PROCEDURES FOR MONITORING TRANSFERS OF INDUSTRIAL WASTE MATERIALS AT TRANSFER STATIONS AND RECYCLING DEPOTS

Prepared By

Waste Management Branch
Ontario Ministry of the Environment

November, 1981
Procedures for monitoring transfers of industrial waste materials at transfer stations and recycling depots / 76770
PROCEDURES FOR
MONITORING TRANSFERS
OF
INDUSTRIAL WASTE MATERIALS
AT TRANSFER STATIONS
AND RECYCLING DEPOTS

Prepared By

Waste Management Branch
Ontario Ministry of the Environment

November, 1981
Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen’s Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen’s Printer for Ontario.

For information on reproducing Government of Ontario works, please contact Service Ontario Publications at copyright@ontario.ca
TABLE OF CONTENTS

INTRODUCTION 1

INFORMATION COLLECTION AND MONITORING 2
- Preliminary Engineering Survey 3
- Routine Monitoring and Auditing 7

APPENDIX I (Shipping Log)
APPENDIX II (Receipt Log)
APPENDIX III (Definitions)
INTRODUCTION

It has been recognized for some time that it is necessary for the Ministry of the Environment to have satisfactory knowledge of the movements of hauled liquid industrial waste throughout Ontario and beyond, in order to prevent environmental impairment associated with the improper disposal of this material. The waybill system, introduced in 1977, has proven to be an effective tool to help achieve this end. However, a stumbling block in following the movement of waste from the original generator to the final disposal site, has been at waste transfer and processing stations (WTPS) within this Province.

The prime cause for concern is associated with the reasonable assurance that transfer and recycling operations are not used covertly for the improper blending of wastes whose true characteristics are not reflected in the description given on waybills. Other concerns or potential problems associated with these facilities include illicit disposal on-site, improper blending to produce a "product" still considered a waste and receiving products actually considered to be wastes, thereby by-passing the requirement for the use of a waybill.

Although it is difficult to trace a specific load of waste through these facilities, these guidelines are an attempt to assist staff of the Regional Operations Division in gaining an in-depth knowledge of the movements of liquid industrial waste through WTPS. This knowledge, together with adequate monitoring techniques, will supplement the waybill system to produce the necessary degree of control that will help to prevent the illicit disposal of waste materials.
INFORMATION COLLECTION AND MONITORING

In order to achieve effective control over liquid industrial waste moving through WPTS, it will be necessary to first conduct an in-depth industrial waste engineering survey of the WTPS and its operations. This survey will familiarize MOE staff with all the operations being conducted and will document the sources, types and ultimate destinations of the wastes being handled. When this survey is completed, MOE staff should have sufficient knowledge to set up a comprehensive program of routine monitoring and auditing in co-operation with staff of the WTPS.

Any actual or potential problems should be brought to the attention of the owners, and recommendations for corrective action on environmental or waste handling problems should be made where applicable.

The following sections of these procedures contain an outline of the type of information to be obtained from the initial survey, as well as items to be considered for routine monitoring and auditing.
PRELIMINARY ENGINEERING SURVEY

In order to gain an in-depth understanding of the operations taking place, a detailed engineering survey should be conducted. It may be necessary to spend more than two or three days at the WTPS so that all operations can be personally observed and documented. The objective of the survey is to gain extensive knowledge of all operations conducted and to formulate objective conclusions as to their adequacy. These aspects include environmental impact and contingency planning, details of material routing and handling, information concerning the characteristics of the material and any on-site waste treatment data.

The items outlined below are considered to be the minimum data which should be collected during the survey. However, any other pertinent information should be included in the report of the survey, which should be sufficiently flexible to reflect conditions specific to the particular WTPS.

1. BACKGROUND INFORMATION
   - Full legal name of the Company.
   - Name of the owner or senior official of the Company and the name of the owner of the land if different.
   - Complete address, including street name and number, or lot and concession number and municipality.
   - Name and position of all pertinent employees to be contacted on routine business and in case of emergency.
- Telephone number of the WTPS and head office, if different. Home telephone numbers of key employees should be obtained for use in an emergency after normal hours.

2. ENVIRONMENTAL IMPACT
- Obtain a plot plan of the WTPS and an overall site plan to show the location in the community if possible.
- Mark the location of watercourses or sewers which are on the property or significantly close-by.
- Indicate surface drainage patterns on the diagram and identify any control or treatment facilities for surface water runoff.
- Identify and mark on a drawing the zone(s) surrounding the WTPS which may be affected in case of a spill, fire, explosion or other disaster. Include specific sites, such as homes, wells, schools or other industries.
- Identify any test wells around tanks and lagoons. Document sampling frequency and parameters checked.
- Identify and record any materials which could be a problem if released into the environment.
- Obtain a copy of any hydrogeologic and/or soils reports, if the WTPS is located in a rural area.
- Comments on housekeeping and general appearance of the site.

3. PROCESSES AND OPERATIONS
- Review all pertinent certificates/licences and compare with actual operating procedures. Check the types of materials permitted to be received under existing certificate(s) of approval.
PRELIMINARY ENGINEERING SURVEY

In order to gain an in-depth understanding of the operations taking place, a detailed engineering survey should be conducted. It may be necessary to spend more than two or three days at the WTPS so that all operations can be personally observed and documented. The objective of the survey is to gain extensive knowledge of all operations conducted and to formulate objective conclusions as to their adequacy. These aspects include environmental impact and contingency planning, details of material routing and handling, information concerning the characteristics of the material and any on-site waste treatment data.

The items outlined below are considered to be the minimum data which should be collected during the survey. However, any other pertinent information should be included in the report of the survey, which should be sufficiently flexible to reflect conditions specific to the particular WTPS.

1. BACKGROUND INFORMATION
   - Full legal name of the Company.
   - Name of the owner or senior official of the Company and the name of the owner of the land if different.
   - Complete address, including street name and number, or lot and concession number and municipality.
   - Name and position of all pertinent employees to be contacted on routine business and in case of emergency.
Telephone number of the WTPS and head office, if different. Home telephone numbers of key employees should be obtained for use in an emergency after normal hours.

2. ENVIRONMENTAL IMPACT
- Obtain a plot plan of the WTPS and an overall site plan to show the location in the community if possible.
- Mark the location of watercourses or sewers which are on the property or significantly close-by.
- Indicate surface drainage patterns on the diagram and identify any control or treatment facilities for surface water runoff.
- Identify and mark on a drawing the zone(s) surrounding the WTPS which may be affected in case of a spill, fire, explosion or other disaster. Include specific sites, such as homes, wells, schools or other industries.
- Identify any test wells around tanks and lagoons. Document sampling frequency and parameters checked.
- Identify and record any materials which could be a problem if released into the environment.
- Obtain a copy of any hydrogeologic and/or soils reports, if the WTPS is located in a rural area.
- Comments on housekeeping and general appearance of the site.

3. PROCESSES AND OPERATIONS
- Review all pertinent certificates/licences and compare with actual operating procedures. Check the types of materials permitted to be received under existing certificate(s) of approval.
- Identify sources of raw materials and obtain detailed analytical data to be filed with MOE. This data will become available when the proposed Regulation on Generator Registration comes into effect.
- Obtain a material flow schematic drawing indicating both routine and special routings.
- Obtain a plan showing all piping, valves, etc.
- Determine the size and location of all tanks and lagoons. Tanks should be numbered to avoid confusion and possible accidental mixing of incompatible wastes.
- Evaluate the suitability of all tanks and/or lagoons, including liners, to accept the various waste types for which they are being utilized.
- Check and evaluate receiving and handling procedures, and review any analytical tests performed during this operation.
- Check mixing and blending procedures and evaluate safety and environmental aspects of these procedures.
- Determine the size, location and adequacy of drum storage areas, and the maximum number of full drums to be stored at any time. Drums should be numbered and/or have contents identified externally.
- Determine the final disposition of empty drums.
- If the waste material is processed at the WTPS to produce a marketable product, obtain complete details of the equipment's size and function.
- Identify the final disposal sites or receivers of material shipped out of the WTPS. Obtain the composition (analysis, if possible) of this material.
4. WASTE TREATMENT ON-SITE

- Obtain details of any on-site facilities for the treatment or disposal of wastewater, air pollutants or solid wastes.
- Review the handling, treatment or disposal procedures for tank bottoms and sludges.
- Note any actual or potential problems in the above areas. Consider methods for alleviating such problems.
- Document any history of complaints and/or past operating problems.

5. CONTINGENCY PLANNING

- Review the contingency plans for spills, fires, explosions, etc. For further clarification, contact the Fire Marshall's office.
- Evaluate the adequacy of supervision of the operations.
- Evaluate general dyking, spill control and piping around tanks, drum storage area, and the receiving and loading areas.
- Review any safety procedures in effect.
- Check and evaluate security measures, such as fencing, locks, policing, guardhouse, etc.

6. MATERIAL BALANCE

After the survey has been completed, MOE stuff should perform a material balance utilizing company records and waybills. This procedure should cover incoming wastes, outgoing material and all stock on hand, over a sufficient period deemed to be representative.

After this report has been prepared, a copy should be given to the company, and concurrence of the accuracy of the information should be
requested. In addition, the company should be asked to account for any significant discrepancies.

It is recognized that a material balance may be difficult to achieve for a WTPS where reprocessing or treatment takes place. However, every effort should be made to determine the routing of waste materials and an approximate percentage of waste material may be assigned to each route. The objective is to discover or eliminate any improper handling or discharge of waste materials.

If any problems are noted involving actual or potential environmental impacts, these should be reported in writing to the Company, together with requests to alleviate these problems.

With regard to containment, drum storage and dyking, reference should be made to the Ministry's "Guidelines for Environmental Protection Measures at Chemical Storage Facilities", as well as the Gasoline Handling Act and the Gasoline Handling Code which are available from the Ministry of Consumer and Commercial Relations, Fuels Safety Branch. The Fuels Safety Branch should be informed if materials which come under the Gasoline Handling Act are found on the site.

**ROUTINE MONITORING AND AUDITING**

When liquid industrial wastes are moved through a WTPS, physical and chemical characteristics often change, and their correlation with the generator is lost. This problem is compounded when liquid wastes are
received and subsequent treatment occurs on-site and the waste is divided into material destined for both reuse and final disposal.

In the case where material is shipped out as a product destined for reuse, this material is exempted by law from the waybill system. Thus an apparent difference in amounts of waste will appear if the waybill quantities are used without investigation for a material balance at a transfer station. The changes occurring in the process introduce a risk that improper reuse or illicit disposal can occur if the operator is careless or unscrupulous. By the same argument, the honest operator should be protected from unfair accusations of malpractice because waybills do not appear to reflect a balanced account of materials entering and leaving his facility.

Transfer stations and recovery operations may receive wastes such as crankcase oil, cutting oils, oily water, various solvents, acids and alkalis. Various oils may be blended for use as a dust suppressant. Acids and alkalis may be used to treat waste oils to produce a cleaner product for reuse or recycle. Certain solvents may be combined to produce a fuel or a waste suitable for incineration. In some cases clean water may be decanted and sewered.

In all of the above examples of possible operations the characteristics and/or volumes of the materials moving through the WTPS would definitely have been altered, due to quite legitimate processing techniques.
In order to keep closer track of wastes moving through transfer stations, procedures should be established for monitoring and record keeping, involving both MOE and company staff. The items outlined below should be implemented in a manner which will fit the conditions encountered at each WTPS.

1. Waybills must be used for all liquid industrial wastes entering and leaving WTPS, unless the entire load is destined for recycle or reuse. If necessary the company can be required to keep separate records of all shipments of material moving through the plant. If deemed necessary, these records can be submitted to the MOE on a periodic basis.

2. If a satisfactory log book for all transactions is not presently maintained by the WTPS, this procedure should be introduced. Samples of a possible log format are presented as Appendices I and II.

3. All records which are prepared by the WTPS and subject to perusal by MOE staff should bear the MOE waybill number as a cross-reference.

4. Periodic summary reports should be prepared by WTPS staff and submitted to the MOE, detailing all waste transfers and stored material on hand, if this is deemed necessary by MOE staff.

5. The WTPS should record the names of waste generators and the waste type numbers of all waste materials received. In order to ensure that
the wastes do not contain any dangerous or unusual properties which could be hazardous if blended or passed along for treatment or disposal, the WTPS should be aware of the physical and chemical characteristics of all waste materials received.

6. All storage facilities should contain the necessary appurtenances to allow representative samples to be withdrawn.

7. MOE should take periodic samples of incoming and outgoing material as well as wastes in storage. The analyses of these samples should be compared with company records.

8. Company staff should keep a record of all loads of wastes for which they have refused receipt. MOE inspectors should review these records and determine the actual receiver of these wastes.

9. If deemed necessary, the transfer of waste material between storage vessels should be recorded.

10. If deemed necessary, the levels of all tanks and lagoons should be determined and recorded at intervals specified by the MOE inspector.
## APPENDIX I

### SHIPPING LOG

<table>
<thead>
<tr>
<th>DATE:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DESTINATION</td>
<td>CARRIER</td>
<td>MOE WAYBILL</td>
<td>MOE CLASS</td>
<td>COMPANY WASTE CODE</td>
<td>QUANTITY SHIPPED</td>
<td>TANK NO.</td>
<td>OTHER INFORMATION</td>
<td>SIGNATURE OF SHIPPER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX II

RECEIPT LOG

<table>
<thead>
<tr>
<th>DATE:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>CUSTOMER (Generator of Waste)</th>
<th>CARRIER</th>
<th>MOE WAYBILL</th>
<th>MOE CLASS</th>
<th>COMPANY WASTE CODE</th>
<th>QUANTITY RECEIVED</th>
<th>TANK NO.</th>
<th>OTHER INFORMATION</th>
<th>SIGNATURE OF RECEIVER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX III

EXCERPTS OF DEFINITIONS, FROM VARIOUS PIECES OF LEGISLATION

From The Environmental Protection Act, 1971, Part V

Sec. 28, clause (d):

"waste" includes ashes, garbage, refuse, domestic wastes, industrial waste, or municipal refuse and such other wastes as are designated in the regulations.

Sec. 28, clause (e):

"waste disposal site" means any land or land covered by water upon, into, in or through which, or building or structure in which, waste is deposited or processed and any machinery or equipment or operation required for the treatment or disposal of waste.

From Ontario Regulation 824

- Section 4, subsection 9, classifies a "transfer station" as a "waste disposal site".

- Definition No. 29:
  "transfer station" means a waste disposal site used for the purpose of transferring waste from a collection vehicle to another carrier for transportation to another waste disposal site.

- Section 2 designates "hauled liquid industrial waste" as a waste under this Regulation.

- Definition No. 12:
  "hauled liquid industrial waste" means liquid waste, other than hauled sewage, that results from industrial processes or manufacturing or commercial operations that is transported in a tank or other container for treatment or disposal, and includes sewage residue from sewage
that are subject to the provisions of The Ontario Water Resources Commission Act.

From Ontario Regulation 926/76

Section 1, (1)b:

(b) "liquid industrial waste" means liquid waste that is a product of,
   i) an enterprise or activity involving industrial, manufacturing or commercial processes or operations,
   ii) research or an experimental enterprise or activity, or
   iii) an enterprise or activity to which subclause i would apply if the enterprise or activity were carried on for profit,
   but does not include,
   iv) waste that is product of a sewage system subject to the provisions of Part VII of the Act or a sewage works subject to The Ontario Water Resources Act or waste that is removed from a holding tank to which regulations made under clause a or b of subsection 3 of section 94 of the Act apply.
   v) waste discharged by its producer at the site where the waste is produced into municipal sanitary sewage works in accordance with applicable by-laws or into a sewage system, as defined in Part VII of the Act, that is being operated in accordance with the Act.
   vi) waste disposed of at a waste disposal site as defined in Part V of the Act, operated by the producer of the waste and located on the site where the waste is produced, or
   vii) waste that is wholly used or recycled.
Section 1(2):

- liquid waste is designated as a waste in addition to those wastes specified in clause d of section 28 of the Act.

It should be noted that all environmental aspects of any part of the transfer station property, whether concerned with waste transfer or not, come under the jurisdiction of the Ministry of the Environment. No alteration to a waste disposal site may be made unless a certificate of approval for such change has been issued.
Procedures for monitoring transfers of industrial waste materials at transfer stations and recycling depots /