

3. Soil samples were collected at two of the homes. A sample was also collected at the SCAQMD headquarters in Diamond Bar for comparison.

Staff returned to one of the homes on Amaryllis Court on Tuesday, January 15, 2013 to take additional samples. This included several soil samples, and canister samples including indoor and outdoor grab samples, a 3-hour sample indoors, and a 3-hour sample outdoors.

### Analysis

All analysis was done in SCAQMD's laboratory at its Diamond Bar headquarters following SCAQMD's Standard Operating Procedures and rigorous quality assurance measures, which ensure that samples are collected and analyzed properly.

Fourteen canister samples were collected and analyzed by GC/MS, a technique used to separate and characterize chemicals in a sample. The GC/MS targets over 50 compounds, however, other compounds can be found, identified and measured if they are present. These samples were analyzed following U.S. EPA Method TO-15.

Soil samples were also collected and analyzed for metal and mineral content. While SCAQMD does not normally analyze soil samples, our laboratory has this capability. Most samples were collected at the surface, with the exception of two samples, which were collected 11 inches below the surface. Several samples were also collected of a white material on top of the soil. All samples were analyzed by Energy Dispersive X-Ray Fluorescence (ED XRF), which can identify and quantify metals using x-rays. The samples with the white material were also analyzed by microscopy and X-Ray Diffraction (XRD), which uses x-rays to identify compounds based on their crystalline structure.

### Results

In summary, all samples were within typical expected ranges for outdoor air, indoor air and soil, with the exception of soil samples collected specifically to evaluate the white material collected. For comparison purposes data from literature studies of typical concentrations are provided in the appendices. Further review of results would be welcomed. Please see appendices for the detailed sample results.

Indoor air samples were compared to two studies of indoor air from California homes; one with 34 homes and the other with over 100 homes. Results from the samples taken in Autumnwood and average values from the studies are shown in Appendix 2. All samples collected and analyzed by the SCAQMD staff are within the range of these studies.

Outdoor air samples were compared to typical levels found by the SCAQMD in the South Coast Air Basin. Outdoor air sampling results are shown in Appendix 1. All samples collected and analyzed by the SCAQMD are within typical expected range.

Autumnwood soil sample results were compared to western soil data from the U.S. Geological service. All soil samples, with the exception of some samples collected specifically to analyze the white material seen in a small portion of one yard, are within typical ranges in scientific literature. This includes Barium, for which typical soil ranges are up to 5,000 ppm.

Some of the samples taken of the white material on top of the soil had levels of aluminum, phosphorous, sodium, sulfur, molybdenum or uranium higher than the top of the typical range reported by the U.S. Geological Service. Many of these compounds are naturally occurring. Uranium levels were 4 and 77 percent higher in 2 soil samples. Uranium is naturally occurring and is present in nearly all rocks and soil. The levels seen in these soil samples, while not within typical reported ranges, should not cause health concerns. These results can be found in Appendix 3.

Appendices

The attached appendices contain detailed data for the samples taken:

Appendix 1. Data for outdoor air samples

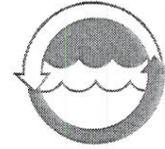
Appendix 2. Data for indoor air samples

Appendix 3. Soil data

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**Table 2 Potential Risks Associated with Using Recycled Water**

| Pathogen Risks   | Physical Risks  | Chemical Risks  | Radiological Risks  | Environmental Risks   |
|--|---|---|---|---|
| <ul style="list-style-type: none"> <li>▷ Bacteria</li> <li>▷ Viruses</li> <li>▷ Protozoa</li> <li>▷ Helminths</li> <li>▷ Cyano-bacteria</li> </ul> | <ul style="list-style-type: none"> <li>▷ Colour</li> <li>▷ Taste</li> <li>▷ Appearance</li> </ul> | <ul style="list-style-type: none"> <li>▷ Manganese</li> <li>▷ Nitrate</li> <li>▷ Agricultural chemicals</li> <li>▷ Chlorine</li> <li>▷ Fluoride</li> <li>▷ Traces of lead, copper</li> <li>▷ Industrial chemicals – PAHs</li> <li>▷ Endocrine disrupting compounds</li> </ul> | <ul style="list-style-type: none"> <li>▷ Naturally occurring – radium, uranium</li> </ul> | <ul style="list-style-type: none"> <li>▷ Salinity</li> <li>▷ Sodicity</li> <li>▷ Sodium</li> <li>▷ Chloride</li> <li>▷ Nitrogen</li> <li>▷ Phosphorus</li> <li>▷ Chlorine Residuals</li> <li>▷ Hydraulic Loading</li> <li>▷ Boron</li> <li>▷ Surfactants</li> </ul> |

(Radcliffe, 2004), (National Coordinator for Recycled Water Development in Horticulture, 2005)

### 1.3 Community Support and Acceptance

The issue of community support and acceptance for water recycling schemes is perhaps one of the biggest challenges facing its widespread implementation. There are many examples of recycling projects, both in Australia and overseas, that have failed due to adverse publicity and a lack of community support. The “No” vote in Toowoomba is only the most recent example.

At the AWMC, we recognise that the psychology of community support for water recycling schemes is an extremely important area of practice and research. However, we are not qualified to comment any further, except to recognise the CSIRO research (Po *et al.*, 2004) that indicates the following factors have a significant bearing on people’s attitudes to recycled water use:

- ▷ Disgust or a “Yuck” factor;
- ▷ Perceptions of risk associated with using recycled water;
- ▷ The specific uses of recycled water, and particularly how close the water use comes to personal contact or ingestion;
- ▷ The sources of water to be recycled;
- ▷ The issue of choice;
- ▷ Trust in the “authorities” and scientific knowledge;