Letter Health Consultation

Precision National Plating Site Clarks Summit, Pennsylvania

November 8, 2011

Prepared By:

Pennsylvania Department of Health Division of Environmental Health Epidemiology Health Assessment Program

Health Consultation: A disclaimer

The Pennsylvania Department of Health (PADOH) Health Assessment Program (HAP) collaborates with the Agency for Toxic Substances and Disease Registry (ATSDR), the lead federal public health agency, to prepare health consultation documents to determine if exposure to contaminants can harm people's health and to prevent and reduce exposures and illnesses. A health consultation is a written response to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material, and considers the levels of hazardous substances at a site, whether people might be exposed to contaminants, by what pathways, and what potential harm the substances might cause to people. In order to prevent or mitigate exposures, a consultation may lead to specific actions and recommendations, 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; conducting health studies; characterizing demographics; recommending changes/additions to related Commonwealth of Pennsylvania policies/regulations, improving quality of life; and/or providing health education for health care providers and community members.

ATSDR provides technical assistance and funding to PADOH to help identify and evaluate environmental health threats to communities using the best science, taking responsive public health actions, and providing trusted health information. While this health consultation was supported by funds from a cooperative agreement with the ATSDR it was not published by ATSDR. More information about ATSDR is available online at www.atsdr.cdc.gov.

The conclusions and recommendations presented in this health consultation document are based on an analysis of the environmental sampling data and information made available to the PADOH within a limited time frame. The availability of additional sampling data, new information and/or changes in site conditions could affect the conclusions and recommendations presented in this document. PADOH will consider reviewing additional future data related to the site, if made available and deemed appropriate.



To:

Ms. Ann DiDonato, On Site Coordinator EPA Region 3

From:

Dr. Farhad Ahmed, Principle Investigator, Health Assessment Program,

Division of Environmental Health Epidemiology

Subject:

Data analysis of hexavalent chromium at the Precision National Plating site

The Pennsylvania Department of Health (PADOH) has prepared a letter health consultation (LHC) evaluating the hexavalent chromium levels in soil samples collected from a vacant property adjacent to the Precision National Plating site in Clarks Summit, Pennsylvania. This evaluation was done at the the request of the Environmental Protection Agency's (EPA) Region 3 to determine if the levels of hexavalent chromium and total chromium found in these samples pose a public health threat.

The Agency for Toxic Substance and Disease Registry (ATSDR) provides technical assistance and funding, through a cooperative agreement with PADOH, to help identify and evaluate environmental health threats to communities by using the best available science, taking responsive public health actions, and providing trusted health information. While this LHC was supported by this cooperative agreement, it has not been reviewed and cleared by ATSDR. The conclusions and recommendations presented in this LHC document are based on an analysis of the data and information made available to the PADOH within a limited time frame. The availability of additional sampling data, new information and/or changes in site conditions could affect the conclusions and recommendations. More information about ATSDR is available online at www.atsdr.cdc.gov.

Background and Statement of issues:

PADOH was requested by the EPA Region 3 On Site Coordinator (OSC) to (a) review data from 12 grab soil samples (including one duplicate sample) collected by EPA in July 2011 from a vacant property adjacent to the Precision site and (b) provide a written response (LHC) about whether there is any public health concern related to direct contact with these soils. The request from EPA was received by PADOH through ATSDR Region 3 on October 4, 2011.

The Precision National Plating Site is located at 198 Ackerly Road, Clarks Summit, Lackawanna County. This location is approximately 10 miles north of Scranton, Pennsylvania¹. The site property is comprised of 46 acres, of which approximately five (5) acres were used for site operations while the rest remained undeveloped and largely wooded. A 45,000 square foot operations building was the principal structure on the site. The site began operation in 1956 as a chromium electroplating facility for

locomotive crankshafts. This operation continued when Precision bought the facility in 1971. At that time Precision started an industrial component reconditioning facility on the site which operated until all site operations ceased in April 1999. Under an April 1998 EPA Administrative Order, Precision 1) performed an investigation of ground water impacts due to hexavalent chromium contamination 2) conducted an ecological risk assessment and 3) installed collection and treatment systems at all chromium impacted seeps at the site. With oversight by the Pennsylvania Department of Environmental Protection (PADEP) and EPA, the former plating building was demolished in the fall of 2000.

In August 2002, EPA issued a notice to Precision requiring that additional measures be taken to mitigate impacts of hexavalent chromium on the site. In February 2003, EPA required Precision to respond to a release of chromium-contaminated water on the property. The release demonstrated that sources of chromium were still present on the site property. Based on soil and groundwater data collected as part of the source area investigations, in August 2004 Precision submitted a report to the EPA defining the horizontal and vertical extent of hexavalent chromium source areas. In July 2006, Precision began injecting calcium polysulfide into source areas to reduce hexavalent chromium to a relatively non-toxic form that will precipitate and remain in the soil matrix. In March 2007, Precision began excavation of the basement of the former chromium electroplating facility.

In the fall of 2007 and February-March 2008, further sampling was conducted, including soil boring, rock coring and groundwater sampling. These samples confirmed that residual contaminant sources remained at the site in the weathered rock and shallow competent bedrock (18-30 feet below the ground surface) beneath the former building slab. Sampling of the perched groundwater identified the presence of a source area within the shallow bedrock beneath the building slab. From August 2008 to January 2009, Precision conducted additional in-situ chemical injections using calcium polysulfide to treat these residual areas of contamination in the shallow bedrock. Perimeter air monitoring was done during the injections to ensure that excessive amounts of hydrogen sulfide were not being produced as a result of the treatment. Remote air monitors with alert capability located between the site and residential areas were utilized during overnight hours. Since January 2009, Precision has conducted quarterly sampling on the site, in order to determine the effectiveness of the injections, and whether additional remediation work is needed. In October 2010, a third round of calcium polysulfide injections into groundwater sources was initiated with a fourth round conducted in October 2011.

The vacant property adjacent to the site where the July 2011 soil samples were taken is shown in the red parcel boundary on the map found on page 8. These samples were taken by EPA at the request of an individual who had recently purchased this property with the intent of building a home on the site.

Data Review:

The 12 soil grab samples were taken at six locations on the vacant property adjacent to the Precision site. The samples were taken at depths ranging from 0-24 inches, with 7 (one duplicate) considered surface (<3 inches in depth) soil samples and 5 considered subsurface (>3 inches in depth) soil samples.

Surface soil samples are important for human exposure assessment because people are more likely to come in contact with surface soil than subsurface soil. This is even more relevant for children, especially "pica" children who are prone to consume non-food items, including soil. To assess the public health risk, the analysis in this document focuses primarily on the surface soil samples.

All 12 grab soil samples were analyzed for total chromium as well as hexavalent chromium. Table 1 summarizes the results:

Table 1

Sample Results - Adjacent Property					
Sample	Depth (inches)	Sample Type	Collection Date	Total Chromium (ppm)	Hexavalent Chromium (ppm)
PN-071411-SS-01	0-3	Grab	7/14/2011	2710	3.9
PN-071411-SB-01	16-22	Grab	7/14/2011	75.3	12.3
PN-071411-SS-02	0-3	Grab	7/14/2011	1210	8.6
PN-071411-SB-02	18-24	Grab	7/14/2011	161	15.1
PN-071411-SS-03	0-3	Grab	7/14/2011	10.8	1.0
PN-071411-SB-03	18-24	Grab	7/14/2011	18.0	2.2
PN-071411-SS-04	0-3	Grab	7/14/2011	3060	7.2
PN-071411-SB-04	18-24	Grab	7/14/2011	72.8	16.2
PN-071411-SS-05	0-3	Grab	7/14/2011	11.8	ND
PN-071411-SB-05	14-20	Grab	7/14/2011	8.9	ND
PN-071411-SS-06	0-3	Grab	7/14/2011	9.4	ND
PN-071411-SS-07	0-3	Duplicate of PN-071411- SS-02	7/14/2011	1500	5.8

Notes:

PN - Precision National

ppm - parts per million

SB - Soil Boring

SS - Surface Soil

Interpretation:

ATSDR has developed health based comparison values (CVs) which are chemical specific concentrations used to determine environmental contaminants of health concern. CVs and information contained in the current literature are used to determine contaminants that require further evaluation. These CVs include Environmental Media Evaluation Guides (EMEGs), Reference Dose Media Evaluation Guides (RMEGs) and others.

Based on the review of the soil sampling data, the levels of hexavalent chromium detected in surface soil samples were in the range of non-detect (ND) to 8.6 ppm. The levels detected are below the comparison values (chronic EMEGs) for children or adults of 50 ppm and 700 ppm, respectively². Also, the levels are below intermediate EMEGs for pica children (10 ppm). Therefore, hexavalent chromium detected in the surface soil samples does not pose a health concern. The levels detected in subsurface soil samples are also well below comparision values of ATSDR chronic EMEGs for hexavalent chromium. They are also below the ATSDR intermediate EMEGs for hexavalent chromium of 300 ppm and 4,000 ppm for children and adults, respectively². Of note, three of the subsurface soil samples contained levels of hexavalent chromium (12.3 ppm, 15.1 ppm, and 16.2 ppm) that are above the intermediate EMEG of 10 ppm for a pica child. However, it is unlikely that a pica child would be present at the site when subsurface soil would likely be exposed during future construction at the site.

The total chromium numbers are also not a public health concern. Total chromium is a combination of elemental chromium, hexavalent chromium and trivalent chromium. Chromium compounds used in the industry are mostly in the form of trivalent chromium and hexavalent chromium. Therefore for this former industrial setting the total chromium is a combination of trivalent and hexavalent chromium. For trivalent chromium, the EPA Reference Dose Media Evaluation Guide (RMEG) values are 80,000 ppm and 1,000,000 ppm for a child and adult, respectively. These values are much higher than the highest sample value for total chromium (3,060 ppm) among all 12 soil samples collected. Therefore, PADOH concludes that the total chromium detected in this parcel of land does not pose a public health concern.

Conclusions and Recommendations:

PADOH concludes that the levels of hexavalent chromium and total chromium detected in the soil samples on the vacant property in question adjacent to the Precision National Plating site pose no public health hazard to adults or children residing near the site. No actions to protect the public health are therefore needed at this time. These conclusions are specific to the location that was sampled and are based purely on data currently available. The conclusions may change if conditions at the Precision site change in the future.

If additional environmental data become available, PADOH is available to review the data if requested. If residents near the site have concerns about their health, they should contact their health care provider. If there are any questions about the report, please contact me at (717) 787-3350 or fahmed@pa.gov.

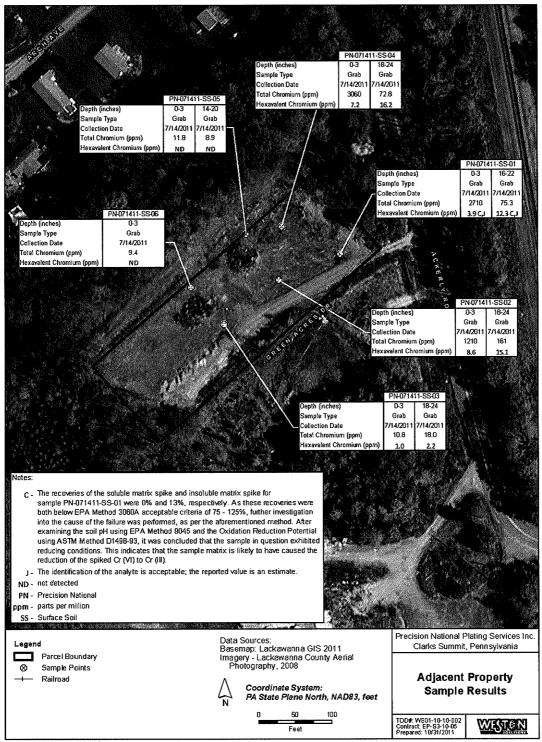
Sincerely,

Farhad Ahmed, MBBS, MPH

Principle Investigator, Health Assessment Program Division of Environmental Health Epidemiology

References:

- 1. EPA Site Profile: Precision National Plating Site, Clarks Summit, PA EPA Region III: http://www.epaosc.org/site/site profile.aspx?site id=2425
- 2. Soil Comparison Values, page 5 of 16; Contact Annmarie DePasquale, ATSDR Division of Health Assessment and Consultation (DHAC) at and6@cdc.gov or 770-488-0766



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