

# Dry Cleaners in the Voluntary Remediation Program (VRP)



- Engineering*
- Remediation*
- Consulting*

James F. Bernard  
Principal Geologist/VA Operations

10993 S. Richardson Road, Suite 17  
Ashland, VA 23005



# Environmental Alliance

- Offices in DE, NJ, MD, PA, Ashland, VA
- 51-employees
- Four in Ashland
- Specialize in soil and groundwater remediation
- VRRP, petroleum, solid and hazardous wastes
- Water resources, monitoring, Brownfields and permitting of all kinds



# Background

- 22,300 Dry cleaning facilities in US.
- Plus Unknown Former Dry Cleaning Facilities
- Estimated 75% have Impacted the Environment in Some Way



# Historical Information

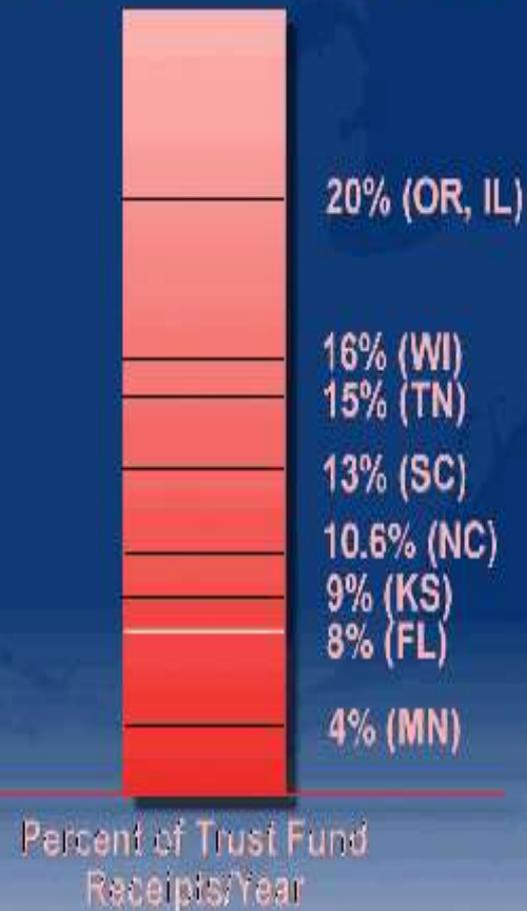
- Estimated 17,000 Sites in US have some level of contamination
- 7,000 – State program VRP, VCP, (etc)
- 5,000 – Funded State program



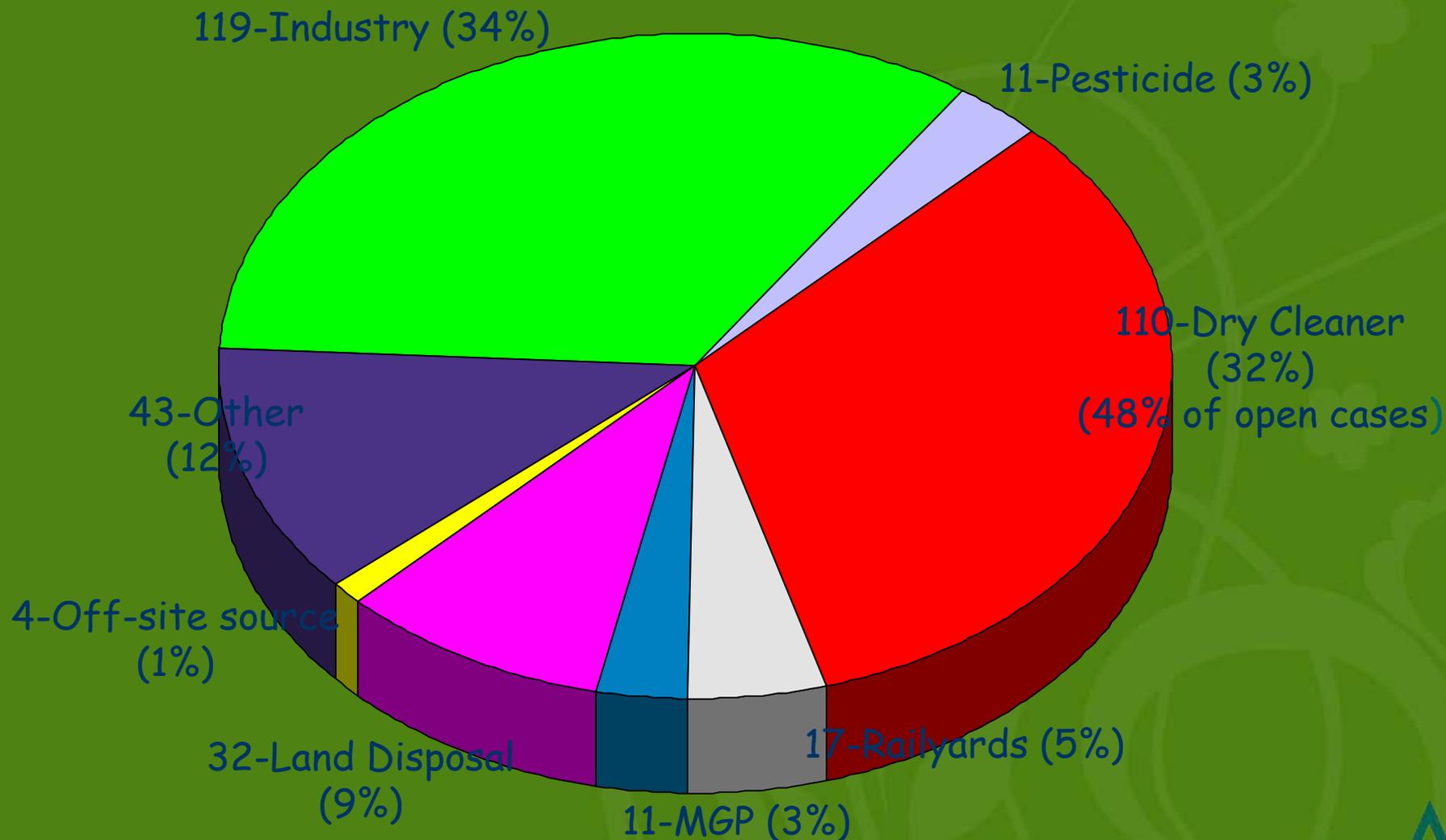
## Fees



## State Administrative Costs



# Types of VRP Sites (355)



110-Dry Cleaner (32%)  
(48% of open cases)

# Various Chemicals Used

## Five Categories of Chemical Cleaners used in a Dry Cleaning Operation

- Dry cleaning solvents
- Solvent Additives and other chemicals used in the machine
- Pre-cleaning and spotting agents
- Specialty garment treatment chemicals
- Chemicals used in the solvent and equipment maintenance



# Chemicals Used

- Most Common
  - Carbon Tetrachloride – 1898 – 1950's
  - Raw White Gas – beginning of the 20<sup>th</sup> century
  - Stoddard Solvent – 1924 to 1950
  - Perchloroethylene – 1934 – Present
- Less Common
  - Camphor oil, turpentine spirits, benzene, kerosene, chloroform, trichloroethylene, glycol, ethers, liquid CO<sub>2</sub>, 1,1,2-trichlorotrifluoroethane

In the day, TCE was used to cure hook worm



# WHY INVEST IN THE VRP?

- Benefits both private and public sectors
- Creates new business opportunities
- Increases tax base
- Restores blight to productive use
- Increased property values in locality
- High return on investment



# Liability of Dry Cleaner Release

- Decreased property value
- Blight
- Impacted resources – Surface and Groundwater
- Impacts on utility worker safety
- Possible impacts to recreation
- Deterioration of infrastructure
- Future cleanup costs

# Benefits of the VRP

- Cleanup goals are “Risky Based”
- Certificate indemnifies owner from further enforcement from the DEQ and EPA
- Assessed value of property in all likelihood will increase
- Property before issuance of Certificate can be purchased at a reduced cost
- Tax Incentives
- Low Interest Loans



# Challenges

- Time
- Capable consultant
- Extent of impacts
- Expectations of participant
- Costs
- Time
- Time
- Time

# VRP Statistics and Value Realized

- Average strip shopping mall –  
\$11 million and \$22 million
- 110 Dry Cleaners “Certificates” issued
- 70% are sales = \$924 Million
- 20% are refinanced = \$132 million
- 10% are single building = \$27.5 million



# Redistributed

- Lenders
- Environmental Consultants
- Drilling firms
- Laboratories
- Specialty Contractors



# VRP Regulations

9VAC20-160-20, *et al*

“The purpose of this chapter is to establish standards and procedures pertaining to the eligibility, enrollment, reporting, remediation, and termination criteria for the Virginia Voluntary Remediation Program in order to protect human health and the environment.”

The purpose of the Voluntary Remediation Program is to encourage hazardous substance cleanups that might not otherwise take place. The program is a streamlined mechanism for site owners or operators to voluntarily address contamination at sites with concurrence from the Virginia Department of Environmental Quality.



# Steps through the VRP

## Traditional Route

Eligibility

Full Site Characterization – On and Off-site  
Risk Assessment all Populations

30 - day Public Notice

Certificate

## Accelerated Dry Cleaners Remediation Program – (“Accelerated”)

Eligibility

Prescribed Site Characterization - On-site only  
Risk Assessment for Construction/Utility Worker

Sub-Slab Mitigation System

30 - day Public Notice

Certificate



# Site Characterization

- Soil
- Groundwater
- Soil Vapor
- Sub-Slab Vapor
- Surface Water
- Sediment
- Utility Survey



# Elements of a Risk Assessment

- Contaminants of Concern (COC)
- Exposure Pathways
- Toxicity Determination
- Summary of Risk



# 30 – Day Public Notice

- DEQ completion letter
- Adjacent property owners letter
- Newspaper Advertisement
- Address comments
- Notice of Public Notice letter
- Notice of fee paid



# Certificate of Satisfactory Completion of Remediation

- Draft Certificate for review
- Metes and bounds or survey map
- Operations and Maintenance Plan
- Approved final certificate – Signed
- Recordation
- Original returned to the DEQ



# Summary

- Benefits – Liabilities – Challenges
  - Number of Sites
  - VA Program Funded
- Majority of Sites in VA are DC's
  - VRP is Difficult
    - Time
    - Certificate

# Perky Facts

- Known as PERC or PCE
- $C_2Cl_4$
- Denser than water – 13.5 lbs/gallon which means it's a DNAPL or a sinker (which complicates cleanup)
- First synthesized in 1821
- Used for hookworm in the “old days”
- 80+ years of commercial usage
- 25+ years of concern regarding toxicity
- MCL is 5 ppb
- 310 million pounds produced in 1991 but demand is steadily declining
- Odors can be detected at 1 ppm
- Non-flammable (advantage over petroleum based cleaners)
- Coin operated drycleaners machines used to be seen in some laundry mats

