MEMORANDUM

Department of Environmental Quality

Division of Land Protection & Revitalization

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Subject: Guidance Memorandum No. LPR-HW-01-2012
"Contained-in" and "Contained-out" Policy Guidance for Soils Contaminated with Hazardous Waste

To: Regional Land Protection Program Managers, Justin Williams, Leslie Romanchik, Durwood Willis

From: Jeffery A. Steers
Division of Land Protection and Revitalization Director

Copy: Regional Directors, James Golden

Date: July 9, 2012

Summary:

The purpose of this Guidance Document is to provide guidelines by the Virginia Department of Environmental Quality (DEQ), for managing excavated soil that is potentially contaminated with hazardous waste under the Virginia Hazardous Waste Management Regulations (VHWMR) and the Resource Conservation and Recovery Act (RCRA) Regulations, as incorporated by reference. (See 40 CFR Part 261, Subpart C, and Subpart D.)

The determination that any given volume of contaminated media does not contain or no longer contains a listed hazardous waste under 40 CFR Part 261, Subpart D, is called a "contained-out determination."

This Guidance Document identifies the procedures and protocols and the RCRA regulatory citations to follow to determine when the concentrations of hazardous constituents of concern (HCOCs) in contaminated soils are at levels which the DEQ considers to either 1) contain or 2) not contain hazardous waste. Therefore, this Guidance provides procedures for the generator and the DEQ to make "contained-in" and "contained-out" determinations of contaminated soil media, which are potentially contaminated with hazardous waste.

This Guidance Document also identifies the applicable management, storage, treatment, and disposal regulatory options/requirements associated with the excavated soils from a contaminated site, which is subject to the RCRA regulatory requirements. It also identifies when a potentially contaminated soil may no longer be managed as hazardous waste under the VHWMR and the RCRA Regulations, and it identifies the procedures for the subsequent management, storage, transportation, and disposal of such contaminated soil as solid waste under the Virginia Solid Waste Management Regulations (VSWMR).

Electronic Copy:

An electronic copy of this guidance is available on DEQ'S website at www.deq.virginia.gov

Contact information:

For information on the contents of this document, or for further guidance and assistance, please contact Hassan Vakili at 804-698-4155 or Hassan.Vakili@deq.virginia.gov or Leslie Romanchik, Hazardous Waste Program Manager at 804-698-4129 or Leslie.Romanchik@deq.virginia.gov

To submit an application for a "contained-in/contained-out determination," please contact Leslie Romanchik, Hazardous Waste Program Manager at 804-698-4129 or Leslie.Romanchik@deq.virginia.gov

1.0 Purpose and Scope

The purpose of this Guidance Document is to provide guidelines by the Virginia Department of Environmental Quality (DEQ), for managing excavated soil that is potentially contaminated with hazardous waste under the Virginia Hazardous Waste Management Regulations (VHWMR) and the Resource Conservation and Recovery Act (RCRA) Regulations, as incorporated by reference. (See 40 CFR Part 261, Subpart C, and Subpart D.)

EPA decided in the mid-1980's that if contaminated environmental media "contain" hazardous waste, the media must be managed as if they are hazardous waste.

EPA generally considers contaminated environmental media to contain hazardous waste if either of the following exists: 1) the media exhibits a characteristic of hazardous waste, or 2) the hazardous constituent(s) from listed hazardous waste is/are present in the media at concentrations that are above risk-based levels, which pose a threat to human health and/or the environment. Contaminated media which contains hazardous waste upon generation are subject to all applicable RCRA Subtitle C hazardous waste management, storage, treatment, and disposal requirements. Such wastes must meet the land disposal restriction (LDR) requirements under 40 CFR Part 268, before land disposal.

The determination that any given volume of contaminated media does not contain or no longer contains a listed hazardous waste under 40 CFR Part 261, Subpart D, is called a "contained-out determination."

In the case where a media exhibits a characteristic of hazardous waste, the media is considered to contain hazardous waste as long as it continues to exhibit a characteristic of hazardous waste. Once a contaminated media is treated to remove all characteristics of hazardous waste under 40 CFR Part 261, Subpart C, then the subject media is no longer considered to contain hazardous waste. However, if the managed soil media is treated to remove a characteristic of hazardous waste, then the media is still subject to LDR requirements. (Note that dilution of contaminated soil media to remove a characteristic of hazardous waste is considered "impermissible dilution" and is in contravention of the RCRA Regulations (see 40 CFR § 268.3).)

Please note that this Draft Policy Guidance Document does not have the effect of law or regulations nor does it represent a formal DEQ management decision or final action. This Draft Policy Guidance Document shall be used in conjunction with applicable laws and regulations to implement the EPA Policy. It does not replace applicable laws and regulations, and if it conflicts with laws and regulations, then the laws and regulations shall control.

This Guidance Document identifies the procedures and protocols and the RCRA regulatory citations to follow to determine when the concentrations of hazardous constituents of concern (HCOCs) in contaminated soils are at levels which the DEQ considers to either 1) contain or 2) not contain hazardous waste. Therefore, this Guidance provides procedures for the generator and the DEQ to make "contained-in" and "contained-out" determinations of contaminated soil media, which are potentially contaminated with hazardous waste.

This Guidance Document also identifies the applicable management, storage, treatment, and disposal regulatory options/requirements associated with the excavated soils from a contaminated site, which is subject to the RCRA regulatory requirements. It also identifies when a potentially contaminated soil may no longer be managed as hazardous waste under the VHWMR and the RCRA Regulations, and it identifies the procedures for the subsequent management, storage, transportation, and disposal of such contaminated soil as solid waste under the Virginia Solid Waste Management Regulations (VSWMR).

The management, treatment, and/or disposal options/requirements associated with the "contained-in" and "contained-out" determinations are integral components of these two determinations. The two primary management, treatment, and/or disposal regulatory options/requirements associated with soil potentially contaminated with hazardous wastes, as described in this Guidance are as follows:

1. **Option/Requirement No. 1 – Soil Media Managed, Stored, Treated, and Disposed in Accordance with the VHWMR under RCRA Subtitle C** - Management, treatment and disposal of contaminated soil as a hazardous waste, in accordance with the VHWMR and RCRA Regulations under Subtitle C requirements. The contaminated soil media under this Option is determined "to contain" hazardous waste and requires subsequent management in a RCRA permitted treatment, storage, disposal (TSD) facility. Contaminated media also requires treatment to meet the applicable requirements of 40 CFR Part 268, Land Disposal Restrictions (LDRs).

2. **Option/Requirement No. 2 – Soil Media Managed and Disposed in Accordance with the VSWMR** – Management, storage, treatment, and/or disposal of contaminated soil as a non-hazardous solid waste in accordance with applicable requirements of the Virginia Solid Waste Management Regulations (VSWMR), when the soil media meets the following criteria: 1) the concentrations of hazardous constituents of concern (HCOCs) in the contaminated soil are above background concentrations, 2) the soil does not or no longer exhibits a characteristic of a hazardous waste, 3) the HCOCs in the soil are below the industrial risk-based screening levels (RBSLs). (See Appendix A.) **Such soils under Option/Requirement No. 2 are eligible for the "contained-out" determination by the DEQ.**

   (Note: For soils potentially contaminated with hazardous waste, under Option/Requirement No.2, the generator's facility is required to submit the appropriate documentation in a letter report to the DEQ to demonstrate the "contained-out" determination and to obtain the DEQ's "contained-out" determination approval.)

For a soil generated out-of-state, a "contained-out" determination must be made in accordance with this policy before it can be managed as a solid waste in Virginia in addition to any determination made by the state in which the waste was generated. Any such determination made by the state where the waste was generated is not automatically acceptable in Virginia. If the state in which the hazardous waste was generated has not made a "contained-out" determination or requires that the waste be managed as hazardous waste, the waste is not eligible for a "contained-out" determination by the DEQ

It is the facility's project manager's and authorized representative's responsibility to determine whether contaminated soil media generated meets the definition of a solid or hazardous waste. (See 40 CFR §261.33, § 270.11 and § 268.7.) Sampling and analytical test results should be used to screen the contaminated soil media generated during the investigation or remediation activity to determine if HCOCs in the soil are below or equal to background levels, and to establish whether the soil media is considered to be a solid waste or potentially a hazardous waste.

If the soil media is determined not to be a hazardous waste, but contains levels of HCOCs or other contaminants above background levels, the contaminated soil media must be managed in accordance with the Virginia Solid Waste Management Regulations (VSWMR).

The Land Protection and Revitalization Program in the appropriate DEQ Regional Office will make a case-by-case waste determination, as applicable, for any other type of contaminated environmental media, and for any contaminated soil media generated from out-of-State.

Please note that the levels used for determining when soils may be managed as a non-hazardous waste should not be confused with clean-up criteria and standards.

Clean-up levels (criteria and standards) for any soil are site specific and should be obtained from the DEQ's Risk Assessment Program Staff. Site specific clean-up levels under closure and corrective action remediation under the RCRA Subtitle C program are established through submittals and approvals of work plans and reports under the oversight of the DEQ and are based upon site specific background levels and risk assessment protocols, criteria, and standards.

2.0 Applicability and Background

Soil, ground water, sediment, and surface water are environmental media and are not solid wastes; that is, they were never abandoned or discarded. Therefore, when such media become contaminated with hazardous waste, the hazardous waste mixture rule does not apply since the media is not solid waste. (The hazardous waste mixture rule applies only to mixtures of hazardous wastes with solid wastes.)

However, the "contained in principle" is the basis for the EPA's longstanding interpretation regarding the application of RCRA Subtitle C requirements to mixtures of environmental media (soils, sediments, groundwater, surface waters, (and debris)) and hazardous wastes.

Under the "Contained-in Policy," the EPA requires that soil (and other environmental media), although not wastes themselves, be managed as if they were hazardous waste if they contain listed hazardous waste or if they exhibit a characteristic of hazardous waste. While the soil itself is not considered hazardous waste, when "generated" (removed from place, excavated), it must be managed as such when it contains a listed hazardous waste or exhibits a characteristic of a hazardous waste. (See FR 31138, 31148 (August 17, 1988) and 57 FR 21450, 21453 (May 20, 1992).)

(It should be noted that the "Contained-in Policy" for debris was codified in 1992 and is found under 40 CFR 268.45, Treatment Standards for Hazardous Debris.)

The EPA suggests that when making a determination as to when contaminated media no longer contains a hazardous waste that a risk assessment approach be used that addresses the public health and environmental impacts of the hazardous constituents remaining.

EPA Regions and authorized states may apply the "contained-in policy" to determine site, media, and contaminant specific levels, such that if the concentration of the hazardous constituents in the environmental media fall below these levels, the environmental media may be determined to no longer contain hazardous waste as long as contaminated soil does not exhibit a characteristic of a hazardous waste.

In order to make "contained-in" determinations, a State must only be authorized for the part of the base program under which the waste of concern is identified as hazardous. Authorized states and EPA Regions may use any format or mechanism to document "contained-in" determinations. These mechanisms could include official agency correspondence, orders, and RCRA permits. (Virginia is an authorized State.)

This guidance applies only to soil media that has been potentially contaminated with listed hazardous waste or exhibits a characteristic of a hazardous waste under the VHWMR and the RCRA Regulations under Subtitle C. No other environmental media, process waste streams, wastes or waste residuals, debris or other materials are covered by this Draft Policy Guidance Document.

Where hazardous waste is considered to be "contained-in" environmental media (soil), then the media is subject to full regulation as a hazardous waste under RCRA Subtitle C and is subject to management, treatment, storage, and disposal as specified under Option/Requirement No. 1 under Section 3.0, below.

When excavated, all soil potentially contaminated with hazardous waste shall be stored on site in containers or roll-off containers.

3.0 Management - Treatment and Disposal Options/Requirements – Criteria and Standards for Draft "Contained-in" and "Contained-out" Policy

1. **Option/Requirement No. 1 – Soil Media Managed, Stored, Treated, and Disposed in Accordance with the VHWMR under RCRA Subtitle C Regulations - Soil must be managed as a hazardous waste under RCRA Subtitle C Regulations when** the applicable soil media is potentially contaminated with a listed hazardous waste under RCRA Part 261, Subpart D, and the **soil contains a concentration* of any hazardous constituent of concern (HCOC)** (40 CFR § 261.33, and Part 261, Appendix VIII) **which is above** the current EPA Regional Screening Level (RSL) Table **industrial risk-based screening level (RBSL) for direct exposure to soils (see Appendix A), and/or the contaminated soil exhibits a characteristic of a hazardous waste.**

   *Concentrations of HCOCs are demonstrated through representative sampling and analysis of applicable soils from all containers of soil media. Discrete Samples - The concentration of the HCOCs in the soil media are considered to be the 95 % UCL of the HCOCs of representative samples of the soil container. Where less than 4 discrete

samples are taken, the maximum concentration of each HCOC in the sampled soil container shall be used as the basis to establish the "contained-in" or contained-out" determination. Composite Samples - If a composite soil sample is taken from a small container, the composite sample shall be comprised of a minimum of 4 equally spaced discrete samples representing the entire depth of the soils within the container. If a large roll-off container is sampled, the composite sample shall be comprised of a minimum of 8 equally spaced discrete samples representing the entire the area and depth of the soil within the container. (There should be a minimum of 4 equally spaced sample locations with 2 equally spaced sample depths within the soil pile in the container. Avoid surface samples of the pile within the container unless there is a visual or olfactory evidence of contamination at the soil surface.)

Soil managed under RCRA Subtitle C, where the media is determined to "contain" listed hazardous waste or which exhibit a characteristic of hazardous waste at the time of removal, must also meet all applicable land disposal restrictions (LDRs) established for soils under the VHWMR and the RCRA Regulations, as incorporated by reference, under 40 CFR Part 268, § 268.48, and § 268.49. Soil managed under RCRA Subtitle C must meet all management, storage, treatment, disposal, recordkeeping, reporting, and transportation regulatory requirements under RCRA Subtitle C Regulations.

2. **Option/Requirement No. 2 – Soil Media Managed, Stored, Treated, and Disposed in Accordance with the VSWMR - When a soil is above site specific background levels,** and the soil is potentially contaminated with a listed hazardous waste under the VHWMR, and the RCRA Part 261, Subpart D), **and it is demonstrated that the concentrations* of all the applicable hazardous constituents** (Regulations (40 CFR § 261.33, and Part 261, Appendix VIII) **in the soil are less than or equal to** the current **industrial risk-based screening levels (RBSLs) for direct exposure to soils** (see Appendix A), **and the soil does not exhibit a characteristic, then the soil may be managed and disposed in accordance with the Virginia Solid Waste Management Regulations (VSWMR).**

Such soils under Option/Requirement No. 2 are eligible for the "contained-out" determination by the DEQ.

The soil media under Option No. 2 may be subject to the LDR requirements before land disposal. For applicable LDR requirements, see the Table below, see text under § 268.48, Universal Treatment Standards, and § 268.49, Alternative LDR Treatment Standards for Contaminated Soil, and specifically, see § 268.49(c).

If LDRs	And if LDRs	And if	Then you
Applied to the listed waste when it contaminated the soil*.	Apply to the listed waste now.	.....	Must comply with LDRs.
Didn't apply to the listed waste when it contaminated the soil*.	Apply to the listed waste now.	The soil is determined to contain the listed waste when the soil is first generated.	Must comply with LDRs.
Didn't apply to the listed waste when it contaminated the soil*.	Apply to the listed waste now.	The soil is determined to not contain the listed waste when the soil is first generated.	Needn't comply with LDRs.
Didn't apply to the listed waste when it contaminated the soil*.	Don't apply to the listed waste now.	.....	Needn't comply with LDRs.

*For dates of LDR applicability, see 40 CFR Part 268 Appendix VII. To determine the date any given listed hazardous waste contaminated any given volume of soil, use the last date any given listed hazardous waste was placed into any given land disposal unit or area, in the case of an accidental spill, the date of the spill.

*Concentrations of HCOCs are demonstrated through representative sampling and analysis of applicable soils from all containers of media. Discrete Samples - The concentration of the HCOCs in the soil media are considered to be the 95 % UCL of the HCOCs of representative samples of the soil container. Where less than 4 discrete samples are taken, the maximum concentration of each HCOC in the sampled soil container shall be used as the basis to establish the "contained-in" or contained-out" determination. Composite Samples - If a composite soil sample is taken from a small container, the composite sample shall be comprised of a minimum of 4 equally spaced discrete samples representing the entire depth of the soils within the container. If a large roll-off container is sampled, the composite sample shall be comprised of a minimum of 8 equally spaced discrete samples representing the entire the area and entire depth of the soil within the container. (There should be a minimum of 4 equally spaced sample locations with 2 equally spaced sample depths within the soil pile in the container. Avoid surface samples of the pile within the container unless there is a visual or olfactory evidence of contamination at the soil surface.)

Soils managed under RCRA Subtitle C where the media was determined to potentially "contain" a listed hazardous waste or which exhibited a characteristic of hazardous waste at the time of removal must also meet all applicable land disposal restrictions (LDRs) established for soils under the VHWMR and the RCRA Regulations under 40 CFR Part 268, § 268.48, and § 268.49, as a component part of the "contained-out" determination and requirements, and receive the DEQ's authorization to manage/dispose the soil in accordance with the Virginia Solid Waste Management Regulations (VSWMR), and this Draft Policy.

Note: a) If the soil is characteristic HW at a time of removal, even if the characteristic is removed as a result of treatment, the soil must also meet LDR for all underlying HCOC's before land disposal.

b) If the soil was contaminated as a result of listed waste, and the listed waste was subject to LDR at the time of spill, then the excavated soil must meet LDR requirements, even if the soil does not contain a hazardous waste.

See Section 4.0 for the required letter report submittals to the DEQ and the requirement for the DEQ Approvals of "Contained-out" determinations.

4.0 Management - Documentation – Report Submittals to DEQ – DEQ Written Approvals

Management of Potentially Contaminated Soil - All soil media that is potentially contaminated with listed hazardous waste or exhibits a characteristic of a hazardous waste, will be managed as hazardous waste until demonstrated as being non-hazardous by sampling and testing. **When excavated, all soil potentially contaminated with hazardous waste shall be stored on site in containers or roll-off containers.** (See information below associated with DEQ approvals for soil media potentially contaminated with hazardous wastes. Also see Soil Media – Characteristic Wastes Below.)

Notification of DEQ Regarding Temporary Storage - The Regional Office of DEQ will be notified of the temporary (less than 90-day) storage of soil media when the contaminated soil media was determined to "contain" hazardous waste either listed or which exhibited a characteristic of hazardous waste at the time of removal. **The generator must notify the DEQ Regional Office prior to or immediately upon establishing a new waste accumulation area.** All potentially contaminated soils generated will be stored in a designated waste accumulation area on site and comply with all hazardous waste generator requirements under the VHWMR. (See the requirements of VHWMR, 9 VAC20-60-262, at http://lis.virginia.gov/cgi-bin/legp604.exe?000+reg+9VAC20-60-262.)

Soil Media - General Management Information - It should be noted that soil that is potentially contaminated from a release of hazardous waste should be segregated into separate containers or roll-offs based upon known hot spots, areas of similar contamination based upon preliminary site investigation sampling and testing findings and based upon visual, olfactory, and photoionization detector (PID) readings, etc. Soils believed to be uncontaminated or relatively uncontaminated should not be co-mingled with more contaminated soils in containers or roll-offs. Segregation of soils may be required based upon area location criteria and depth of soil criteria and based upon investigation and screening findings. Therefore, it is probable that many sites may have multiple containers and/or roll-offs of soil media which are characterized by different levels of HCOCs, and which may result in different classifications with regard to whether hazardous waste is "contained-in" a soil or "contained-out" of a given volume of soil media.

Soil media managed under RCRA Subtitle C where the media was determined to "contain" hazardous waste either listed or which exhibited a characteristic of hazardous waste at the time of removal must also meet all applicable land disposal restrictions (LDRs) established for soils under the VHWMR and the RCRA Regulations, as incorporated by reference, under 40 CFR Part 268, § 268.49. Soil media managed under RCRA Subtitle C must meet all management, recordkeeping, reporting, transportation, treatment, storage, and disposal requirements under RCRA Subtitle C.

Soil Media - Characteristic Wastes - A soil media is considered hazardous waste for as long as the media exhibits a characteristic of hazardous waste. (See 40 CFR Part 261, Subpart C.) Once the characteristic is eliminated (e.g., through treatment), the media is no longer considered to "contain" hazardous waste. Since this determination can be made through relatively straightforward analytical testing, no formal "contained-in" determination by EPA or the DEQ is required for contaminated soil media potentially contaminated with characteristic wastes. Generators of contaminated media may make independent determinations as to whether the media exhibits a characteristic of hazardous waste, just like determinations about whether waste has been adequately decharacterized. (This demonstration may in part utilize "Use of Total Analysis in Toxicity Characteristic Determinations" in accordance with EPA Guidance No. 540-R-94-005a.) (Google, EPA-540-R-94-005a.) Also note that this determination, as discussed in this draft guidance, is applicable only to soil and does not apply to any other contaminated environmental media or equipment. Where contaminated soil media is treated to remove a characteristic of hazardous waste, the media will remain subject to LDR treatment requirements under 40 CFR Part 268.

Documentation – Letter Report Submittal to DEQ - DEQ Written Approval - In the case where soil media is potentially contaminated by listed hazardous waste, the facility (generator) is required to submit a written letter report with descriptive text, analytical data documentation, etc., to the DEQ with signed and dated generator certification statement, which certifies the findings in the letter report, and which demonstrates which containers of soils media no longer contains a listed hazardous waste, nor is a characteristic waste, and; therefore, are suitable for the "contained out" determination and is suitable for management in accordance with the VSWMR.

If the soil was contaminated as a result of a listed waste, and the listed waste was subject to LDRs at the time of spill, then the excavated soil must meet LDR requirements even if the soil does not contain a hazardous waste.

In the letter report submittal, the specific closure project, CA project, or other remediation project should be identified, summarized, and described. The "contained-out" determination submittal is to identify the appropriate soil/waste disposal option/requirement associated with each of the segregated and tested soil media in all of the applicable containers or roll-offs. Containers or roll-off containers of soils associated with the project shall be clearly marked and labeled and the related areas and depths where the soils were removed should be clearly identified.

Data shall be presented in the letter report so to clearly identify the specific container or roll-off of soil associated with all of the submitted data and information on the spread sheet and in the appendices, as needed.
The spread sheet is to present the identified soils of the project area and containers, to identify the applicable HCOCs for the project, and present the applicable criteria and standards from Appendix A, and the applicable LDR standards from 40 CFR 268, § 268.48 and § 268.49, so to clearly demonstrate the appropriate "contained-out" determination for the specific identified soil in each container and each area where soil was removed from the hazardous waste site.

Soil sampling log sheets of the containers, samples chain of custody sheets, and the associated laboratory analytical data, along with the QA/QC sample data sheets are to be included in the appendices of the letter report so to verify and confirm the findings and conclusions in the letter report submittal.

DEQ Approval - For soils potentially contaminated with listed hazardous waste which are determined to meet the requirements of Option/Requirement No. 2, a written approval of the "contained-out" determination by the DEQ's Central Office, Office of Waste Permitting and Compliance, Division of Land Protection and Revitalization Program, is required prior to shipment of the soil media to an off-site facility or to an on-site location regulated under the VSWMR. (See Section 5.0 below for the DEQ's Central Office contacts.)

A written approval of the DEQ is not required for a soil media where the generator determines that hazardous waste is "contained-in" and the soil media is manifested (shipped) to a TSD facility regulated under RCRA Subtitle C. (However, for transparency and clarity of the administrative record, if information is submitted to DEQ to establish a "contained-out" determination, then the DEQ recommends that such submittals also include all information associated with generation and shipment of media contaminated with listed hazardous waste, characteristic hazardous wastes, and related shipments to facilities regulated under RCRA Subtitle C, associated with the phase of the closure, CA, or other remediation project.)

It should be noted that full documentation and recordkeeping is required to be maintained by the generator associated with the generation and management of hazardous waste, which includes soil media determined to contain hazardous waste in accordance with the VHWMR and the RCRA Subtitle C Regulations, and this Draft Policy Guidance Document.

Any "contained-in" or "contained-out" determination by the DEQ's Central Office Staff in the Office of Waste Permitting and Compliance will be coordinated with the appropriate Regional Office Land Program Manager of the DEQ for the Regional Office concurrence before a final determination is made of any soil media which is potentially contaminated with hazardous waste.

5.0 Contacts

For information on the contents of this document, or for further guidance and assistance, please contact Hassan Vakili at 804-698-4155 or Hassan.Vakili@deq.virginia.gov.

To submit an application for a "contained-in/contained-out determination," please contact: Leslie Romanchik, Hazardous Waste Program Manager at 804-698-4129 or Leslie.Romanchik@deq.virginia.gov.

For Risk Assessment Program assistance, please contact
Pat McMurray, Risk Assessment Program Manager at 804-698-4186 or Patricia.mcmurray@deq.virginia.gov

* Appendix A –

See http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm
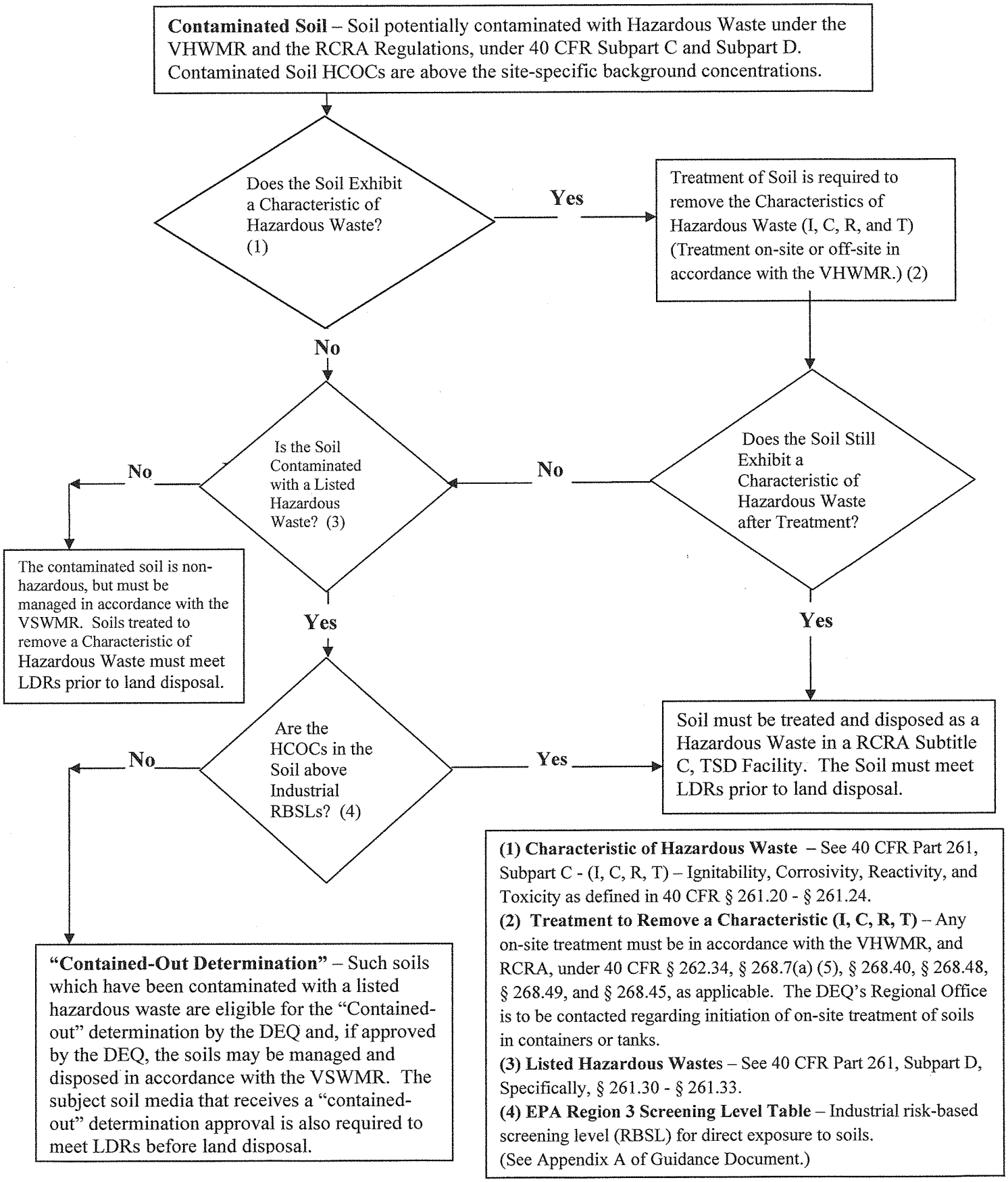
Figure 1
"Contained-in' and "Contained –out"
Flow Chart