

## **Welcome to the CLU-IN Internet Seminar**

Implementation of Triad for Petroleum Brownfield's Cleanup and Reuse  
Sponsored by: US EPA Technology Innovation and Field Services Division  
Delivered: January 26, 2010, 12:00 PM - 1:30 PM, EST (17:00-18:30 GMT)

*Instructors:*

*Randy Chapman, Petroleum Remediation Program Leader Northern Regional Office, Virginia Department of Environmental Quality (VADEQ) ([Randy.Chapman@deq.virginia.gov](mailto:Randy.Chapman@deq.virginia.gov))*

*Daniel Imig, Civil Engineer, Office of Environmental Quality, City of Alexandria, VA  
([Daniel.Imig@alexandriava.gov](mailto:Daniel.Imig@alexandriava.gov))*

*Moderator:*

*Michael Adam, US EPA Technology Innovation and Field Services Division ([adam.michael@epa.gov](mailto:adam.michael@epa.gov))*

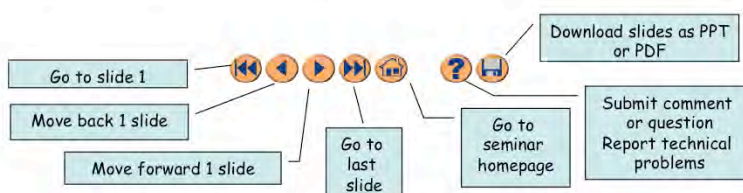
*Visit the Clean Up Information Network online at [www.cluin.org](http://www.cluin.org)*

1



# Housekeeping

- Please mute your phone lines, Do NOT put this call on hold  
– press \*6 to mute #6 to unmute your lines at anytime
- Q&A
- Turn off any pop-up blockers
- Move through slides using # links on left or buttons



- This event is being recorded
- Archives accessed for free <http://clu.in.org/live/archive/>

2

Although I'm sure that some of you have these rules memorized from previous CLU-IN events, let's run through them quickly for our new participants.

Please mute your phone lines during the seminar to minimize disruption and background noise. If you do not have a mute button, press \*6 to mute #6 to unmute your lines at anytime. Also, please do NOT put this call on hold as this may bring delightful, but unwanted background music over the lines and interrupt the seminar.

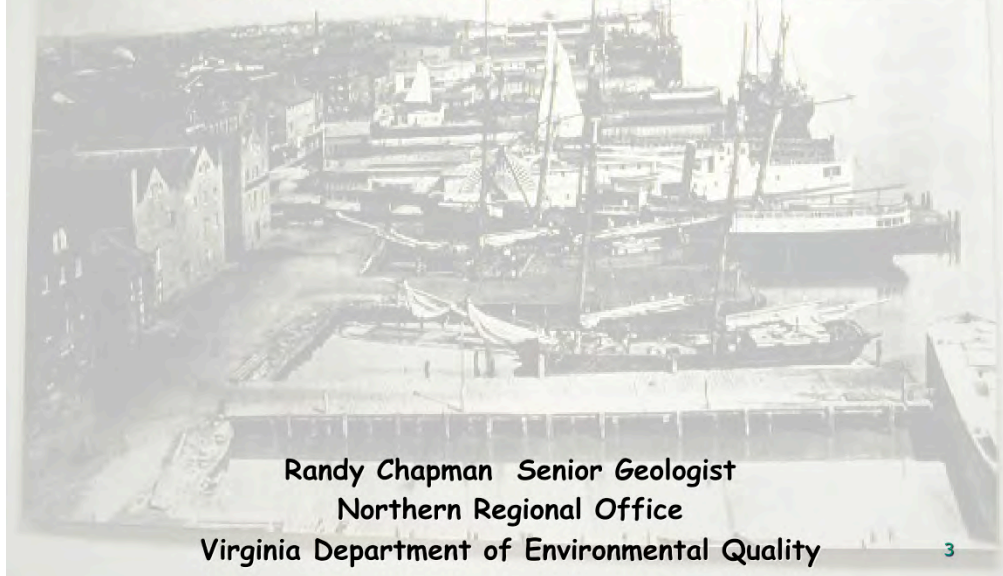
You should note that throughout the seminar, we will ask for your feedback. You do not need to wait for Q&A breaks to ask questions or provide comments. To submit comments/questions and report technical problems, please use the ? Icon at the top of your screen. You can move forward/backward in the slides by using the single arrow buttons (left moves back 1 slide, right moves advances 1 slide). The double arrowed buttons will take you to 1<sup>st</sup> and last slides respectively. You may also advance to any slide using the numbered links that appear on the left side of your screen. The button with a house icon will take you back to main seminar page which displays our agenda, speaker information, links to the slides and additional resources. Lastly, the button with a computer disc can be used to download and save today's presentation materials.

With that, please move to slide 3.



□

# **Petroleum Brownfields: Implementation Experience FANNON BULK TERMINAL**



Randy Chapman Senior Geologist  
Northern Regional Office  
Virginia Department of Environmental Quality

3



## BROWNFIELDS: TENETS / PREMISE

- Brownfields Law - revitalization of sites
- Enhance public-private partnerships
- Identify and convey information regarding common misconceptions and successful approaches associated with their revitalization
- Overcome implementation hurdles which impede the revitalization





## **Brownfield Restoration and Land Renewal Act**

(Code §§ 10.1-1230 through 10.1-1237)

DEQ's Brownfield Program provides a process for non-enforcement containment and clean-up actions, penalty immunity and mitigation in enforcement situations, and limits on liability for certain owners.





## **Brownfield Restoration and Land Renewal Act**

(Code §§ 10.1-1230 through 10.1-1237)

- Voluntary Remediation Program ("VRP")
- Statutory Limited Liability
- Limited Liability through Director Determination
- Brownfield Amnesty Program for Voluntary Disclosure





## **Brownfield Restoration and Land Renewal Act**

(Code §§ 10.1-1230 through 10.1-1237)

- Voluntary Environmental Assessment Immunity
- Civil Charge Mitigation For Self-Disclosed Violations
- Comfort Letters
- EPA Memorandum Of Agreement (CERCLA)
- Federal Enforcement Bar





## Brownfield Restoration and Land Renewal Act

(Code §§ 10.1-1230 through 10.1-1237)

- Low interest loans for Brownfield cleanups are available through the Virginia DEQ or through the Virginia Resources Authority
- Please contact Walter Gills at (804) 698-4130 for assistance



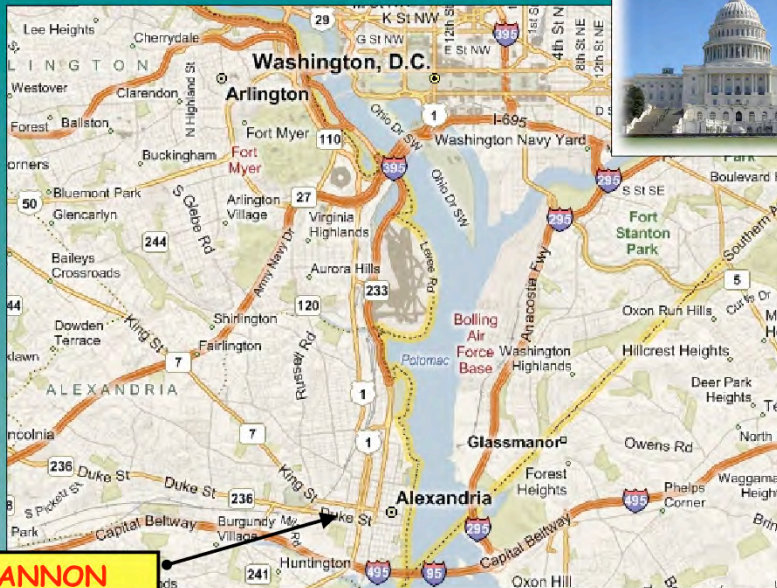


## **Brownfield Restoration and Land Renewal Act**

(Code §§ 10.1-1230 through 10.1-1237)

- o However, since this is a petroleum site, we are able to utilize monies from the Virginia Petroleum Storage Tank Fund (VPSTF) for some of the Revitalization, Remediation, and Restoration work.



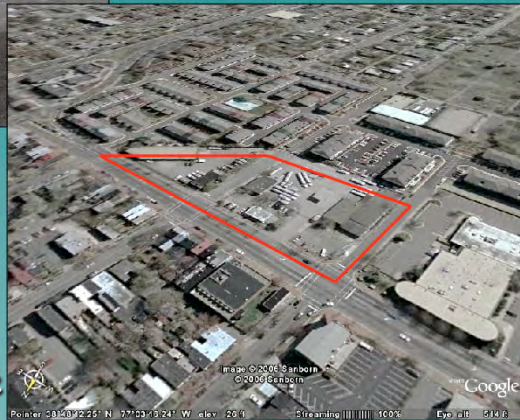






- Fuel Depot since late 1800's
- Most recent facility since 1962

- ASTs and USTs
- > 500,000 gallon capacity
- Early 1980's release









## THE EARLY 80's

*Fannon Log*

5-6-82 I was at Fannon with Ed C.

Inspected the property. Looked at water meter, water meter - it's about 1/2 inch from Fannon.

Spoke with Dave Fannon. Found him to be very helpful. He said he didn't know anything about the water meter. He said he didn't know anything about the water meter.

5-9-82  
5-14-82 I was at Fannon with Ed C.

They had reported the meter in driveway. Some petro was found, but not nearly the quantity that Ed C. & I had seen. 5-14-82.

*At the time most concrete construction was not a standard. Some they were just digging a hole & pouring.*

NDUM  
Hamilton Street  
State Water Control Board  
P.O. Box 11143  
Richmond, VA 23290

IT Fannon Oil Company - PC 82-757

PRP Central

Steve Crowther

August 11, 1982

FILE

The following is a summary of events of PC 82-757. This PRP investigation was by Ed Carlson and later picked up by myself after Ed's resignation.

In May 6, 1982, Ed Carlson and I inspected Fannon Oil Company. In previous petroleum had been discovered in a street trench several blocks from OIL. Ed and I spoke with Mr. Dave Fannon and convinced him that some location was necessary as to whether or not petroleum was in the groundwater property. On May 10, 1982, a trench was installed on the property of OIL and petroleum was found to be in the groundwater.

Mr. Fannon eventually hired a geological consultant to determine the extent of contamination. On May 25, 1982, Bill Murray of Johnston and Associates, delivered to the SWCB a plan for installation of monitoring wells around property of Fannon Oil. By June 15, 1982, construction of these wells was completed. Samples were collected by Johnston and Associates on June 21, 1982, to be analyzed for petroleum type.

On June 30, 1982, Mr. Murray met with Ernie Watkins and myself. At this time Ernie expressed the need for actual site clean-up to begin. Mr. Murray explained that clean-up could not (should not) begin until all monitoring wells are installed and their groundwater study of the property is complete.

On July 27, 1982, I spoke with Mr. Murray. He explained that additional monitoring wells were installed on the Fannon property. One of the wells was showing as much as 60 inches of petroleum. He stated that in approximately two weeks recovery wells would begin to be installed.

DATE: April 30, 1982 & May 1-2, 1982

PREP 1

April 30, 1982:

0815 **PIEDMONT REGION:** Virginia Wood Preser  
P82-754 site at their 2000 Peyton Street, Rich  
cleaned up by company personnel.

0915 **NORTHERN REGION:** Arlington Co. Fire Dept. reported a minor spill (less than 5 gal.)  
P82-755 of unleaded gasoline into a tributary to Four Mile Run. Wayne Chrismore to investi-  
gate.

1150 **WEST CENTRAL REGION:** Received complaint that Hollingsworth and Vane Co. might be  
P82-756 improperly disposing of sewage sludge. SHD notified.

1245 **NORTHERN REGION:** Alexandria Fire Dept. reported that a city work crew had struck  
P82-757 an underground oil line near Cameron Run. Wayne Chrismore to investigate.

1420 **PIEDMONT REGION:** A major train derailment near the James River was reported by  
P82-758 Tim Perry, PHO. Initial investigation revealed no hazardous materials were in-  
volved and no water pollution was occurring--some diesel fuel was spilled.  
Martha Hunter and Pete Trexler on scene Friday night.



## THE EARLY 80's

per year at 15-18 million gallons. In one January 3-4 years ago he sold 4 million gallons. They'd been selling fuel since 1902 at that rate. 1000-2000 gallons of fuel could easily have been lost per year, years ago oil was only .04 a gallon and there were no environmental regulations at all. He feels they may have 50,000 gallons in all & a 2 year recovery project.

5/26/83

Don Downs advised 19,700 gallons recovered as of 5/15 5/25. No decision made on pressure testing gas tanks yet.

6/12/83

Called Dave Skinner. Advised samples collected from ground H<sub>2</sub>O were negative for blue dye. He advised 15,950 gallons of prod.

Feb 7, 1985 I talked with Don Downs. He advised that they will be putting in a higher volume recovery pump to cover the cone. Recovery has declined to 3 gal hour. They are awaiting warmer weather to facilitate the exchange. I requested they let me know when it occurs so I can be there. As of Jan 15, Farnum has recovered 27,184 gallons of product.

1.25 hrs spent on pump on floor. 5/21/84 Called Don ~~Downs~~ <sup>Downs</sup> on May 15, 23,737 gallons have been recovered. Handler well logs have been showing a steady decline of product levels. 8/12/84 24,468 gallons cumulative product recovery. Handing of fuel can now be done. Recovery rate in H<sub>2</sub>O higher than well. Handing to clean.

Number of Tanks	Above (AG) or Below (BG) Ground	Tank Size Gallons	Contents
7	AG	18,000	Kerosene
10	AG	58,000	Fuel Oil
6	AG	8,000	Motor Oil
7	AG	30,000	Ethanol
2	AG	20,000	Regular Unleaded Gasoline
2	AG	2,000	Kerosene
2	AG	2,000	Diesel
1	AG	10,000	Methanol
1	AG	2,000	89 Octane Unleaded Gas
1	AG	1,000	89 Octane Unleaded Gas
1	AG	4,000	Super Unleaded Gasoline
TOTAL: TANK NUMBER AND VOLUME			
32		580,300	



## INITIAL ASSESSMENT

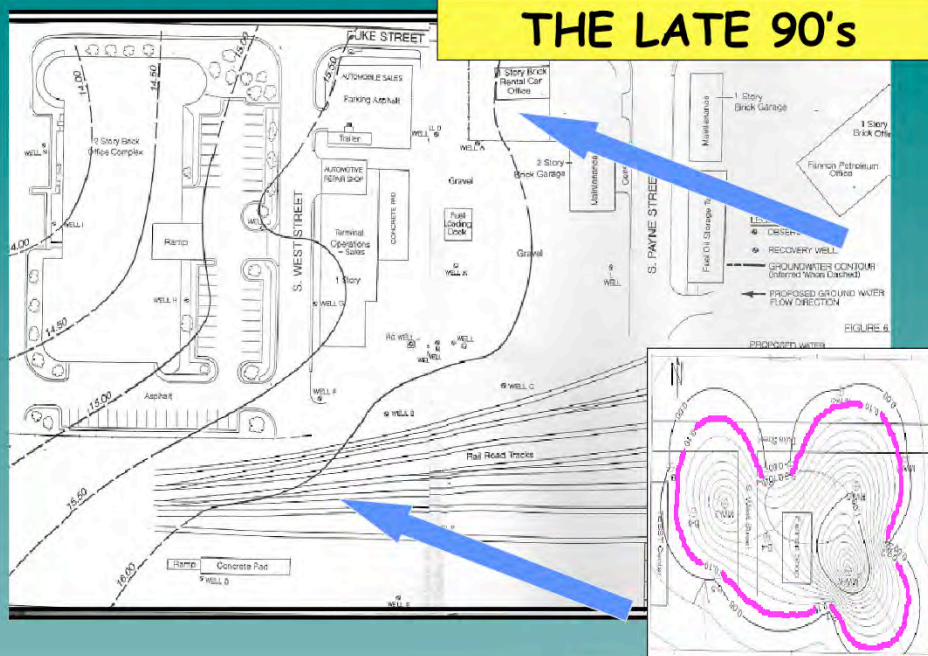


15











EARLY 2000'S

- We needed a change -





## THE NEEDS

- Needed to define extent and severity of plume with high confidence.
- Needed to identify all problem areas that required remediation.
- Needed to know what would be left behind.
- Needed concurrence / acceptance from affected parties (City, Owners, Citizens).
- Needed to address RISK.
- We looked to our needs for solutions

19



## THE SOLUTION

We found it in the form of...

- Membrane Interface Probe
- TRIAD Philosophy
- Redevelopment



## MIP SURVEY

21



The collage consists of four overlapping screenshots of web browsers from 2007. The top-left browser window shows the 'Triad Resource Center' website with a search bar and navigation tabs. The top-right window shows the 'Fannon Petroleum Services, Inc.' website, which includes a logo, contact information, and a list of services. The bottom-left window shows the 'City of Alexandria, VA' website, featuring a search bar, a 'PF 2007 BUDGET' section, and a 'LATEST NEWS' section. The bottom-right window shows a real estate website for 'Van Meter Homes', featuring a large photo of a house and a 'BEING THE FIRST IS GOOD' banner.



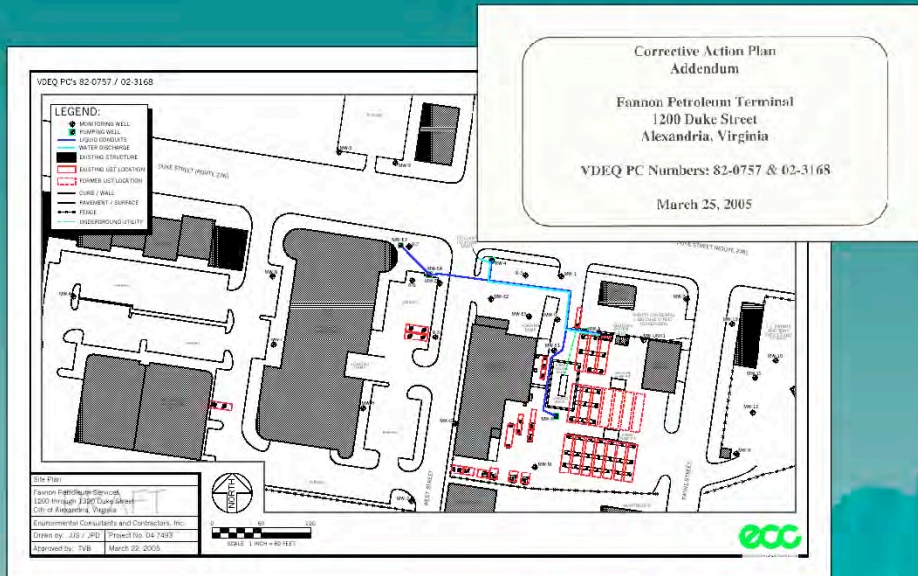








# THE PROCESS





[illegible]

W there are any...

ON OR ABOUT  
01-03-06

NO TRAFFIC  
PATROLS

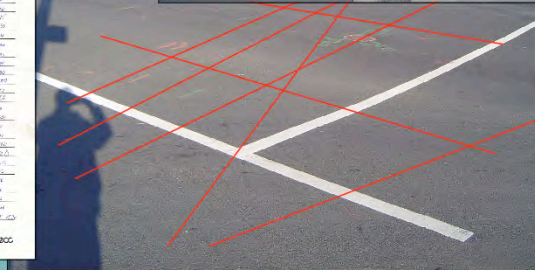
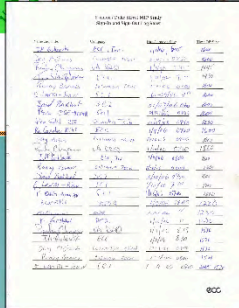
02 123456

02 123456

02 123456

26

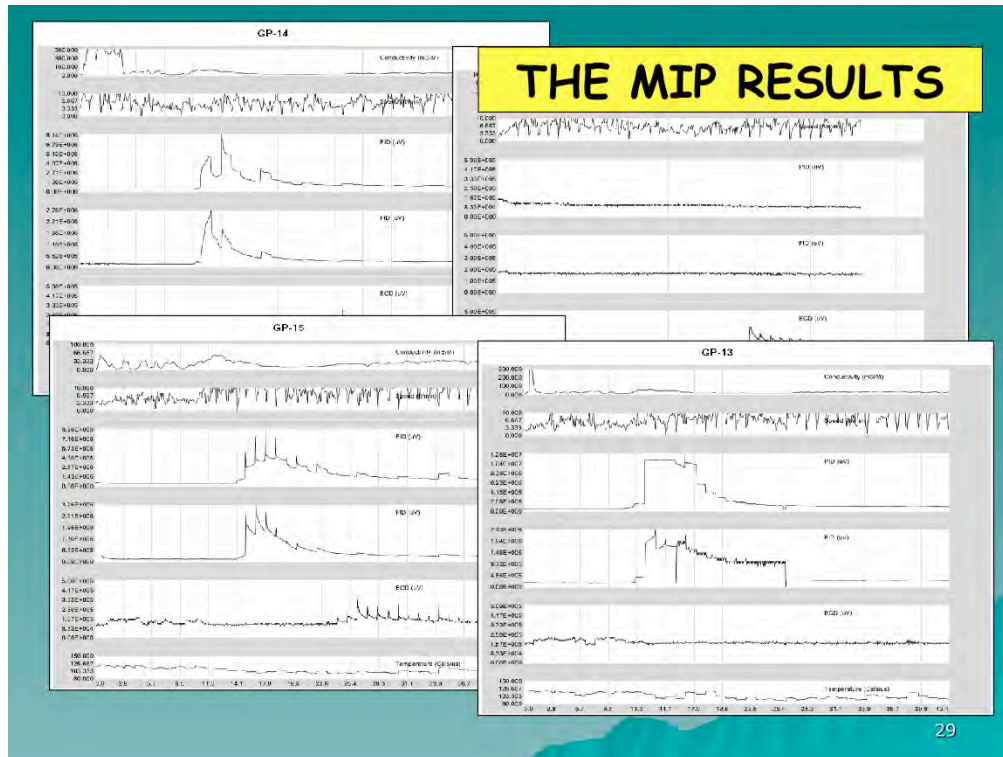














## UTILITIES & MIPs

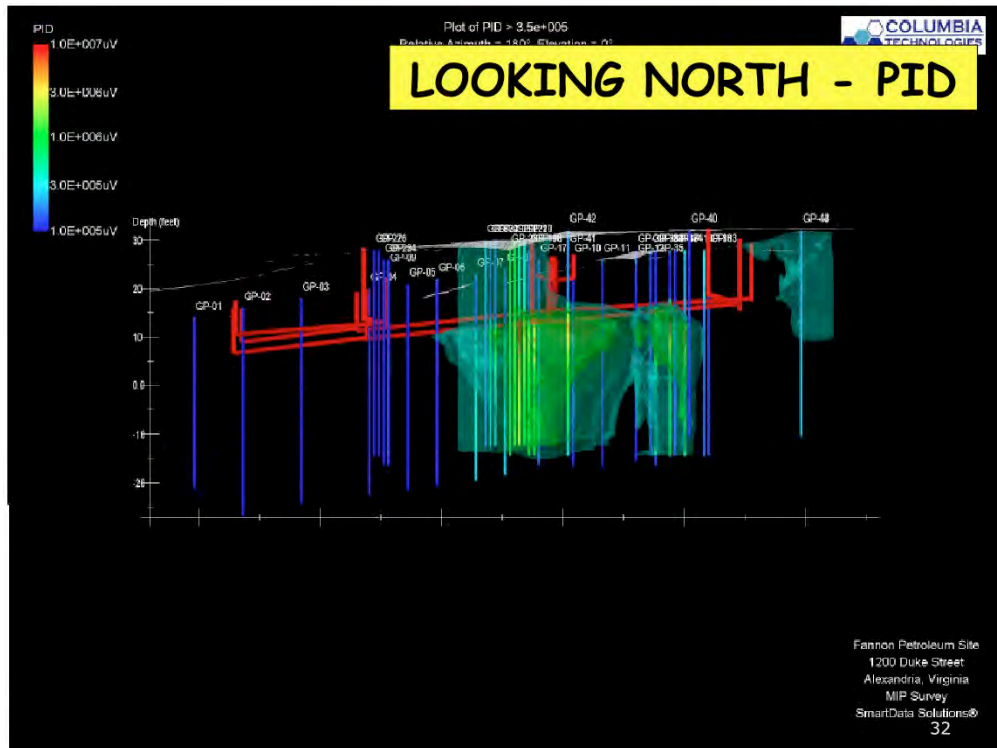




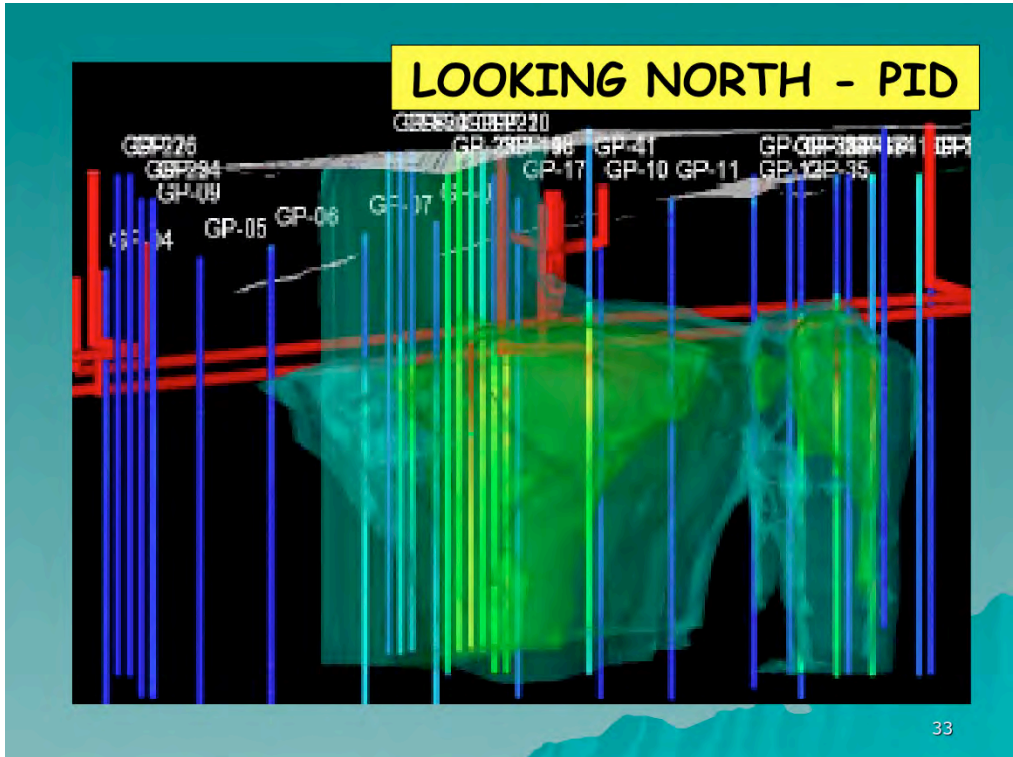
## MIP RESULTS - PID









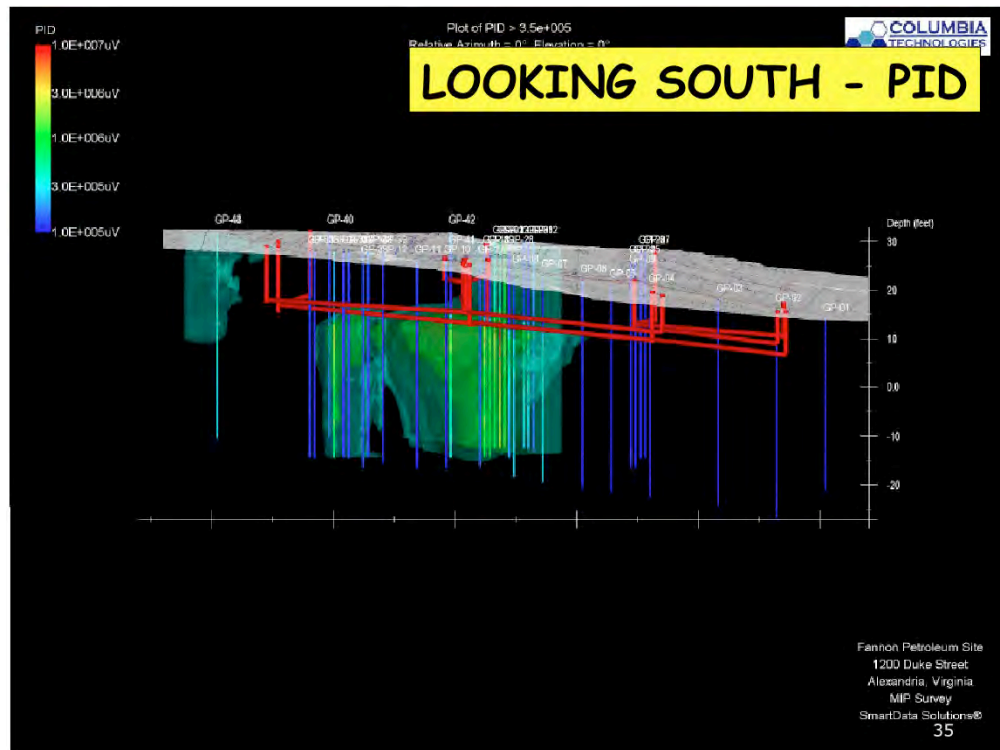




## MIP RESULTS - PID









## COMPARISON OF RESULTS

- MIP results closely correlated with plume defined by traditional methods.
- MIP identified previously unknown vector.
- Plume appeared to intersect sanitary / storm sewer system.
- Logical explanation for historic discovery.
- Once source area removed, additional impacts should be reduced.



## UTILIZING THOSE RESULTS

- Some adjustments to construction plan (e.g. depth of structures)
- Negotiated environmental redevelopment actions which could be potentially be reimbursed under VPSTF
- Plans and permits continued through local approval process
- Results presented to /discussed with local officials and community



## ECONOMIC DELAYS

City	Month over Month % Chg (Nov. to Dec.)	Year over Year % Chg (Dec '06- Dec '07)
Miami	↓ -2.64	↓ -17.50
Las Vegas	↓ -2.92	↓ -15.34
Phoenix	↓ -3.49	↓ -15.27
San Diego	↓ -3.41	↓ -14.96
Los Angeles	↓ -3.08	↓ -13.70
Detroit	↓ -1.84	↓ -13.56
Tampa	↓ -1.63	↓ -13.33
San Francisco	↓ -3.20	↓ -10.80
Washington DC	↓ -2.54	↓ -9.41
Minneapolis	↓ -2.02	↓ -8.01
Cleveland	↓ -1.08	↓ -6.36
New York	↓ -1.02	↓ -5.60
Chicago	↓ -0.98	↓ -4.52
Denver	↓ -1.78	↓ -4.47
Atlanta	↓ -1.54	↓ -3.42
Boston	↓ -1.68	↓ -3.36
Dallas	↓ -1.32	↓ -2.35
Seattle	↓ -1.21	↑ 0.49
Portland	↓ -0.64	↑ 1.22
Charlotte	↓ -0.59	↑ 2.34
Composite 10 City	↓ -2.21	↓ -9.82
Composite 20 City	↓ -2.10	↓ -9.08

Redevelopment  
scheduled for...  
~~Summer 06... Fall 06...~~  
~~Winter 06... Spring 07...~~  
~~Summer 07... Fall 07...~~  
~~Winter 07... Spring 08?~~

**-9.41%**

Copyright © 2007,2008 Bespoke Investment Group, LLC. All rights reserved.



## SUMMER 2007 - TANKS EXCAVATED



## REMEDIATION SYSTEM RELOCATED



## REDEVELOPMENT 2007 / 2008



40



## REDEVELOPMENT 2007 / 2008



41



## REDEVELOPMENT 2008 / 2009





## ACTIONS DURING REDEVELOPMENT

- Excavation and removal of 28 USTs
- Excavation and disposal of 35,317 tons of petroleum impacted soil
- Recovery and disposal of 1,000 gallons of free-phase petroleum
- Ongoing subsurface remediation at down-gradient adjacent property
- Continued reduction in amount of subsurface contamination
- Post CAP monitoring in near future



## CURRENT SITUATION

- RP continues under CAP and VPSTF
- Developer obtained Bonifide Prospective Purchaser (BFPP) letter
- Developer purchased land in May 2008
- Condos and Townhomes available for occupancy Fall 2009



## THINGS IN OUR FAVOR

- DEQ Petroleum Program approved by EPA
- Regulatory and Technical combined
- Technical and Money combined
- Risk Based cleanup allows technical flexibility
- DEQ has local presence
- Lower Geo / Hydro difficulty (not rocket science)



## THINGS IN OUR FAVOR

- Value of property
- Involvement of local government
- Occurrence of community meetings
- Educated population - good (sometimes not)
- Examples of successful redevelopment of petroleum sites in area
- State Brownfields Program



## OBSERVATIONS / RECOMENDATIONS

- Importance of personal involvement!!!!!!
- Hand holding and/or neck ringing
- Negotiate and/or standing firm
- Willing to look at Big Picture
- Some issues are outside your control
- Changes out of left field
- Market forces and costs

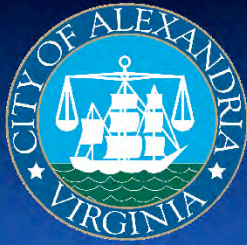


**Questions, Comments, Criticisms?**

Randy Chapman: 703-583-3816 or [wrcchapman@deq.virginia.gov](mailto:wrcchapman@deq.virginia.gov)

© 2008 Tele Atlas  
Coordinates: 38°48'12.99" N 77°03'15.87" W elev. 26 ft Streaming 100% Eye alt 300 ft 48





# Redevelopment of Brownfield Sites

A Local Perspective





## City of Alexandria Local Contaminated Land Program

- Authority for local program is generated from the City's Zoning Ordinance (Article 11-410(V)) and the Development Site Plan Conditions
- Program was started due to number of impacted sites within City limits
- Typically requires minimal additional information beyond what VDEQ is requiring





## City of Alexandria Local Contaminated Land Program

- Standard submittal includes Site Characterization, Risk Assessment, Soil Management Plan and Health and Safety Plan.
- Summary of the above is placed on approved Site Plan.
- Information available to City Inspectors during construction and is archived for historical reference.





## Local Requirements for Fannon Development Site

- Upgraded Vapor Barrier
- Active sub-slab ventilation system
- Installation of secondary garage sump to handle perimeter foundation drain
- Installation of groundwater treatment unit to handle water collected in foundation drain
- Developer to disclose to potential buyers site history and on-going remediation measures



52



Fan to convert to an active sub-slab ventilation system



Upgraded vapor barrier



53



## Installation of secondary sump for perimeter foundation drain



By **LaRue** The Commission has approved the proposed plan for the installation of a secondary sump for the perimeter foundation drain at the site of the former Federal Reserve Bank of Alexandria. The plan was submitted by the City of Alexandria and the Alexandria Redevelopment Authority. The plan calls for the installation of a secondary sump to collect and remove water from the perimeter foundation drain. The sump will be installed in the basement of the building and will be connected to the existing foundation drain. The plan also calls for the installation of a secondary sump to collect and remove water from the perimeter foundation drain. The sump will be installed in the basement of the building and will be connected to the existing foundation drain.

The plan also calls for the installation of a secondary sump to collect and remove water from the perimeter foundation drain. The sump will be installed in the basement of the building and will be connected to the existing foundation drain.

The plan also calls for the installation of a secondary sump to collect and remove water from the perimeter foundation drain. The sump will be installed in the basement of the building and will be connected to the existing foundation drain.

The plan also calls for the installation of a secondary sump to collect and remove water from the perimeter foundation drain. The sump will be installed in the basement of the building and will be connected to the existing foundation drain.

## Disclosure of history & remedial efforts to potential buyers



54



## City Benefits

- Estimated \$36,000,000 Real Estate Valuation (Mix of Townhomes and Condominiums)
- Annual tax revenue of approximately \$320,000
- Doubles existing the tax revenue
- Increase in adjacent property values





## Community Involvement and Benefits

- Cooperation of adjacent Shilo Baptist Church allowed continued operation of existing subsurface remediation system
- Positive comments from community during development public hearings
- Community viewed redevelopment as opportunity to enhance character of neighborhood





## Contact Information

City of Alexandria

Attn: Daniel Imig

Office of Environmental Quality

301 King Street, City Hall Room 3000

Alexandria, VA 22314

(T) 703-746-4065

[daniel.imig@alexandriava.gov](mailto:daniel.imig@alexandriava.gov)



57



# Resources & Feedback

- To view a complete list of resources for this seminar, please visit the [Additional Resources](#)
- Please complete the [Feedback Form](#) to help ensure events like this are offered in the future

The screenshot shows a web form titled "U.S. EPA Technical Support Project Engineering Forum: General Information, Opening the Door to Field Use Success (Direct Demonstration Topic and Overview) Seminar Feedback Form". The form includes fields for "First Name", "Last Name", "Email Address", and "Date of Seminar". A red box highlights a checkbox labeled "I would like a copy of our feedback results" with the subtext "We will email you your participation by this address." Below the form, there is a "Delivery Method" dropdown menu.

Need confirmation of your participation today?

Fill out the feedback form and check box for confirmation email.