



# **Statoil Eisenbrath Well Pad Response**

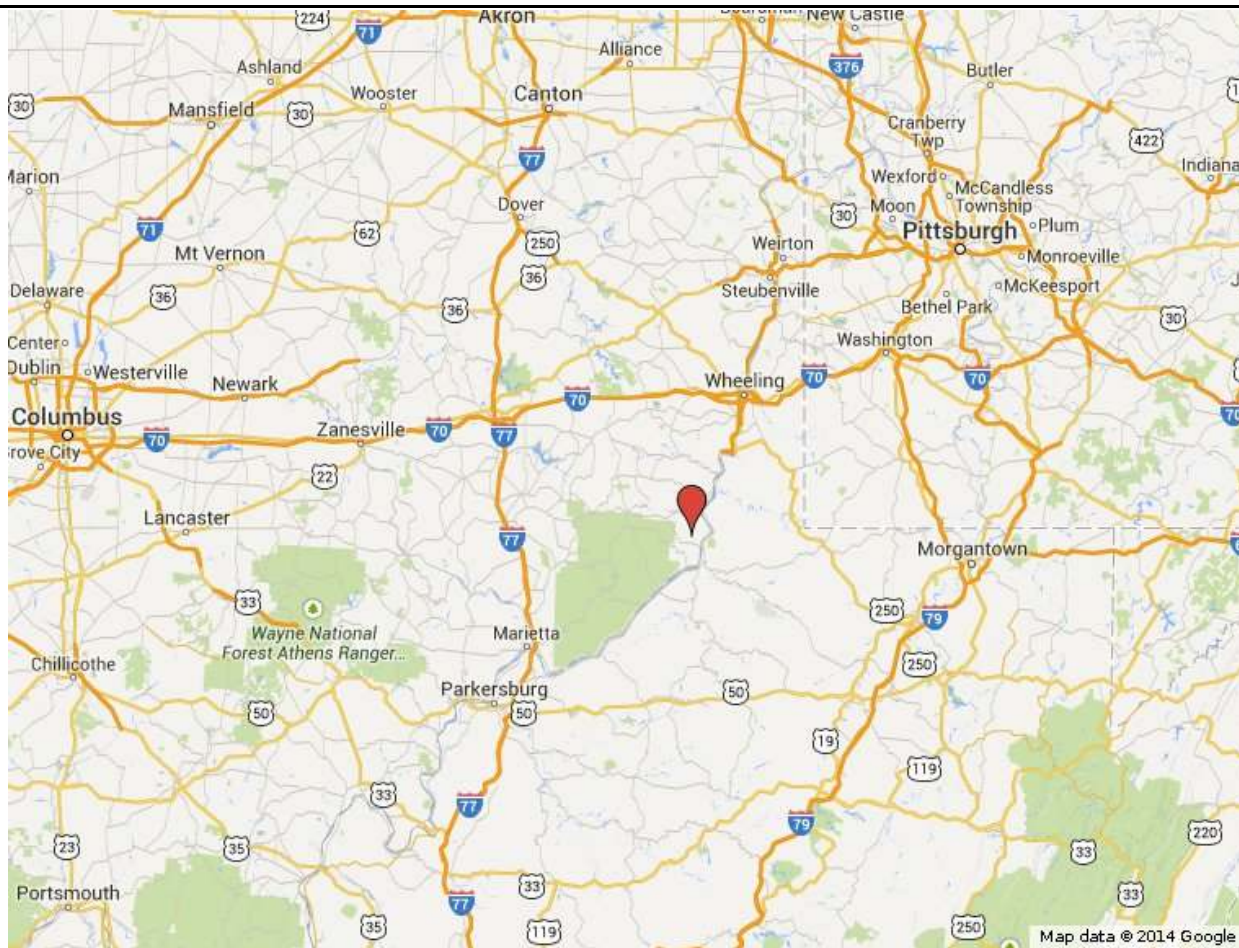


# Initial Response

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- One 6/28/2014 at ~0900 fire and explosion occurred at the Eisenbarth Well Pad impacting most of the pad
- Cause unknown/under investigation
- 1 mile evacuation ordered (25 homes)
- NRC notified ~1500 requesting air monitoring support from USEPA
- Fire fighting efforts hampered by subsequent explosions

# Location























## Initial Response (cont.)

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- Over 40 tanks, trucks, totes and drums impacted by fire containing a number of specialty products some proprietary
- USEPA OSC arrive at ~2000 and observed:
  - Eisenbarth Well 7H still leaking
  - Open flames still on the pad Fire Department has left the scene
  - Uncontained runoff entering a tributary that ultimately discharges to Ohio River ~5.5 miles downstream
  - Dead fish observed in Opossum Creek



## Chemicals Involved

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- ~250 gallons (28%) HCl
- ~7,040 gallons of GasPerm 1000 (terpenes, terpenoids, isopropanol, proprietary components)
- ~330 gallons of LCA-1 (paraffinic solvents),
- ~ 1900 gallons of LGC-36UC (hydrotreated light petroleum distillate)
- ~1000 gallons of BC-140 (monoethanolamine borate, ethylene glycol)



## Chemicals Involved (cont.)

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- ~3300 gallons of BE-9 (tributyl tetradecyl phosphonium chloride)-  
BIOCIDE
- ~1,000 gallons of FR-66 (hydrotreated light petroleum distillate)
- ~9000 gallons of diesel fuel
- ~300 gallons of motor and hydraulic oil
- Shape charges, primer cord, detonators
- ~ 8 cylinders of nitrogen



# Additional Chemicals/Items of Concern

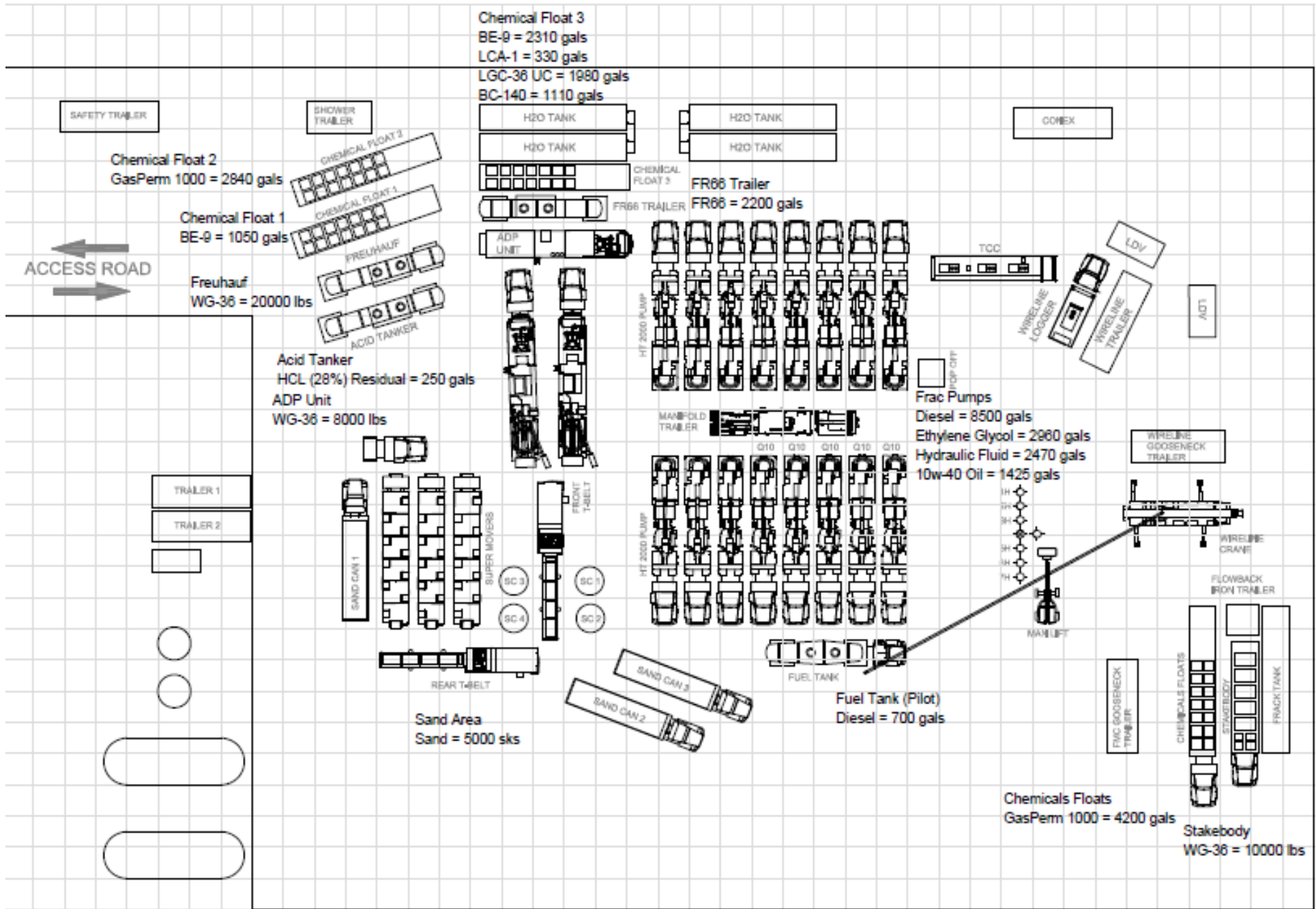
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- 3 radiological sources (2-100 millicurie and 1-55 millicurie Ce-137 sources)
- 1100 lbs. of SP Breaker (oxidizer)
- 3-2000 lb. oxygen cylinders
- 2-2000 lb. acetylene cylinders
- 6-20 lb. propane tanks

Sources were subsequently found intact  
Cylinders and oxidizer protected by water  
curtain until fire was extinguished

















# Densometer



























# Initial Response Actions/Priorities

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- Extinguish fire
- Contain run-off from site
- Initiate air/water monitoring and sampling
- Stop leak from Well 7H
- Evaluate disposition of chemicals, cylinders, radiological sources and explosives
- Establish Unified Command
  - USEPA, Statoil, OEPA, ODNR – No Halliburton































# Assessment / Remediation

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- Plug well
- Off-site migration
  - surface/subsurface/drains/surface waters/sediments
- Contain run-off until remediation complete
- Clear pad
- Assess cause of fish kill



## Assessment / Remediation (cont.)

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- ODNR took lead on Well Pad assessment and remediation
  - Still reviewing proposed Work Plan
- USEPA took lead on off-site assessment of surface waters and sediments impacted by runoff primarily TTPC
  - TTPC LD50 as low as 60 ppb for some fish and 20 ppb for some invertebrates
  - AOC signed by Statoil on August 13, 2014
  - Reviewing proposed Work Plan
  - USEPA Region CRL has developed method for analysis of TTPC in water and sediments





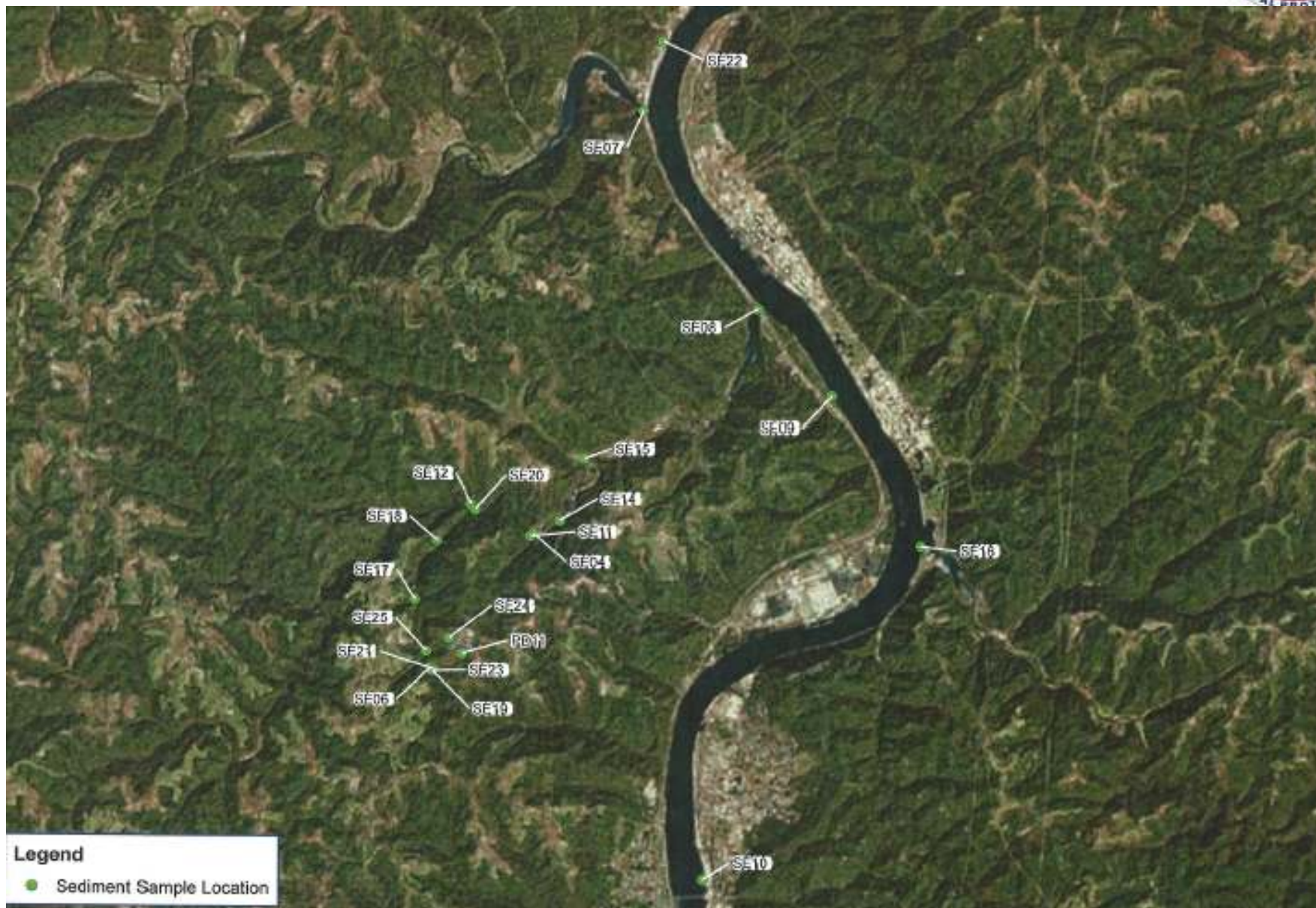








# Sediment Sampling







# Soil Sampling



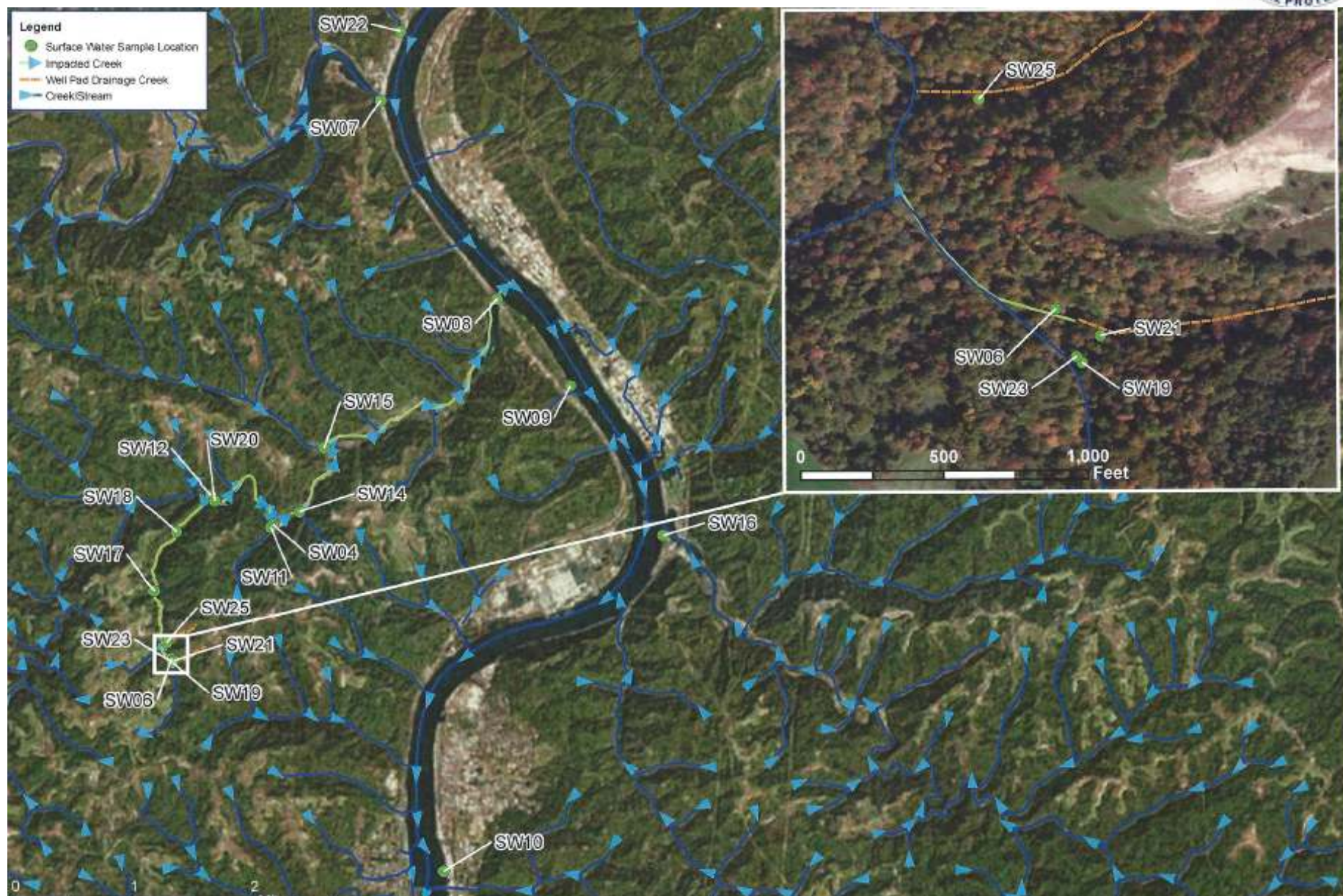








# Surface Water





















# Current Happenings

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- ODNR reviewing pad remediation plan.
- Runoff collection still happening.
- USEPA AOC with STATOIL covers off-pad assessment currently.
- Sediments in stream still show TTPC concentrations above LD50 levels.
  - Potential study on biological effects in stream
- Issues
  - ODNR authority is comprehensive, however there is nothing in current remediation plan regarding TTPC contamination in creek.

# Questions?

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