Dear Fellow Spartan:

We are pleased to inform you that the water you are drinking is safe and healthy. We take great care in protecting it from contamination and always strive to furnish you with a clean, high-quality product that you can drink without worry. MSU water meets or surpasses all federal and state drinking water standards.

This report is a snapshot of the quality of the water that we provided to you in 2011. Included are details about where your water comes from, what we are doing to ensure that it remains safe to drink, what’s in it, and how it compares to Environmental Protection Agency (EPA) and state standards.

Sources of Drinking Water

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. Michigan State University water comes from 18 groundwater wells, each more than 340 feet deep. These wells tap into the Saginaw aquifer, a deep sandstone formation that lies beneath most of the central Lower Peninsula. It serves several communities in mid-Michigan.

Questions?

For more information about your water, the contents of this report, or the 2003 source water assessment, contact Doug MacDonald at 517-355-3314, or e-mail water@pplant.msu.edu.
HEALTH AND SAFETY INFORMATION

Pure water has often been called a universal solvent because it will dissolve almost anything. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material. It can also pick up substances resulting from the presence of animals or from human activity. Some of these substances have been deemed by the EPA to be contaminants that must be monitored and strictly controlled. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA’s Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health-care providers. The EPA and the Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

SOURCE WATER ASSESSMENT

The state performed an assessment of our source water in 2003 to determine the susceptibility or relative potential for contamination. The susceptibility rating is on a seven-tiered scale ranging from “very-low” to “very-high” based primarily on geologic sensitivity, water chemistry and locations of contaminant sources. The susceptibility of our source was deemed to be “moderately high.”

Michigan State University strives to keep its source water safe to drink by complying with all applicable federal and state drinking water regulations and by developing and using a Wellhead Protection Program. The program was approved by the Michigan Department of Environmental Quality in 2000 and updated and approved again in 2006. Information on this program can be found at the following website: http://www.orcbs.msu.edu/environ/programs_guidelines/wellhead/wh_01toc.htm

Potential sources of contamination include: above-ground storage tanks; liquid manure spreading; chemical and waste storage areas; biowaste holding tanks; wet labs; equipment storage areas; farming operations; chemical storage; pesticide storage; equipment washing pads; paint storage, mixing and cleaning operations; a biotechnology facility and a number of sites that generate, use and dispose of hazardous waste and other chemicals. The Wellhead Protection Program helps to ensure that all potential contaminants within the water re-charge area are safely stored with adequate containment and that other measures are taken to minimize the possibility of releases.
CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE:

- **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

- **Inorganic contaminants**, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

- **Pesticides and herbicides**, which may come from a variety of sources such as agriculture and residential uses.

- **Radioactive contaminants**, which are naturally occurring.

- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

- If present, **elevated levels of lead** can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Michigan State University Physical Plant’s Power and Water Department is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, testing methods, or steps you can take to minimize exposure, information is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

MSU’S COMMITMENT TO SAFE WATER

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water, which provide the same protection for public health.

Is Michigan State’s water system meeting other rules that govern our operations? The state and EPA require us to test our water on a regular basis to ensure its safety. We met all the monitoring and reporting requirements for 2011.

We are committed to providing you with safe, reliable and healthy water. We are pleased to provide you with this information to keep you fully informed about your water. We will issue this report annually, and will also keep you informed of any problems that may occur throughout the year, as they happen.
SUBSTANCES FOUND IN MSU’S WATER

The table on the next page shows test results for substances that were found in MSU’s drinking water. Results are not shown for substances that were tested for but not detected. Unless otherwise noted, the data presented in this table is from testing done Jan. 1 through Dec. 31, 2011.

TERMS AND ABBREVIATIONS USED IN THE TABLE

MCLG
Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL
Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL
Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. Adding disinfectants controls microbial contaminants.

MRDLG
Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

N/A
Not applicable

ppb
parts per billion or micrograms per liter

ppm
parts per million or milligrams per liter

pCi/L
picocuries per liter

AL
Action Level: The concentration of a contaminant, which, if exceeded, triggers treatment, or other requirements that a water system must follow.

RAA
Running Annual Average: The average of the most recent four quarters of test results, recalculated every quarter when a new test result is received.
Water quality regulations allow us to monitor some substances less often than once a year because their concentrations are not expected to vary significantly from year to year.

Unregulated substances are those for which the EPA has not established drinking water standards. The purpose of monitoring these substances is to assist the EPA in determining the occurrence of unregulated substances in drinking water and whether future regulation is warranted.

MSU is currently on a three-year cycle for lead and copper testing. These results are from 2011.

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>UNIT</th>
<th>MCL</th>
<th>MCLG</th>
<th>AMOUNT FOUND IN MSU WATER</th>
<th>SAMPLE DATE (if not in ‘11)</th>
<th>MAJOR SOURCES</th>
<th>VIOLATION?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium</td>
<td>ppm</td>
<td>2</td>
<td>2</td>
<td>0.14</td>
<td>3/13/06</td>
<td>Discharge of drilling wastes; discharge from metal refineries, erosion of natural deposits</td>
<td>No</td>
</tr>
<tr>
<td>Fluoride</td>
<td>ppm</td>
<td>4</td>
<td>4</td>
<td>1.50</td>
<td></td>
<td>Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories</td>
<td>No</td>
</tr>
<tr>
<td>Gross alpha</td>
<td>pCi/L</td>
<td>15</td>
<td>0</td>
<td>4</td>
<td>4/29/03</td>
<td>Erosion of natural deposits</td>
<td>No</td>
</tr>
<tr>
<td>Radium</td>
<td>pCi/L</td>
<td>5</td>
<td>0</td>
<td>3.3</td>
<td>3/15/10</td>
<td>Erosion of natural deposits</td>
<td>No</td>
</tr>
<tr>
<td>TTHMs (Total Trihalomethanes)</td>
<td>ppb</td>
<td>100</td>
<td>N/A</td>
<td>RAA: 9.8</td>
<td></td>
<td>Byproducts of drinking water chlorination</td>
<td>No</td>
</tr>
<tr>
<td>HAA5 ( Haloacetic Acids)</td>
<td>ppb</td>
<td>60</td>
<td>N/A</td>
<td>RAA: 6.0</td>
<td></td>
<td>Byproduct of drinking water disinfection</td>
<td>No</td>
</tr>
<tr>
<td>Chlorine (ppm)</td>
<td>ppm</td>
<td>4</td>
<td>4</td>
<td>Highest RAA: 0.5 Range: 0.2-0.8</td>
<td></td>
<td>Water additive used to control microbes</td>
<td>No</td>
</tr>
</tbody>
</table>

### UNREGULATED SUBSTANCE

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>UNIT</th>
<th>AMOUNT FOUND IN MSU WATER</th>
<th>VIOLATION?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>ppm</td>
<td>N/A</td>
<td>Erosion of natural deposits and runoff</td>
</tr>
</tbody>
</table>

### MICROBIAL CONTAMINANTS

<table>
<thead>
<tr>
<th>CONTAMINANT</th>
<th>MCL</th>
<th>MCLG</th>
<th>NUMBER DETECTED</th>
<th>VIOLATION?</th>
<th>TYPICAL SOURCE OF CONTAMINANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Coliform Bacteria</td>
<td>4 positive monthly sample &amp; 5% of monthly samples positive</td>
<td>0</td>
<td>0</td>
<td>No</td>
<td>Naturally present in the environment</td>
</tr>
</tbody>
</table>

1. Water quality regulations allow us to monitor some substances less often than once a year because their concentrations are not expected to vary significantly from year to year.
2. Unregulated substances are those for which the EPA has not established drinking water standards. The purpose of monitoring these substances is to assist the EPA in determining the occurrence of unregulated substances in drinking water and whether future regulation is warranted.
3. MSU is currently on a three-year cycle for lead and copper testing. These results are from 2011.
4. 90 percent of samples were at or below this level.