

Community Guide to Long-Term Management Mott Haven Campus Bronx, New York



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Introduction

We are pleased to prepare this Community Guide with an attached Scorecard in preparation for the opening of the new Mott Haven school campus this Fall. This Community Guide provides background on the site, as well as information for any community member who wishes to consult the primary documents. The Guide is accompanied by a “Report Card” for keeping track of the commitments made to the community while the school was being constructed, as well as additional tasks recommended by CPEO but not agreed to by the agencies. However, up front, we would like to repeat our observation that *the School Construction Authority cleanup of this site is robust. With proper site management, the students, teachers, and others who will occupy this site will not be at risk of unacceptable environmental exposures.*

Background

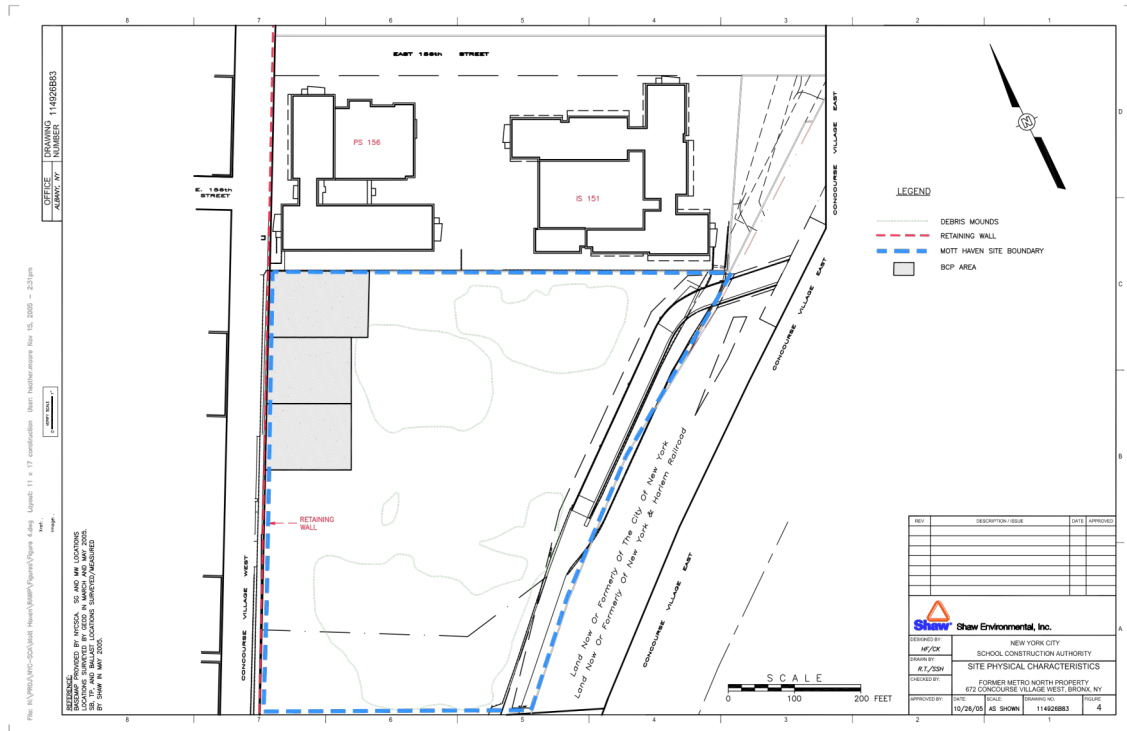
The New York City School Construction Authority (SCA) has constructed four schools, plus common facilities, on a 6.63-acre former railyard property in the Bronx known as the Mott Haven Campus, adjacent to two existing schools. The new multi-story facility, with a footprint of 147,000 square feet, will serve more than 2,200 high school and middle school students. The primary entrances will be at street level from Concourse Village West, which is 30 feet above the former railyard property, supported by a retaining wall. Playing fields and other open space at the railyard elevation will cover the eastern portion of the campus.



Over the past several years, a series of environmental investigations have found a range of environmental contaminants on the property. These include semi-volatile

organic compounds (SVOCs) from a former manufactured gas plant and activities related to the railyard, BTEX (benzene, toluene, ethylbenzene, and xylene) from gasoline leaks and spills, and chlorinated solvents such as the dry-cleaning chemical, perchloroethylene (PCE, also known as tetrachloroethylene), and trichloroethylene (TCE). Many of these contaminants originated off site and were carried by groundwater onto the site, although the rail operations at Mott Haven undoubtedly contributed many of the toxic compounds that were found at the site.

In 2005, a portion of the Mott Haven site was accepted into New York’s Brownfield Cleanup Program (BCP). The areas enrolled in the BCP are the gray-shaded areas in the figure below.



SCA completed a Remedial Investigation in November 2005, and in 2005-2006 it submitted a Remedial Action Work Plan (with subsequent supplements) to state agencies. This document contained the proposed remedy for ensuring that the new schools would be safe to occupy. The proposed remedy for the new campus included partial removal of contaminated soil and groundwater, hydraulic barriers and cover systems to reduce contaminant migration and exposures, and vapor membranes and subslab depressurization systems under each building to prevent any remaining toxic vapors from rising into buildings. On behalf of the Bronx Committee for Toxic Free Schools and New York Lawyers for the Public Interest (NYLPI), CPEO reviewed these proposals and submitted comments. See <http://cpeo.org/pubs/Mott-Haven.pdf>. On February 2, 2007, the School Construction Authority agreed to implement CPEO’s recommendations.

One of our key recommendations was that the preparation and implementation of a Site Management Plan (SMP) *be robust and transparent, with the opportunity for community input*. In January 2008, the SCA published a draft Site Management Plan for review by the New York State Department of Environmental Conservation (DEC), as well as for public comment. Once again NYLPI asked CPEO to conduct an independent review on behalf of its clients. See <http://www.cpeo.org/pubs/MottHavenSMP.pdf>. Now, with the campus due to open, Bronx Community Board 4 asked CPEO to review activities at the site and prepare an easy-to-use “Report Card” so that the entire community could keep track of activities at the site.

Whenever contamination is left in place at levels that do not allow unrestricted use and unlimited access, or under conditions that may lead to increases in contamination to such unacceptable levels, long-term site management is an essential component of the remedy. That is, because unsafe levels of hazardous substances remain on site, or are headed toward the site, protectiveness depends upon site management for the life of the contamination.

Responsibility

Overall, the New York City Department of Education (DOE) and its Division of School Facilities are responsible for monitoring and maintaining the site. The New York State Department of Environmental Conservation (DEC) is responsible for overseeing these responsibilities and has regulatory and enforcement tools at its disposal. However, in our review of the SMP, we pointed out that two legal issues may be of importance when defining responsibility.

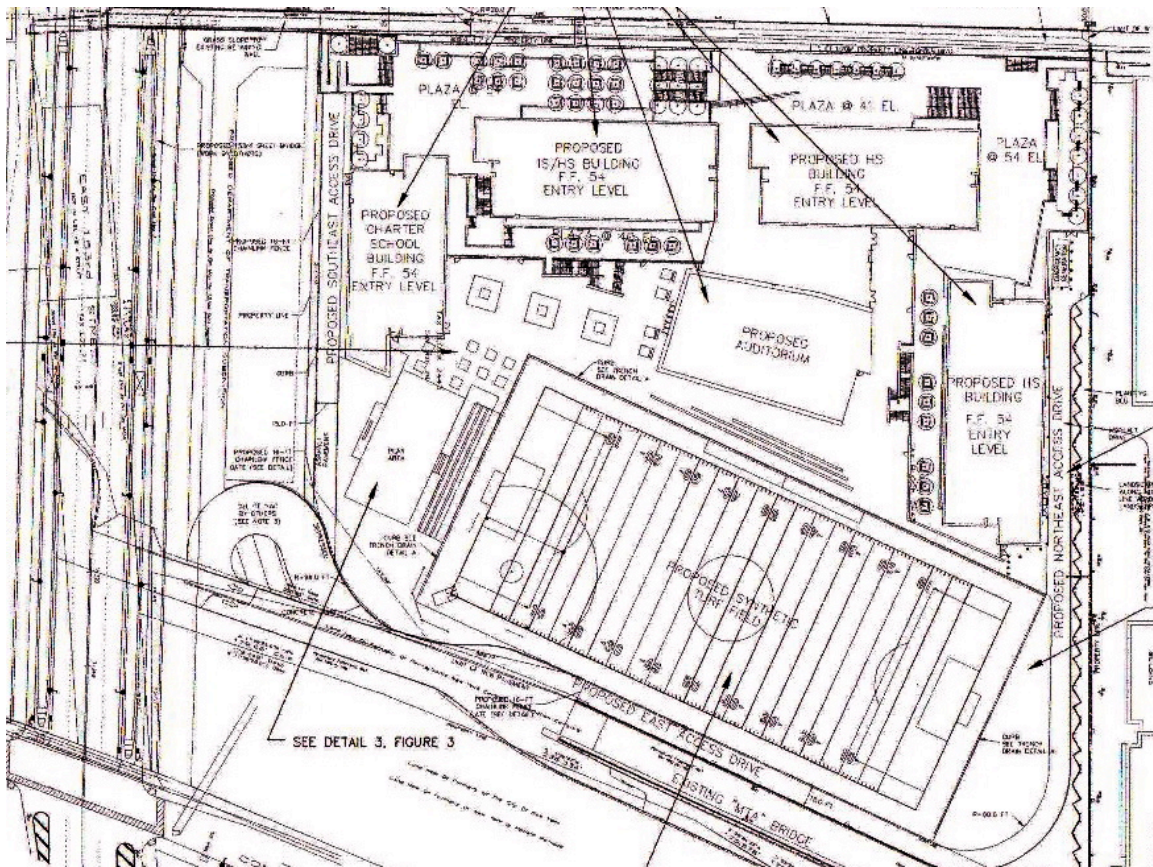
First, DEC should oversee site management for the entire Mott Haven project. DEC has clear authority over the one acre, in the northwest corner of the seven-acre site, which is covered by the Brownfield Cleanup Program (BCP). DEC officials have also expressed a willingness to expand their oversight to the entire campus, but we have not seen any written confirmation. As we encouraged, SCA has prepared an SMP with an environmental easement and other institutional and engineering controls addressing not only the remainder of the Mott Haven campus parcel, but also portions of the property where the existing schools are located. It would be wrong for portions of the campus to be beyond the routine oversight of DEC. It is inappropriate for only one complete building and a portion of another to be subject to oversight, since the proposed response covers five new buildings, areas of the site outside the building footprints, and the existing schools to the North of the site,

Second, the School Construction Authority is the entity responsible for developing the SMP, and it will be the grantor of the Environmental Easement on the property that defines property use and restricts activities that might undermine engineering controls. Each year the annual Site Management Report shall certify that those restrictions are being complied with. However, once the schools are in operation, they will be the responsibility of the City Department of Education. That is, it will be the DOE that implements long-term operations, maintenance, and monitoring. SCA officials

have assured us that the legally binding Easement “runs with the land.” That is, it will bind the DOE as well as the SCA. Once again, we would like to see this assurance—in fact, the entire Easement—in writing.

In addition, the SMP requires that a Site Management Report be prepared annually by March 1st of the calendar year following approval of the SMP by the DEC. The final SMP was dated November 2008, but we have not seen a report for 2009 or 2010. We believe it is essential that such a report, including current monitoring data, be made available to the public before the campus opens this fall.

Open Areas



A majority of the Mott Haven campus will consist of open areas, including landscaped areas, paving, and an artificial-turf athletic field. Even after excavation in the original Brownfields Cleanup Program area and five additional hotspots, as recommended in CPEO’s independent review, contaminants—primarily semi-volatile organic compounds (SVOCs)—were expected to remain on site above the State’s Recommended Soil Cleanup Objectives (RSCOs). Thus, engineering controls are necessary, not only to prevent human contact with contaminated soil, but also to prevent flooding and other scenarios from causing the release of, and exposure to, contamination. The SMP proposed a Surface Cover System consisting of asphalt roads, two feet of clean fill in landscaped areas, and artificial turf made of blended polyethylene over an infill

system of sand, rubber, and inert materials as protection and containment of contaminants. It also proposed restrictions on soil disturbance, and if any disturbances are planned, 15-day advance notification to local officials.

The SMP requires the school custodian to conduct monthly walk-throughs to ensure that the Surface Cover System is not compromised and to complete a checklist. To ensure that this is done properly, each custodian is required to attend a training course on the SMP. Annual inspections will be performed by an independent professional engineer in the presence of custodial staff.

An additional concern is that normal athletic activity may perforate the surface. There may be a need to establish restrictions or maintenance requirements to prevent perforation or degradation of the surface. (e.g., prohibiting use of metal cleats) Regardless, this type of surface will have to be replaced periodically due to normal wear and tear. The SMP should specify when and how the artificial turf will be replaced. Furthermore, members of the local community, along with others in New York City, have expressed concern that certain forms of artificial turf may contain toxic materials. We have reviewed some of the existing research, and although it is not conclusive, there are legitimate concerns about whether the type of surface proposed (i.e., blended polyethylene over an infill system of sand, synthetic rubber [crumbs made from recycled tires], and inert materials) represents potential toxic exposure.

Vapor Intrusion Pathway

Vapor intrusion is the migration of toxic vapors from the soil or groundwater beneath a building directly into the building. It is a potential problem anywhere volatile organic compounds are found in the shallow subsurface, but it can be prevented or reduced through building design and ventilation. The negative relative air pressure normally found in buildings essentially pulls contamination inside. Thus, it is a major potential concern at the Mott Haven campus.

The highest levels of contamination on the campus, in the one-acre BCP area, were removed through excavation and dewatering. But some contamination remained elsewhere on the property. Soil gas sampling, the best method of predicting vapor intrusion potential, shows elevated levels of BTEX petroleum hydrocarbons after excavation, as well as lower levels of chlorinated volatile organic compounds such as PCE. The SCA's consultant concluded that "some residual groundwater from the south and east of the BCP [flowed] back into the BCP area." The SMP contained no analysis of whether such soil gas levels have increased further, but we consider it a possibility. No soil gas testing was reported outside the BCP area after excavation.

CPEO recommends soil gas sampling near each building on the same schedule as groundwater monitoring. While the School Construction Authority agreed to such sampling prior to occupancy in a June 2006 letter, neither the Site Management Plan nor the Department of Environmental Conservation's (DEC) July 2008 Response to Comments include this.

To prevent such vapors from intruding into the buildings in the buildings, SCA has built three engineering controls into the design of all five Mott Haven buildings. These include:

1. A rubber-like plastic vapor barrier, the integrity of which was tested with a “smoke test” and which will be confirmed with annual smoke tests. In addition, in regular inspections of basement floors the custodian is supposed to watch for cracks, holes, and other potential vapor leaks.
2. An active sub-slab depressurization system (SSDS), consisting of PVC piping distributed under each building, connected to a blower that vents air above the roof of each building. Pressure tests will be conducted on start-up and whenever a system is re-started after repairs. Each SSDS will run continuously and be monitored by an automated Building Maintenance System. Each SSDS will be inspected monthly by the custodian and annually by an independent professional engineer.
3. A positive-pressure heating, ventilation, and air conditioning (HVAC) system which “forces air out of the buildings and prevents vapors from entering the buildings.” SCA has told us that the HVAC systems are designed to complement the other two engineering controls, but that they technically are not part of the site remedy. At other sites, we have learned that there is disagreement whether HVAC systems (by themselves) prevent vapor intrusion because they exchange air or because they maintain positive pressure. However, a properly operated system has been shown to be effective in some locations. Though the SCA considers the HVAC systems to be an addition to the site remedy, we believe they are engineering controls that should be maintained and monitored as part of the remedy. In particular, ventilation should take place either around the clock or from two hours before school opening to two hours after the last non-maintenance employee finishes work for the day/evening.

To demonstrate the effectiveness of the engineering controls, in addition to the annual smoke tests for the vapor barrier that were committed to in the SMP, we recommend indoor air sampling, in conjunction with ambient and subslab gas sampling, following the completion of construction and prior to school occupancy. Though indoor sources, such as dry-cleaned clothes, solvents from boiler-cleaning, or cans of chemicals might create false positives, those false positive would warn of exposures caused by those sources. Hopefully the Department of Education would seek to eliminate all sources of hazardous chemicals, not just those rising from the subsurface.

Hydraulic Barriers and Groundwater Monitoring

To protect the Mott Haven campus from the future migration of contaminated groundwater from the west and north, the SCA has installed a grout barrier beneath the retaining wall to the west of the BCP area and a grout/metal “Waterloo Barrier” along approximately one-half of the property line with the existing schools. These barriers are a reasonable response to the existence of off-site contamination that is not yet undergoing a remedial investigation, let alone remediation.

The SMP states that neither barrier requires maintenance nor monitoring, yet there is no evidence presented to demonstrate that the barriers will remain impermeable to groundwater for the life of the schools and the life of the contamination. This is exactly the type of condition that calls for long-term monitoring and contingency planning. That is, the remedy is good, but no one knows for how long.

We therefore recommend that monitoring wells be sampled periodically for the life of the facility, or until all groundwater contamination is eliminated, to ensure that groundwater elevations are consistent with the proper performance of the walls and that contaminant levels have not rebounded or mobilized due to off-site contamination or failure of the walls. However, changing environmental conditions such as changes in groundwater flow may cause contamination to move. For example, groundwater traveling around the edges of the walls may mobilize some existing contaminants under the cap. We note that some BTEX and PCE (dry cleaning solvent) re-contamination has already occurred (as well as soil gas migration due to the creation of preferential pathways during construction).

The western hydraulic barrier is not monitored save for one monitoring well south of the end of the barrier. It was originally thought that a cleaner (Morgan Steam Cleaners) located across Concourse Village West was a source of contamination, as well as a leaking fuel tank at a gas station and a manufactured gas plant. Therefore at least one well should be installed immediately east of the western hydraulic barrier to monitor its performance and to determine if there is a rebound of contaminants. In addition, the groundwater flow direction is towards the southeast. The area that had the highest levels of groundwater contamination at the site from both naphthalene and benzene was in the northwest corner of the site. A groundwater-monitoring well should also be installed there to monitor the performance of the barriers and to determine if there is a rebound of contaminants.

There are no groundwater monitoring wells north of the Waterloo Barrier (under the existing schools.). This barrier acts as a dam, preventing contaminated groundwater from carrying contamination into the clean fill. We expect groundwater elevations to the north of the property to rise and back up. The land north of the northern barrier under the existing schools is contaminated. Elevating the groundwater level could bring with it more mobile contaminants heretofore “locked” in the capillary fringes of the unsaturated soil. This could have consequences for the existing schools by increasing the likelihood for vapor diffusion under the existing schools. Although this area is now covered by asphalt, we recommend that groundwater elevations and contaminant movement under the existing schools be monitored and that an air-monitoring program be established.

Off-Site Sources

The best way to prevent off-site contamination from migrating underneath the new and existing campuses is to clean it up. DEC has identified one off-site responsible party, the owner of former gasoline storage tanks on Concourse Village West. DEC has ordered that party to conduct interim remedial measures and conduct a thorough

investigation. Given competing priorities, continuing public attention may be needed to accelerate this activity.

There are also historic upgradient sources of PCE (the dry-cleaning chemical), other chlorinated volatile organic compounds, and semi-volatile organic compounds associated with a former manufactured gas plant. CPEO believes that DEC should identify these sources and initiate steps to ensure that all upgradient sources are contained and remediated. We recognize, however, that action regarding PCE is unlikely until New York State Department of Health develops a more protective exposure standard for PCE, comparable to that used by EPA and other states.

Contingencies and Emergencies

This was perhaps the weakest element in the SMP. There was little examination of possible events or circumstances that could occur, and no description of proposed responses. In CPEO's comments to the SMP we outlined a range of scenarios that should be considered. Some were considered in DEC's response to comments. Now that operation of the SMP falls upon the DOE, we again call upon it to develop a complete plan that identifies a range of scenarios that may lead to unacceptable contaminant migration or exposures. In the CPEO Independent Review, we recommended that a contingency plan be developed that would include technical (e.g., failure of the hydraulic barriers), logistical (e.g., labor strikes, failure to inspect satisfactorily), financial (budget cuts leading to failure to operate, maintain, and monitor engineering controls), and regulatory (e.g., changes in standards for indoor air) contingencies. Furthermore, there should be assurances that responses will be implemented in a timely.

The SMP does require that the Bronx Borough President's Office, the New York City Council Representative, and Bronx Community Board 4 be notified within 48 hours of any emergencies associated with environmental conditions at the campus, such as foundation damage, flood, or fire. Notice will include a summary of actions taken and the impact to the environment and the public. The annual report provides an opportunity to check that such notifications have taken place properly.

Existing Schools

SCA conducted certain voluntary remedial activities at the adjacent school property, including the grouting of the Supplemental Remedial Area at the southwest corner of the existing campus, asphalt paving under the existing campus, and the installation of air conditioners on school windows. To protect occupants of the existing schools, the grout area and asphalt should be subject to the monthly and annual inspections, as described above, and there should be assurances that the filter systems on the window air conditioners are operating during school occupancy at least until Mott Haven construction is completed and during future soil disturbances. In addition, as mentioned above, there should be groundwater monitoring north of the Waterloo barrier with contingency plans in place for changes in groundwater levels or contamination.



Community Notification and Oversight

There is serious concern among neighborhood residents, teachers, and parents at the existing schools, as well as public officials, about the potential health impacts of contamination at the Mott Haven site. At any site where residual contamination requires continuing operation and maintenance, monitoring, engineering controls, and activity and use limitations, there is a need to establish an institutional memory of the reasons for the original project as well as the Site Management Plan. Before long, the officials who designed and oversaw both cleanup and construction will have moved on, but the need to manage the site will continue.

We therefore appreciate the cooperation that we and our clients have received from SCA, DOE, and DEC. Furthermore, we note that site documents will be available at the official repositories listed in the SMP—the Melrose and Mott Haven branch libraries (details below)—as well as at the school site.

However, we also believe that there should be a community involvement plan that is either incorporated into the SMP or stands as a separate document. This plan should be robust enough to remain effective for the life of the school and the life of the contamination, but it should be flexible enough to accommodate the ebb and flow in public interest and new institutional arrangements, such as the replacement of the adjacent schools.

A good community involvement plan not only helps resolve differences between those with site responsibility and the neighboring community, but it enlists the community in efforts to assure project success. We suggest the following components of the community involvement plan:

1. The SCA should create and the DOE should maintain a contact list of interested individuals and organizations. Either in electronic or paper form, these contacts should receive summaries of each annual Site Management Report, along with information about how to obtain the full report if interested. Those parties that request it—such as New York Lawyers for the Public Interest, the Bronx Community Board 4, the Bronx Borough President’s Office, and the local City Council member—should receive the complete annual report.

In addition, the contact list should be notified of any site conditions requiring contingency responses, as described in the contingency plans. Since occupants of the existing schools as well as nearby housing are keenly aware of any remedial or construction activity on the Mott Haven campus, we also suggest that they receive advance notification of any construction or soil disturbance activity. Although such notification is not legally required, we believe that advance explanation will resolve questions that are likely to emerge when people notice water hoses in the street, piles of dirt, or jackhammer noise, etc.

2. Plaques or signs at all entrances to the property should notify the public that the site is subject to the Site Management Plan. The signs should be clearly visible, but non-obtrusive. They should be designed to direct people to the repositories or a web address, in such a way that they may request to be added to the contact list described above. They should be worded carefully to avoid causing unnecessary fear. We suggest language such as, “This property is subject to an environmental site management plan. For more information...” At this time DEC does not require this at the site because it considers the site remediated. However, DOE can do this on its own as a service to students, their families, school staff, and school visitors.
3. There should be a process through which members of the public can ask questions about the site and report conditions that may indicate a failure of engineering or institutional controls. The Department of Education or Department of Environmental Conservation should respond to each query or report in a timely fashion.
4. If requested by an official body (such as the Bronx Community Board 4 or the Bronx Borough President’s Office) or a minimum number of people (perhaps 25) from the community, SCA, DOE, or DEC should convene a public meeting to explain recent developments or new plans for the site, upon initial occupancy and annually following the release of the Site Management Report.
5. One way to retain and expand knowledge about the site is to establish a high school curriculum, whereby each term students will learn about the history of the site and examine the institutional and engineering controls. There is also a nearby Community College that also may be interested in studying the site. This curriculum may include involvement in the monitoring program and site inspections.

Location of Documents

Melrose Branch Public Library

901 Morris Avenue

Bronx, NY 10451

718-588-0110

Repository Hours:

Monday 12 pm – 7 pm

Tuesday and Thursday 10 am – 6 pm

Wednesday and Friday 1 pm – 6 pm

Saturday 10 am – 5 pm

Mott Haven Branch Public Library

321 East 140th Street

Bronx, NY 10454

718-665-4878

Repository Hours:

Monday, Wednesday and Thursday 10 am – 6 pm

LIST OF COMMON ACRONYMS THAT ARE USED IN SITE DOCUMENTS

Acronym	Definition
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µg/m ³	micrograms per cubic meter
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	below ground surface
BMS	Building Management System
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAMP	Community Air Monitoring Plan
COC	Certificate of Completion
COCs	contaminants of concern
CPEO	Center for Public Environmental Oversight
DCR	Declaration of Covenants and Restrictions
DEC	Department of Environmental Conservation (New York State)
DOE	Department of Education (New York City)
DOH	Department of Health (New York State)
DPI	differential pressure indicator
DSF	Division of School Facilities
EC	Engineering Control
ESA	Environmental Site Assessment
HSP	Health and Safety Plan
ft	feet
IC	Institutional Control
MGP	Manufactured Gas Plant
MTA	Metropolitan Transportation Authority
O&M	Operations and Maintenance
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyls
PFE	pressure field extension
PID	photoionization detector
Ppm	parts per million
ppb	parts per billion
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RSCO	Recommended Soil Cleanup Objective
SCA	School Construction Authority (New York City)
SMP	Site Management Plan
SoMP	Soil Management Plan
SMR	Site Management Report (annual)
SSDS	sub slab depressurization system
SVOC	semi-volatile organic compound
UST	underground storage tank
VOC	volatile organic compound

Mott Haven Site Management “Report Card”

1 Agreed-upon SCA/DOE Tasks	Including	Letter Grade
A Ensure integrity of outdoor covers	Monthly by custodian; annually by engineer	
B Operate vapor mitigation systems in active mode	24/7 Building Management System; monthly inspection by custodian; annually by engineer	
C Conduct SSDS pressure tests	Before occupancy and each time a system is re-started following a repair	
D Ensure integrity of vapor barriers	Smoke test before occupancy and then annually	
E Monitor on-site groundwater	Semi-annual sampling	
F Confirm emergency notifications	Within 48 hours	
G Confirm advance soil disturbance notifications	15 days before planned activity	
H Confirm institutional controls	Annual	
I Publish annual Site Management Reports	By March 1 each year; hard copies in repositories	
2 Additional SCA/DOE Tasks	When	
A Evaluate soil cover under existing schools	Annual with quarterly inspection	
B Sample soil gas	Semi-annual for five years	
C Sample indoor air	Before occupancy and once every five years	
D Confirm HVAC operation in new buildings	Annual with routine inspection	
E Monitor groundwater near barriers	Semi-annual	
F Convene public meetings	On occupancy and publication of annual report	
G Place signs on entry-ways	Before occupancy	
H Establish on-line archive	As soon as possible	
I Develop community involvement plan	As soon as possible	
3 Tasks for others	By whom?	
A Address off-site petroleum sources	Department of Environmental Conservation	
B Identify and address off-site VOC/SVOC sources	Department of Environmental Conservation	
C Review reports for <i>entire</i> site	Department of Environmental Conservation	
D Create science curriculum	School staff	

Mott Haven Site Management “Report Card”

The Center for Public Environmental Oversight (CPEO) has created the Site Management “Report Card” to simplify community oversight of long-term site management activities at the Mott Haven Campus in the Bronx. None of the risks associated with potential toxic exposures at the site pose an acute or emergency risk, so we believe it is sufficient for the community to evaluate site management performance once a year, beginning with initial occupancy of the campus in the Fall of 2010. At that time the community can review site management activities that were supposed to occur during the year.

The report card is divided into three lists, each element of which is described in more detail below.

1. The first list shows tasks that the New York City School Construction Authority and/or Department of Education agreed to in the Final Site Management Plan or subsequent correspondence. All of these activities should be included in the annual Site Management Report.
2. The second list contains activities that CPEO believes would significantly improve site management, but which were not agreed to by the agencies.
3. The third list describes activities recommended for entities other than the School Construction Authority or Department of Education management.

The right-hand column is designed so community members can give the agencies a letter grade (A, B, C, D, F, or Incomplete) evaluating their performance. Because the report card measures widely different activities, we do *not* believe the individual grades should be combined into an overall performance measure.

- 1A. Ensure integrity of outdoor covers.** To prevent human contact with contaminated soil and to prevent flooding and other scenarios from causing the release of, and exposure to, contamination, there is a Surface Cover System consisting of asphalt roads, two feet of clean fill in landscaped areas, and turf—originally proposed as artificial turf made of blended polyethylene—over an infill system of sand, rubber, and inert materials. The custodian is responsible for checking at least monthly to ensure that the Cover System remains intact, and an independent engineer is supposed to certify protectiveness in the annual Site Management Report.
- 1B. Operate vapor mitigation systems in active mode.** Active sub-slab depressurization systems (SSDS) are designed to prevent potential accumulations of toxic soil gases from entering the school buildings. Each system consists of subsurface perforated PVC piping, connected to a blower that vents air above the roof of each building. Each SSDS will run continuously and be monitored by an automated Building Maintenance System, but the custodian is responsible for checking each system monthly, and in the annual report the independent engineer is responsible for certifying that they are running properly.

- 1C. Conduct SSDS pressure tests.** The School Construction Authority and Department of Education have agreed to conduct tests to demonstrate that the vapor mitigation systems are reducing pressure throughout the areas beneath the buildings, before occupancy as well as any time the system is re-started after repairs.
- 1D. Ensure integrity of vapor barriers.** During construction, the School Construction Authority was supposed to conduct "smoke tests" to ensure that the rubber-like plastic vapor barriers were not leaking. On an annual basis the smoke tests will be repeated to ensure that there is no communication between the subsurface and the air inside the buildings. In addition, in regular inspections of basement floors the custodian is supposed to watch for cracks, holes, and other potential vapor leaks.
- 1E. Monitor on-site groundwater.** To detect any increases in contamination of groundwater under the campus, monitoring wells are currently being sampled twice a year, and the results are to be included in the annual Site Management Reports. CPEO believes that such sampling should continue until all neighboring sources of contamination are addressed.
- 1F. Confirm emergency notifications.** The School Construction Authority and the Department of Education have agreed to notify the Bronx Borough President's Office, the New York City Council Representative, and Bronx Community Board 4 within 48 hours of any emergencies associated with environmental conditions at the campus, such as foundation damage, flood, or fire. Notice will include a summary of actions taken and the impact to the environment and the public. The annual report should record any such emergencies that took place within the previous year and document the notifications that occurred.
- 1G. Confirm advance soil disturbance notifications.** The School Construction Authority and the Department of Education have agreed to notify the Bronx Borough President's Office, the New York City Council Representative, and Bronx Community Board 4 fifteen days in advance of any ground-intrusive activities, such as pavement repair that requires significant soil disturbance. The annual report should record any such activities that took place within the previous year and document the notifications that occurred.
- 1H. Confirm institutional controls.** The School Construction Authority has prepared an environmental easement defining property use and restricting activities that might undermine engineering controls. Each year the annual Site Management Report shall certify that those restrictions are being complied with.
- 1I. Publish annual Site Management Reports.** The centerpiece of the Site Management Plan is the publication of annual Site Management Reports by March 1 of each year. These reports should contain verification of all the Site Management activities that the School Construction Authority and Department of Education have agreed to or agree to in the future. The reports, along with other site documents, should be made available to the public in the repositories at the Melrose and Mott Haven branch libraries, as well as at the campus itself.
- 2A. Evaluate soil cover under existing schools.** Part of the Mott Haven remedy involved emplacing an asphalt cover over soil underneath the existing, platform-mounted schools just

north of the new campus. CPEO believes that cover should be inspected on the same schedule as the Surface Cover on the new campus.

- 2B. Sample soil gas.** Soil gas measurements are a better measure than groundwater sampling of the potential for vapor intrusion. CPEO recommends soil gas sampling near each building on the same schedule as groundwater monitoring. While the School Construction Authority agreed to such sampling prior to occupancy in a June 2006 letter, neither the Site Management Plan nor the Department of Environmental Conservation's (DEC) July 2008 Response to Comments include this.
- 2C. Sample indoor air.** The School Construction Authority and the New York State Department of Environmental Conservation consider pressure-testing (see #1C) sufficient to show that the indoor air is safe from vapor intrusion. However, most community groups prefer actual measurement of the indoor air, rather than an engineering parameter (pressure). So CPEO recommends indoor air testing in each building before occupancy and at least once every five years as the most direct assurance that air is safe. While it's possible that indoor air testing might detect contaminants that are not from the subsurface, for the safety of the occupants those other sources should be addressed as well. Note that the New York City Department of Education has agreed to test indoor air on a contingent basis, but those contingencies are not defined.
- 2D. Confirm Heating, Ventilation, and Air Conditioning (HVAC) operation in new buildings.** Though the School Construction Authority considers the HVAC systems to be an supplement to the site remedy, CPEO believes they are engineering controls that should be maintained and monitored as part of the remedy. In particular, ventilation should take place either around the clock or from two hours before school opening to two hours after the last non-maintenance employee finishes work for the day/evening. The annual report should confirm that this schedule has been followed.
- 2E. Monitor groundwater near barriers.** CPEO believes that at least one well should be installed immediately east of the western hydraulic barrier to monitor its performance and to determine if there is a rebound of contaminants. If this is not possible due to the location of the school building, then other, albeit less direct, measurements should be calculated, including using sophisticated computer models. In addition, there should be a monitoring well at the northwest corner of the site for the same reasons. Finally, CPEO recommends that groundwater elevations and contaminant movement under the existing schools be monitored. Sampling should be on the same (semi-annual) schedule as existing monitoring wells, and the results should be presented in the annual Site Management Report.
- 2F. Convene public meetings.** To explain Site Management progress, help the school and neighboring communities assess school safety, and hear community concerns, the Department of Education should be prepared to convene public meetings if there is sufficient community interest, upon initial occupancy and annually following the release of the Site Management Report.

- 2G. Place signs on entryways.** Plaques or signs at all entrances to the property should notify the public that the site is subject to the Site Management Plan. The signs should be clearly visible, but non-obtrusive. They should be designed to direct people to the on-site repository of information and an on-line archive.
- 2H. Establish on-line archive.** The Site Management Reports as well as other site documents should be made available to the public on line. School and Department of Education web sites should provide links to this archive so prospective students and their families can learn about site conditions before selecting one of the schools.
- 2I. Develop community involvement plan.** The School Construction Authority and the Department of Education should develop a Community Involvement Plan to summarize planned methods of public involvement and to guide staff on working with the community. The Plan should include a dynamic contact list of individuals and organizations within the community.
- 3A. Address off-site petroleum sources.** The New York State Department of Environmental Conservation has ordered a responsible party to conduct interim remedial measures and conduct an investigation at a petroleum spill site upgradient of the Mott Haven Campus. Given competing priorities, continuing public attention may be needed to accelerate this activity.
- 3B. Identify and address releases of off-site volatile and semi-volatile organic compounds.** The New York State Department of Environmental Conservation has *not* identified upgradient sources of PCE (the dry-cleaning chemical) and other chlorinated volatile organic compounds or semi-volatile organic compounds associated with a former manufactured gas plant. CPEO believes that DEC should accelerate this activity. We recognize that action regarding the dry-cleaning chemical is unlikely until New York State Department of Health develops a more protective exposure standard for PCE, comparable to that used by EPA and other states.
- 3C. Review reports for the *entire* site.** Only a small portion of the seven-acre campus is enrolled in the New York State Department of Environmental Conservation's Brownfield Cleanup Program, so early in the project DEC officials explained that they are not responsible for oversight of cleanup and site management activities for the rest of the property. More recently, they have expressed a willingness to take responsibility for long-term management of the entire site, but CPEO believes that this needs to be confirmed and documented.
- 3D. Create science curriculum.** To retain and expand knowledge about the site, as well as enhance educational opportunities, CPEO suggests that science teachers at campus high schools establish curriculum through which students can learn about the history of the site, examine the engineering and institutional controls, and review site monitoring.