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**STUDY 274: PROTOCOL FOR LONG-TERM GROUND WATER MONITORING FOR  
METHYL IODIDE, IODIDE, AND TOTAL IODINE**

**AMENDMENT 1**

**INTRODUCTION**

The Department of Pesticide Regulation (DPR) is conducting long-term ground water monitoring for methyl iodide, total iodine, and iodide. The original protocol assumed we would be able to achieve identical reporting limits (RLs) of 5 ppb for iodide and total iodine. However, current analytical method development indicates achieving this sensitivity for iodide to be problematic. Current RLs for iodide and iodine are expected to be 25 ppb and 5 ppb, respectively. Since iodide is assumed to be the dominant iodine species in ground water (Christiansen and Carlsen 1989), DPR will use the total iodine sampling results to infer iodide concentrations and concentration trends. This is a conservative approach as it will include all forms of iodine and not just iodide.

Due to these constraints in analytical capabilities, changes to the Data Analysis, Sampling Frequency, and Timetable portions of the protocol are necessary. All other elements of the protocol will remain the same.

**AMENDMENTS**

**1. Data Analysis**

There are only three changes in this section:

- a) Total iodine concentrations will be used as a baseline for iodine levels in ground water instead of iodide concentrations.
- b) Where appropriate, water quality parameters will be used to verify that iodide is the dominant iodine species in sampled ground water.
- c) Iodide and total iodine sampling results will be compared in wells where measured concentrations equal or exceed iodide's RL to verify that iodide is the dominant species in sampled ground water.

**2. Sampling Frequency**

This entire section is replaced with the following:

- a) In addition to sampling for methyl iodide, iodide, and total iodine, measurements of several water quality parameters (DO, pH, conductivity, etc.) will be taken.

b) Phase I

Wells will be sampled quarterly and analyzed for total iodine and iodide; methyl iodide will be analyzed only once a year. At the end of four sampling events, the data will be reviewed to determine if a switch to Phase II is warranted. Otherwise, Phase I will continue until background total iodine concentrations are adequately quantified.

c) Phase II

During Phase II, each well will be sampled for methyl iodide and total iodine annually. Ten percent of the wells will be selected for an additional iodide analysis. Phase II is expected to last a decade, unless periodic reviews of the data indicate otherwise.

### **3. Timetable**

a) Phase I is anticipated to begin January 2012.

### **REFERENCES**

Christiansen, J.V. and Carlsen, L. 1989. Iodine in the Environment Revisited: An Evaluation of the Chemical- and Physico Chemical Processes Possibly Controlling the Migration Behaviour of Iodine in the Terrestrial Environment. Available at:  
<[http://130.226.56.153/rispubl/reports\\_INIS/RISOM2791.pdf](http://130.226.56.153/rispubl/reports_INIS/RISOM2791.pdf)>. (verified December 14, 2011).  
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