a consideration of the engineering feasibility and reliability" of attaining media cleanup standards.
  - Existing system is temporary in nature and not a long-term solution to maintain drawn down groundwater elevation in cells. Existing system is technically impracticable to consider for long-term management of groundwater elevation management.
  - As stated in BWGMP, groundwater extracted during long-term pump down operation (post-aggressive drawdown) is to be treated through onsite system. USEPA letter implies that offsite disposal is a permanent solution to management of wastewater.
  - Target levels will only be maintained until winter shut down period (approximately 2 months) based on existing site understanding and system
  - Data continues to indicate that site-wide barrier system is working as intended

## Summary / Closing

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## Summary / Closing

- Tyco desires to do what is right with long-term approach
- Information provided demonstrates commitment
- At time of AOR, assumed:
  - No water movement into or out of cells
  - Existing system could convey volume needed to maintain target level
  - Groundwater treatment system could treat necessary volume
- No information on recovery rates needed to maintain target elevations or treatment system capabilities prior to pump down

## Summary / Closing (cont'd)

- Groundwater collection and treatment system being asked to do something it was not designed to do
- Unknown whether enhanced system is able to treat high concentration water
- Imperative to determine treatment capabilities and conveyance and treatment permanent approach
- Allow testing program to be completed in 2017 followed by permanent design and install in 2018
- Achieve compliance following permanent design and install

## Questions / Discussion

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