

Letter Health Consultation

FORMER ORCHARD HILLS GOLF COURSE

3650 NORTH GREEN BAY ROAD

WAUKEGAN, ILLINOIS

**Prepared by the
Illinois Department of Public Health**

JUNE 22, 2010

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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LETTER HEALTH CONSULTATION

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Pat Quinn, Governor
Damon T. Arnold, M.D., M.P.H., Director

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Mr. Jacob Hassan
U.S. EPA Region 5 (LM-7J)
77 West Jackson Blvd.
Chicago, IL 60604

Dear Mr. Hassan:

The Illinois Department of Public Health (IDPH) was asked by the Agency for Toxic Substances and Disease Registry (ATSDR) Region 5 and U.S. Environmental Protection Agency (USEPA) Region 5 to review the environmental data for the Waukegan Outdoor Sports Complex in Waukegan, IL, which is being developed from a former golf course. The community has concerns about arsenic contamination on the property.

Site Background

On March 23, 2009, a citizen's group collected 18 soil samples from the former Orchard Hills Golf course, located at 3650 North Green Bay Road, in Waukegan, IL. This property is being converted into the Waukegan Outdoor Sports Complex, pending an evaluation of the levels of arsenic found in the soil.

The citizens were concerned that arsenic, which was used in the past as a pesticide on the golf course, was at levels that could cause adverse health effects. The soil samples were sent to the A&L Analytical Laboratories in Memphis, TN for total arsenic analysis. The results were forwarded to Alpha Environmental Inc. (AE) for review, and a follow-up site investigation of potential arsenic in the soils was conducted. On April 4, 2009, AE collected new samples in the soil at the tee areas, greens, and fairways on each of the 18 holes, along with background samples, using U.S. Environmental Protection Agency (USEPA) approved sampling protocols. A total of 108 soil samples and eight background samples were taken with a hand auger, at depths of 0 to 6 and 6 to 12 inches below ground surface (bgs). Environmental Monitoring and Technologies (EMT) Laboratory in Morton Grove, IL analyzed the samples for total arsenic.

The most conservative Illinois Environmental Protection Agency (Illinois EPA) soil remediation objective (SRO) for arsenic is 13 parts per million (ppm) in the Tier 1 Residential Property SRO, based on ingestion of soil. IDPH evaluated the results from the 0 to 6 inch samples because that is the depth to which the most exposure can occur.

The samples taken from all 18 greens, at 0 to 6 inches bgs, were greater than 13 ppm, except for the 18th green. The Illinois EPA Toxic Characteristic Leaching Procedure (TCLP) was used to analyze three of the green soil samples with the highest arsenic concentrations. Illinois EPA's acceptable TCLP level is 5 ppm, and the highest TCLP arsenic level detected in these samples was only 0.186 ppm. This indicates that the arsenic would not be particularly mobile in the soil.

Of the 18 tee locations, only two samples were greater than 13 ppm in the 0 to 6 inches bgs. The fairway concentrations were similar in that four samples were above 13 ppm screening level.

Of the 36 samples collected, the greens had an average concentration of 104.5 ppm of arsenic, the tees had an average of 9.6 ppm of arsenic, and the fairways had an average of 9.65 ppm of arsenic. This data suggests that an arsenic containing product had been used on the greens and was mainly detected in the shallow soil.

A remedial action was taken from May 4 to July 1, 2009 by AE to ensure the soil of the new sports complex would meet the Illinois EPA SRO of 13 ppm of arsenic. The plan involved removing the top 9 inches of soil at all greens. An exception was made for two greens which needed more soil removed because higher levels of arsenic were present. A 6-foot area around all 18 greens also was removed.

A total of 273 truckloads of soil were removed from the green locations, and past cleanup soil samples were taken for arsenic analysis. All samples collected after remedial action were less than 13 ppm, except for green 16, which needed additional soil removed. After the additional soil was removed from green 16, the second arsenic analysis was less than 13 ppm SRO. After the greens were remediated, no further action was necessary.

Discussion

The chemical of interest was arsenic, and the primary route of exposure to arsenic at this property would be from ingestion of surface soil through hand-to-mouth activity. Therefore, the most conservative Illinois EPA SRO of 13 ppm was used to determine whether the levels of arsenic were too high. In addition, exposure to the soil would have been of short duration based on the intended use of the facility. The soil was tested twice before and once after the removal. By excavating the soil containing arsenic at levels greater than 13 ppm, the remaining surface soil would be at levels less than 13 ppm.

Conclusion

IDPH concludes that at the present time, the levels of arsenic in the soil of the Waukegan Outdoor Sports Complex are less than the Illinois EPA SRO level, and is not expected to harm people's health. Since the former golf course is being converted into soccer fields and arsenic-based pesticides will no longer be used, exposure to arsenic in soil would not be a health hazard and no further action is necessary.

If you have any further site-related questions, please contact me at 217-782-5830.

Sincerely,



Tiffanie Denny
Environmental Toxicologist



Meredith Stebor
Graduate Public Service Intern

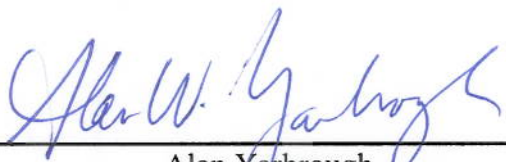
Certification

This Former Orchard Hills Golf Course letter health consultation was prepared by the Illinois Department of Public Health under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodologies and procedures existing at the time the health consultation was initiated. Editorial review was completed by the Cooperative Agreement partner.



Charisse J. Walcott
Technical Project Officer, CAT, CAPEB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation and concurs with its findings.



Alan Yarbrough
Team Lead, CAT, CAPEB, DHAC, ATSDR

