

# Successful Reclamation of a Fly Ash Fill with Alternative Funding Approach

Andy Willis, PE  
Sr. Vice President  
And

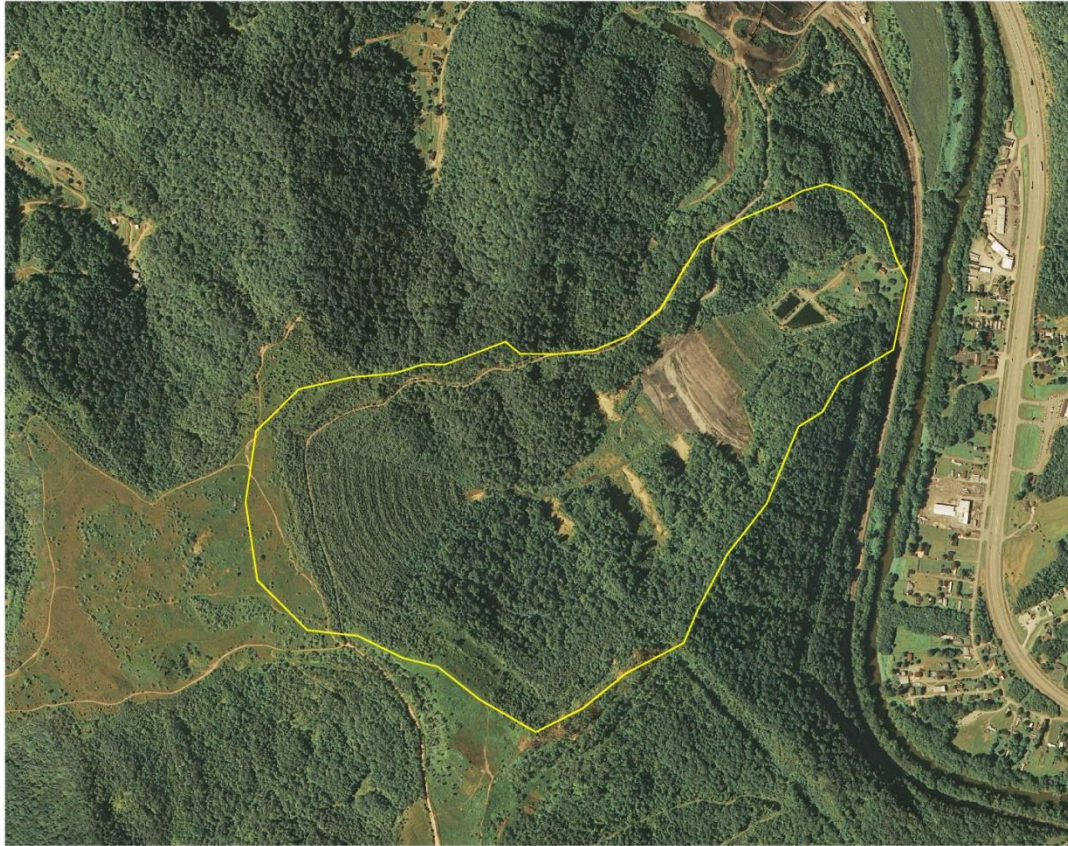
J. Steven Gardner, PE  
President, CEO

ECSI, LLC  
336 Town Mountain Road  
Pikeville, Kentucky 41501  
[awillis@engrservices.com](mailto:awillis@engrservices.com)  
606.432.2443

# Background

- Novel Fly Ash Disposal Solution
  - PG&E Energy Group required to dispose of fly ash from FL power plants 'off site'
  - Costain willing and able to accept delivery of fly ash
  - Initially permitted by KY DSMRE
  - Repermitted under jurisdiction of KY Waste Mgmt

# 2006 Aerial Photo of Ivel Fly Ash Fill



## ➤ What is Fly Ash?

- Byproduct/Waste Product of the coal combustion process
- Created by the pollution controls now mandated on all coal-fired power plant stacks
- Primarily Silicon Dioxide and Calcium Oxide, with other trace elements

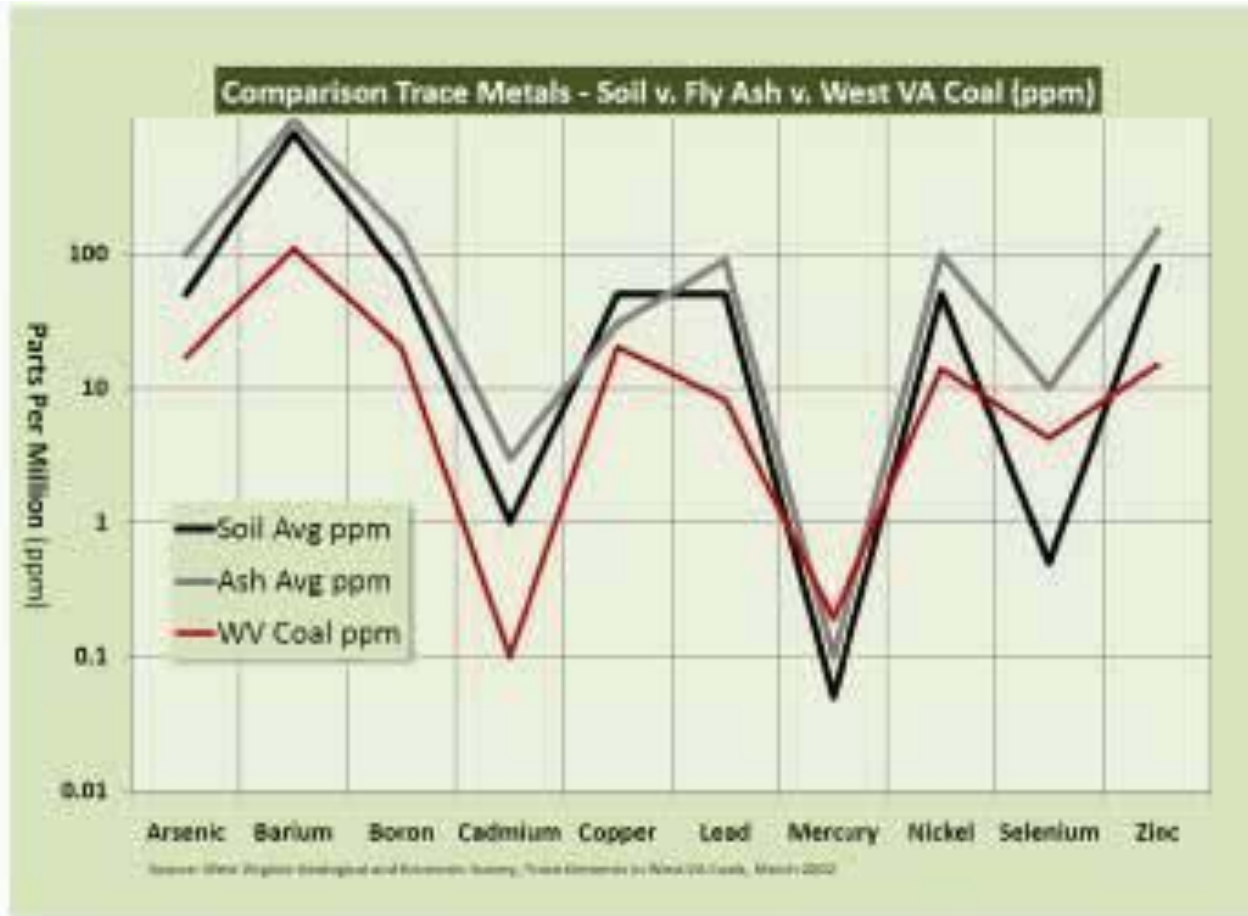
*Typical Values for Selected Elements as Contained in Soils and Fly Ash\**

	Arsenic	Barium	Cadmium	Lead	Mercury	Selenium
<b>RANGE</b>						
Soils	0.1-100	10.0-7000	0.01-7	8-1000	0.01 - 10	0.10 - 10
Ash	0.0003-391	0.02-10850	0.01-76	0.02-273	0.013-49.5	0.0003-49.5
<b>AVERAGE</b>						
Soils	50	800	1	50	0.05	0.5
Ash	100	1000	3	90	0.1	10
<b>MEDIAN</b>						
Ash	4.6	806.5	3.4	56.8	0.1	7.7

\* all data shown in parts per million (ppm)

Data sources: EPA, NIST, USGS

# Comparison Chart



# Primary Players

- Costain Coal Company/Lodestar Energy, Inc.
- PG&E Energy Group
- Frontier Insurance
- KY Dept. for Natural Resources (fka DSMRE)
- KY Division of Waste Management
- Property Owners/Financial Institutions

- What Went Wrong?



## ➤ Lodestar Energy Bankruptcy (2001)

- Stopped sending coal to PG&E
- Stopped accepting PG&E Fly Ash

➤ Frontier Insurance Bankruptcy (2005)

- Seized by State of NY in 2001

(Medical malpractice liabilities)

Reclamation Performance Bond “evaporated”, leaving an unfunded environmental liability in Stratton Branch





ECSI an affiliate of Ecology and Environment, Inc.  
[www.ene.com](http://www.ene.com)





ECSI an affiliate of Ecology and Environment, Inc.  
[www.ene.com](http://www.ene.com)

# “Emergency” Spillway Pipe



# Fly Ash





# Ultimate Solution

## ➤ Negotiated Settlement

- Potential Responsible Parties (PRPs) were “convinced” to set up a reclamation trust w/Farmer’s Bank (trustee)
- \$2.4M fund established

## ➤ Successful Reclamation

- Newbridge Services, Inc. hired by Cabinet to facilitate reclamation
- Bill Adams hired as Reclamation Manager by Trust

# Establishment of Underdrains



# Underdrain Placement





# On-going reclamation (2011)





ECSI an affiliate of Ecology and Environment, Inc.  
[www.ene.com](http://www.ene.com)



ECSI an affiliate of Ecology and Environment, Inc.  
[www.ene.com](http://www.ene.com)

# 2015





# Completed Reclamation



# 2015



# Completed Reclamation



# 2015



# 2015



# 2015



# Conclusion

An area potentially hazardous to the environment and public health and safety was reclaimed successfully by using alternative funding approaches due to the efforts of the Kentucky Energy and Environment Cabinet, Department for Natural Resources.

- Division of Waste Management was forced by the Commissioner to relinquish jurisdiction of the site to the Office of Mine Reclamation and Enforcement, enabling the project to be completed.

# Special Thanks

- Bill Adams  
Newbridge Services, Inc., Lexington, KY
- Steve Hohmann, Commissioner  
Kentucky Department for Natural Resources,  
Frankfort, KY