|  |  |
| --- | --- |
|  | **HHW SOP 4.03 Abandoned and Unknown Wastes** |

*Note: This guidance document is for informational purposes only and outlines basic employer requirements. The Minnesota Pollution Control Agency (MPCA) makes no guarantee that this document satisfies the requirements of its users ensuring compliance. It is the sole responsibility of your specific Household Hazardous Waste (HHW) Program employer(s) to determine if requirements have been met.*

# 1. Introduction

Abandoned waste is any unwanted material that is abandoned on public or private property without the owner’s consent.

Unknown wastes include any material whose contents, chemical makeup or characteristic is unidentifiable as container markings or labels are either missing or partially destroyed. This waste type often includes items received from households and/or materials left intentionally as abandonments after facility operational hours.

Abandoned or unknown wastes are considered a hazardous material until properly identified. The designated person to determine acceptance of abandoned, or unknown wastes for this HHW Program is [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_].

# 2. Acceptance of Abandoned and Unknown Wastes

* Do not accept unknown wastes from any State Contractors or a State Agency. Should these situations occur, contact MPCA HHW staff for additional guidance. Typically, only fully identified and properly containerized wastes may be accepted from the State or its contractors.
* The Program may receive abandoned waste **storage** requests from county departments, state agencies or their contractors or HW left in a road ditch and/or retrieved by Department of Transportation [DOT abandoned waste](http://www.dot.state.mn.us/environment/regulatedmaterials/containers.html) and if facility protocol allows for acceptance.
* HHW Programs typically decide to accept and/or store abandoned or unknown wastes to ensure the materials are removed from public circulation and to ensure its safe disposal. This facility’s unknown and abandoned waste acceptance policy is to [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_].

# 3. Identifying Abandoned and Unknown Wastes

* + - * An abandoned or unknown container shall be examined immediately upon arrival in the facility by the designated person to attempt to determine the contents.
* Each waste material presents its own unique hazard as container markings or labels may be missing. Be aware if an incoming waste item arrives bulging, smoking, or fizzing, a chemical reaction could be occurring. Immediately move the container to a safe location and away from public access.
* If a legible marking indicates the container contents are potentially a dangerous material (i.e., explosive or reactive), or if the waste material is not readily identified and is deemed an immediate threat to public safety, immediately notify the [MN Duty Officer](https://dps.mn.gov/divisions/bca/bca-divisions/administrative/Pages/minnesota-duty-officer-program.aspx). The Duty Officer will dispatch either the MN Bomb Squad or a state contracted Hazardous Materials Response ([HAZMAT](https://dps.mn.gov/divisions/sfm/state-response-teams/Pages/default.aspx)) Team.
* Contact local law enforcement if suspected drug manufacturing wastes are presented.
* Staff should attempt to learn as much as possible about unidentified wastes from the participant bringing in the waste, such as age, origin/location, hobbies, etc.

The designated person to determine acceptance of abandoned, or unknown wastes shall take the following precautions to identify the waste item:

* Segregate the container from other stored HHW and place into secondary containment.
* Perform compatibility testing: (pH, flammability, water reactive) to determine its hazard characteristic; see **Attachment A**. Record the identification test results using **Attachment B** (Unknown Material Screening Report Form).
* For additional guidance, review the HHW Hazardous Categorization Training Manual or review the [NIOSH Pocket Guide](https://www.cdc.gov/niosh/npg/).
* If the waste is still unknown at this point, contact the state contracted HW disposal company for further direction and to assist with waste identification. The disposal company may request a picture of the waste container.
* Following proper identification of the waste type, the item may be co-mingled, bulked or lab packed with compatible wastes following the HHW Hazard Categorization manual packing requirements.

# Attachment A

**Unknown Waste Identification Procedures**

The Program person designated to determine acceptance of abandoned, or unknown wastes may perform some or all, of the following tests, and record the identification test results using Attachment B (Unknown Material Screening Report Form):

**Step 1: Determine radioactivity:**

Follow the directions on your radioactivity detector or Geiger counter to check the waste. If your facility does not have this equipment, contact the state contracted HW disposal company for further guidance.

**Step 2: Describe the physical characteristics:**

* Color.
* State (solid, liquid, phased).
* Texture.
* Sheen.
* Incidental odor (NEVER INTENTIONALLY SMELL UNKNOWN WASTES).

**Step 3: Determine flammability:**

* Place 1 gram or 3 drops of the unknown material into a cup, crucible, or dish.
* Apply an ignition source (a lit match or butane lighter flame) to the unknown material.
* If the sample ignites immediately, or in a somewhat delayed fashion, consider the material to be flammable.

|  |  |
| --- | --- |
| **Observation** | **Result** |
| Sample immediately combusts | Chemical is RCRA Hazardous for ignitability (D001) |
| Delayed combustion or at a lesser degree | Chemical is combustible for DOT purposes but is not considered a RCRA Hazardous Waste |
| Sample melts | Noncombustible |

**Step 4: Determine water reactivity:**

* Place a pea-sized amount of the unknown material, using a disposable spatula or pipette into a weight dish.
* Add a few drops of water on the sample.

|  |  |
| --- | --- |
| **Observation** | **Result** |
| Smokes, emits fumes, sizzles, fizzes, or jumps in water | Sample is water reactive, potentially an alkali metal if solid, organic if liquid and would be RCRA Hazardous for reactivity (D003) |

**Step 5: Determine if sample is an oxidizer:**

* For liquids, place a few drops of the sample onto a strip of potassium-iodide starch paper.
* For solids or semi-solids, slurry sample with some distilled water in a 1:1 mixture or ratio. Place the potassium-iodide starch paper onto the sample.
* Observe for any color changes.

|  |  |
| --- | --- |
| **Observation** | **Result** |
| Potassium-iodide starch paper turns purple | Chemical is RCRA Hazardous for an oxidizer (D001). |
| No color change | Chemical is not an oxidizer |

**Step 6: Determine corrosivity:**

* For solids, add a pea-sized portion of the material to a few drops of distilled water.
* Dip pH paper into the sample.
* For liquids, dip pH paper into sample.

|  |  |
| --- | --- |
| **Observation** | **Result** |
| pH = 0 | Acidic – the lesser the number, the stronger the acid. A result of less than or equal to 2.0 is RCRA Hazardous for Corrosivity (DOO2) |
| PH = 5 – 9 | Neutral |
| PH =10 – 14 | Alkaline – the higher the number, the stronger the alkalinity. A result of greater than 12.5 is considered a RCRA Hazardous for Corrosivity (D002) |

**Step 7: Cyanide test:**

* Place 5 grams, nickel-size, of the sample into a test tube.
* If material is solid or semi-solid, slurry it with distilled water.
* Wet a strip of the testing paper with some distilled water and place it well above the sample.
* Add 5 ml of concentrated sulfuric acid to sample, gently stir, and immediately cover the test tube.
* Observe for any test paper color changes.

|  |  |
| --- | --- |
| **Observation** | **Result** |
| Pale green test paper turns blue | Cyanide is present. Chemical is RCRA hazardous for cyanides (D003). |

**Step 8: Sulfide test:**

* Place 5 grams, nickel-size, of the sample into a test tube.
* If material is solid or semi-solid, slurry it with some distilled water.
* Wet a strip of lead-acetate paper with some distilled water and place the paper well above sample.
* Add 5 ml of hydrochloric acid to the sample and gently stir and immediately cover the test tube.
* Observe for any color changes to the test paper.

|  |  |
| --- | --- |
| **Observation** | **Result** |
| Lead-acetate test strip turns brown | Possible reactive sulfides (D003). |

**Unknown Material Screening Report Form**

|  |
| --- |
| Generator: |
| Date/time sampled: |
| Address: |
| Contact person/phone number: |

|  |  |
| --- | --- |
| Test performed | Result |
| PH (write in exact result-pH =11) |  |
| Flash point (yes or no, does the material flash) |  |
| Water reactive (yes or no) |  |
| Water soluble/based (yes or no) |  |
| Air reactive (yes or no) |  |
| Oxidizer (yes or no) |  |
| Sulfides (yes or no) |  |
| Cyanides (yes or no) |  |
| Peroxides (yes or no) |  |
| Comments: (Include color, size, and kind of container—glass, plastic, metal—color of the material, physical state of the material, any label information, etc.) |
|  |
| Staff name completing this testing: |

If tested item is still unknown at this point, contact the state contracted HW disposal company for further guidance and direction.

# Attachment B

|  |  |  |
| --- | --- | --- |
| **Keep these…+** | **Away from these…🡺** | **Or this chemical reaction may occur…** |
| **Acids** | **Bases** | **Heat violent reaction** |
| Acids or bases | Reactive metals (aluminum, beryllium, calcium, lithium, potassium, magnesium, sodium, zinc powder) metal hydrides | FireExplosion Hydrogen gas |
| Water or alcohols | Concentrated acids or basescalcium, lithium, potassium, metal hydrides, other reactive wastes | HeatFireExplosion Flammable and toxic gases |
| Reactive organic compounds or solvents (alcohols, aldehydes, nitrated hydrocarbons) | Concentrated acids or bases, reactive metals, and metal hydrides | FireExplosion |
| Cyanide or sulfide solutions | Acids | Toxic hydrogenCyanideSulfide gas |
| Strong oxidizers (chlorates, chlorine, chlorites, chromic acid, hypochlorite’s, nitrates, perchlorates, permanganates, peroxides) | Organic acids, concentrated mineral acids, reactive metals, metal hydrides, reactive organic compounds, or solvents, flammable or combustible waste | FireExplosion |