



Columbia Smelting & Refining Works Site

Margaret Gregor, US EPA On-Scene Coordinator

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KEY MESSAGES

- EPA has been conducting an ongoing investigation of historic lead contamination at the Site since last year
- EPA determined that a removal action (cleanup) is necessary at Red Hook Ball Fields 5, 6, 7 and 8 to protect public health from lead smelter contamination in the long term
 - Based on recent sampling results, closure of Ball Fields #5-8 is necessary until the removal action is completed
- EPA and NYC Parks are currently discussing the removal action, and will keep you posted as plans progress and the investigation is fully completed



OVERVIEW

- Site history & background
- Overview of EPA investigation & results
 - Three soil sampling events:
 - October 2014
 - March 2015
 - April 2015
- Field Closures
- Next steps
- Q&A





SITE HISTORY

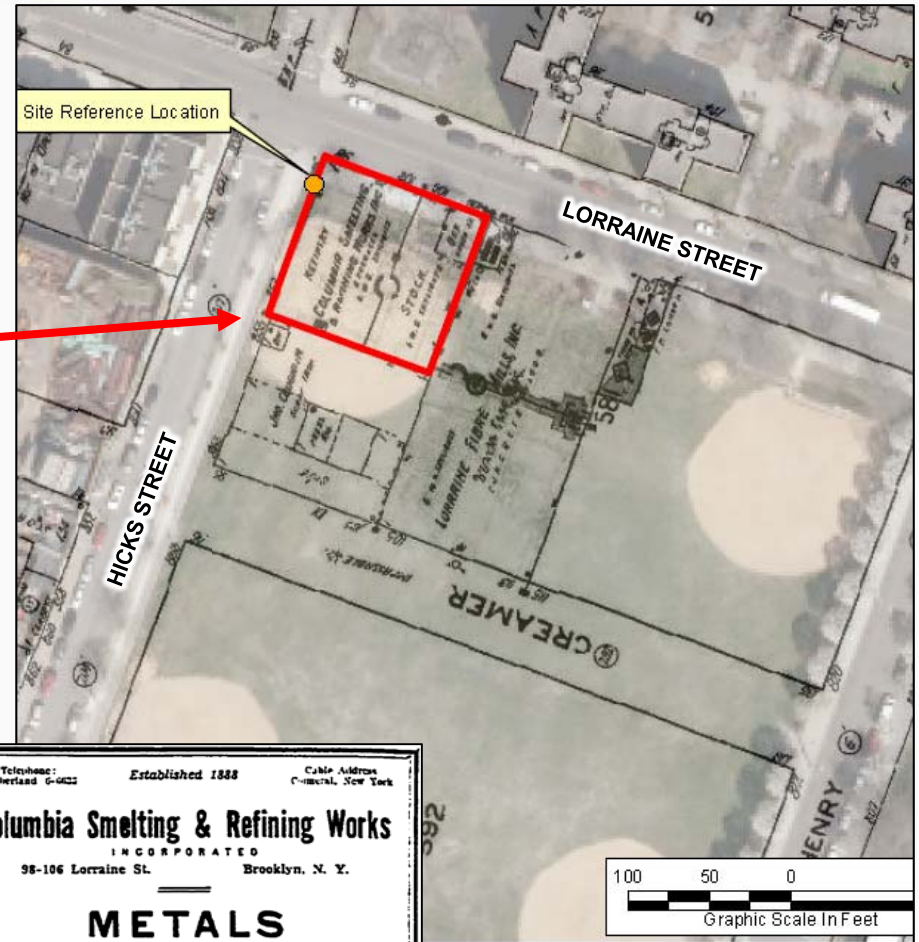
1938

1920s-late 1930s: secondary smelter

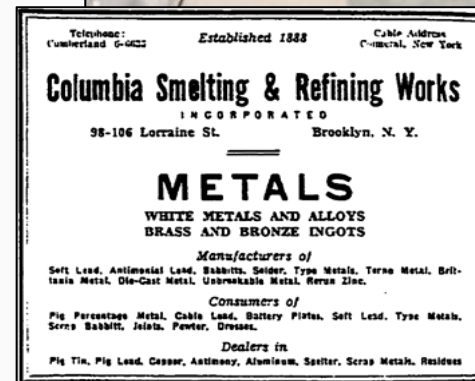
- 1929: Delevan Smelting & Refining Works
- 1931-late 1930s: Columbia Smelting & Refining Works
 - 14,000 sf building, 8 furnaces
- 1939-1940: Building demolished, block vacant
- 1940s: Baseball diamond built

On-site operations

- Various metals utilized & manufactured:
 - white metals and alloys, brass and bronze ingots, soft lead, antimonial lead, Babbitts, solder, type metals, terse metal, Britannia metal, die-cast metal, unbreakable metal and rerun zinc



1931





SECONDARY SMELTING & LEAD EXPOSURE

1920s - late 1930s: Secondary smelting on-site

- Refining of scrap or used lead materials into metallic lead of a higher purity
 - Lead plates from batteries
 - Lead pipe
 - Metal sheets that contain lead
- Releases lead into the surrounding environment
 - Lead dust and fumes are released during the smelting process
 - Lead contaminated waste may be left over after the smelting process



Typical secondary smelter

Lead Exposure

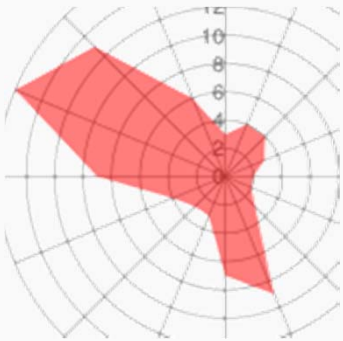
- Once lead is in the soil, it stays there
- Exposure occurs from:
 - Touching lead-contaminated soil, then accidentally ingesting it
 - Inhalation of lead dust
 - Kids putting dirty toys in their mouths
- Children are more sensitive to the health effects, which include neurological symptoms



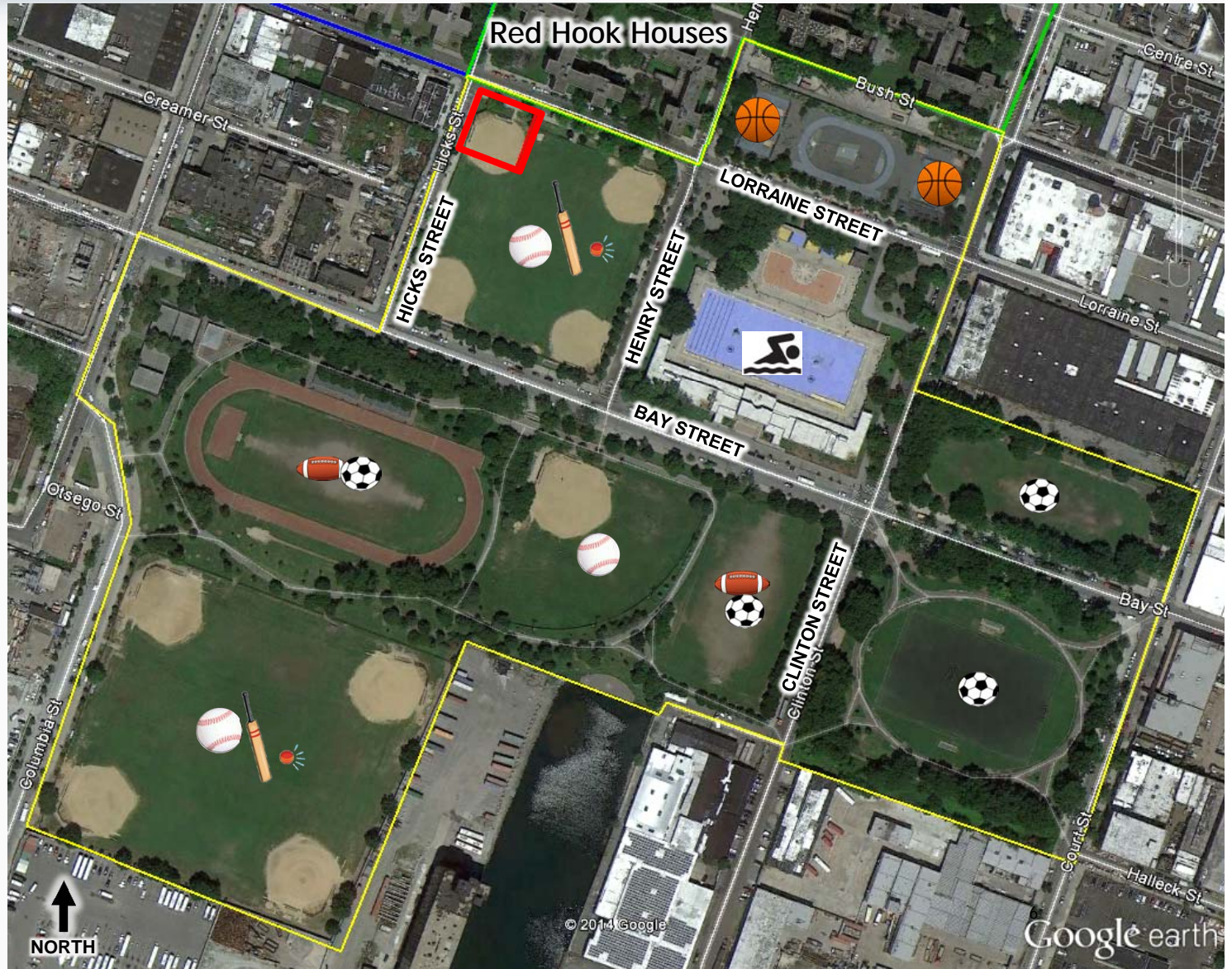
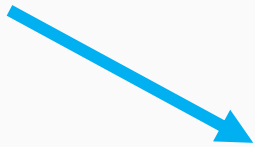
RED HOOK PARK



Wind Rose:



Predominant Wind Direction:





Hicks/Lorraine Bus Stop

Bleachers

HICKS STREET

Ball Field #7

Historic Facility Outline

LORRAINE STREET



2012 ACTIONS: NYC PARKS AND HEALTH DEPARTMENTS

- February 2012:
 - NYC Parks and NYC Health sampled for lead (7 samples)
 - Elevated lead detected in soil
 - 1" of clean clay added to all infields
- March 2012:
 - Area with highest lead levels excavated & paved over (Henry Street Portal)
 - Wood chips added to bare soil areas
 - Park closed for 4-6 weeks for hydroseeding and grass growth
- Grass cover and clay infill helped to reduce exposure to lead in the soil





2014 SITE REFERRAL: NYSDEC to EPA

- January 2014
 - NYSDEC had been conducting a review of nationwide portfolio of potential historic smelter sites
 - Referred Columbia Smelting & Refining Works Site to EPA along with 39 other sites throughout New York state
 - Independent from NYC Parks' 2012 investigation
- Winter through Summer 2014
 - EPA reviewed site history, all background information, previous sampling results
 - EPA decided to sample this site along with other former smelter locations
- October 2014
 - First round of EPA soil sampling



SOIL SAMPLING PROCESS



5 depth intervals per location:

- 0-1"
- 1-6"
- 6-12"
- 12-18"
- 18-24"



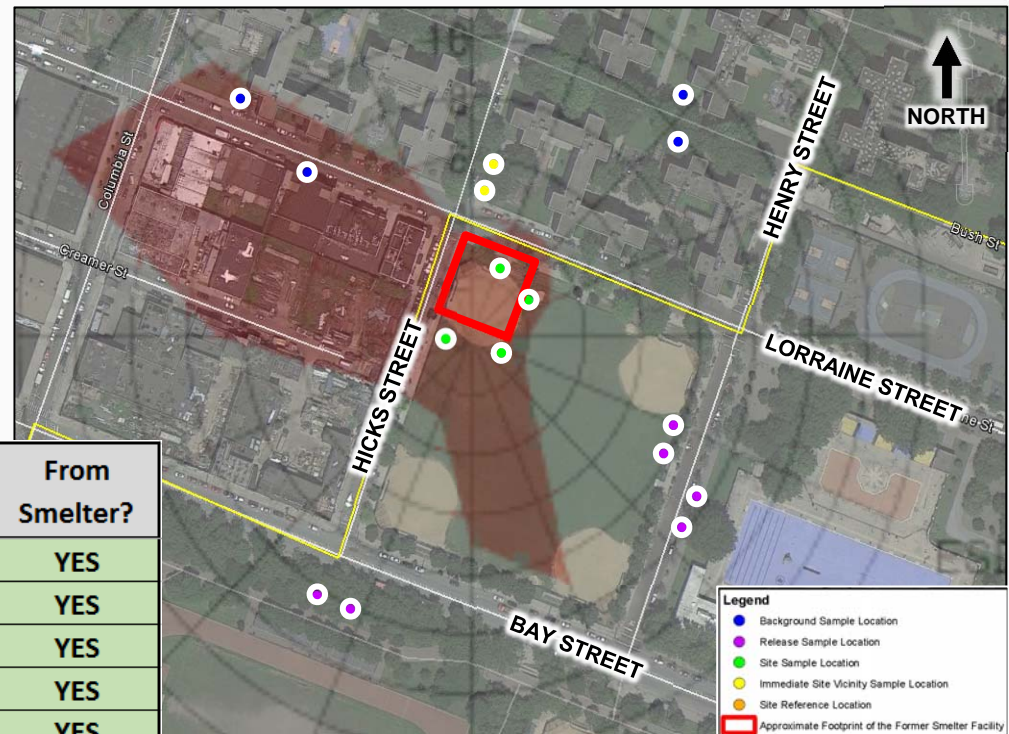
SOIL SAMPLING PROCESS





OCTOBER 2014 EPA SOIL SAMPLING

- 16 locations over a wide area
 - Included Red Hook East Houses
 - 5 depth intervals per location (82 samples)



October 2014 Lead Results, parts per million (ppm)

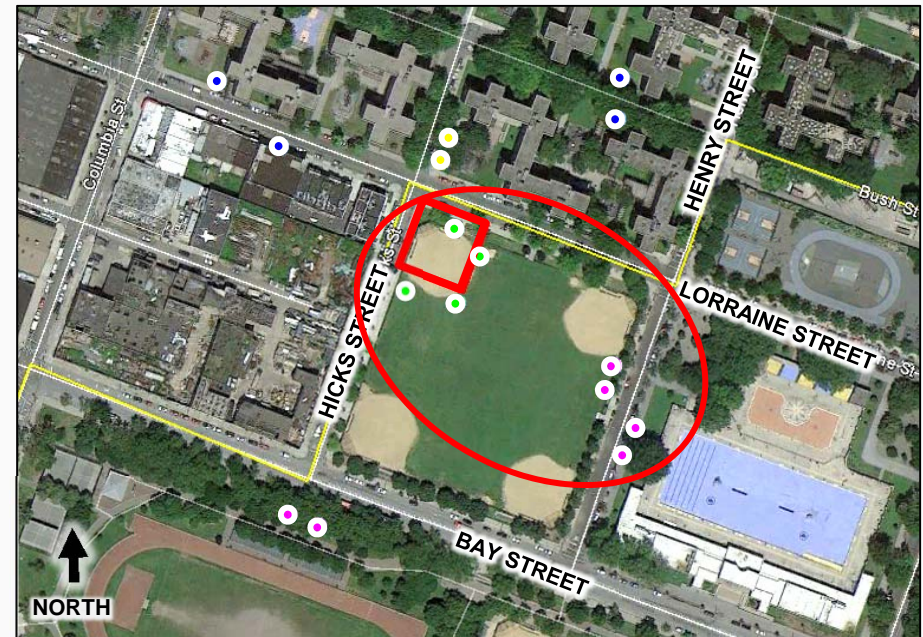
Location	Sample Depth	Range of Detections (ppm)	Average (ppm)	From Smelter?
Ball Fields #5-8	0-1"	240 - 980	635	YES
Ball Fields #5-8	1-6"	770 - 2,800	1,711	YES
Ball Fields #5-8	6-12"	760 - 5,700	2,693	YES
Ball Fields #5-8	12-18"	390 - 2,600	1,638	YES
Ball Fields #5-8	18-24"	130 - 2,600	1,483	YES
Henry Street	All	680 - 1,900	1,135	YES
Red Hook East Houses	0-1"	150 - 500	280	No
Red Hook East Houses	1-6"	110 - 400	201	No
Red Hook East Houses	6-12"	120 - 1,100	454	No
Red Hook East Houses	12-18"	68 - 920	533	No
Red Hook East Houses	18-24"	370 - 4,800	1,466	No
Bumble Bee Daycare	All	140-290	204	No
Bay Street Picnic Area	0-6"	100 - 170	127	No
Bay Street Picnic Area	6-24"	670 - 8,300	3,249	No

- EPA's screening level for lead in both residential & park settings is 400 parts per million (ppm)
- Lead level of **1,200 ppm** represents an acute risk



OCTOBER 2014 ANALYSIS

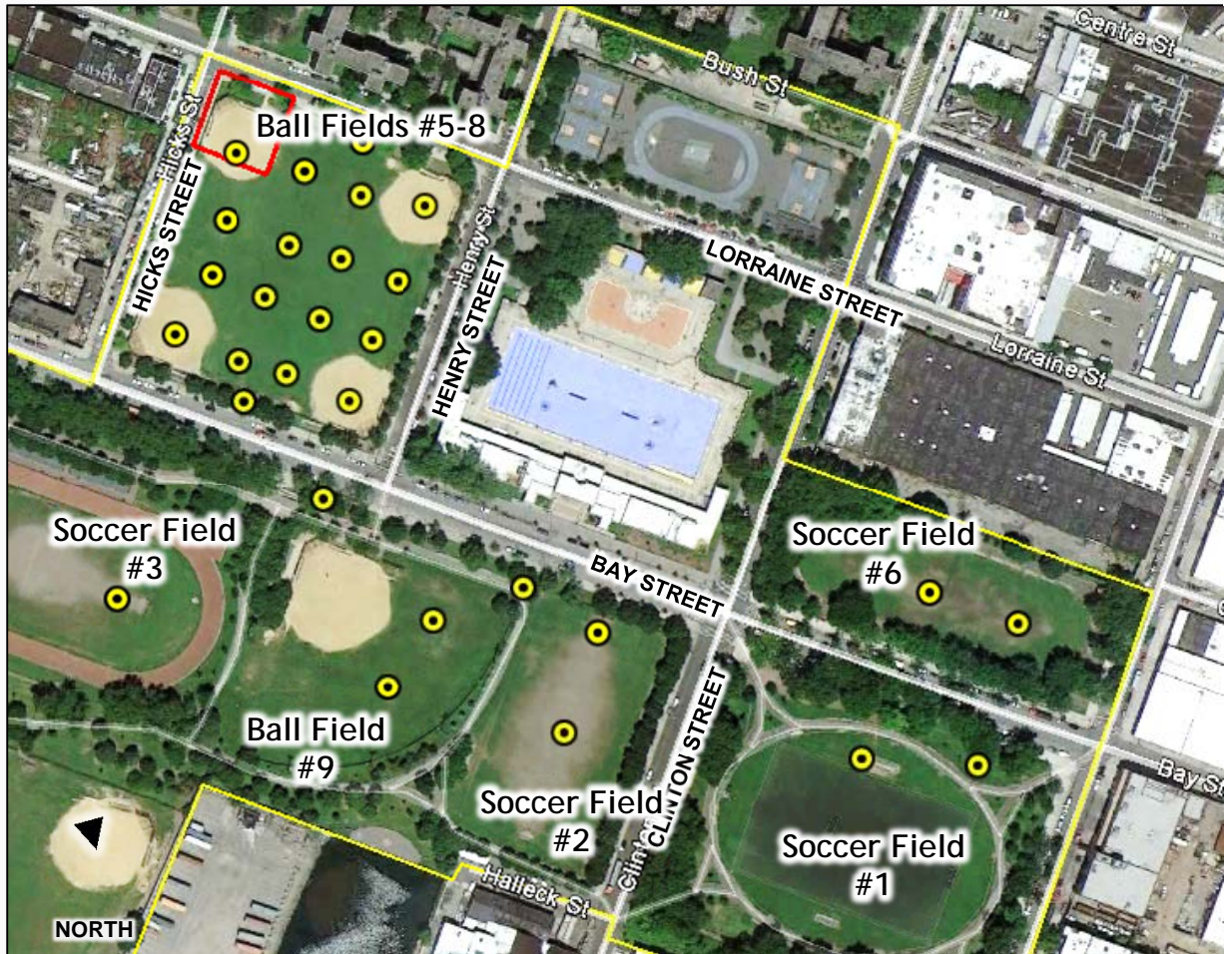
- Lead at Ball Fields #5-8 is related to Columbia, based on the relationship between lead and other metals
 - Ratios of certain metals (antimony, tin, zinc, iron, copper) are characteristic of smelter emissions
- Lead levels at Red Hook East Houses and Bay Street picnic area found to be unrelated to Columbia facility
 - Not an imminent health concern
 - No further EPA investigation
 - Results provided to property owners
- Lead levels on the surface of the ball fields does not pose an imminent threat
- **EPA determined that removal action (cleanup) is required in the long term**
- NYC Parks conducted maintenance and temporarily closed ball fields for April 2015 for grass growth
- Additional sampling was needed to determine extent of the release on the ball fields & downwind





MARCH 2015 EPA SOIL SAMPLING

- Purpose: Better define the aerial extent of the impact from the Columbia facility, including screening of downwind areas
- 29 locations
- Same sampling depths
 - 153 soil samples, total
- March 16-19, 2015





MARCH 2015 EPA SOIL SAMPLING RESULTS

- Lead was found at the ball fields at levels much higher than found during the October sampling; **closure of Ball Fields #5-8 is necessary**

March 2015 Lead Results, parts per million (ppm)

Sample Depth	Location Description	# of Samples Collected	# of Samples > 1,200 ppm	Range of Exceedences (ppm)	Average (ppm)
0-1"	Ball Fields #5-8	16	10	410 - 2,900	1,580
1-6"	Ball Fields #5-8	17	14	430 - 3,400	2,240
6-12"	Ball Fields #5-8	17	16	940 - 5,500	2,590
12-18"	Ball Fields #5-8	17	16	1,100 - 6,200	2,847
18-24"	Ball Fields #5-8	17	15	950 - 17,000	3,795
0-1"	All Other Fields	12	0	600, 960	324
1-6"	All Other Fields	12	1	480 - 1,900	419
6-12"	All Other Fields	12	2	550 - 1,600	534
12-18"	All Other Fields	11	2	540 - 1,900	842
18-24"	All Other Fields	12	2	480 - 2,300	789

EPA screening level for lead = 400 ppm



APRIL 2015 EPA SOIL SAMPLING

- April 2015 Sampling:
 - Refine March 2015 sampling data set at downwind fields and further define extent of smelter-related contamination
- 43 locations
- Same sampling depths
 - 226 soil samples, total
- April 20-29, 2015
- Results expected June 2015





NEXT STEPS

- **Ball Fields #5-8 closed until removal action is completed**
 - Areas surrounding Ball Fields #5-8 have been fenced in
- Results from April sampling will determine if any other actions are necessary at these other fields
 - June 2015 update will be provided
- EPA and NYC Parks discussing long-term removal action
 - Planning and conducting the cleanup will take more than a year
 - Cleanup will be done in accordance with EPA, NYC Parks, NYC Health, NYSDEC, and NYSDOH regulations
 - Capping is the proposed remedy
- We'll keep you posted!
 - <https://www3.epa.gov/region02/superfund/removal/columbia/>





KEY POINTS

- Investigation and discussion of removal action (cleanup) is ongoing
 - Closure of Ball Fields #5-8 is necessary until cleanup is completed
- EPA and NYC Parks are working together to protect public health
- Updates will be provided as the investigation and planning for the cleanup progresses



QUESTIONS?