South Carolina Department of Health and Environmental Control

Circle K Ravenel Petroleum Clean Up
PUBLIC MEETING

- To avoid echoing or feedback, all lines will be muted.
- At the end of the presentation, you will have an opportunity to ask questions
- This virtual meeting will be recorded and posted on our webpage.

Option to Call In

If you are experiencing audio problems, join the virtual meeting by phone:

Phone number: **1 864-558-7311**
Access Code: **490 047 198#**

Exits the meeting. (If you accidentally exit the meeting, you can rejoin.)

Be smart. Stay 6 feet apart.

scdhec.gov/COVID19

dhec

CR-012661 4/20

Stop the Spread of COVID-19

Wash hands often

Stay home while sick

Cover coughs and sneezes

Clean surfaces often

scdhec.gov/COVID19

dhec

CR-012661 4/2

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Healthy People. Healthy Communities.

South Carolina Department of Health and Environmental Control

CIRCLE K RAVENEL PETROLEUM RELEASE

Charleston County

September 22, 2020

Meeting Agenda

- Gathering Time
- Welcome & Overview of Virtual Meeting
- Presentation
- Facilitated Discussion, Questions & Answers
- Next Steps & Adjourn

Goals of this meeting…

- Enhance relationships with the community.
- Update of petroleum release and cleanup efforts.
- Provide a path forward.

Site Summary

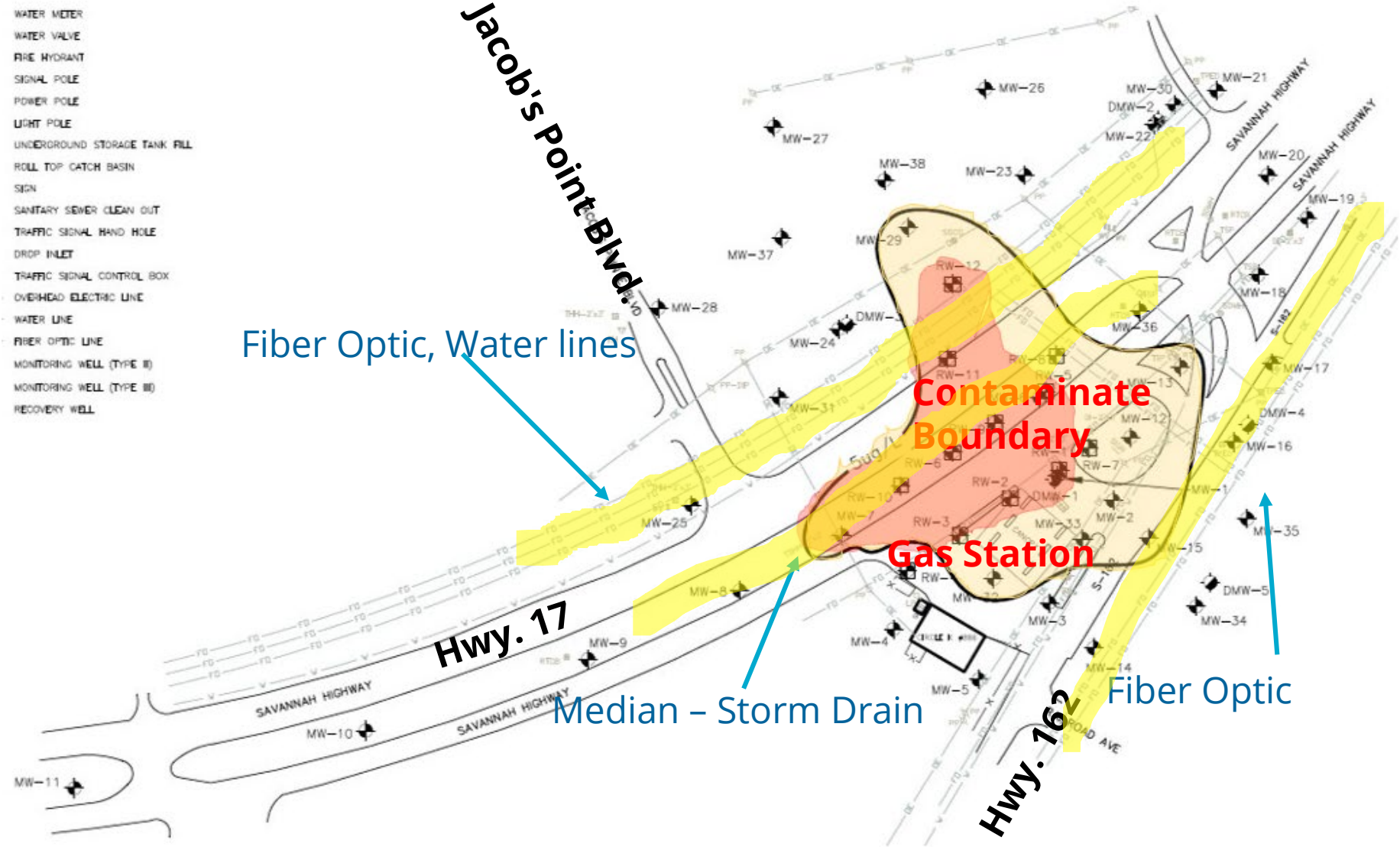
- Petroleum Release reported August 2, 2018.
- Extent and Severity
  - Assessment activities completed August 2019.
  - Petroleum contaminants are isolated to the shallow aquifer at a maximum depth of 12 feet below the ground surface.
- Risk Factors
  - Currently the highest risk of exposure to contaminates is in the underground utilities and nearby surface water drainage features.
  - Given the proximity of these receptors to the source area, cleanup target levels are very low.

Cleanup Target Levels

- Risk Based Screening Levels (RBSLs) are the level at which contaminates in groundwater, soil, or air are considered toxic to human health and/or the environment.
- Site Specific Target Levels (SSTLs) replace the RBSL and are applicable to all monitoring wells to ensure that contaminates will not exceed RBSLs where they are most likely to encounter receptors like water supply wells, surface water features, utilities, etc.

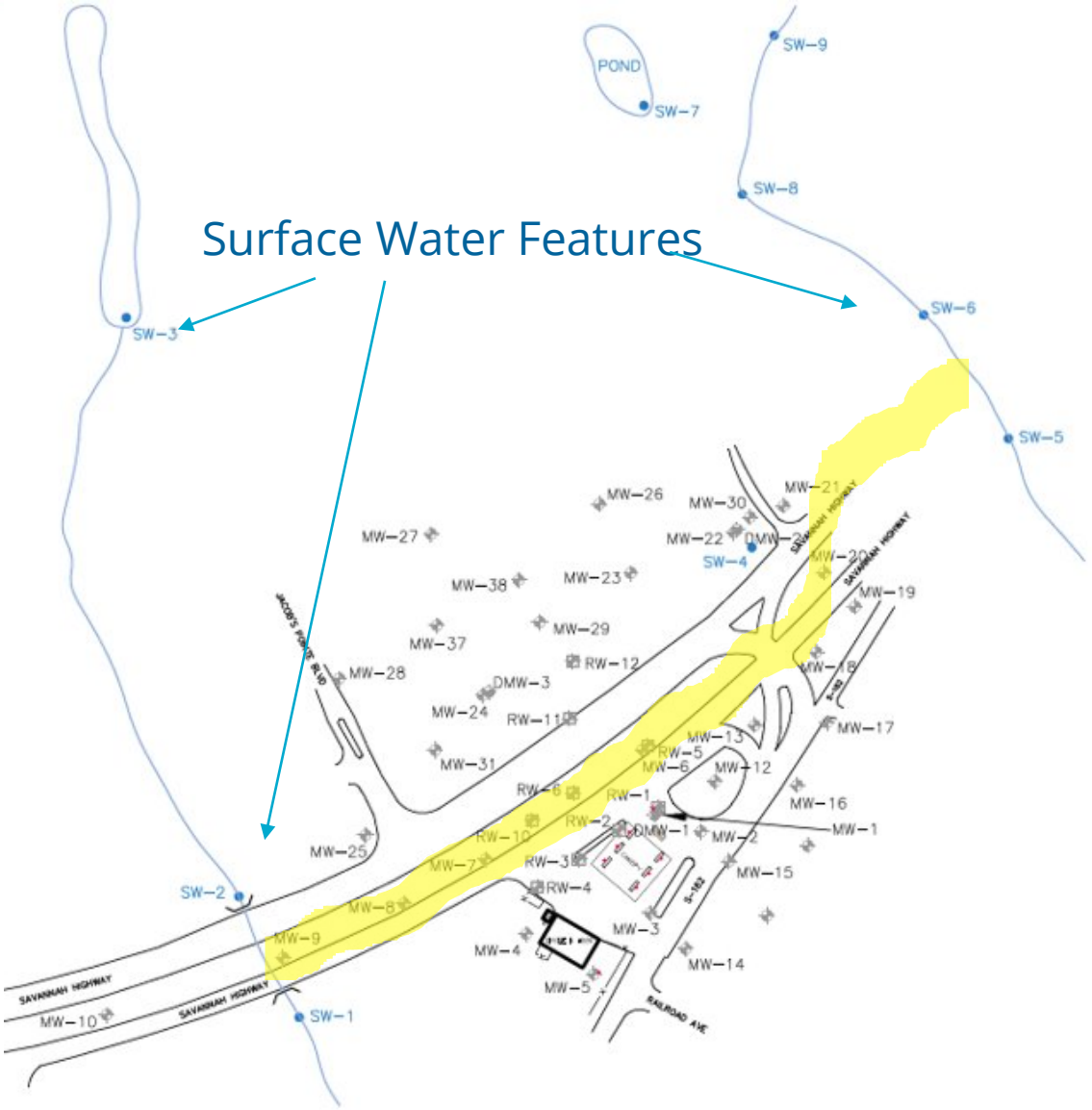
Generating Site-Specific Target Levels

- Evaluation of the soil
- Extent of groundwater contamination
- Groundwater flow direction
- Groundwater velocity
- Distance between the monitoring well and receptor


WATER METER
WATER VALVE
FIRE HYDRANT
SIGNAL POLE
POWER POLE
LIGHT POLE
UNDERGROUND STORAGE TANK FILL
ROLL TOP CATCH BASIN
SIGN
SANITARY SEWER CLEAN OUT
TRAFFIC SIGNAL HAND HOLE
DROP INLET
TRAFFIC SIGNAL CONTROL BOX
OVERHEAD ELECTRIC LINE
WATER LINE
FIBER OPTIC LINE
MONITORING WELL (TYPE II)
MONITORING WELL (TYPE III)
RECOVERY WELL
Jacob's Point Blvd.
Fiber Optic, Water lines
Contaminate Boundary
Gas Station
Hwy. 17
Median – Storm Drain
Fiber Optic
Hwy. 162
SAVANNAH HIGHWAY

Surface Water Features

Storm Drain



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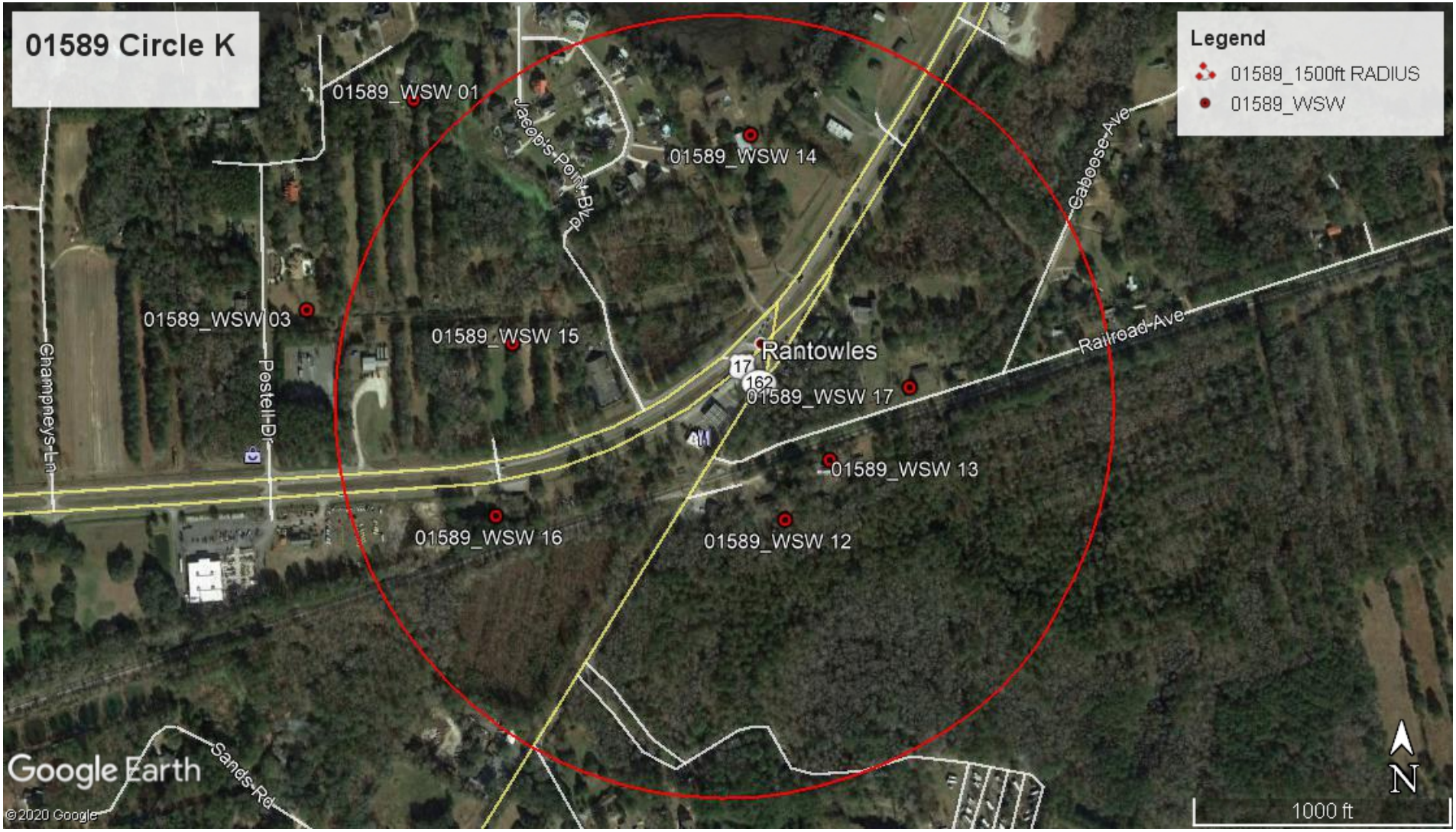

Performance Monitoring

- The Corrective Action Plan (CAP) will outline a timetable necessary to reduce Free Phase Product (FPP) thicknesses to at or below 0.01ft and contaminate concentration reduction milestones of 60%, 90%, and 100% to the site-specific target levels.
- All cleanup activities are to be completed within five years. Any request for an extension beyond the 5-year time frame must be approved by DHEC.

Corrective Action System Evaluation (CASE) Reports

- CASE reports will be submitted to DHEC on a semiannual basis for review.
- CASE reports will be updated to the cleanup webpage.
- CASE Reports include:
  - Brief summary of corrective action activities conducted during that time period
  - Groundwater sampling results
  - Evaluation of progress towards cleanup goals

Verifying Cleanup Progress

- DHEC personnel will gauge monitoring wells after the contractor reports Free Product removal.
- DHEC personnel will audit and/or collect split samples with the contractor to verify reduction of contaminates at 60% and 90%.
- At 100% reduction or clean up completion:
  - DHEC will require the installation of up to eight verification monitoring wells.
  - Two quarterly (3 months) sampling events to confirm cleanup completion.
  - DHEC personnel will verify clean up completion through split sampling.

Next Steps

- DHEC will be accepting written comments through October 06, 2020.
- Written comments may be submitted by email or US Mail to:

  Robert A. Dunn, SCDHEC, UST Management Division
  2600 Bull Street, Columbia, SC 29201
  dunnra@dhec.sc.gov

- At completion of the comment period DHEC will respond to all the submitted comments before issuing final CAP approval to begin corrective action activities.

Next Steps

- Additional information located on the cleanup webpage:

www.scdhec.gov/CircleKRavenel

Introduction to ATC

- Established 1982 with National Presence
- Financially stable company (FYE19 $230M+)
- Health and Safety – EMR 0.76; Recognized as a National Leader in Safety Culture
- South Carolina since 1980s
- Largest SCDHEC owner/operator-lead UST rehabilitation contractor by volume
- Established QA procedures for accuracy and accountability in deliverables, invoicing and data

ATLAS
ATC
—AN ATLAS COMPANY—

The RPI Group

Technology Developer, Operates the Project Support Laboratory (www.trapandtreat.com)

Project Assessment/Design, QA/QC (www.astenv.com – NEW SITE)

Environmental Consultant

ATLAS ATC

ATLAS ATC —AN ATLAS COMPANY—

Technology Overview & Chemistry

"Trap and Treat" concept

- Contaminants sorb to activated carbon "Trap"
  - Decreases groundwater mass immediately
  - Disrupts groundwater/soil mass equilibrium to help drive desorption => key to source area remediation and mass flux reduction
- Aerobic and anaerobic biological degradation to "Treat" sorbed mass

BOS 200® - Accelerates biodegradation of various organic compounds on an activated carbon platform that includes:

- Micro and macro nutrients
- Time release TEAs (nitrate, **sulfate** – combination critical for Benzene degradation)
- Blend of facultative organisms => key to efficiency
- Primarily used to treat **petroleum hydrocarbons**

BOS 200® Enhanced: BOS 200® with electron donor (food grade starch, yeast extract, bacteria)

ATLAS ATC —AN ATLAS COMPANY—

Technology History and Adoption

- AST History with Trap and Treat® Technology
  - 2003 - Remediation Products, Inc. developed Trap and Treat® Technology
  - 2006 - AST completed first BOS 200® project (Kentucky)
  - 2011 - AST takes on role of National and International Distributor
- AST completed over 600 UST projects Nationally and Internationally
- Applications in 44 of lower 48 states
- Greater than 200 projects completed in Kentucky and Tennessee *(Including Four Circle K Projects receiving 3 NFAs)*
- Joint Base Charleston, SC *(Five Former UST Locations)*
- Two Major Injections in South Carolina using sister product BOS 100®- Shaw AFB and Former Industrial Property, Rock Hill, SC.
- Completed Trap and Treat® projects in fifteen countries – recent Circle K Projects Skaelsker, Denmark and Vara, Sweden

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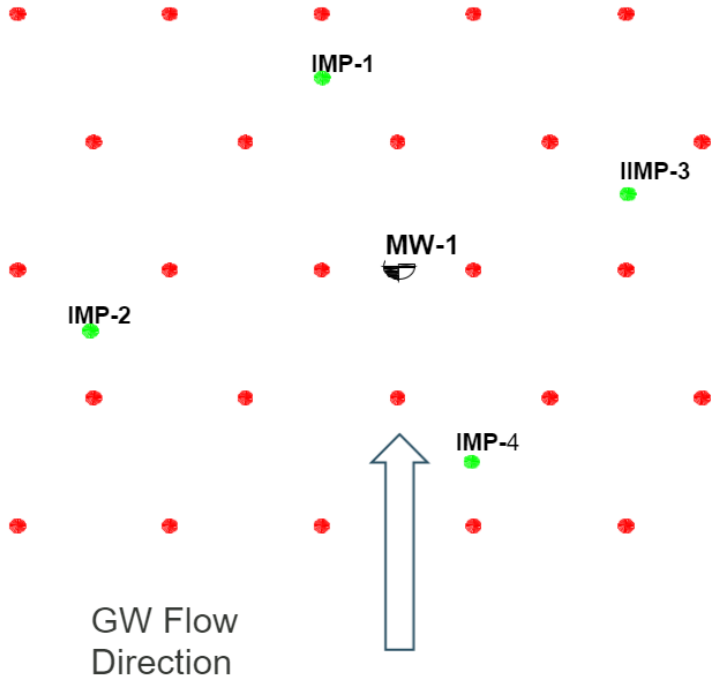
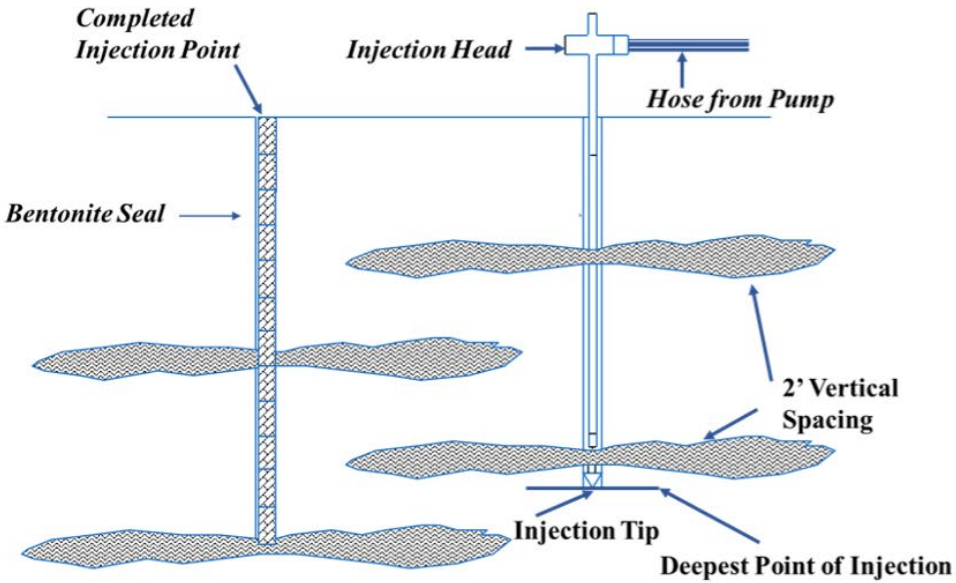
Grid Based Design

- Use triangular grid pattern
- Spacing is a function of the depth and lithology
- Spacing is tight - ranges from 3 to 7.5 ft for most sites



Slurry Application Best Practices



Typical "Top-Down" Injection

- Proper equipment and field staff
- Surgical injections of slurries = high flow rate and energy
- Small injection volumes per interval
- Assess distribution during pilot test or full-scale startup
- Be prepared to alter spacing, injection volumes, injection tip geometry, etc.
- Top-down critical to success

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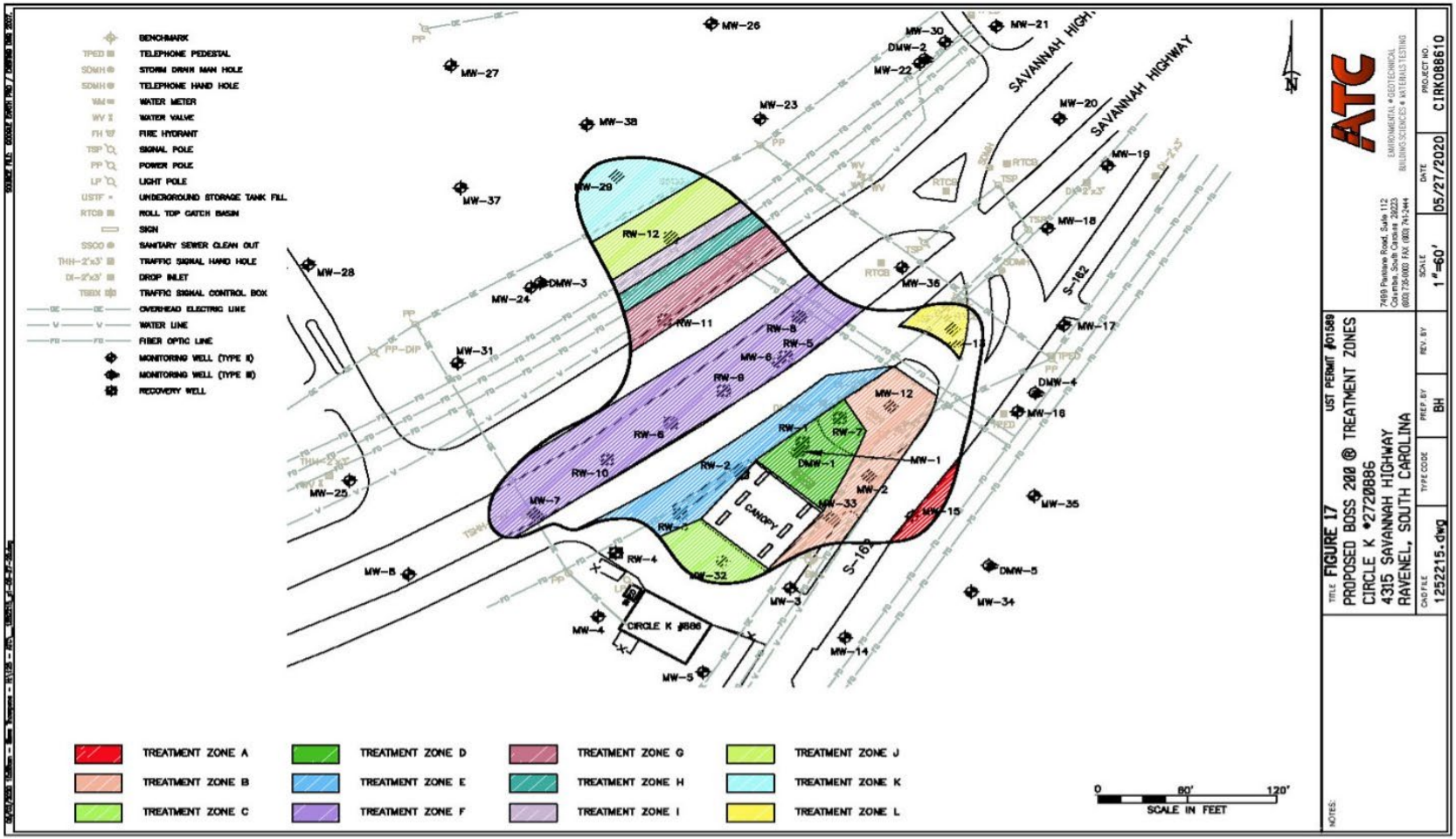
BOS 200® Conceptual Treatment Zones



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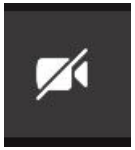
Questions & Answers



Turn off your camera until your turn to speak

Click the Hand Raise icon to be called on to speak

Unmute to indicate you would like to be called on to speak (everyone in the meeting can hear you)

Muted (no one in the meeting can hear you)

Call in option

Phone number: ***1 864-558-7311*** | *Access Code:* ***490 047 198#***

DHEC Staff

Bureau of Land & Waste Management UST Management Division	
Mihir Mehta	Division Director
Stephanie Briney	Corrective Action & Field Support Section Manager
Ryan Ariail	Customer Service Liaison
Robert Dunn	Hydrogeologist

Bureau of Environmental Health Services Charleston Regional Office	
Wendy Boswell	Area Director
Ashley Auerbach	Office Manager

CONTACT US

Robert A. Dunn, Hydrogeologist III
Corrective Action & Field Support Section
UST Management Division
dunnra@dhec.sc.gov / (803) 898-0671 office

Ryan Ariail, Customer Service Liaison
ariailrd@dhec.sc.gov
(803) 898-9418 office / (803) 608-0418 cell