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RADIOACTIVE MATERIALS IN RESIDENTIAL SOLID WASTE

The Solid Waste Management Committee recommends the adoption of the recommendations contained in the following report, May 19, 2004, from the Commissioner of Transportation and Works and the Commissioner of Health Services and Medical Officer of Health:

1. RECOMMENDATIONS

It is recommended that:

1. Regional staff of the Health Services Department be directed to:
 - 1.1 Contact the pertinent medical care establishments in the Region to inform them of the challenges facing The Regional Municipality of York regarding improper disposal of solid wastes generated in the home that contain radioactive materials, and encourage them to reinforce proper handling of these materials with their appropriate patients.
 - 1.2 Contact other health units in the Greater Toronto Area to request that they also communicate the above information to medical care establishments in their jurisdictions that may serve York Region residents.
1. The nine local municipalities be requested to:
 - 2.1 Review their respective collection by-laws and make any necessary amendments, as soon as possible, to ban radioactive materials to prevent them from being mixed in and collected with disposable solid waste.
 - 2.2 Develop and implement effective enforcement procedures with respect to this aspect of their collection by-laws.
 - 2.3 Develop and issue appropriate education materials for residents regarding the proper handling and disposal of radioactive materials.
2. Regional staff from the Transportation and Works Department be directed to assist the staff of the local municipalities in drafting appropriate wording for the by-law amendments and public education materials, and in developing the associated by-law enforcement procedures.

2. PURPOSE

The purpose of this report is to obtain authorization for Regional staff to carry out activities to mitigate the problem caused by the presence of radioactive materials in residential solid waste that is collected for disposal.

3. BACKGROUND

On March 25, 2004, Regional Council adopted Report No. 3 of the Health and Emergency Medical Services Committee, which requested Regional staff to prepare a report regarding the disposal of medical waste from private residences. The Health Services Department has prepared that report, which will be considered by the Health and Emergency Medical Services Committee on June 3, 2004.

The issue of radioactive materials in residential solid waste is related to that topic, and is addressed as follows.

4. ANALYSIS

4.1 Radioactive Materials

The Region commenced sending municipally-collected solid waste to landfills in Michigan at the beginning of 2003. All trucks entering the United States (U.S.) must pass through radiation detection equipment operated by U.S. Customs at the border. The U.S. has, what appears to be, zero tolerance for any degree of radioactivity.

This is of particular relevance to the Region because bags and containers of solid waste that are picked up at the curb from residences may contain radioactive materials. The primary source of such radioactivity is diapers disposed of by incontinent patients who have received chemotherapy treatment. Another source, which the Region has experienced to date, is the spent chewing gum disposed of by patients who have received treatment for cancer of the thyroid.

Examples of other radioactive materials which could theoretically be disposed of are items such as aircraft instruments and X-ray equipment. Residents who need to get rid of such materials should be directed to contact companies that specialize in the handling and disposal of radioactive wastes. The cost to dispose of one of these items can be in the thousands of dollars.

In response to U.S. border inspections, in early 2003, radiation detection equipment was installed at both of the transfer stations that receive the Region's municipally-collected solid waste. These facilities are the Region-owned transfer station in Georgina and the transfer station owned by Miller Waste Systems in Markham. All vehicles pass through the equipment when they are weighed in upon arriving at the facility. If they are found to be radioactive, then they are diverted to a special area where the solid waste is carefully unloaded and scanned with a hand-held radiation detection device. The radioactive item (i.e. often just a single diaper) is removed and then the remainder of the solid waste is handled by a front-end loader and processed in the normal manner.

It costs approximately \$300 for labour and equipment every time the above special procedure is carried out to deal with a radioactive load. Table 1 summarizes the

approximate number of radioactive loads that have been delivered by the contracted collection vehicles of the local municipalities up to the end of March 2004.

Table 1
Radioactive Loads of Solid Waste
Delivered by the Local Municipalities
January 1, 2003 to March 31, 2004

Local Municipality	Number of Loads
Aurora	6
East Gwillimbury	1
Georgina	7
King	4
Markham	16
Newmarket	15
Richmond Hill	3
Vaughan	33
Whitchurch-Stouffville	5
Total	90

Regional staff have heard informally that the patients who generate the radioactive materials are instructed by their medical care personnel to place the materials into specially marked plastic garbage bags and to return those bags to the hospital for special disposal. It is understood that neither the Region nor the local municipalities have ever done any work to determine whether all medical establishments are providing such instructions.

The cost for the special handling of radioactive loads at the two transfer stations is approximately \$20,000 per year. In addition, the collection trucks of the local municipalities incur lost productivity each time there are delays for the special handling procedure. In order to mitigate these losses, it is recommended that Regional staff of the Health Services Department be directed to:

- Contact the pertinent medical care establishments in the Region to inform them of the challenges facing The Regional Municipality of York regarding improper disposal of solid wastes generated in the home that contain radioactive materials, and encourage them to reinforce proper handling of these materials with their appropriate patients.
- Contact other health units in the Greater Toronto Area to request that they also communicate the above information to medical care establishments in their jurisdictions that may serve York Region residents.

4.2 Local Municipal Collection By-laws

The by-laws governing solid waste collection for all nine of the local municipalities contain various definitions of biomedical wastes, but none of them address radioactive materials.

Therefore, in order to mitigate losses due to radioactive loads, as explained in the previous section, it is recommended that the nine local municipalities be requested to:

- Review their respective collection by-laws and make any necessary amendments, as soon as possible, to ban radioactive materials to prevent them from being mixed in and collected with disposable solid waste.
- Develop and implement effective enforcement procedures with respect to this aspect of their collection by-laws.
- Develop and issue appropriate education materials for residents regarding the proper handling and disposal of radioactive materials.

Furthermore, it is also recommended that Regional staff from the Transportation and Works Department be directed to assist the staff of the local municipalities in drafting appropriate wording for the by-law amendments and public education materials, and in developing the associated by-law enforcement procedures.

5. FINANCIAL IMPLICATIONS

There are no increased financial resources required to the 2004 Operating Budgets for Solid Waste Management or for the Health Services Department as a result of the recommendations of this report. The recommendations contained in this report are intended to reduce the cost of dealing with radioactive materials, which is estimated to be approximately \$20,000 per year.

6. LOCAL MUNICIPAL IMPACT

The local municipalities are responsible for collecting residential solid waste. The presence of radioactive materials within solid waste placed at the curb for collection delays the collection contractor and the costs of such delays are passed onto the local municipalities and the Region. The adoption of the recommendations contained in this report is intended to minimize these delays and associated extra costs.

7. CONCLUSION

Radioactive wastes are generated in the home by people who have received treatment for cancer. In addition, people may need to dispose of other items which are radioactive such as aircraft instruments or X-ray equipment.

The Region transports most of its solid waste to landfills in Michigan for disposal. The U.S. will not allow any radioactive loads to cross the border. The Region has taken steps to install radiation detection equipment at its two transfer stations.

The adoption of the recommendations contained in this report will enable the Region and its local municipalities to mitigate losses caused by the presence of radioactive materials in municipally-collected solid waste.

The Senior Management Group has reviewed this report.