Addendum 1 to Biological Assessment Report July 30, 2007 Asama Coldwater Manufacturing, Inc.

Summary of Literature Search Results - Supplement to Appendix D Identification & Selection of Ecological Benchmark Data

NTH Consultants, Ltd.
608 S. Washington Avenue
Lansing, MI 48933

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Prepared for:

Asama Coldwater Manufacturing, Inc.
Coldwater,. Michigan

ADDENDUM 1 TO BIOLOGICAL ASSESSMENT REPORT
JULY 30, 2007
SUMMARY OF LITERATURE SEARCH RESULTS – SUPPLEMENT TO APPENDIX D IDENTIFICATION AND SELECTION OF ECOLOGICAL BENCHMARK DATA

This document supplements the data contained in both the text and tables of the report and Appendix D of the Biological Assessment prepared on behalf of Asama Coldwater Manufacturing, Inc., Coldwater, Michigan.

IDENTIFICATION OF ESTABLISHED BENCHMARKS

ACM conducted an extensive Literature Search to identify potentially applicable ecological benchmarks for lead and manganese to the target species (Indiana Bat, Copperbelly Water Snake, and Mitchell's Satyr Butterfly). The information presented in section 4.2 of the report identified available benchmarks for exposures to both ***lead*** and ***manganese*** in various environmental media as well as risk based criteria that would be relevant to the target or surrogate species. These are listed in Table 4-3 of the report. These were primarily from information obtained from one or more of the resources recommended by the USEPA in the road map, including:

- USEPA Region 5's, Resource Conservation and Recovery Act Ecological Screening Levels (http://www.epa.gov/RCRIS-Region-5/ca/ESL.pdf)
- USEPA Ecological Soil Screening Levels (http://www.epa.gov/ecotox/ecossl)

Literature Search

Additional information reviewed included all toxicity and risk based information and/or publications available for ***lead*** and ***manganese*** from the following agencies and/or database sources.

- RATL: A Database of Reptile and Amphibian Toxicology Literature by Canadian Wildlife (http://dsp-psd.communications.gc.ca/Collection/CW69-5-357E.pdf)
- USEPA's aquatic life criteria (http://www.epa.gov/waterscience/criteria/aqlife.html)

- IRIS **http://www.epa.gov/iris/**
- RAIS **http://rais.ornl.gov/**
- ATSDR **http://www.atsdr.cdc.gov/**
- CDC **http://www.cdc.gov/**
- NIOSH **http://www.cdc.gov/niosh/**
- OHSA **http://www.osha.gov/**
- MDEQ **http://www.michigan.gov/deq**

In addition, key word/phrase searches were conducted using various search engines such as Google® and more "scholarly" databases for health and risk related publication databases for both ***lead*** and ***manganese***.

Search terms included the following search combinations for both lead and manganese using the various databases and/or search engines:

- Lead or manganese + ingestion
- insect + lead or manganese
- insect + ingestion + lead or manganese
- lead or manganese + insecticide or pesticide

It should be noted that while a significant amount of toxicological and risk based data exist for both ***lead*** and ***manganese***, no information was available that provided specific toxicity information directly applicable to any of the three target species. Beyond what was reviewed, compiled and detailed in Table 4-3 of the report, there was no additional information available to supplement the list of benchmark information.

Some limited historical use data in agricultural publications from the early part of the 1900's were available summarizing the use of ***lead arsenate*** mixtures as an insecticide (primarily in apple orchards for control of apple weevil and forests for control of tent caterpillars). However, it was noted that the insects acquired widespread resistance to this insecticide and its use was largely discontinued by the mid-1940's. This was due not only to the resistance but also due to concerns with the accumulation of the arsenic and lead residuals in soil, along with the development and availability of other more effective pesticides. Other than

limited recommendations for chemical mixture concentrations, no specific information was available to determine levels at which toxicological thresholds were noted.

Some information exists related to toxicity data for both ***lead*** and ***manganese*** (sulfate) to various aquatic organisms, including various aquatic insects, which is available in the Pesticide Action Network's, **PAN** Pesticides Database, however, none of the data for the aquatic organisms listed were directly applicable to the target species.

In addition to the identification and selection of the various benchmarks listed and discussed in Sections 4 and 5 of the report which demonstrate that the emissions from the plant expansion will have no direct adverse impact on the target species. It should also be reiterated that the worst case modeled deposition concentrations in soil over the predicted 50-year accumulation period are only 17 and 7 ug/kg for ***lead*** and ***manganese***, respectively, as compared to their respective statewide default background levels of 21,000 and 440,000 ug/kg. In addition, comparing these worst-case depositional levels with the Ecological Soil Screening levels for ***lead*** and ***manganese*** that are listed in Table 5-2 of the report, it is also evident that there will be no adverse impact on plants and the natural habitat in the area that might be available to support the target species.

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World Health Organization, Food Additives, Evaluation of the Toxicity of Pesticide Residues in Food, Lead Arsenate, FAO Meeting Report No. PL/1965/10/1. WHO/Food Add./27.65

World Health Organization, Food Additives, 1968 Evaluations of some Pesticide Residues in Food, Monograph 132. Lead arsenate (FAO/PL:1968/M/9/1).