State of California—Health and Human Services Agency
California Department of Public Health

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September 10, 2007

Captain Susan L. Muza
Agency for Toxic Substances and Disease Registry
75 Hawthorne Street, Suite 100, HHS-1
San Francisco, CA 94105

Dear Captain Muza:

As part of our cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), the Site Assessment Section (SAS), within the California Department of Public Health (CDPH), is sending this letter to assist you with addressing concerns related to grading activities occurring on Parcel A in the Hunters Point district of San Francisco.

On July 17, 2007, the San Francisco City and County Department of Public Health (SFDPH) formally requested assistance from ATSDR to perform the following: 1) review and interpret available air monitoring data for residents living adjacent to Hunters Point Shipyard (HPS) Parcel A development activities and the significance of data gaps; 2) evaluate the assessment and judgments made by SFDPH on the significance of exposure and health impacts on residents and other sensitive uses adjacent to HPS Parcel A development activities; and 3) make recommendations for additional appropriate dust and exposure control and monitoring necessary to protect health of residents.

HPS Parcel A is approximately 75 acres and is located in a geologic area where Naturally Occurring Asbestos (NOA) has been identified. CDPH is aware that the community is divided over the plans to develop this site. Many steps have been taken to address the dust and naturally occurring asbestos issues at this site already (some of which are summarized in this letter).

Since July 17, 2007, the SAS, with ATSDR, has gathered technical information about Parcel A, conducted outreach to the Hunters Point community, and communicated with SFDPH to clarify details of their request and to share a preliminary draft of findings for fact verification.. Here, we provide recommendations for reducing dust/asbestos air levels from on-going and future grading/soil disturbing activities at Parcel A. These recommendations are based upon our review of the plans in place for monitoring dust and asbestos emissions from the site and review of the available monitoring data. Because grading operations are nearing an end, there was some urgency to share these findings with the hope that future dust and asbestos levels could be made even lower.

CDPH Recommendations

CDPH recommends the following actions occur to assure greater confidence, among those living near the excavation, in the safety of activities on Parcel A. These recommendations build on actions SFDPH and other agencies are already conducting at the parcel (the agencies that have authority to implement the recommendation are noted in parentheses). Information that forms the basis for these recommendations is provided in this letter and is referenced at the end of each recommendation:

- Because the contractor has exceeded the Bay Area Air Quality Management District (BAAQMD) asbestos action level that triggers work stoppage on 13% of excavation days, and because there have been complaints about dust, which may cause other health concerns, SFDPH should assign a person to continuously monitor dust production and dust abatement activities during working hours. This is an important way to prevent both dust and asbestos exposures. Essential to this recommendation is that the assigned person not only observes but has the authority to alter activity on the site based on his/her observations. Please see **Overview of Current Dust and Asbestos Monitoring Plans.**

- The assigned person should promptly report to the public what is observed and what is done as a result of the above-mentioned monitoring activities. Please see **Overview of Current Dust and Asbestos Monitoring Plans.**

- Explore additional dust control procedures such as misting at the fence line, tarping the fence, adding an on-site meteorological station, stopping activity that generates dust if winds are 15 miles per hour or more, or tarping grounds where no activity is occurring for seven days or more. It is recommended that the developer engage someone with expertise in dust control to specifically define additional mechanisms to achieve better mitigation and dust suppression. This recommendation is based upon findings in the **CDPH Review of Environmental Data** section.

- Air monitoring equipment on-site and in the community should be used to evaluate the effectiveness of added measures. If ongoing exceedances occur, then more measures should be adopted. Please see **Overview of Current Dust and Asbestos Monitoring Plans.**

- To assist the SFDPH assigned inspector in evaluating the current Dust Control Plan, the contractor should conduct real-time dust monitoring using appropriate equipment for respirable dust (PM-10) at several locations, co-located with asbestos sampling (SFDPH and BAAQMD). SFDPH should use information from monitors during the day to identify activities which are generating PM 10 and alter activity to reduce its generation. As explained below, there are validity problems with the currently used monitoring equipment. Please see **Overview of Current Dust and Asbestos Monitoring Plans.**

- Include the community monitors, especially HV-7, HV-8, and HV-9, in the official asbestos monitoring plan, as regulated by the BAAQMD. These monitors, along with the on-site monitors, create better coverage of the perimeter of such a large parcel (BAAQMD). Please see **Overview of Current Dust and Asbestos Monitoring Plans.**

- Explore ways to reduce the time lag between measuring elevated levels of naturally occurring asbestos and altering parcel activities by returning to 12-hour sampling (when samples often resulted in results the next day). Or, collect from 7 p.m. to 7 p.m., which would similarly mean a result may be available the next day. (BAAQMD for the on-site monitors; SFDPH for the community monitors). As a matter of principle, public agencies should try to be as timely in their feedback as possible. These sampling strategies will advance this goal. Please see **Overview of Current Dust and Asbestos Monitoring Plans** and **CDPH Review of Environmental Data.**

Overview of Current Dust and Asbestos Monitoring Plans

The Asbestos and Dust Control Plans required by BAAQMD and SFDPH call for air monitoring and outline steps the contractor should implement to keep dust from leaving the site perimeter. Mass grading/earthmoving activities began on Parcel A on April 25, 2006.

According to a SFDPH memorandum dated June 2007, there were complaints about dust from the very beginning of the grading activities. The memo notes that, in response to specific complaints, SFDPH would evaluate the adequacy of the dust control measures. In 2006, SFDPH issued three Notices of Violation to the developer concerning the generation of visible dust.

Under SFDPH oversight of the implementation of Article 31, consultants for the developer have conducted real-time monitoring for total dust (primarily 10 micron and smaller) since June 2006. As described in the Parcel A Dust Control Plan, an action level of 0.5 milligrams per meter cubed was established as an action level for total dust (PM 10). The monitors (two downwind and one upwind) record minute by minute readings of PM 10; however, the dust data is not reviewed as it is recorded. It may be reviewed at the end of the day or later. According to the Dust Control Plan, "if dust is generated from on-site soil disturbance or excavation activities and dust levels from these activities are recorded above the action level, the work will stop until additional controls are implemented to reduce dust generation from the specific work area causing the problems."

On August 20, 2007, SFDPH issued a Notice of Violation to the developer of Parcel A for observations that occurred on August 17 related to dust crossing the property boundary and visible dust occurring for over 90 minutes, which was observed by the SFDPH inspector from 2:45 to 4:30 p.m. In issuing the Notice of Violation, they ordered the developer to cease all dust generating activities for 48 hours in order for the developer to "establish work practices that will prevent future recurrences." SFDPH asked the developer to "review the incident for the causes of compliance failure and training of all relevant employees and subcontractors on the requirements

of the Dust Control Plan." In the Notice of Violation letter, SFDPH indicated to the developer that they will be providing a monitor (a person) who will be supervised by SFDPH staff, with costs billed to the developer. In the letter, they state that "through this monitor, SFDPH will independently verify that the dust control is meeting all Dust Control Plan requirements and assist the developer in adhering to plan requirements."

At this time, CDPH has reviewed the equipment being used to monitor dust and a limited set of the dust data. According to the manufacturer, the instrument that has been used to monitor dust at Parcel A is designed for personal/breathing zone monitoring, plant walk-through surveys, remediation site worker exposure monitoring, and indoor air quality. The instrument being used is sensitive to moisture and is a passive sampler. Dust monitors that are approved for PM 10 ambient air standards by the California Air Resources Board are all active samplers. Further, there are dust monitors available that are designed for outdoor applications where moisture is present. Due to the novel application of the equipment for fence line monitoring, CDPH is not able to interpret whether dust exposures in the community occurred that would explain some of the community health complaints such as headaches, bloody noses, adult onset asthma, respiratory symptoms, nausea, and vomiting. We recommend using dust monitors that have been certified for fence line monitoring.

Since there is naturally occurring asbestos at the site, the BAAQMD required consultants for the developer to conduct asbestos air monitoring around the perimeter of the parcel since April 2006. The SFDPH further requested air monitors for asbestos in the neighborhood. The asbestos ambient air action level that would "trigger an immediate on-site evaluation to determine if dust mitigation measures are still effective" was set at 1,600 TEM (Transmission Electron Microscope) structures/m^3. This level corresponds to a 1 in 100,000 increased cancer risk for a 70-year exposure. The ambient air asbestos action level at which grading operations are shut down was set at 16,000 structures/m^3. This level corresponds to a 1 in 10,000 increased cancer risk for a 70-year exposure. Asbestos samples have been collected daily using a vacuum pump that feeds to a filter cassette. The filter cassettes were sent to a laboratory for analysis, typically with a two-day turn around time for results. The two-day lag time delays detecting exceedances of action levels and taking actions to reduce them.

We understand that in the past, staff from SFDPH and BAAQMD have visited the site. In recent months, BAAQMD staff has visited for approximately one hour to two hours every day.

Additionally, the developer hired local community members from Young Community Developers to act as the community's "eyes and ears on the ground" to make sure the construction dust is being properly managed. ATSDR, CDPH, and SFDPH have no detailed information about the training these individuals received or the power these community members have to alter activities on-site.

CDPH Review of Environmental Data

CDPH reviewed the asbestos monitoring data collected between August 3, 2006, and August 19, 2007. There are no asbestos monitoring data available for the first few months of grading (April 25, 2006 – August 2, 2006), due to operator error and equipment malfunctions. Asbestos samples were collected for 12-hour periods starting August 3, 2006, typically from 7 a.m. to 7 p.m. Starting on October 18, 2006, samples were collected for 24 hours, from approximately 7 a.m. to 7 a.m.

The asbestos data has been plotted in a calendar format and color coded to reflect the asbestos measurements while grading activities were occurring relative to the corresponding action levels (see attached). When a recording of greater than 16,000 structures/m^3 occurred, the monitoring station that recorded that level is indicated in parenthesis. A map with names of the monitoring stations and the location of the monitoring stations is also attached. A narrative summary of these findings is also attached.

- Asbestos levels exceeded 1,600 structures/m^3 (the level that triggers an immediate determination of the adequacy of dust mitigation measures) 166 out of 200 days (83%) when grading was occurring on the site. This does not include days of non-operation.

- Asbestos levels exceeded 16,000 structures/m^3 (the level at which grading operations are shut down) 26 out of 200 days (13%) when grading was occurring on the site. This does not include the days of non-operation or of other activities on the property.
    - Exceedances of 16,000 structures/m^3 do not seem to follow a geographical pattern:
        - Exceedances of 16,000 structures/m^3 occurred at stations located along the perimeter of the project where residences or community buildings are located (HV-2, HV-4, HV-5, HV-6, HV-8) 19 times on 16 days of the 200 days. On seven of these days, there were also exceedances at monitoring stations (HV-1, HV-10, HV-11, or HV-12) on the eastern side of the "hilltop" Parcel A away from residences and the community.
        - Exceedances of 16,000 structures/m^3 occurred only at monitoring stations located on the eastern border of the "hilltop" Parcel A away from residences and the community (HV-1, HV-10 (prior to January 26, 2007), HV-11) 20 times on 10 days of the 200 days.
        - There has never been an exceedance of 16,000 structures/m^3 at the monitor on the Muhammed University of Islam School (HV-7) when grading was occurring on Parcel A. The first data from HV-7 occurred on December 5. On February 7, HV-7 recorded 17,800 structures/m^3 on a day when work was being done on the Stormwater Pollution Plan.
    - Exceedances of 16,000 structures/m^3 occurred to a lesser extent last winter during the rainy season, but otherwise do not show a temporal pattern:

        - The following is a listing of the number of exceedances of 16,000 structures/m^3 by month starting in August 2006: 5,2,2,1,1,3,0,0,1,1,3,5,2 (data are not complete for this month).
        - The following is the number of occurrences at the monitoring stations located near the community before and after December 30, 2006:
            - HV-2 5/0
            - HV-4 3/1
            - HV-5 3/3
            - HV-6 1/1
            - HV-8 0/2
    - Wind pattern data are not available for Parcel A. The nearest wind pattern monitoring station is San Francisco Airport, located approximately 10 miles away. This data can not accurately predict conditions at Parcel A.

- Between August 3 and August 10, 2006, asbestos levels exceeded 16,000 structures/m^3 on three days (no measurement reported three of the seven days), with a maximum level of asbestos measured at 24,400 structures/m^3. Grading did not occur on the two weekends during this period. Grading occurred on August 7, August 9, August 11, and August 14; however, no monitoring occurred. (Because of the prior non-detect results from April to June, the developer, as per provisions of the Naturally Occurring Dust Protocol, opted on June 24 to reduce the number of days they would monitor for asbestos to 2 days per week.) On August 15, 16, 17, and 18, no grading occurred because of the exceedances occurring earlier in the month. Apparently the asbestos results for the beginning of August were not received until August 14. This is a gap of 11 days between the first exceedance and the official ceasing of operations due to the exceedance.

- The delay in reporting asbestos levels meant that exceedances of 16,000 structures/m^3 could occur two days in a row: This happened on August 22 and 23, 2006, on January 15 and 16, June 28 and 29, and July 11 and 12, 2007. In all cases, work was stopped two days after the first exceedance.

- Exceedances of 16,000 structures/m^3 occurred on August 30, September 27, October 18, December 18, 2006, and on January 10 and 22, April 12, and July 14 and 24, 2007; work was stopped two days later. There were no exceedances of 16,000 structures/m^3 in the day between the exceedance and shutdown.

- On September 13, 2006, an exceedance of 16,000 structures/m^3 occurred; work was stopped at 11 a.m. the next day due to the exceedance.

- On October 12, 2006, an exceedance of 16,000 structures/m^3 occurred; grading operations were shut down on the afternoon of the following day, October 13.

- On November 30, 2006, asbestos levels exceeded 16,000 structures/m^3, with a maximum level of asbestos measured at 55,700 structures/m^3; grading operations were shut down four days later.

- On February 7, 2007, an exceedance of 16,000 structures/m^3 occurred in a community monitor while work on the Sediment Control Plan of the Stormwater Pollution Prevention Plan was occurring. Although no grading was occurring, this activity involved moving soil on the parcel.

- On Friday, May 4, 2007, an exceedance of 16,000 structures/m^3 occurred. Grading occurred on Saturday with no exceedances. No activity occurred on Sunday, which was the second day after the exceedance. Levels were still high on Monday, May 7. On May 9, work was stopped for the exceedance on Monday, May 7.

- On Friday, June 1, 2007, an exceedance occurred; no work occurred over the weekend. Work was shut down on Monday, June 4 and Tuesday, June 5 because of exceedances on June 1.

- On Friday, July 17, 2007, an exceedance occurred; no work occurred on the weekend because of the exceedances.

- On Friday, July 27, 2007, an exceedance occurred; no work occurred over the weekend. Work was shut down on Monday, July 30 and Tuesday, July 31 because of exceedances on July 27.

- On January 29, 30, 31, February 1 and 6, April 23 and 30, May 24, June 27, July 2, 13, 18, 20, 23, and August 8 and 9, 2007, asbestos levels exceeding 16,000 structures/m^3 were collected from two monitors (HV-10 and HV-12) located in an area believed to be influenced by another source of asbestos other than Parcel A grading operations (see attached figure). As a result, the developer was not required to shut down operations.

Summary of Findings

CDPH evaluated available monitoring data collected from 10 monitoring locations to determine whether the asbestos control measures specified in the Naturally Occurring Asbestos Dust Mitigation Control Plan, dated August 2005, are adequate to maintain compliance with air levels set by the BAAQMD. In addition, CDPH reviewed the Dust Control Plan dated February 2007.

As described in the above bullets, the operations on the Parcel A property have resulted in levels of asbestos above mandated thresholds being measured at the fence line and in the community. These elevations have required work stoppages. The two day delay in reporting air level elevations has often prevented changing the operations in a timely way to reduce these levels.

Our recommendations above are intended to build upon existing efforts to control dust and asbestos migration off-site and to decrease the likelihood of elevations above the level set by the BAAQMD.

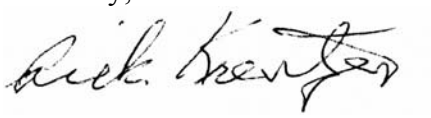
The BAAQMD mandated threshold action levels are based on numbers derived from studies of long-term (many years) exposure to high (higher than the levels being measured at and around the parcel) levels of asbestos resulting in mesothelioma to workers. However, there are studies in the scientific literature in which long term lower level/non-occupational exposures (from take home exposure and other areas of the world where naturally occurring asbestos occurs) caused a low but epidemiologically detectable excess risk of mesothelioma. For example an ecological study in California suggests an association between residential proximity to naturally occurring asbestos and mesothelioma. There are technical difficulties in estimating risk from exposures as brief as a year, using techniques that were developed for life-long exposures. Nonetheless, even a 7-year exposure to the levels of asbestos measured around this excavation was estimated to have risks that, on a personal level, would be considered low. When one considers that the exposures have occurred over the course of a year or two, the estimated risk would be even lower. Regardless, site conditions warrant the monitoring and careful dust abatement measures recommended above.

Based on CDPH scientists' review of previous studies, they would not expect to find X-ray changes as a result of the kinds of exposures that have occurred during excavation. Since X-rays carry their own risks, CDPH would not recommend them. Furthermore, there are no known blood tests for asbestos exposures.

We note that public health concerns and subsequent regulations to control the movement of naturally occurring asbestos dust have only recently arisen, e.g., on July 29, 2002, the state (California Air Resources Board) issued the regulation for asbestos airborne toxic control measures for construction, grading, quarrying, and surface mining operations, as guidance to the local Air Quality Management Districts. Guidelines and their implementation are new and will undoubtedly undergo improvements over time, in part based upon healthy discussion in communities like Bayview Hunters Point.

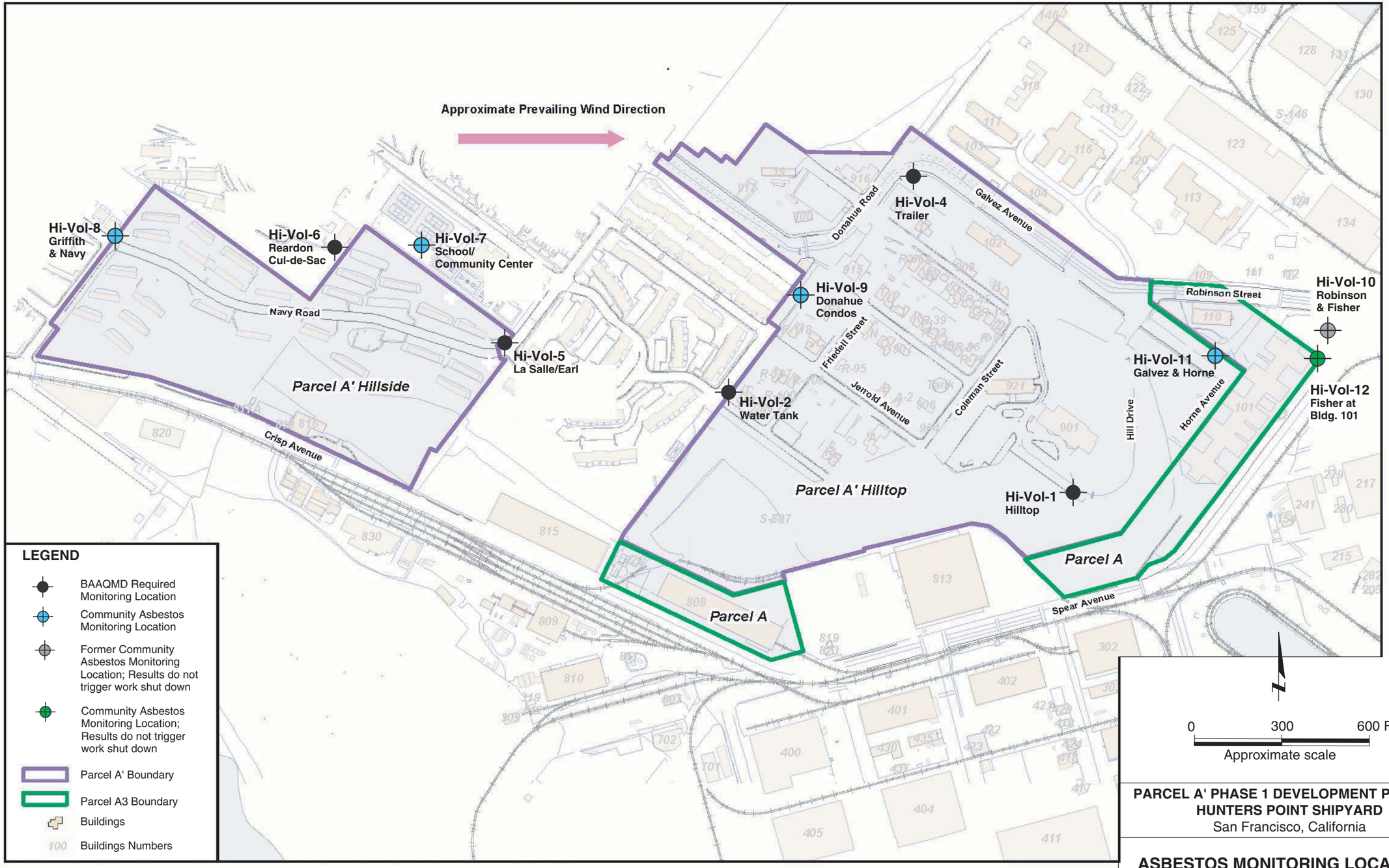
We look forward to working with you and the other agencies to address the recommendations. If you have any questions, please contact me at (510) 620-3620.

Sincerely,



Rick Kreutzer, M.D., Chief
Environmental Health Investigations Branch

Enclosure



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Source: CH2MHill, 9/2006.

PARCEL A' PHASE 1 DEVELOPMENT PROJECT
HUNTERS POINT SHIPYARD
San Francisco, California

ASBESTOS MONITORING LOCATIONS

Date 05/10/07	Project No. 3848.02	Figure 1

Treadwell&Rollo

Asbestos Monitoring Results at Parcel A, August 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3 5/5 6,600; 15,000; 4,700; 7,500; 1,900	4 5/5 6,600; 24,400 (HV-2); 10,300; 16,000 (HV-5); 3,800	5
6	7 Grading No monitoring*	8 4/5 21,600 (HV-1); 18,800 (HV-2); 1,900; 4,700	9 Grading No monitoring*	10 3/5 18,800 (HV-1); 3,800; 2,800	11 Grading No monitoring*	12
13	14 Grading No monitoring*	15 5/5 7,500; 1,000; 2,000; 3,800; 900	16 2/4 1,900; 1,900	17 4/5 900; 900; 1,900; 2,800	18 3/4 7,600; 4,700; 9,500	19 3/5 9,500; 900; 900
20 0/5	21 4/4 5,700; 2,800; 3,800; 9,500	22 4/5 44,600 (HV-1); 20,900 (HV-2); 5,700; 15,200	23 5/5 27,500 (HV-1); 28,400 (HV-2); 8,500; 26,500 (HV-4); 11,400	24 4/5 15,200; 13,300; 3,800; 1,900	25 3/5 1,900; 5,700; 2,800	26 5/5 900; 900; 5,700; 900; 900
27 4/5 900; 2,800; 1,900; 900	28 2/4 1,900; 1,900	29 4/5 4,700; 3,800; 7,700; 4,700	30 5/5 8,500; 12,300; 9,500; 14,200; 5,700	31 5/5 5,700; 4,700; 9,500; 9,500; 8,500		

Asbestos Monitoring Results at Parcel A, September 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 1/5 900	2
3	4	5 5/5 6,900; 9,600; 8,500; 6,600; 8,400	6 5/5 7,600; 12,300; 7,600; 9,500; 4,700	7 4/5 4,700; 7,500; 900; 8,400	8 4/5 900; 3,800; 3,800; 900	9
10	11 5/5 12,300; 6,700; 3,000; 7,600; 2,000	12 5/5 14,200; 10,300; 15,400; 7,500; 5,800	13 5/5 22,800 (HV-1); 11,700; 8,600; 18,000 (HV-4); 3,800	14 5/5 5,700; 1,900; 12,300; 6,600; 3,800	15 3/5 900; 1,900; 900	16 2/5 900; 2,800
17 2/5 900; 900	18 5/5 5,000; 10,400; 7,600; 8,500; 3,800	19 5/5 3,900; 2,800; 4,700; 4,400; 8,500	20 5/5 4,700; 7,600; 8,500; 11,400; 4,700	21 5/5 13,300; 6,600; 7,600; 14,200; 2,800	22 4/5 4,700; 3,800; 3,800; 4,700	23
24	25 5/5 1,900; 900; 2,800; 3,000; 4,800	26 5/5 3,800; 6,700; 1,000; 1,900; 1,000	27 5/5 3,700; 7,600; 5,700; 27,900 (HV-5); 4,700	28 4/5 2,900; 3,900; 1,000; 12,600	29 3/5 11,000; 1,900; 5,500	30 3/5 4,900; 3,900; 1,000

Grading: Asbestos measurements over 16,000 structures/m^3

Grading: Asbestos measurements over 1,600 structures/m^3 and below 16,000 structures/m^3

No grading (Weekend)

10/10 Fraction indicates number of asbestos detections / number of samples

Grading shut down due to exceedances

Action levels: 1,600 structures/m^3 indicate a measurement that triggers an immediate on-site evaluation to determine if dust mitigation measures are still effective; 16,000 structures/m^3 indicate a measurement that triggers an immediate shut-down of construction and/or grading operations.

Blank days indicate no information was provided.

*Under the developer's approved Dust Mitigation Plan, if results showed consistently low results, the monitoring frequencies could be reduced. On June 27, 2006, the developer reduced the monitoring frequencies to two days a week, based on no detection of asbestos since the monitoring had begun on April 25. As was discovered later, the non-detects were not credible.

Asbestos Monitoring Results at Parcel A, October 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 5/5 6,400; 5,500; 4,600; 7,300; 1,000	3 5/5 1,800; 3,700; 3,700; 5,500; 1,800	4 5/5 2,900; 1,900; 4,700; 2,800; 2,900	5 1/5 6,700	6 1/5 2,800	7 0/5
8	9 5/5 11,300; 6,500; 3,000; 4,900; 900	10 5/5 6,600; 4,700; 9,400; 5,400; 3,800	11 5/5 3,800; 1,800; 6,400; 3,900; 1,800	12 5/5 19,300 (HV-1); 1,000; 9,400; 10,000; 900	13 3/5 1,800; 5,500; 1,800	14 3/5 1,900; 2,000; 900
15	16 4/5 7,700; 2,800; 6,400; 900	17 5/5 6,600; 4,600; 35,800 (HV-4); 22,000 (HV-5); 38,100 (HV-6)	18 5/5 6,700; 5,500; 7,300; 12,800; 11,300	19 5/5 5,400; 4,600; 6,400; 5,800; 2,800	20 5/5 5,600; 13,100; 7,300; 2,900; 4,800	21 5/5 4,600; 11,000; 11,900; 5,600; 2,800
22	23 5/5 4,700; 3,700; 5,500; 1,800; 900	24 5/5 5,500; 5,000; 3,700; 1,900; 1,900	25 5/5 13,500; 2,900; 12,500; 3,900; 2,900	26 5/5 14,900; 7,300; 2,800; 6,400; 900	27 3/5 3,900; 2,800; 2,800	28 2/5 900; 2,800
29	30 4/5 4,900; 3,700; 3,800; 3,700	31 4/5 1,000; 3,100; 4,100; 13,800				

Asbestos Monitoring Results at Parcel A, November 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 4/5 4,700; 11,400; 2,100; 500	2 0/5	3 1/5 900	4 1/5 1,900
5	6 3/5 900; 1,800; 4,900	7 2/5 900; 3,800	8 3/5 7,400; 3,700; 2,800	9 3/5 7,400; 4,600; 10,000	10 3/5 1,800; 2,800; 5,900	11
12	13 2/4 1,000; 1,000	14	15 3/4 6,600; 1,900; 1,000	16 3/5 2,000; 1,000; 1,000	17 1/5 1,900	18 1/5 5,500
19	20 0/5	21 3/5 11,100; 1,000; 900	22 3/5 7,700; 4,000; 1,000	23	24	25
26	27 0/5	28 1/5 900	29 0/5	30 4/5 55,700 (HV-1); 23,500 (HV-2); 2,800; 2,800		

No grading (Weekend)

Grading: Asbestos measurements over 1,600 structures/m^3 and below 16,000 structures/m^3

Grading: No measurements over 1,600 structures/m^3

Grading: Asbestos measurements over 16,000 structures/m^3

Grading shut down due to exceedances

10/10 Fraction indicates number of asbestos detections / number of samples

Action levels: 1,600 structures/m^3 indicate a measurement that triggers an immediate on-site evaluation to determine if dust mitigation measures are still effective; 16,000 structures/m^3 indicate a measurement that triggers an immediate shut-down of construction and/or grading operations.
Blank days indicate no information was provided.

Asbestos Monitoring Results at Parcel A, December 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 3/6 900; 5,900; 4,900	2 3/6 1,000; 1,000; **3,100**
3	4 2/6 1,800; 6,900	5 3/9 3,900; 2,800; **8,500**	6 6/9 2,800; 11,900; 1,800; 4,100; **1,800; 3,000**	7 3/9 2,800; **1,000; 3,000**	8	9
10	11 3/9 7,700; **10,400; 1,000**	12	13	14	15	16
17	18 3/9 **5,800; 1,000; 20,100 (HV-10)**	19 5/9 10,700; **1,000; 3,000; 4,600; 7,000**	20 8/9 900; 3,900; 1,900; 3,600; **1,000; 3,900; 1,000; 17,400 (HV-10)**	21 4/9 **1,000; 1,000; 1,000; 900**	22 3/9 2,000; **1,000; 2,900**	23
24	25	26 2/3 **2,900; 8,900**	27	28	29	30

Asbestos Monitoring Results at Parcel A, January 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 5/8 1,900; 2,900; **1,000; 3,800; 2,900**	3 3/5 1,000; 3,900; 4,000	4	5 3/8 5,600; **500; 1,400**	6 0/5
7	8 6/8 900; 4,600; 13,900; 900; **1,900; 4,900**	9 7/8 1,900; 1,900; 1,000; 1,000; **4,900; 1,900; 2,900**	10 6/9 4,600; 2,800; 8,500; **2,000; 21,400 (HV-8); 2,800**	11 8/9 2,000; 2,000; 8,800; 900; **1,000; 1,900; 14,500; 3,900**	12 8/9 1,000; 900; 14,100; 2,800; 900; **1,000; 1,900; 1,900**	13 1/8 **1,000**
14 2/4 **1,900; 1,000**	15 7/9 3,900; 1,000; 4,900; **3,900; 3,900; 19,400 (HV-10); 9,700**	16 7/9 1,900; 2,900; 7,900; **3,900; 1,900; 7,800; 25,600 (HV-11)**	17 5/9 2,000; 2,900; **5,900; 14,200; 4,000**	18 5/9 2,000; **1,000; 900; 13,400; 3,800**	19 4/10 **1,900; 1,000; 6,800; 3,900**	20 1/9 **4,400**
21	22 6/10 4,900; 12,100; 1,000; **2,000; 34,900 (HV-10); 32,000 (HV-11)**	23 5/9 1,900; 4,800; 9,500; **11,000; 8,900**	24 8/9 4,700; 6,900; 2,000; 900; **7,600; 61,200; 40,700; 18,400**	25 5/9 1,000; 3,000; **2,900; 14,200; 2,900**	26 5/9 8,700; **5,900; 6,900; 13,300; 1,000**	27
28	29 6/9 900; 8,600; 900; 1,000; **17,500 (HV-10); 4,000**	30 4/10 3,800; **1,000; 33,200 (HV-10); 3,900**	31 5/9 2,900; 7,900; **13,800; 39,900 (HV-10); 13,100**			

Grading: Asbestos measurements over 1,600 structures/m^3 and below 16,000 structures/m^3

No grading (Weekend)

Grading shut down due to exceedances

Grading: Asbestos measurements over 16,000 structures/m^3

Grading: No measurements over 1,600 structures/m^3

Grading: Asbestos measurements over 16,000 structures/m^3 attributed to a source other than Parcel A grading operations; asbestos above 1,600 structures/m^3 at stations related to Parcel A; work shutdown was not required.

10/10 Fraction indicates number of asbestos detections / number of samples

Action levels: 1,600 structures/m^3 indicate a measurement that triggers an immediate on-site evaluation to determine if dust mitigation measures are still effective; 16,000 structures/m^3 indicate a measurement that triggers an immediate shut-down of construction and/or grading operations.
Blank days indicate no information was provided. Bold values indicate asbestos measurements taken from monitors not located on Parcel A.

Asbestos Monitoring Results at Parcel A, February 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 7/9 2,000; 900; 6,500; **1,000; 14,800; 34,400 (HV-10); 14,400**	2 2/9 4,700; **2,900**	3 2/3 **1,000; 1,900**
4	5 3/9 900; **3,700; 5,600**	6 6/9 11,500; 3,800; **1,000; 10,500; 36,500 (HV-10); 1,000**	7 5/5 **17,800 (HV-7); 4,800; 1,900; 8,800; 28,000 (HV-11)**	8	9 0/4	10 2/5 2,000; 1,900
11	12 4/9 3,000; **1,000; 6,600; 1,000**	13 4/9 2,000; **3,000; 12,900; 3,800**	14	15	16	17
18	19	20 5/9 900; 900; **1,900; 6,600; 2,900**	21	22	23	24
25	26	27	28			

Asbestos Monitoring Results at Parcel A, March 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7 2/6 1,000; **7,800**	8 5/8 1,000; **7,800; 4,800; 8,700; 1,000**	9 4/9 5,600; **1,000; 1,900; 1,000**	10
11	12 6/9 1,000; 900; 1,000; **5,800; 15,000; 13,800**	13 6/9 2,800; 1,900; 1,900; **2,800; 12,900; 1,900**	14 6/9 5,900; 900; 1,000; **1,000; 11,600; 2,900**	15 3/5 6,700; 3,000; 10,500	16 7/10 5,000; 5,700; **1,000; 1,900; 2,900; 2,900; 7,800**	17
18	19 4/9 1,900; 11,600; **4,000; 2,000**	20 0/4	21 0/5	22 5/9 900; 7,700; 900; **1,000; 7,700**	23 3/10 **1,000; 2,000; 1,000**	24
25	26 2/5 6,800; 1,800	27 2/5 1,000; 2,000	28 2/10 1,900; **2,000**	29 2/5 12,400; 10,900	30 2/9 1,000; 2,000	31 0/9

Grading: Asbestos measurements over 16,000 structures/m^3 attributed to a source other than Parcel A grading operations; asbestos above 1,600 structures/m^3 at stations related to Parcel A; work shutdown was not required.

Grading: Asbestos measurements over 1,600 structures/m^3 and below 16,000 structures/m^3

No grading (Weekend)

No grading. SWPPP (Sediment Control Plan of the Storm Water Pollution Prevention Plan) work only. Stabilization of the construction entrance; installation of gravel pads to prevent track-out.

Grading shut down due to exceedances

No grading. Drilling on Hilltop only.

Grading: No measurements over 1,600 structures/m^3

10/10 Fraction indicates number of asbestos detections / number of samples

Action levels: 1,600 structures/m^3 indicate a measurement that triggers an immediate on-site evaluation to determine if dust mitigation measures are still effective; 16,000 structures/m^3 indicate a measurement that triggers an immediate shut-down of construction and/or grading operations.
Blank days indicate no information was provided. Bold values indicate asbestos measurements taken from monitors not located on Parcel A.

Asbestos Monitoring Results at Parcel A, April 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 4/9 4,700; 900; **2,000; 2,900**	3 3/9 7,600; 12,200; **1,000**	4 4/9 7,500; 900; **4,900; 2,900**	5 2/5 3,800; 900	6 2/9 900; 900	7 3/10 900; **1,000; 900**
8	9 7/9 7,800; 1,000; 900; 2,800; **4,000; 9,000; 3,700**	10 5/10 12,500; 5,700; **3,800; 5,800; 5,700**	11 3/9 **1,000; 5,800; 2,000**	12 7/9 5,800; 1,000; 1,900; 21,100 (HV-5); **1,000; 19,700 (HV-10); 2,900**	13 2/9 5,800; 11,400	14 0/5
15	16 6/9 1,000; 900; 1,000; **4,300; 7,700; 3,900**	17 4/9 6,500; **1,000; 1,900; 2,000**	18 4/10 900; 900; **1,900; 5,900**	19 6/10 2,600; 6,400; 1,800; **5,900; 5,900; 8,700**	20 4/9 2,000; 1,000; **1,900; 1,000**	21 5/9 1,000; 1,800; 1,000; **1,000; 3,000**
22	23 3/9 **1,900; 17,500 (HV-10); 5,700**	24 4/9 1,000; **900; 8,700; 1,000**	25 4/9 1,000; **2,000; 11,800; 15,000**	26 6/9 5,800; 1,000; **2,900; 1,900; 5,800; 6,800**	27 6/10 2,000; 2,800; 1,000; 1,000; **2,000; 3,800**	28 5/9 900; 2,800; **4,900; 12,800; 1,900**
29	30 4/9 900; **3,000; 39,400 (HV-10); 5,900**					

Asbestos Monitoring Results at Parcel A, May 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 7/10 1,000; 900; 2,700; 5,600; **7,900; 10,700; 2,900**	2 3/9 **1,000; 2,900; 1,000**	3 5/9 1,000; 3,000; **4,800; 8,600; 5,800**	4 2/9 19,500 (HV-6); **900**	5 3/9 **3,800; 14,600; 2,000**
6	7 8/10 4,600; 5,800; 1,000; **6,600; 900; 15,100; 14,200; 8,900**	8 7/9 11,700; 5,700; 12,000; 1,800; **4,800; 1,900; 6,700**	9 4/9 5,700; 5,700; **5,600; 13,000**	10 3/9 **2,900; 7,700; 9,900**	11 3/9 1,900; **1,000; 1,000**	12
13	14 3/9 **900; 900; 2,900**	15 2/9 **1,900; 5,800**	16 4/9 **1,000; 1,900; 3,800; 4,800**	17 6/9 1,000; 12,500; 12,200; **1,900; 4,900; 6,700**	18 4/10 2,900; **1,000; 1,900; 1,800**	19
20	21 4/9 2,800; **1,000; 1,900;1,900**	22 8/9 900; 900; 1,000; 2,800; **1,000; 900; 1,900; 8,000**	23 4/9 900; **900; 6,800; 10,400**	24 2/10 **1,900; 17,000 (HV-12)**	25 4/9 **1,000; 1,900; 1,900; 10,900**	26
27	28	29 5/10 **1,000; 900; 3,900; 6,900; 5,300**	30 5/9 1,000; **3,900; 1,000; 11,800; 7,800**	31 4/9 **1,900; 7,700; 2,900; 13,600**		

No grading (Weekend)

Grading: Asbestos measurements over 1,600 structures/m^3 and below 16,000 structures/m^3

Grading: Asbestos measurements over 16,000 structures/m^3

Grading shut down due to exceedances

No grading. Drilling on Hilltop only.

Grading: Asbestos measurements over 16,000 structures/m^3 attributed to a source other than Parcel A grading operations; asbestos above 1,600 structures/m^3 at stations related to Parcel A; work shutdown was not required.

10/10 Fraction indicates number of asbestos detections / number of samples

Action levels: 1,600 structures/m^3 indicate a measurement that triggers an immediate on-site evaluation to determine if dust mitigation measures are still effective; 16,000 structures/m^3 indicate a measurement that triggers an immediate shut-down of construction and/or grading operations.
Blank days indicate no information was provided. Bold values indicate asbestos measurements taken from monitors not located on Parcel A.

Asbestos Monitoring Results at Parcel A, June 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 7/9 900; 1,900; 900; 18,400 (HV-5); 900; **1,000; 2,000**	2
3	4 4/9 1,000; **2,000; 2,800; 10,600**	5 2/9 3,700; **2,500**	6 7/10 4,000; 900; 2,900; 5,900; **1,000; 1,000; 12,300**	7 6/9 1,000; 12,300; **1,000; 1,000; 4,800; 7,800**	8 4/9 900; 3,000; 1,900; **2,000**	9
10	11 3/10 **1,900; 2,800; 11,900**	12 7/9 1,000; 8,500; 1,900; **1,000; 2,000; 5,000; 7,500**	13 5/9 1,900; 900; **1,000; 12,200; 14,900**	14 4/9 2,800; 2,800; 2,800; **8,700**	15 4/9 1,000; 2,800; **3,000; 11,800**	16
17	18 2/8 **1,000; 3,000**	19 6/9 1,000; 900; 800; **8,700; 1,000; 7,500**	20 2/8 **1,000; 11,900**	21 3/8 **1,900; 9,500; 5,900**	22 3/10 **1,000; 6,700; 4,900**	23
24	25 4/9 1,900; **1,000; 5,700; 9,900**	26 4/9 900; 4,900; **2,000; 4,000**	27 4/10 12,500; 1,100; **9,700; 18,100 (HV-12)**	28 4/9 47,200 (HV-1); 1,000; **29,300 (HV-11); 45,600 (HV-12)**	29 4/9 16,900; 1,000; **2,900; 1,000**	30 1/9 **1,000**

Asbestos Monitoring Results at Parcel A, July 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 0/5	2 6/9 51,500; 900; 2,700; 900; **14,400; 26,600 (HV-12)**	3 1/10 4,800	4 2/9 **7,600; 5,000**	5 4/9 6,600; 4,500; **7,600; 10,800**	6 4/9 5,600; 1,000; **9,500; 12,700**	7 0/5
8	9 4/9 12,800; 4,900; **11,300; 10,800**	10 3/9 **1,000; 2,900; 3,900**	11 5/9 24,500 (HV-1); 12,900; 21,700 (HV-4); **3,900; 34,100 (HV-12)**	12 5/10 28,900 (HV-1); 8,300; 11,100; **27,100 (HV-11); 33,300 (HV-12)**	13 5/9 3,900; 1,900; 5,700; **3,800; 16,300 (HV-12)**	14 2/4 **1,000; 2,000**
15	16 4/9 6,500; **1,000; 7,000; 10,400**	17 3/9 6,800; **1,000; 2,000**	18 4/9 2,800; **3,900; 2,000; 25,500 (HV-12)**	19 6/9 8,300; 1,800; 900; **900; 27,500 (HV-11); 24,100 (HV-12)**	20 5/10 3,700; 6,500; **11,900; 12,800; 30,000 (HV-12)**	21
22	23 3/9 13,300; **3,900; 28,900 (HV-12)**	24 5/10 7,600; 1,900; **9,900; 24,200 (HV-11); 33,900 (HV-12)**	25 4/9 3,700; 2,900; **8,800; 11,400**	26 2/9 **6,700; 6,900**	27 4/9 2,900; **1,000; 23,300 (HV-11); 5,700**	28
29	30 4/9 2,000; **1,900; 4,800; 10,700**	31 3/9 3,700; **4,800; 9,900**				

Grading: Asbestos measurements over 16,000 structures/m^3

Grading: Asbestos measurements over 1,600 structures/m^3 and below 16,000 structures/m^3

No grading (Weekend)

Grading: Asbestos measurements over 16,000 structures/m^3 attributed to a source other than Parcel A grading operations; asbestos above 1,600 structures/m^3 at stations related to Parcel A; work shutdown was not required.

Grading shut down due to exceedances

10/10 Fraction indicates number of asbestos detections / number of samples

Action levels: 1,600 structures/m^3 indicate a measurement that triggers an immediate on-site evaluation to determine if dust mitigation measures are still effective; 16,000 structures/m^3 indicate a measurement that triggers an immediate shut-down of construction and/or grading operations.
Blank days indicate no information was provided. Bold values indicate asbestos measurements taken from monitors not located on Parcel A.

Asbestos Monitoring Results at Parcel A, August 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 4/10 1,000; **1,000; 5,900; 10,500**	2 3/9 1,900; **3,900; 14,800**	3 6/9 3,800; 3,900; 5,900; 2,000; **1,000; 3,000**	4
5	6 3/10 12,700; **7,500; 14,300**	7 5/9 8,100; 6,200; 900; **3,000; 10,900**	8 4/9 **1,000; 4,000; 2,000; 27,400 (HV-12)**	9 4/9 1,900; **1,000; 8,500; 55,000 (HV-12)**	10 7/9 1,900; 3,900; 900; **2,900; 1,000; 4,900; 4,800**	11 2/9 **2,000; 3,800**
12	13 5/9 1,800; 900; **1,900; 2,900; 12,900**	14 7/9 6,600; 1,900; 17,800 (HV-5); **1,900; 2,000; 3,000; 8,900**	15 8/9 1,000; 2,900; 11,700; 1,800; **1,000; 1,900; 9,600; 11,500**	16 7/10 1,000; 8,900; 3,000; **4,800; 1,000; 33,200 (HV-11); 53,200 (HV-12)**	17 7/10 1,900; 1,000; 2,900; 5,700; 900; **46,000 (HV-8); 3,800**	18 6/10 900; 2,900; **10,900; 1,000; 9,000; 3,000**
19 1/5 2,800	20	21	22	23	24	25
26	27	28	29	30	31	

Grading: Asbestos measurements over 1,600 structures/m^3 and below 16,000 structures/m^3

No grading (Weekend)

Grading: Asbestos measurements over 16,000 structures/m^3 attributed to a source other than Parcel A grading operations; asbestos above 1,600 structures/m^3 at stations related to Parcel A; work shutdown was not required.

Grading: Asbestos measurements over 16,000 structures/m^3

Grading shut down due to exceedances

10/10 Fraction indicates number of asbestos detections / number of samples

Action levels: 1,600 structures/m^3 indicate a measurement that triggers an immediate on-site evaluation to determine if dust mitigation measures are still effective; 16,000 structures/m^3 indicate a measurement that triggers an immediate shut-down of construction and/or grading operations.
Blank days indicate no information was provided. Bold values indicate asbestos measurements taken from monitors not located on Parcel A.