

# Acid Brook Sampling Update

May 2, 2012  
Environmental CAG Mtg.

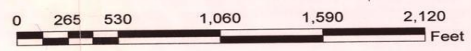
# Background

- **Purpose of sampling was to determine whether site contaminants were migrating off-site**
- **Round #1 Sampling was conducted November 2, 2011**
- **Sampling was conducted at 4 different locations on DuPont's property**
  - **Two up-gradient locations at northern border of plant**
  - **Two down-gradient of former plant operations area**
    - **One by the weir (Location 09)**
    - **One at spillway of Retention Pond 2 at property boundary at street named "DuPont Pl" (Location 10)**
- **Aqueous and sediment samples were taken at the four locations**



**DuPont Pompton Lakes Works  
Identified SWMU  
for Remedial Investigation**

**SWMU selection**  
 NOTES  
 ACC: Detention complete  
 IRM: Detention complete  
 ACC / IRM: Detention incomplete



# Sampling Locations 9 and 10

- A - Spillway for Retention Pond
- B - **Location 9** (Weir to measure water flow)
- C - **Location 10** (DuPont Pl) --  
A spillway for retention pond above vegetated area before culvert that is present below DuPont Place
- D - Parking Lot with Security Office  
Entrance to DuPont Facility



# Sampling Location 09 (weir)



# Sampling Location 10 (DuPont Pl)



# Acid Brook Sampling Round 1

## Sediment Results

Contaminant	Sampling Location 09 (parts per million)	Sampling Location 10 (parts per million)	NJDEP Ecological Screening Criteria (parts per million)	NJDEP Residential Direct Contact Soil Remediation Standard (Former) (parts per million)	NJDEP Residential Direct Contact Soil Remediation Standard (Current) (parts per million)
Lead	32	150	31	400	400
Mercury	2.3	13.0	0.2	14	23

# Acid Brook Sampling Round 1

## Surface Water Results

Contaminant	Sampling Location 09 (parts per billion)	Sampling Location 10 (parts per billion)	NJDEP Fresh Water Human Health Standard (parts per billion)	NJDEP Fresh Water Aquatic-Chronic Ecological Screening Criteria (parts per billion)
Lead	--	--	5	5.4
Mercury	--	--	0.05	0.77
cis-1,2 Dichloroethene	1.2	0.89	--	--
Tetrachloroethene (PCE)	1.6	1.2	0.34	45



# Visual Inspection of Acid Brook

- **EPA (Mark Reiss) walked the Acid Brook on January 25, from the lake to the DuPont site property boundary to survey the brook for “sediment inventory”**
- **There’s a lack of a significant sediment source in Acid Brook**
  - **Approximately 50% of the run of Acid Brook is bounded by retaining walls**
  - **Most of Acid Brook is lined with rock**
  - **Sediment that is present is located at the outfalls of storm sewers coming from off-site**

# Sampling Round #2 -- Acid Brook

- **Sampling Round #2 occurred on February 22, 2012**
- **Five locations sampled for sediment (re-sampled 2 locations on-site and 3 off-site).**
  - **Metals**
  - **full suite VOCs**
  - **full suite semi-VOCs**
- **Eight locations sampled for surface water (aqueous) -- 4 on-site and 4 off-site.**

**Due to suspected interaction with groundwater plume during “high water table” periods , aqueous samples were collected from 2 additional on-site locations -- Location 5 (near Well #13) and Location 5A (up-gradient of Well #13)**

  - **Metals (except for N. Legion sample)**
  - **full suite VOCs**
  - **full suite semi-VOCs**

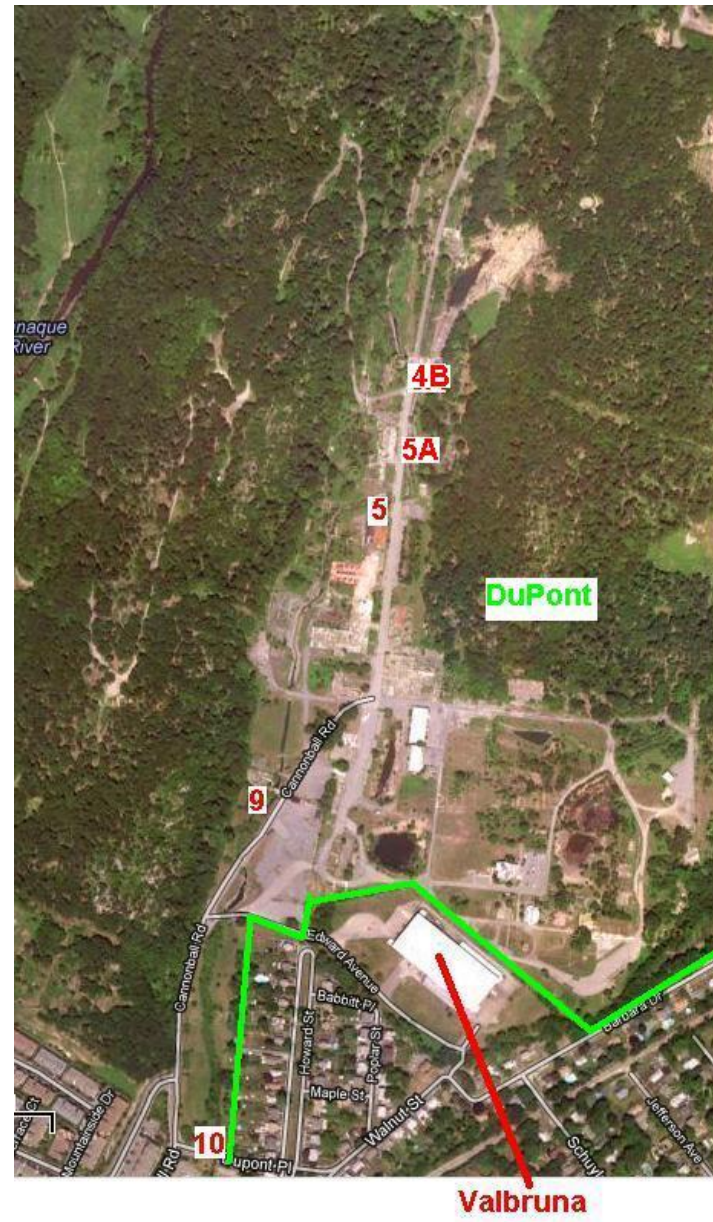
## Sampling locations at the Acid Brook (on-site at DuPont Property)

**Location 5A** – Up-gradient of Well #13 area. [aqueous only]

**Location 5** (Well #13) – known groundwater plume at Well #13 area; [aqueous only]

**Location 9** (weir) -- Location 9 (weir to measure water flow) [aqueous and sediment]

**Location 10** (DuPont PI) – Although still on DuPont property, this spillway is adjacent to Valbruna and residents. [aqueous and sediment]



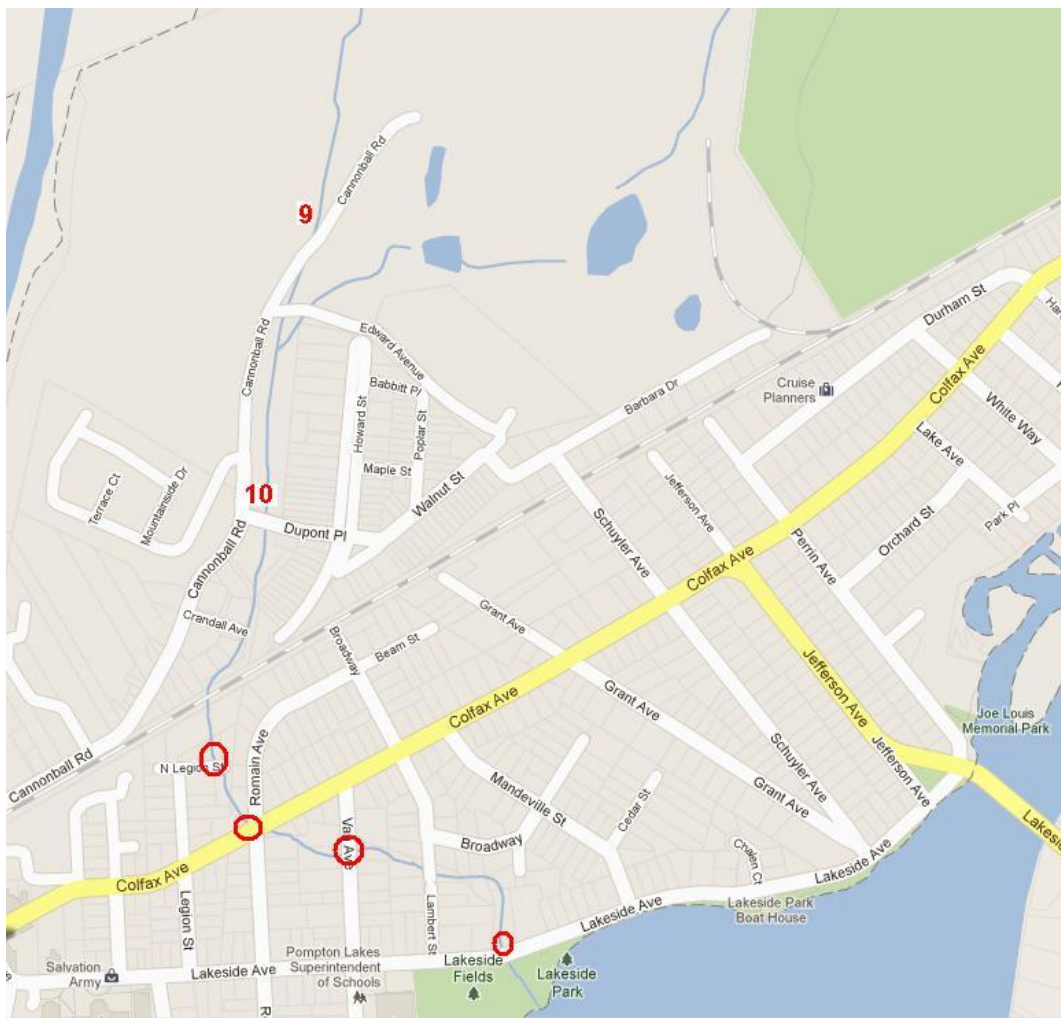
## Samples locations at the Acid Brook (off-site)

N. Legion Ave. -- aqueous only;  
VOC's only.

Colfax Ave. -- aqueous and sediment

Vann Ave. -- aqueous and sediment

Lakeside Ave. -- aqueous and  
sediment



# Acid Brook Sampling Round #2

## Sediment Results

				Location 9 (Weir)	Location 10 (DuPont Pl.)	Colfax Ave	Van Ave.	Lakeside Ave	
Constituents	(dry)	NJDEP Ecological Screening Criteria	Soil Rem. Stand. (Resid Direct Contact) Ingestion Dermal	SITE9-SD-02	SITE10-SD-02	COLF-SD-02	VAN-SD-02	LAKE-SD-02	
Mercury	mg/kg	0.2	23	2.7	29	2.2	1.3	0.2	
Lead	mg/kg	31	400	28	280	31	37	9.1	

# Acid Brook Sampling Round #2

## Aqueous Results

				Up-gradient of Well 13	Well 13 Area	Location 9 (weir)	Location 10 (DuPont Pl)	N. Legion Ave.	COLFAX AVE.	VAN AVE.	LAKESIDE AVE.
Constituents		Ecological Screening Criteria Aquatic (chronic)	Surface Water Criteria (fresh water, FW2), ug/L	SITE5A-SW-01	SITE5-SW-01	SITE9-SW-01	SITE10-SW-01	NLEG-SW-01	COLF-SW-01	VAN-SW-01	LAKE-SW-01
Trichloroethene (TCE)	ug/L	47	1	ND	2.2	0.74	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	ug/L	45	0.34	ND	10	3.4	1.9	0.7	0.55	0.38	ND
Vinyl Chloride	ug/L	930	0.082	ND	0.82	ND	ND	ND	ND	ND	ND

# Risk Assessment

- **All Surface Water Sampling Results were:**
  - below the risk-based remediation goal for non carcinogenic effects
  - either below or within EPA's acceptable cancer risk range
    - one-in ten thousand to one-in-a million excess lifetime cancer risk
- **WITH ONE EXCEPTION, all Sediment Sampling Results were:**
  - below the risk-based remediation goal for non-carcinogenic effects and
  - either below or within EPA's acceptable cancer risk range
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# Risk Assessment (continued)

- **Exception: a single sample (SITE10-SD-02) and a single contaminant (mercury)**
  - **The mercury sediment concentration of 29 mg/kg in sample SITE10-SD-02 was marginally above the risk-based remediation goal of 23 mg/kg.**
  - **However, when considered along with the rest of the mercury sediment sampling results, it does not pose a significant risk (mean mercury concentration equals 6.6 mg/kg).**
- **Individually, or collectively, from a risk-based perspective the surface water and sediment contaminants in the Acid Brook do not pose a significant risk to an individual exposed under the conservative conditions outlined above**



# Conclusions and Follow-up Actions: Sediment

- **EPA believes that there is very little potential for Acid Brook sediment to re-contaminate Pompton Lake because of a lack of a significant sediment source in Acid Brook**
  - Operations at the site ceased in April 1994
  - Interim remedial measures (IRM) have been implemented to address impacted portions of the Acid Brook (on-site and off-site)
  - Measures include: excavation, backfilling with clean fill, installation of geotextile, silt curtain, and rip-rap
  - Plant run-on/run-off control was also improved to prevent impact to Acid Brook.
- **DuPont will evaluate alternatives to address the mercury/sediment results**
  - DuPont will address Location 9 and Location 10 area in an IRM

# Conclusions and Follow-up Actions: Surface Water

- **The exceedence of the PCE surface water human health standard does raise an issue which requires follow-up, but is not likely to affect water flowing into Pompton Lake**
  - **PCE attenuates before reaching the Lake.**
  - **DuPont will refine on-site groundwater monitoring well network and improve contaminant delineation**
  - **DuPont will implement Interim Remedial Measure (IRM) to reduce the PCE in the brook**
    - **DuPont will use Aeration Units to reduce the PCE level in the portion of the Acid Brook before it flows to Location 9.**
  - **DuPont will also accelerate the evaluation of IRM for Well #13 plume on-site.**