



environmental management, inc.

From: Deni Chambers, Principle-in-Charge
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Date: April 22, 2010

To: Shannon Harbour, P.E.
Nevada Division of Environmental Protection

RE: Response to NDEP's April 12, 2010 Comments on *Indoor Air Quality Investigation Work Plan, Tronox LLC, Henderson, Nevada*

RESPONSE TO COMMENTS

1. *Section 2.2, page 3, TRX should clarify the number of rounds of indoor air sampling that will be performed. TRX should note that subsurface vapor intrusion into existing buildings can be affected by a number of different factors, including outdoor meteorological conditions and building systems operations. Therefore, several rounds of indoor air sampling should be considered to capture the potential variability. Additionally, TRX should discuss the factors which may affect the indoor air concentrations and how the number of rounds of sampling will yield representative results*

Response:

Several factors may influence the concentrations of chemicals measured in indoor air, including building-specific operations and ventilation systems, as well as environmental factors such as ambient sources and vehicle traffic. Indoor air concentrations are likely to fluctuate; therefore, the indoor air sampling approach will involve multiple sampling events to aid in the interpretation of the results. Sampling will be conducted over a minimum of two seasons (e.g., late spring and early fall) to understand different meteorological conditions and potential differences in building operations. Depending on the results of the individual building surveys, additional rounds of sampling may be conducted to capture potential indoor air concentration variability.

2. *Section 2.3, page 4, first paragraph, TRX discusses the flow rate for the indoor air sampling. TRX should specify whether the outdoor sampling will be set differently and if so, should indicate how the outdoor air sample controllers will be set.*

Response:

For outdoor air sampling, the flow controllers will be set up to collect approximately 5 liters of air over an approximate 9- to 10-hour sampling interval. As ambient air is likely to enter a building before indoor air sampling begins, outdoor sampling will begin 1 to 2 hours prior to indoor air sampling and will continue to be collected until at least 30 minutes prior to the end of the indoor air sampling period.

1. *Section 2.4.2, page 5, please provide information regarding how air flow rates, fresh air-makeup and recirculated air within the building will be measured.*

Response:

Fresh air make-up will be measured by accessing the outdoor air intakes for each of the air handling units. Air velocity will be measured and the dimensions of each intake will be determined to calculate the outdoor air ventilation being drawn into the building. This methodology can be used when all windows are closed and the only source of outdoor air is via the intakes on the HVAC systems. Recirculated air within the building can be estimated based on the specifications of each air handling unit, or it may be measured based on air velocity traverses of supply and return air ducts.

