BUREAU OF ENVIRONMENTAL REMEDIATION/REMEDIAL SECTION
GUIDELINE

CHARACTERIZATION AND MANAGEMENT OF CONTAMINATED SOIL CUTTINGS

BER POLICY # BER-RE-003
DATE: June 18, 1993
REVISED 1996
PAGES: 1 with 4 attachments

Section Chief: [Signature] Date: 12/29/05
Bureau Manager: [Signature] Date: 12/30/05

REVISIONS

Reviser: Rob Elder Date of Revision: 1996

ORIGINATOR

Originator: Rick Bean Date: 6/18/93
This guidance presents recommended options for the proper characterization and management of contaminated soil cuttings derived during environmental investigations and/or remediation. These wastes may include drilling mud, soil cuttings and other solid materials derived during such activities. KDHE also recommends referring to an EPA document titled, “Management of Investigation-Derived Wastes During Site Inspections,” (EPA/540/G-91/009, May 1991) for further guidance.

Several flow charts (attachments) have been developed to guide project managers through characterization and management of contaminated soil cuttings for:

- Attachment 1 - RCRA Pesticides
- Attachment 2 - RCRA Metals
- Attachment 3 - RCRA VOCs
- Attachment 4 - RCRA Base Neutral and Acid Extractable

The most important elements for management of soil cuttings are:

- Leave a site in no worse condition than existed prior to the investigation.
- Removing any waste that poses an immediate threat to human health and the environment.
- Leaving wastes that do not require off-site disposal or extended above-ground containment.
- Complying with existing federal and state ARARs.
- Minimizing the quantity of generated waste.
KDHE RECOMMENDED PROCEDURES
FOR CHARACTERIZATION AND DISPOSAL OF
RCRA PESTICIDES CONTAMINATED SOIL CUTTINGS

REVIEW ALL AVAILABLE DATA
LAB ANALYTICALS, FIELD DATA, etc.

INSUFFICIENT
DATA

COMPOSITE SAMPLE EACH DRUM
COMBINE COMPOSITES FROM NO
GREATER THAN 5 DRUMS
LAB ANALYSIS FOR PESTICIDES

ALL RCRA PESTICIDES
BELOW TOTAL CUTOFF LEVELS

ANY RCRA PESTICIDES
ABOVE TOTAL CUTOFF LEVELS

APPLY FOR SPECIAL
AUTHORIZATION PERMIT
SOLID WASTE LANDFILL

CONSIDER TO BE RCRA
HAZARDOUS WASTE, OR
ANALYZE FOR TCLP

RCRA HAZARDOUS?

YES

APPLY FOR AUTHORIZATION TO
DISPOSE IN AN APPROVED HAZARDOUS
WASTE DISPOSAL FACILITY

RCRA PESTICIDES TOTAL CONCENTRATION CUTOFF LEVELS (MG/KG)

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Cutoff Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlordane</td>
<td>0.6</td>
</tr>
<tr>
<td>Endrin</td>
<td>0.4</td>
</tr>
<tr>
<td>Heptachlor</td>
<td>0.16</td>
</tr>
<tr>
<td>Lindane</td>
<td>8.0</td>
</tr>
<tr>
<td>Methoxychlor</td>
<td>200.6</td>
</tr>
<tr>
<td>Toxaphene</td>
<td>10.0</td>
</tr>
<tr>
<td>2,4-D</td>
<td>200.0</td>
</tr>
<tr>
<td>2,4,5-TP (Silvex)</td>
<td>20.0</td>
</tr>
</tbody>
</table>
KDHE RECOMMENDED PROCEDURES
FOR CHARACTERIZATION AND DISPOSAL OF
RCRA METALS CONTAMINATED SOIL CUTTINGS

REVIEW ALL AVAILABLE DATA
LAB ANALYTICALS, FIELD DATA, etc.

INSUFFICIENT DATA

COMPOSITE SAMPLE EACH DRUM
COMBINE COMPOSITES FROM NO
GREATER THAN 5 DRUMS
LAB ANALYSIS FOR METALS

ALL RCRA METALS BELOW
TOTAL CUTOFF LEVELS

APPLY FOR SPECIAL
AUTHORIZATION PERMIT
SOLID WASTE LANDFILL

ANY RCRA METAL ABOVE
TOTAL CUTOFF LEVEL

CONSIDER TO BE RCRA
HAZARDOUS WASTE, OR
ANALYZE FOR TCLP

RCRA HAZARDOUS?

YES

APPLY FOR AUTHORIZATION TO
DISPOSE IN AN APPROVED HAZARDOUS
WASTE DISPOSAL FACILITY

RCRA METALS TOTAL CONCENTRATION CUTOFF LEVELS (MG/KG)

<table>
<thead>
<tr>
<th>Metal</th>
<th>Cutoff Level (MG/KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>100.0</td>
</tr>
<tr>
<td>Barium</td>
<td>2000.0</td>
</tr>
<tr>
<td>Cadmium</td>
<td>20.0</td>
</tr>
<tr>
<td>Chromium</td>
<td>100.0</td>
</tr>
<tr>
<td>Lead</td>
<td>100.0</td>
</tr>
<tr>
<td>Mercury</td>
<td>4.0</td>
</tr>
<tr>
<td>Selenium</td>
<td>20.0</td>
</tr>
<tr>
<td>Silver</td>
<td>100.0</td>
</tr>
</tbody>
</table>

05/23/96
KDHE RECOMMENDED PROCEDURES
FOR CHARACTERIZATION AND DISPOSAL OF RCRA
VOC CONTAMINATED SOIL CUTTINGS

REVIEW AVAILABLE DATA

NON DETECT, OR < 1 PPM
DISPOSE ON SITE

FIELD SCREENING PORTABLE GC,
OVA, PID, etc.

≥ 1 PPM

COMPOSITE SAMPLE EACH DRUM
COMBINE COMPOSITES FROM NO
GREATER THAN 5 DRUMS
LAB ANALYSIS 8010/8020

TVOC < 500 MG/KG AND
RCRA VOC's BELOW CUTOFF
LEVELS

APPLY FOR SPECIAL
AUTHORIZATION PERMIT
SOLID WASTE LANDFILL

TVOC ≥ 500 MG/KG OR
RCRA VOC's ABOVE CUTOFF
LEVELS

CONSIDER TO BE RCRA
HAZARDOUS WASTE, OR
ANALYZE FOR TCLP

RCRA HAZARDOUS?

YES

NO

APPLY FOR AUTHORIZATION TO DISPOSE
IN AN APPROVED HAZARDOUS WASTE
DISPOSAL FACILITY

RCRA VOC CONCENTRATION CUTOFF LEVELS (MG/KG)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Cutoff Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>10.0</td>
</tr>
<tr>
<td>Chlorobenzene</td>
<td>2000.0</td>
</tr>
<tr>
<td>Methyl Ethyl Ketone</td>
<td>4000.0</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>4.0</td>
</tr>
<tr>
<td>Trichloroethylene</td>
<td>10.0</td>
</tr>
<tr>
<td>Chioroform</td>
<td>120.0</td>
</tr>
<tr>
<td>Tetrachloroethylene</td>
<td>14.0</td>
</tr>
<tr>
<td>Carbon Tetrachloride</td>
<td>10.0</td>
</tr>
<tr>
<td>1,2-Dichloroethane</td>
<td>10.0</td>
</tr>
<tr>
<td>1,1-Dichloroethylene</td>
<td>14.0</td>
</tr>
</tbody>
</table>
KDHE RECOMMENDED PROCEDURES FOR CHARACTERIZATION
AND DISPOSAL OF RCRA BASE NEUTRAL AND ACID EXTRACTABLE
CONTAMINATED SOIL CUTTINGS

REVIEW ALL AVAILABLE DATA
LAB ANALYTICALS, FIELD DATA, etc.

NON DETECT, OR < 1 PPM
DISPOSE ON SITE

FIELD SCREENING PORTABLE GC,
OVA, PID, etc.

≥ 1 PPM

COMPOSITE SAMPLE EACH DRUM
COMBINE COMPOSITES FROM NO
GREATER THAN 5 DRUMS
LAB ANALYSIS 624/625

TPH < 500 MG/KG AND
RCRA BNA's BELOW CUTOFF
LEVELS

APPLY FOR SPECIAL
AUTHORIZATION PERMIT
SOLID WASTE LANDFILL

TPH ≥ 500 MG/KG OR
RCRA BNA's ABOVE CUTOFF
LEVELS

CONSIDER TO BE RCRA
HAZARDOUS WASTE, OR
ANALYZE FOR TCLP

RCRA HAZARDOUS?

YES

NO

APPLY FOR AUTHORIZATION TO DISPOSE
IN AN APPROVED HAZARDOUS WASTE
DISPOSAL FACILITY

RCRA BASE NEUTRAL/ACID (BNA's) CUTOFF LEVELS (MG/KG)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Cutoff Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-cresol</td>
<td>4,000.0</td>
</tr>
<tr>
<td>m-cresol</td>
<td>4,000.0</td>
</tr>
<tr>
<td>p-cresol</td>
<td>4,000.0</td>
</tr>
<tr>
<td>Cresol</td>
<td>4,000.0</td>
</tr>
<tr>
<td>1,4-dichlorobenzene</td>
<td>150.0</td>
</tr>
<tr>
<td>Hexachlorobenzene</td>
<td>2.6</td>
</tr>
<tr>
<td>Hexachlorobutadiene</td>
<td>10.0</td>
</tr>
<tr>
<td>Hexachloroethane</td>
<td>60.0</td>
</tr>
<tr>
<td>Nitrobenzene</td>
<td>40.0</td>
</tr>
<tr>
<td>2,4-dinitrotoluene</td>
<td>2.6</td>
</tr>
<tr>
<td>Pantachlorophenol</td>
<td>2,000.0</td>
</tr>
<tr>
<td>Pyridine</td>
<td>100.0</td>
</tr>
<tr>
<td>2,4,5-trichlorophenol</td>
<td>8,000.0</td>
</tr>
<tr>
<td>2,4,6-trichlorophenol</td>
<td>40.0</td>
</tr>
</tbody>
</table>