

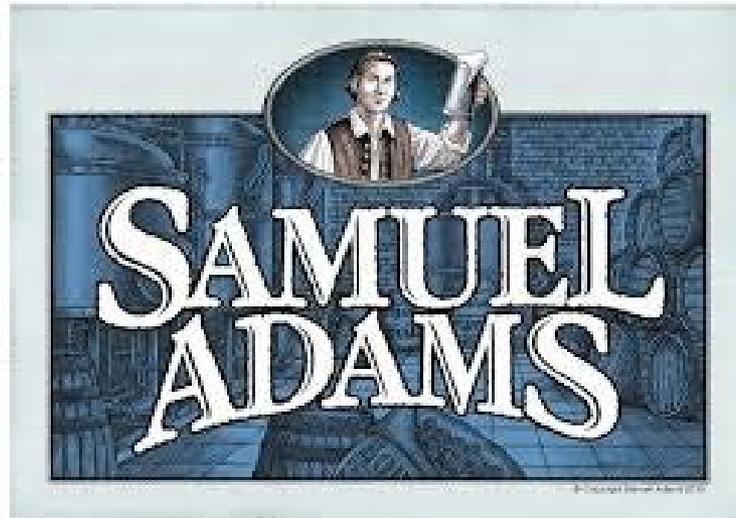
Collaboration and Creativity Advance Cincinnati's Providence North Redevelopment Project

Kathy Wade
Diana Christy
Don Fay
Joe Rossabi

Ohio Brownfields Conference
April 7, 2016

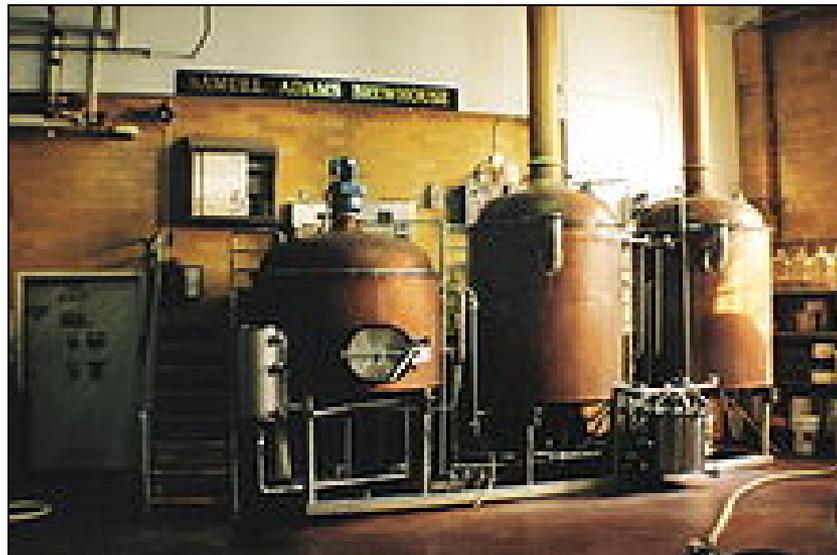
Presentation Outline

- Boston Beer Company History and Vision (Kathy Wade)
- City of Cincinnati Support and Funding (Diana Christy)
- Clean Ohio Investigation and Remediation (Don Fay)
- Creative Remediation Polishing (Joe Rossabi)
- Questions (All)



History of Samuel Adams - Cincinnati

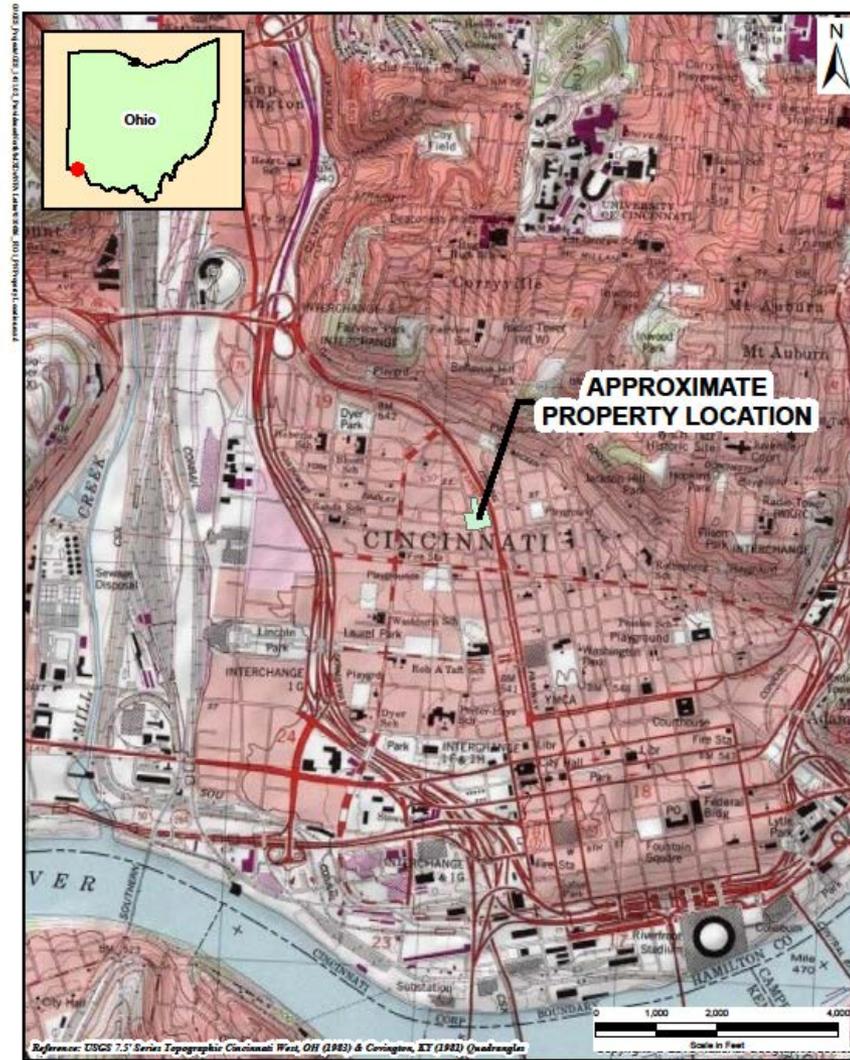
- Boston Beer Company, Founded 1984
- Subsidiary: American Craft Brewery d/b/a Samuel Adams Cincinnati Brewery
- Breweries in Boston, Cincinnati, Pennsylvania
- 1997 Purchase – Hudepohl-Schoenling Brewery
- 2005 Expansion Efforts Began



**THE BOSTON
BEER COMPANY**

city of
CINCINNATI 

Property Location

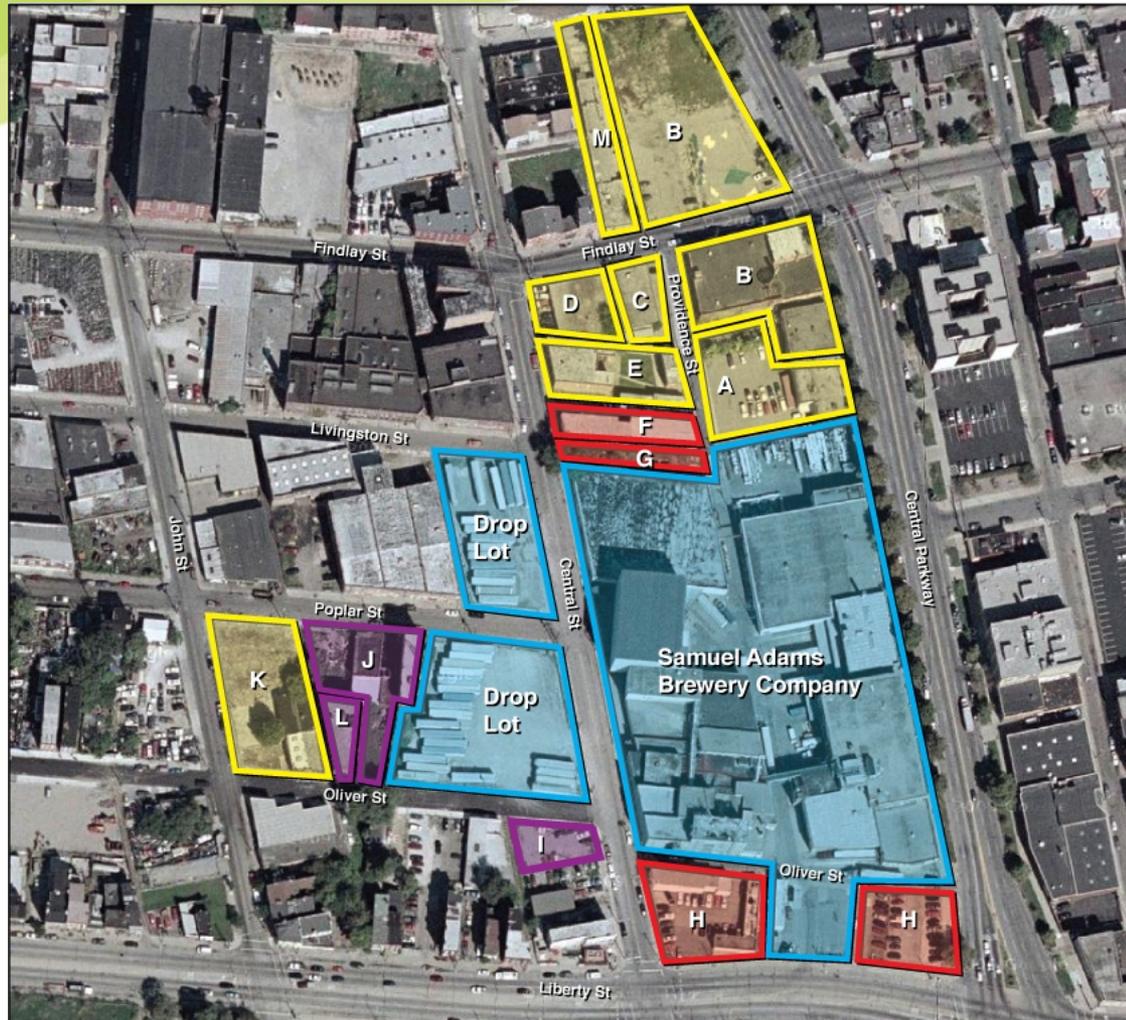


DRAWN BY JAW PROJECT NO. 010686.0000.0000 DATE July 3, 2014		TITLE PROPERTY LOCATION PROVIDENCE NORTH REDEVELOPMENT PROJECT CINCINNATI, OHIO 45214	
CLIENT CITY OF CINCINNATI		DATA Copyright © 2010, The Payne Firm, Inc. This map does not represent a legal document. It is intended to serve as an aid in graphical representation only. Information shown on this map is not warranted for accuracy or fitness for any particular purpose.	
TRC Environmental Corporation <small>12251 Canal Road Drive Cincinnati, Ohio 45242 513-496-2252</small>		SHEET 1	

THE BOSTON BEER COMPANY

city of **CINCINNATI**

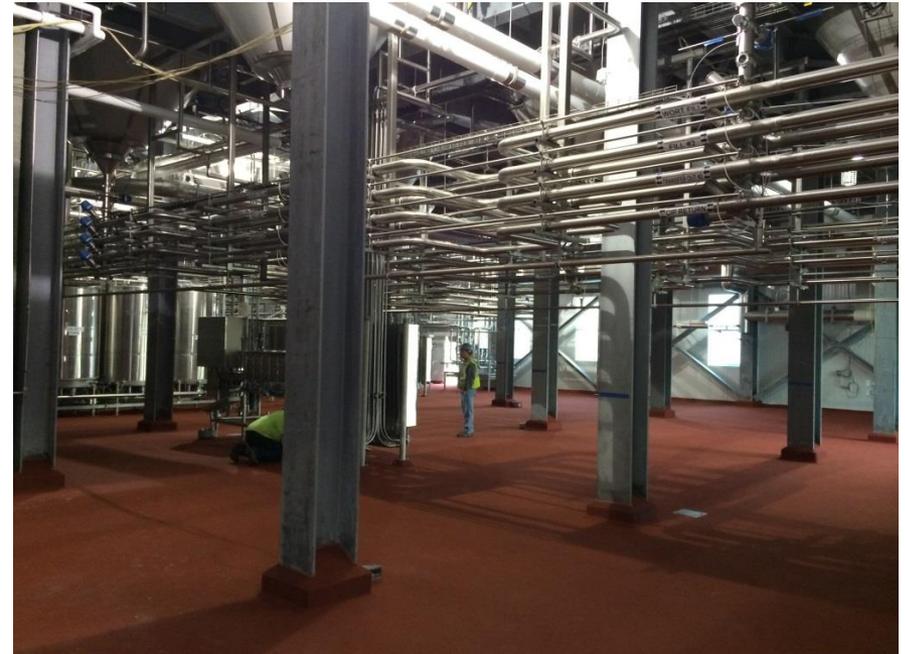
Property Features



**Samuel Adams
Brewery Company,
LTD.**

-  Original Purchase
-  Additional Purchases
-  Planned Purchases
-  Potential Purchases

Preliminary Expansion Plans Changed to Meet Demand



Converted Old Buildings to a Barrel Room



End-User (ACB) Keys to Success

- Preliminary cost estimates were reliable
- Clean Ohio funding
- Support of City
 - Held source area property until NFA received
 - Filled funding gaps
 - Supported grant applications
- Environmental Insurance
- Timeline meshed with redevelopment schedule

Benefits to Community

- Helped with revitalization of community
- Keeping and creating jobs in Cincinnati
- Since Clean Ohio project started....
 - Over \$73 million invested in capital improvements
 - Over 60 new full-time jobs created
 - Contamination mitigated
 - Able to support innovation and growth



City of Cincinnati Support and Funding

- West End neighborhood challenges
- Committed to keeping Sam Adams and jobs
- Public Partners
 - Clean Ohio COAF grant
 - TBA support (including USEPA VI sampling)
 - Clean Ohio CORF grant
 - Ongoing technical assistance through NFA

On Site Buildings Prior to Demo



Early Site Investigation Findings (2005-07)

Site developed since 1800s:

- varnish factory
- black smith
- mattress factory
- slaughter house
- pretzel bakery
- dry cleaning supplier
- residential dwellings
- warehouse storage
- auto body and repair shop
- sign printing company

Pre-buy Phase II sampling:

- volatile organic compounds (VOCs)
- tetrachloroethene (PCE)
 - found in soil, soil vapors, and ground water



VAP Phase I



COAF VAP Phase II

- Concentrations of PCE in soil and ground water exceeded standards
 - Commercial/industrial v. residential
- Ground water plume not delineated off site
- Potential off site vapor risk identified
 - Supplemental sampling required
 - TBA funds used for off site sampling

Ohio EPA Off Site GW and VI Sampling



OhioEPA
 April 14, 2009
 JRW

Providence North
 2009 TBA Sample Locations

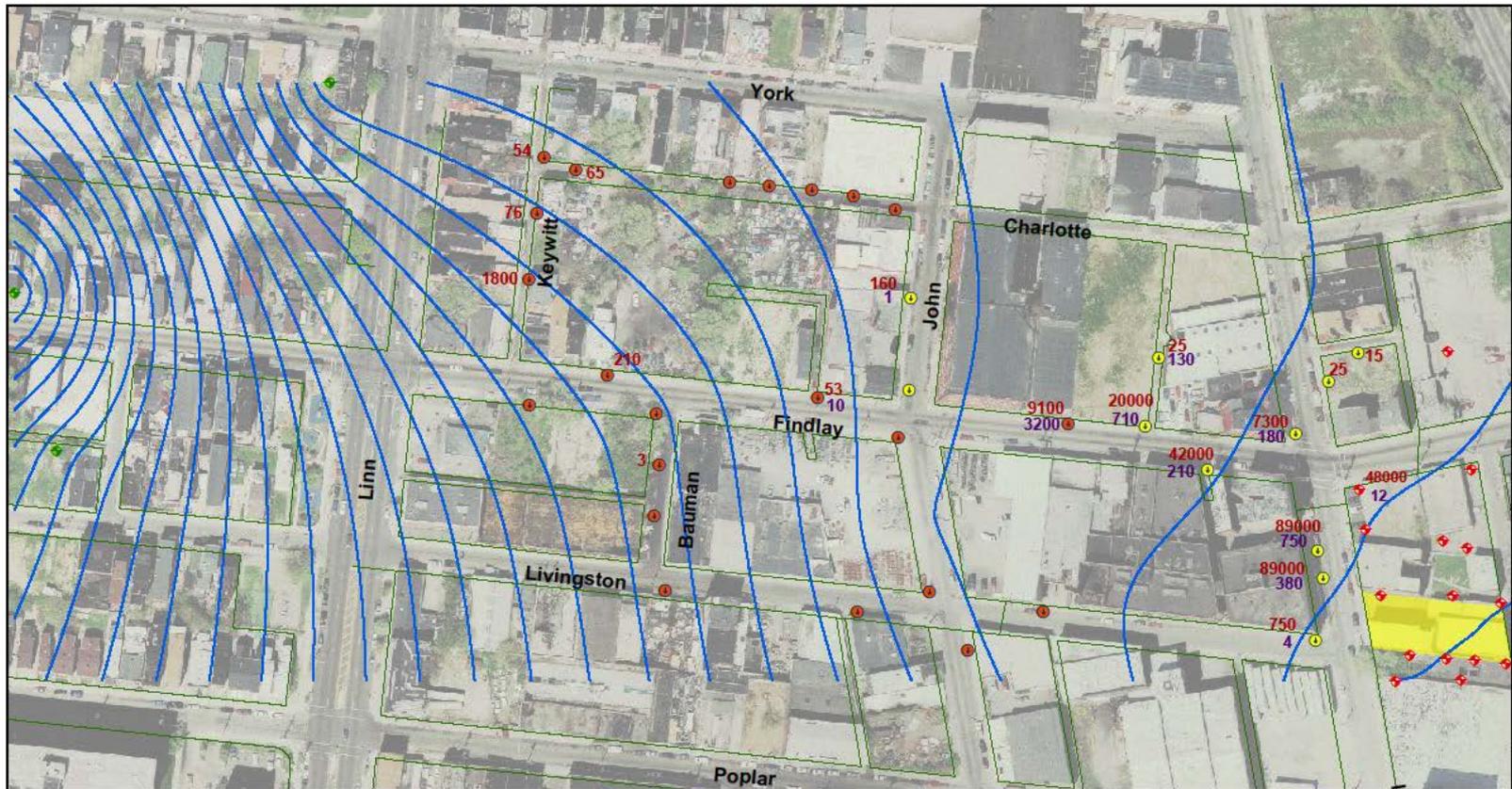


LEGEND

- Carman Ohio Property Boundary (source area)
- 2009 TBA Air Sampling Locations Previously Sampled in 2008
- 2009 TBA New Air Sampling Locations
- Ohio EPA Monitoring Wells



Ohio EPA Off Site Soil Gas Sampling



Providence North

Comprehensive Phase I and II Geoprobe Soil Gas Results
 PCE concentrations are shown in Dark Red, TCE in Purple
 Units are PPBV rounded to whole numbers.

No sample was collected at locations without concentrations displayed.



LEGEND

- Carman Ohio Property Boundary
- Phase I Soil Gas Locations
- Phase II Soil Gas Locations
- Providence North Monitoring Wells
- CMHA Monitoring Wells
- City Rights-of-way
- Groundwater Contour Line



OhioEPA

October 23, 2008
 JRW

Follow-Up Ohio EPA Off Site VI Sampling

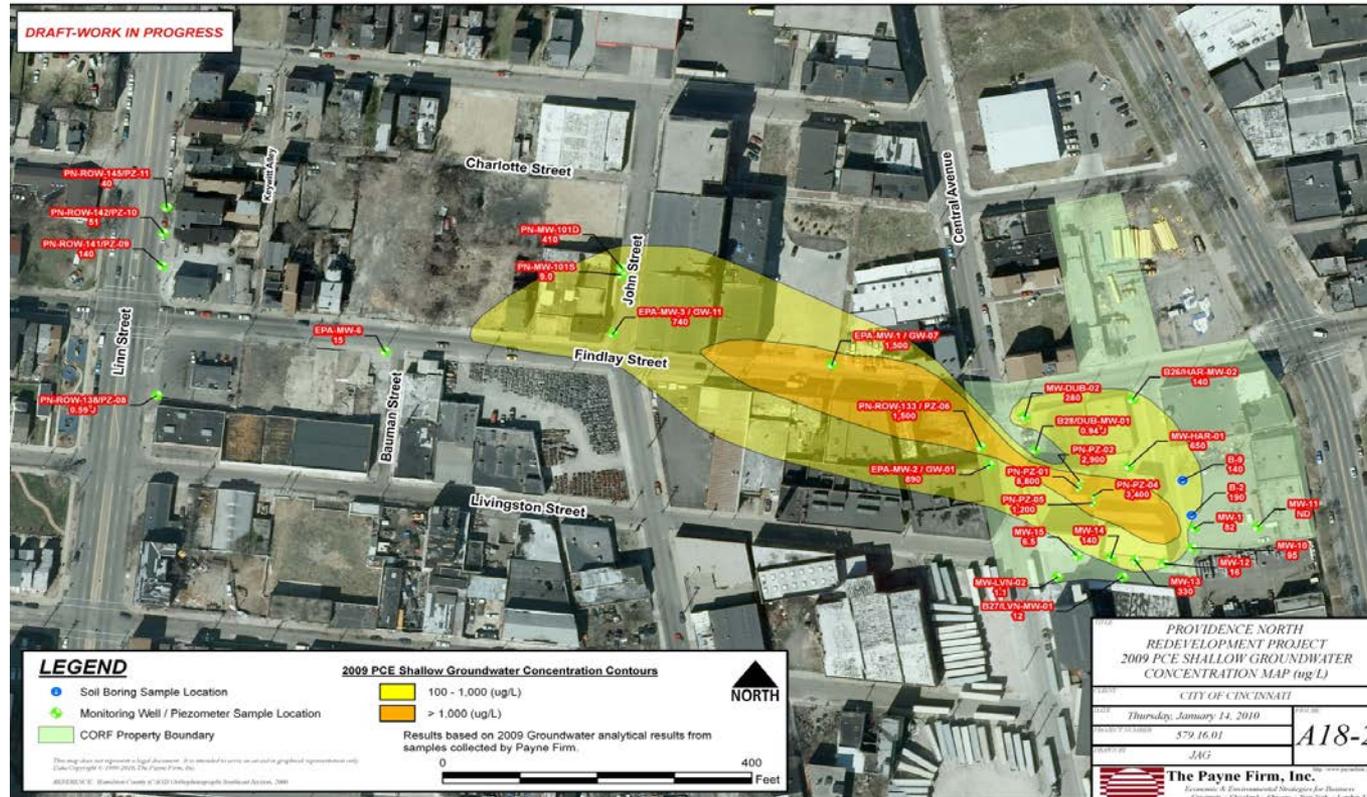


Vapor Intrusion Sampling – Ohio EPA SIFU



Delineation Complete!

- CORF Application Submitted and Awarded



Providence North Project Sources and Uses of Funds

2010 CORF Application

Sources	
Samuel Adams Brewery Company	\$879,602.00
COAF Grant	\$282,228.00
CORF Grant	\$ 3,000,000.00
City of Cincinnati	\$213,356.00
Total	\$4,375,186.00

Uses	
Environmental Site Assessment	\$365,956.00
Acquisition	\$884,902.00
Demolition	\$295,158.00
Infrastructure	\$208,458.00
Cleanup/Remediation	\$ 2,620,712.00
Total	\$4,375,186.00

Volunteer (City) Keys to Success

- Nearly done!
 - Covenant Not-to-Sue in Director sign-off
 - Drastic reduction in concentrations
 - Off site risks understood and being managed
- Active remedy is complete
 - Operations & Maintenance Plan requires monitoring until ground water and off site VI meet standards
- Clean Ohio and TBA funding
- Communication and collaboration among stakeholders

Phases of Remediation

- SURFACE REMEDIATION
 - Demolition of Existing Buildings
- SUBSURFACE REMEDIATION
 - Soil Excavation
 - Soil Vapor Extraction
 - Ground Water Injection
 - Potassium Permanganate (KMNO4)

CORF REMEDIATION COMPLETE - SITE EXPANSION ACTIVITIES

- ADDITIONAL REMEDIATION ACTIVITIES
 - Ground Water Polishing
 - Source Area Soil Polishing

Phases of Remediation

SURFACE REMEDIATION



**DEMOLITION OF
EXISTING BUILDINGS**



Phases of Remediation

SUBSURFACE REMEDIATION



**SOIL EXCAVATION
OF THE SOURCE AREA
(UPPER 12 FEET)**



Phases of Remediation

SUBSURFACE REMEDIATION

SOIL VAPOR EXTRACTION OF THE SOURCE AREA (12 TO 20 FEET)



Phases of Remediation

SUBSURFACE REMEDIATION

**ON SITE
GROUND WATER REMEDIATION
OF THE SOURCE AREA**

**KMNO₄
INJECTIONS**



Phases of Remediation

SUBSURFACE REMEDIATION

**OFF SITE
GROUND WATER REMEDIATION
KMNO₄
INJECTIONS**



Phases of Remediation

CORF REMEDIATION COMPLETE

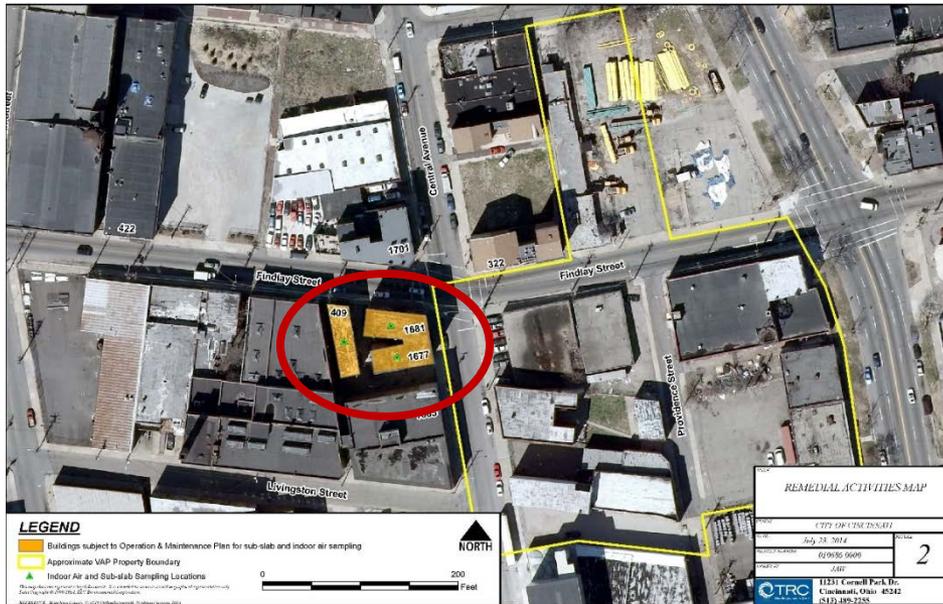


Expansion After Remediation



OHIO VAP O&M Agreement

Semi-Annual Indoor Air Sampling



Quarterly Ground Water Sampling



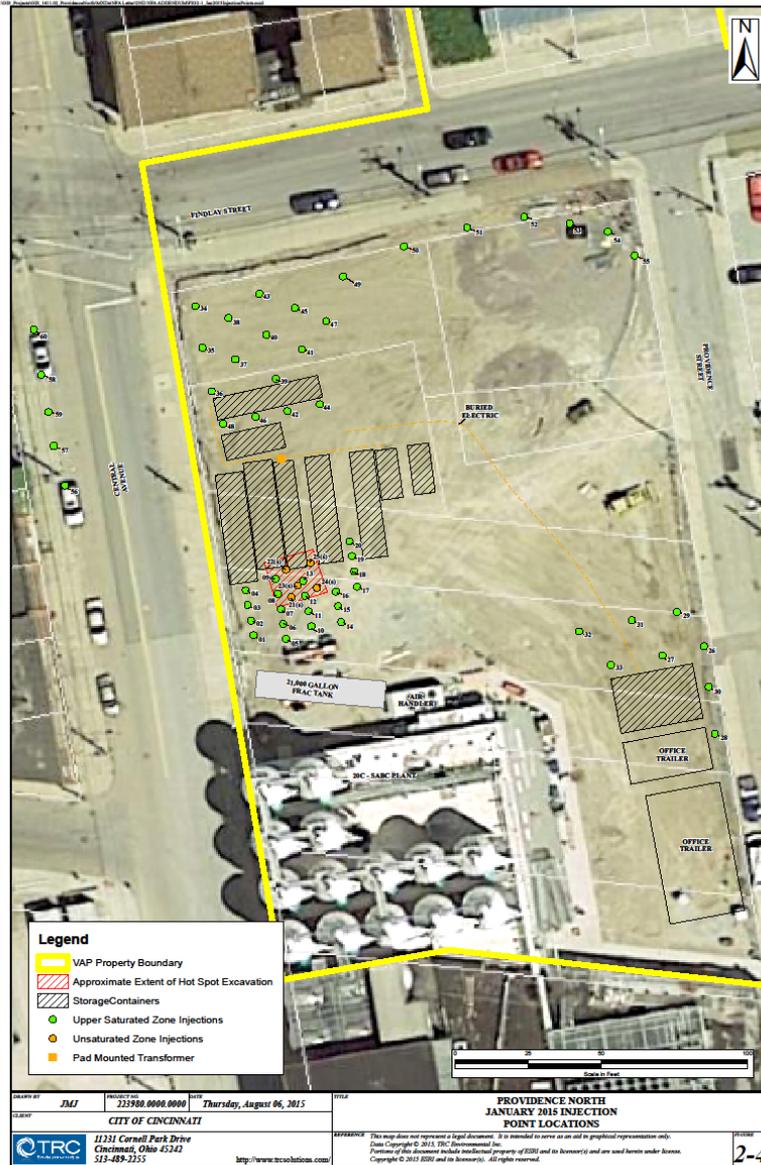
Creative Remediation Polishing



Ground Water Polishing to Meet UPUS



Polishing Injection Points



Beer Waste Injection Process

GROUND WATER POLISHING OF THE SOURCE AREA TO MEET UPUS

BEER WASTE INJECTIONS



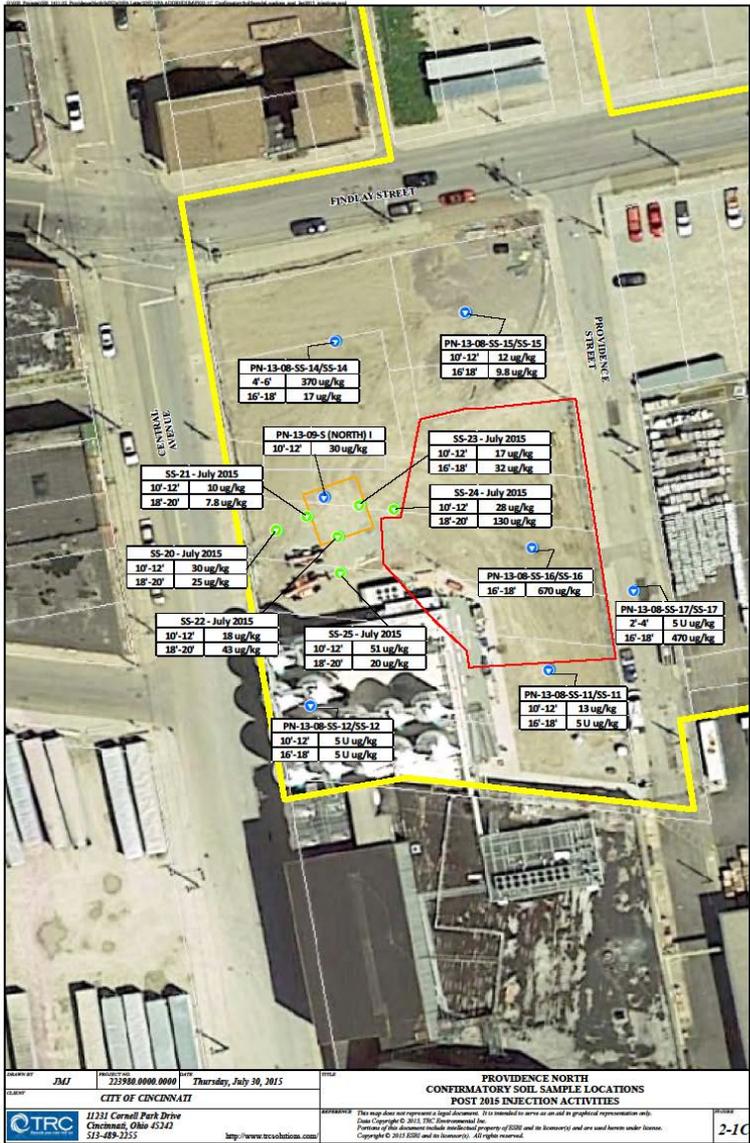
Ground Water Polishing to Mitigate VI

GROUND WATER POLISHING OFF SITE

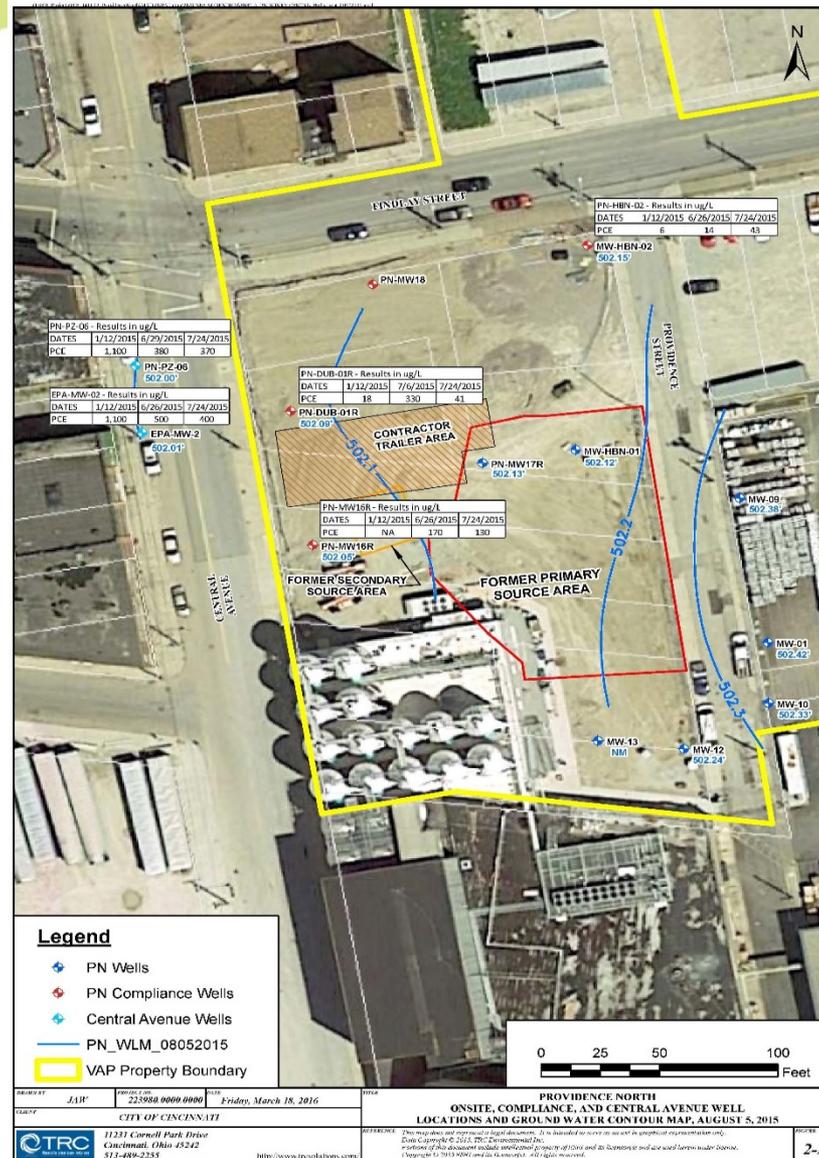
BEER WASTE INJECTIONS



Soil Results After Polishing

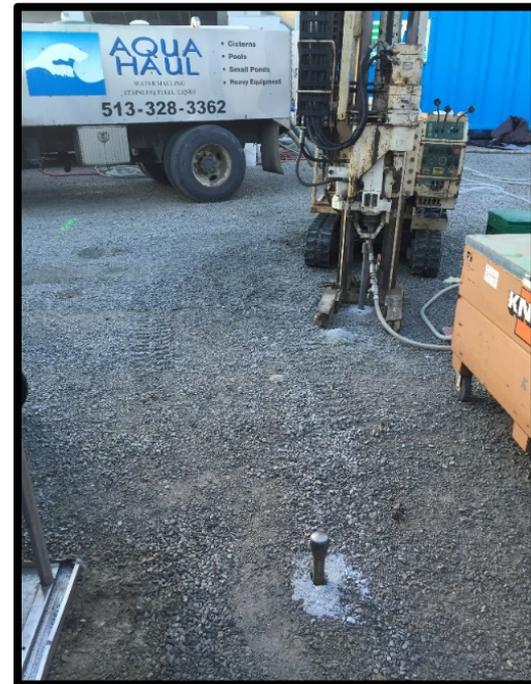


Initial Ground Water Results After Polishing



General Concepts for Biological Reduction of Chlorinated Contaminants

- Bacteria that degrade chlorinated organics are ubiquitous in environment
- Bacteria are not picky eaters
- Bacteria must have access to food
- Beer (and yeast cells) is good food
- Think globally and eat locally



Site Issues and Solutions

- Variable geology
 - 55 locations were permeable
 - 5 locations not so much
- Variable amendment properties (solids content, maintaining flowable mixture)
- Strong partnership in design phase and field implementation allowed for creative thinking, dynamic field adjustments and successful project



Providence North Redevelopment Project = More Beer!



Questions?

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