APPENDIX I YARD SOIL COLLECTION PROTOCOL

Composite soil samples will be collected from all participating households for the purpose of identifying soil lead concentrations. Sampling methodologies are generally consistent with those used within previous investigations completed as part of the Flin Flon Soils Study.

Composite soil samples are to be collected as follows:

- Lay sampling equipment on clean plastic sheeting to prevent contact with surrounding media.
- Label a new resealable plastic bag for use as a sample collection container with a unique identifier.
- Document the sample collection and field observations within a field notebook or sampling sheets. Documentation should include:
    - A unique sample identifier corresponding with the identifier labelled on the sample collection bag.
    - The name of the person(s) conducting the field investigation and the date.
    - The address of the property where the sample is collected.
    - A description of the general location on the property where the sample is collected (*e.g.*, front yard, backyard).
    - General observations of the sampling area (*e.g.*, percentage of yard grass covered, exposed dirt). Document any unusual features (*e.g.*, presence of waste materials, staining, odours).
    - Photograph the sampling area.
    - Record the GPS coordinates.
- Identify a sampling location that is frequently used by the child(ren) participating in the blood lead investigation. Avoid areas with potential sources of contamination (*e.g.*, play structures, fences, buildings) and avoid sampling gardens with amended soils.
- Pull on a pair of clean disposable nitrile gloves.
- Collect soil cores using a stainless steel soil probe with a 1.5 cm inner diameter core. Using a twisting motion, advance the probe into the ground to a depth of approximately 2.5 cm. Twist and snap the coring tool to one side and remove the tool from the ground while retaining the soil core in the tool. For areas covered with sod, ensure that the coring tool advances 2.5 cm into the soil-containing layer. A “dummy” core should be collected and discarded at the start of each new sampling site to minimize the chance of cross-contamination. Using a clean plunger or gloved finger, push the core into the sample bag. A minimum of 10 cores should be collected in an “X” pattern at each sample location. The length of each arm of the “X” should not exceed one metre. A metre stick can be used to define the approximate sampling area. Composite samples should be placed in a single sample bag for each location.
- Place the sample bag within a second bag to prevent puncturing or sample leaks. Place samples in a cooler to be stored prior to shipment to the lab.
- Discard gloves used during sample collection.
- Pull on a pair of clean nitrile gloves and clean the coring probe, plunger (if used), and metre stick (if used) using wipes and clean water until soil is no longer visible on the equipment.

Blank Samples

Field blank samples are commonly collected to identify potential lead contamination associated with sampling equipment and handling of samples during field collection and laboratory analysis. Although sampling equipment rinses can be used to test for lead contamination associated with this equipment, rinse samples cannot undergo the same type of laboratory analysis as soil samples. In addition, reported concentrations for rinse samples are provided on a mass per volume basis (*i.e.*, µg/L) which does not allow for a direct comparison to soil concentrations which are reported on a mass per mass basis (*i.e.*, µg/g). Therefore, field blank samples are not required for soil sampling.

Duplicates

One field duplicate is to be collected for every 20 samples. The duplicate should be a composite sample collected following the same protocol as above.