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DEPARTMENT OF HEALTH
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September 25, 2008

Michelle B. Tabayoyong
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U.S. EPA, Region 2
2890 Woodbridge Avenue
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Edison, NJ 08837

Re: Letter Health Consultation for the Phase 2
Residential Properties
2005 Soil Sampling Results
Former NL Industries Site
Depew, NY

Dear Ms. Tabayoyong:

In 2003, under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), the New York State Department of Health (NYS DOH) prepared a health consultation for the Former NL Industries Site in Depew, NY (ATSDR 2003). Specifically, the health consultation included an evaluation of soil sampling data and the public health implications of exposure to lead-contaminated residential soils at properties off-site and downwind of the Former NL Industries Site. The NYS DOH and ATSDR concluded that the potential for adverse health effects from exposure to elevated lead-contaminated residential soils existed and recommended that actions be taken to prevent or reduce human exposures. As discussed further in this letter health consultation, NL Industries completed removal of lead contamination on 36 residential properties (Phase 1 area) between 2005 and 2006.

In 2005, the US EPA conducted additional soil sampling on residential yards further downwind of the remediated Phase 1 area (referred to as Phase 2 area) to better define the extent of lead contamination. US EPA asked ATSDR and NYS DOH whether the health consultation for Phase 1 (ATSDR 2003) would be applicable to the Phase 2 area. US EPA requested NYSDOH verification and documentation that the same conclusions would apply. ATSDR and NYS DOH have evaluated the data generated during the supplemental 2005 (Phase 2 area) soil sampling event. This letter health consultation provides an evaluation of the Phase 2 area soil sampling data, and the public health implications of exposure to lead-contaminated residential soils at Phase 2 area properties, in consideration of findings and recommendation of the 2003 health consultation for the Phase 1 area.

Background and Statement of Issues

The former NL Industries site, at 3241 Walden Avenue in the Village of Depew, is an inactive lead processing facility formerly operated by NL Industries. It currently houses Metro Waste Paper Recovery, a subsidiary of Norampac of Kingsey Falls, Quebec. According to state and local records, operations at this location started in 1872, and ceased in 1972. Past on-site activities included brass foundry operations, smelting operations carried out in the early 1900's, and the processing of metal alloys used for ball bearing surfaces. The rectangular 7.5 acre site contains one main building on the east side of the property. The site is immediately bordered on the south by

an active, highspeed CSX railroad track serving Buffalo, and commercial parcels to the west and east. Across Walden Avenue to the north and northeast lies a residential area of single family homes and several multi-family dwellings. A site location map is attached as Figure 1.

During the operational history of the site, lead contaminated sludges were disposed in lagoons on the south side of the central portion of the site and were spread on-site throughout the property. On July 14, 1999, Norampac signed, and implemented later that month, a NYS DEC Order on Consent (a legal agreement) for an interim remedial measure (IRM) to limit airborne migration of lead contaminated dust from the former lagoon area and parking lot. The IRM provided for a soil cover on the western portion of the site, and additional stone for the truck area on the central portion of the site. XCG Consultants, on behalf of NL Industries, conducted limited residential soil sampling for lead in June 1999 along the north curb line of Walden Avenue. In August 2001, XCG Consultants, on behalf of Norampac, conducted soil sampling for metals analysis on 13 residential properties north of Walden Avenue. Based upon those results, sampling was expanded to include 20 additional residential properties in April 2002 and resampling of one yard from the 2001 sampling event. Both sampling events were performed under the oversight of NYS DOH and NYS DEC.

Using US EPA's residential lead hazard standard of 400 milligrams per kilogram (mg/kg) for residential soils, the results defined the areal extent of residential soil contamination downwind of the facility at that time. Based on the levels detected and comparison to background levels and public health comparison values, lead was the only identified contaminant of concern.

In 2005, NL Industries began a soil removal action to address lead contamination on 36 residential properties identified in the 2001 and 2002 sampling as requiring remediation (i.e., at locations that exceed 400 mg/kg). These properties, known as the Phase 1 area, were in the area bounded by Walden Avenue to the south, Harvard Avenue to the north, and Transit Road to the east (see Figure 1). Work was substantially completed by late 2005, and was fully completed in 2006.

Phase 2 Area Sampling

In April, July, and November of 2005, the US EPA conducted additional soil sampling on residential yards further downwind of the remediated area to better define the extent of lead contamination. Additional soil samples were collected on 71 residential properties to the north and east of the area initially delineated for remediation. This area, known as the Phase 2 area, includes properties along Princeton Street, Tyler Street, Brewster Street, Rumford Street, Lincoln Street, and Walden Avenue, all northeast of the former NL Industries site. Soil was collected using modified guidelines contained in the *EPA Superfund Lead-Contaminated Residential Sites Handbook* and submitted to the lab for lead analysis only.

Phase 2 area residential soil sample results were compared to chemical-specific NYS Soil Cleanup Objectives (SCOs) for residential use (Table 375-6.8(b)). SCOs are contaminant-specific remedial action objectives for soil based on a site's current, intended or reasonably anticipated future use. In developing the SCOs, NYS DEC and NYS DOH considered many factors including multiple human exposure pathways (soil ingestion, dermal contact, inhalation, homegrown vegetable consumption, home-produced animal product consumption), short-term and long-term exposures, protection of ecological resources, protection of groundwater and background levels of chemicals in rural soils. Soil cleanup objectives have been developed for several land use categories, including "unrestricted" land use.

NYS DOH used the SCO for lead in the "residential" land use category to evaluate the off-site Phase 2 area residential soil sample data because we believe the most likely uses of these properties in the future will remain residential. The residential SCOs are lower than SCOs for other land use categories because the human health values consider exposure by all of the exposure pathways identified above. It should be noted that the NYS SCO for lead in the residential land use category is 400 mg/kg, which is the same value as the lower of US EPA's residential lead hazard standards that was used to evaluate the Phase 1 residential area sample data.

Each residential property was divided into quadrants from which two, five-point composite samples were collected; one sample from the 0 to 6 inch interval, and one sample from the 6 to 12 inch interval. Properties greater than 5000 square feet were divided into four quadrants, and properties less than 5000 square feet were divided into two quadrants. In addition, one four-point composite sample was collected from the drip zone of the residence. Of the 71 Phase 2 area properties sampled, 59 properties have at least one quadrant with a lead concentration exceeding 400 mg/kg. The results for lead in surface soils and subsurface soils are summarized in Table 1 below.

Table 1

Concentrations of Lead in Surface and Subsurface Soil Samples from Phase 2 Investigations of Residential Properties near the NL Industries Site compared to Residential Soil Cleanup Objective (SCO)

Sample Type	SCO (mg/kg)[1]	Range (mg/kg)	Average Result (mg/kg)
Surface Soil	400	55 – 2,800	510
Subsurface Soil	400	45 – 4,900	411

[1] NYS Part 375-6.8(b) Restricted Use Soil Cleanup Objectives

Sampling in the Phase 1 and Phase 2 area properties focused on likely areas of exposure and areas likely impacted by aerial deposition of lead-containing dust from NL and other industries. Sampling in the Phase 2 area also included the collection of dripline area samples, where appropriate. In Phase 2, property characteristics (driveways, pavement, etc.), and landscaping features and materials limited the collection of dripline samples, and dripline samples were only collected where native soil was present or comprised a significant portion of the lawn being characterized.

In the Phase 1 area (i.e. the 2005-2006 remediated area), results for lead in surface soils ranged from 18 mg/kg to 5,300 mg/kg, and in subsurface soils from 29 mg/kg to 1,200 mg/kg. The difference in the subsoil samples may be attributable to the differences in sample collection, where Phase 2 sampling included dripline areas where higher concentrations of lead are likely.

Additional information on the public health implications of exposure to lead in soil are contained in ATSDR (2003).

Conclusions

Given the proximity of the Phase 1 and Phase 2 areas, the residential use of both areas and the analytical data, the findings of the 2003 health consultation for the Phase 1 area are considered generally applicable to the Phase 2 area. Therefore, ATSDR and the NYS DOH conclude that the potential for adverse health effects from exposure to elevated lead-contaminated residential soils in the Phase 2 area exists and actions are recommended to prevent or reduce human exposures in the Phase 2 area. Most of the properties (59 out of 71) have lead levels in residential soil that exceed the US EPA lead standard for bare soil and the New York State Soil Cleanup Objective for residential land use (400 mg/kg). Where levels of lead in soil are greater than the US EPA lead hazard standard of 1,200 mg/kg and where children have the potential to be exposed to levels of lead in soil above 400 mg/kg, soils downwind of the former NL Industries site pose a public health hazard and public health actions are needed.

Recommendations

Because the potential exists for increased exposure to lead in soil, measures to reduce exposure are recommended for properties exceeding 400 mg/kg. These measures could include: maintaining grass cover, clean soil, gravel or mulch on bare soils, especially in areas where children play; and having children wash their hands after playing in the yard. The measures could also include removal of the contaminated soil and replacement with clean soil, depending on the lead levels of the individual property and the actual potential for human exposure, particularly with respect to young children. The urgency to take these or other measures increases as the lead level in soil is increases over 400 mg/kg.

Sincerely,

Matthew J. Forcucci
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Western Regional Office

References

Agency for Toxic Substances and Disease Registry (ATSDR), 2003. Health Consultation – Off-site Residential Properties Former NL Industries Site, Village of Depew, Erie County, NY. Prepared by the New York State Department of Health under a cooperative agreements with the ATSDR. September 19.

Attachments: Figure 1

cc: G. Litwin/D. Miles/R. Fedigan
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