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GUIDELINES FOR A SAMPLING PROGRAM OF RECREATIONAL WATERS IN OAKLAND COUNTY BY INDIVIDUALS OR GROUPS

Environmental Health Services of the Oakland County Health Division presently conducts a yearly sampling program of public bathing beaches as defined by Act 368, P.A. of 1978. Oakland County has nearly 300 bathing beaches throughout the county. Because of the high number of beaches, only the 44 public beaches are sampled each year. These beaches are Department of Human Services facilities (children's camps, day cares.), commercial beaches, and government operated beaches (state, county and village parks). Because the other beaches are no longer sampled, many people are interested in collecting samples on their own. The following recommended sampling guidelines are issued to assist the public in obtaining their own surface water samples.

I. PREPARE AN AREA MAP

A map of the area to be tested should be submitted to the Health Division. The following information should be provided.

1. Name of township and lake
2. Name, address and phone number of a person to contact with the results
3. Fronting roads and clear directions to the site
4. Contour of shore line
5. Indicate sampling points with "a", "b", "c"
6. Approximate distance between sampling points and length of shore line
7. Storm drains or ditches, or other common runoff locations near beach
8. Inlets and outlets of lake

II. SETTING UP SAMPLING POINTS

There should be a least three sampling points. They should be located in the usual swimming area and be equidistant from each other. Sampling points should not be more than 500 feet apart.

III. SAMPLE COLLECTION

One sample should be collected at each point (a, b, c) once a week. Please note that one sampling event consists of one sample from each point. Single random samples are not very meaningful as they can be difficult to interpret. To adequately determine the bacteriological quality of the recreational water, sampling over a period of time is necessary to reach a geometric mean of bacterial colonies for a season. A meaningful evaluation of the water quality can be made when five consecutive sampling events have been taken within 30 days.

To meet the laboratory's operating schedule, samples should be received in the Pontiac Lab **on Monday, Tuesday, or Wednesday before 1:00 p.m.** Samples should not be kept

overnight, if possible, as some of the bacteria may die off. If samples cannot be returned to the lab on the same day of sampling, they should be kept refrigerated overnight. Samples more than 24 hours old are of little value and should not be used.

Samples should be collected where the water depth is at least three feet deep to avoid shallow ponded water or stirred up sediment. Collect the samples in the following manner:

1. Use only bottles supplied by the Oakland County Health Division.
2. Do not open the bottle until ready to take the sample, and avoid touching or breathing into the bottle or on the underside of the cap.
3. Collect the sample by initially submerging the bottle upside-down into the water to a depth of one foot. Then, turn the bottle over as you slowly pass it through the water with a forward sweeping motion.
4. Replace the cap immediately and securely.
5. Label the bottle with its sampling point (a, b, c).
6. Return samples with completed forms (in duplicate) supplied by the Health Division. Make sure and denote the sampling point (“a”, “b”, “c”) on the forms accompanying the bottles.

IV. INTERPRETATION OF RESULTS

Please note that your results are indicative of only the area sampled, not the lake as a whole. There are several variable factors that can influence a result and raise the bacteria count. These should be considered when analyzing a high reading. These variables are: land use, land development, wind direction, weather conditions, temperature, season, storm water runoff, wildlife, and number and frequency of swimmers.

Your water samples will be analyzed for E. coli bacteria colonies. The presence of E. coli is an indication that other organisms which are pathogenic to humans could be present. E. coli bacteria are found in the intestinal wastes of humans and other warm-blooded animals, thus their presence shows possible fecal waste contamination. For the sample waters to be considered safe for swimming, the sampling results are judged against the following standards:

- The geometric average of all three sampling points (“a”, “b”, and “c”) for one-day must not exceed 300 colonies.
- The geometric average of all samples taken within a 30-day period must not exceed 130 colonies.

The results for your beach will be computed by the Health Division personnel and mailed to you after completion of all samples, unless a one day average exceeds that 300 colony limit, upon which your beach should be closed and resampled each day until the results fall below 300.

V. ADDITIONAL COMMENTS

The above sampling program should give a valid evaluation of the recreational waters for that season. If any circumstances arise which would indicate a possible change in the water quality from previous years, the sampling program should be repeated the following year. The Health Division can take abatement action only in the instance of identifiable sewage discharges into surface waters. Other problems relating to the degradation of surface waters should be referred to the Michigan Department of Environmental Quality (DEQ).

The sampling program described in this handout does not apply to streams and rivers. These moving currents of water are constantly changing and subject to periodic contamination. Therefore, such waters are not recommended for swimming.

One factor that is considered to be a major contributor to high bacteria counts is the presence of waterfowl. To help decrease the waterfowl population and improve surface water quality, the DEQ conducts an annual waterfowl round-up. All questions concerning this should be referred to the DEQ.