DOWNLOAD PDF LAND DISPOSAL RESTRICTIONS ANSWER BOOK

Chapter 1 : Hazardous Waste Frequently Asked Questions and Answers (FAQs)

This EPA answer book provides waste generators, transporters, treatment facilities, and storage facilities with an easy-to-reference summary of land disposal restrictions (LDR) regulations found in the Code of Federal Regulations (CFR) Title 40 Part

Initial training is required within 90 days of employment or change in duties that cause the training requirement to apply. DOT requires recurrent training every 3 years thereafter. However, Army policy requires recurrent training every 2 years. Sometimes a manifest is required and other times it is not. Per 40 CFR Non-contiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access, is also considered on-site property. Therefore transfer of waste between non-contiguous properties may be "onsite" within the CERCLA definition because it is within the same area of contamination, but may be "offsite" and in need of a manifest within the RCRA context because the property is not contiguous. In addition, even where noncontiguous facilities are treated as one site, movement of hazardous waste from one facility to another will be subject to RCRA manifest requirements. Manifests are not required within or along borders of contiguous properties unless required by more stringent State requirements , but bill of lading requirements for DOT hazardous materials may still apply 3. The phrase "immediate access" means emergency response information must be accessible without delay. It is NOT acceptable for the person answering the telephone to take a message and have the call returned or to refer the caller to another telephone number. Research and Specials Programs Memo, 2 Jun Is manifest training required by DOT? Though DOT never directly states that "manifest training" is required, those hazmat employees executing shipping papers that are hazardous waste manifests need manifest training to fulfill function specific training requirements. Are all hazardous wastes hazardous materials and vice versa? No, all hazardous wastes are hazardous materials, but all hazardous materials are not hazardous wastes. Hazardous materials are regulated by DOT. Hazardous wastes are regulated by EPA. By definition, all hazardous wastes are also hazardous materials. Is there a Corps guide specification related to manifesting? The HTRW CX has prepared an excellent guide specification relating to the transportation and disposal of hazardous materials. If I have a DOT shipping document, who signs it? Typically Corps contracts should require the contractor to sign the bill of lading as prescribed in the guide specification. DOT requires a hour emergency telephone number monitored at all times. Do I have to carry a cell phone? Yes, if you are the designated emergency point of contact on the manifest. In most instances, the Corps will require that the hazardous waste contractor provide this service via the contract. Where is the requirement that I need "manifest training"? Since the majority of environmental work performed by the Corps involves the transportation of hazardous waste, the Corps has decided to provide function specific training to its employees on the DOT regulations and the proper use of a hazardous waste manifest. We use a Solvent Recycling company to recycle our solvents. They do not use a manifest for the solvents they take, do I still need DOT training? This depends on whether or not the solvents meet a DOT hazard class. If the solvents do meet a DOT hazard class, then yes, in order to sign any paper work or to mark or label the drum, you must be DOT trained. Once training is received, the Corps will be signing manifests. Who signs the manifest when OE is sent offsite? Who signs Waste Profile Sheets? It is recommended that someone familiar with the waste stream and the chemistry associated with the waste stream sign the forms. Do my samples being sent to a lab require a manifest? The samples being sent to a laboratory do not need a hazardous waste manifest if you comply with the RCRA sample exclusion in 40 CFR Who signs the manifest for DERP work at a military installation? It is the responsibility of the installation environmental coordinator to sign these manifests. Is a manifest only required when shipping hazardous wastes? What additional information is always required on a manifest? There may be occasions when the materials being sent offsite are not a hazardous waste as defined by state or Federal regulation. In these cases, you do not have to use a manifest. If, however, your shipment is a hazardous material as defined by DOT, you may use a Bill of Lading in place of a manifest. Can I use a manifest when shipping nonhazardous wastes? Yes, but the hazardous wastes must be entered first in sequence on the manifest, then the nonhazardous

materials can be entered. What other paperwork accompanies the manifest? The entire manifest package includes the manifest, lab analysis profiles , land ban records and certifications, and a copy of the Material Safety Data Sheet or Emergency Response Guide information. What are the manifest training requirements? Marine Pollutant requirements apply to waste shipped in all modes of transportation? The Marine Pollutant provisions do not apply to nonbulk shipments by rail, highway, or air. Nonbulk packages are packages that contain less than gal of liquids or lb of solids. The provisions do apply to all bulk shipments by rail, highway, or air and all nonbulk and bulk shipments by vessel. Is the facility designated on the manifest the ultimate disposal facility? The facility designated in block 9. How do I make sure my waste gets to the ultimate disposal facility? While many people say that the manifest is a "cradle to grave" tracking form, that is not exactly accurate. The manifest tracks the waste from the generator to the TSDF identified in box 9. As discussed above, the TSDF does not have to be a disposal facility. Under RCRA there are no regulatory requirements for the storage or treatment facility to send the generator a copy of the manifest tracking the waste from their facility to ultimate disposal. However, you can contractually control this situation by requiring that the waste be tracked to ultimate disposal and that you are sent a copy of all manifests transporting the waste to ultimate disposal, prior to payment. This will get their attention! In addition, it is recommended that the generator contractually require a RCRA Certificate of Disposal CD from the facility treating and disposing of the wastes. Who is responsible for obtaining the EPA identification number? If you are working at a military base, the base will already have a number for their facility that should be used. If you are working at an EPA site, the site will already have a number. When should the Corps obtain the EPA identification number? Typically it will take 30 days to obtain a number. Since the number must be placed onto the manifest, you must have the number prior to shipment. The number should be obtained during the design phase, if possible. Is it possible to need two or three EPA identification numbers at a site under one contract? Yes, it is very possible. A site, as defined in 40 CFR What are the recordkeeping requirements for manifests? Copies of manifests and associated lab results must be kept on file for three years from the date the initial transporter accepted the waste in accordance with 40 CFR Copies of exception reports and biennial reports must also be maintained for three years. Generators must retain onsite a copy of all notices, certifications, demonstrations, waste analysis data, and other documents produced pursuant to 40 CFR The collection, storage and treatment of waste- waters that are hazardous waste are not excluded processes. However, certain provisions are allowed if the collection storage and treatment occurs in a waste- water treatment unit WWTU as defined in 40 CFR The key is the design of the treatment unit, its permit status and whether ancillary equipment is truly part of the WWTU. A lot will depend on the site specific scenario. When hazardous constituents corresponding to contaminants found in listed hazardous wastes are detected in soil, but the source of the contaminant can not be established, must a generator assume it was from a non-specific source and apply a listed waste code? If the origin of the constituents in media cannot be determined, and the media do not exhibit a hazardous characteristic, the media would not be subject to Subtitle C regulations in the first place. For common excavation type activities that are not remediation related nor occurring at a RCRA treatment, storage, or disposal facility, is it necessary to classify the soil under RCRA in order to determine whether the soil can be redeposited into the area from which it came? When soils from common construction related excavations activities are to be sent offsite, they should be characterized under RCRA, but when they are being managed entirely on-site, it is not normally necessary. Green on 11 June We understand that your questions specifically relates to excavations being conducted on public roadways or at other similar locations that are not necessarily associated with or part of a RCRA-regulated treatment, storage, or disposal facility. In the example which you cited in your letter, the soils from the excavation or construction activities are temporarily moved within the area of contamination, and subsequently redeposited into the same excavated area. In these situations we agree that such activity does not constitute treatment, storage, or disposal of a hazardous waste under RCRA. In the circumstances you described, the excavation does not "produce" the hazardous waste, nor does it subject the waste to hazardous waste regulation since as discussed above, the activity you described is not "treatment", "storage", or "land disposal" of hazardous waste. Therefore, we agree that the activity is not subject to any generator requirements. What determines whether a removal action

is time-critical or non-time critical? A removal action is considered time-critical when the lead agency, based on the site evaluation, determines that less than 6 months exists before on-site removal activity must begin. If a planning period of at least 6 months exists before on-site activities must be initiated, it is considered a non-time critical removal action. If an action is deemed time-critical, the lead agency can initiate the action without undue delay. However, the lead agency must publish a notice of availability of the administrative record file in a major local newspaper of general circulation within 60 days of initiation of on-site removal activity; provide a public comment period of not less than 30 days from the time the administrative record file is made available for public inspection; and prepare written responses to significant comments. If the action is expected to extend beyond days from initiation of on-site removal activities, the lead agency shall by the end of the day period:

Chapter 2 : Toxic waste - Wikipedia

A common hazardous waste management practice is to dispose of hazardous waste in land-based units; however, the disposal of hazardous waste in landbased units has the potential to threaten human health and the environment through ground water contamination.

The questions were compiled from training sessions conducted in the EPA Regional Offices during late The answers in this document reflect the implementation of the land disposal restrictions program as of September 1, For additional information on various aspects of implementing the land disposal restrictions, you should contact the following EPA offices: Overview of the Land Disposal Restrictions: Such wastes must be treated to promulgated treatment standards or, for certain wastes, comply with the "soft hammer" provisions before being land disposed. The November 7, , LDR rule added to this definition the placement of waste in a concrete bunker or vault intended for disposal see 51 FR For the purpose of the LDRs, land disposal and placement are synonymous; land disposal of waste is the same as placement of waste in a land disposal unit. In the statute, Congress divided RCRA hazardous wastes into three groups and specified dates by which treatment standards for each must be established by EPA. A California list waste must: September 1, - V - - Be a listed or characteristic RCRA hazardous waste; and Be a liquid, except for halogenated organic compounds HOCs , which may be California list wastes in solid form. During the period of the extension, if the waste is disposed in a landfill or surface impoundment, the unit must meet or be equivalent to RCRA minimum technology requirements. If treatment is practically available, the waste must be treated with the treatment yielding the most environmental benefit. The soft hammers also require that if the waste is disposed in a surface impoundment or landfill, that unit must meet or be equivalent to minimum technology requirements. The hard hammer prohibits all land disposal of the affected waste. September 1, - VI - In addition to these restrictions, the LDRs specify that all restricted wastes must comply with the dilution and storage prohibition, waste analysis and recordkeeping requirements, notification and certification requirements, and all other applicable Part requirements. These requirements are described in greater detail later in this summary. The LDR treatment standards may be expressed as: Constituent concentration levels; Specified technologies; or - No land disposal. To date, most treatment standards are expressed as constituent concentration levels, and compliance with the LDRs is achieved by meeting the numerical performance standards established for each constituent. Impermissible dilution, as described under 40 CFR The "no land disposal standard" was established for several First Third wastes. This standard was reinterpreted in a subsequent rulemaking 54 FR , May 2, to refer only to non- wastewater forms of certain First Third wastes disposed after August 8, , or generated in the course of treating wastewater forms of the waste. After a treatment standard is met, the waste and its residuals remain subject to Subtitle C regulations. These exemptions are summarized below. EPA granted a national capacity extension for these contaminated soils and debris until November 8, The deadline for these wastes is August 8, , the same date on which treatment standards for certain First Third wastes also took effect. EPA granted a capacity extension for soil and debris contaminated with First Third wastes for which the treatment standards are based on incineration e. This extension applies to all soil and debris contaminated with a First Third waste meeting this condition. The effective date for these soil and debris wastes is August 8, see 40 CFR RCRA, therefore, allows the use of certain options to meeting the restrictions discussed above. These options, and their regulatory citations, include: Treatment in surface impoundments see 40 CFR In addition, the LDRs contain requirements for testing, notification, certification of compliance, and recordkeeping see 40 CFR Treatment facilities and land disposal facilities disposing of restricted wastes must test their wastes according to the frequency specified in their waste analysis plans. If the waste is sent for further treatment, the initial treatment facility must prepare such a notification for submittal to the subsequent treatment facility. If applicable, the generator must certify that the untreated waste meets the LDR treatment standards as generated, therefore requiring no further treatment. The LDR treatment standards and other restrictions e. The LDR framework rule established that the basis for each treatment standard shall be the treatment possible with the best demonstrated available technology BOAT see 51 FR , November 8, The

Agency defined each of these terms as follows: The Agency requires that restricted wastes be treated to meet the established treatment standards unless the untreated waste at the point of generation contains concentrations of constituents below the treatment standards. Treatment residuals produced during a treatment process e. Compliance with the treatment standards is determined by applying one of two tests: After determining treatment standards for restricted wastes, the Agency determines whether there is sufficient nationwide treatment capacity for the estimated volume of restricted wastes. If sufficient capacity does not exist, the Agency has the authority to issue a nationwide capacity extension of the effective date for a waste. This variance, which the Agency may only issue once for a given waste, may extend for two years. How were numeric LDR treatment standards established? The Agency divided wastes into treatability groups based on waste characteristics and, for each group, determined the BOAT. Based on the treatment achieved by well-designed and well-operated technologies specified as BOAT, the Agency set numerical September 1, 1. Is EPA in the process of obtaining more data so that the treatment standards may eventually be revised? In the future, EPA may consider revising promulgated treatment standards. It is unlikely that a major revision would occur before the Third Third rule is promulgated i. Why is it that, within the LDR program, treatment levels are sometimes specified, although, at other times treatment technologies are specified? The Agency prefers setting treatment levels wherever possible, because the effectiveness of technology standards depends on how well the technologies are operated. When EPA lacks sufficient data to specify a treatment level for a certain waste e. Why does EPA set treatment standards based on some technologies that are not available in sufficient capacity? In general, EPA bases its determination of "availability" on whether the full-scale technology is available commercially to treat the waste or a similar waste as opposed to a patented process that could not be licensed outside of a firm. The capacity issue is then addressed through a separate analysis of the amount of capacity available, leading to establishment of effective dates. EPA generally has conducted sampling at well-designed and well-operated industry systems to determine BOAT and set the treatment standards. In some cases, where industry-produced data reflect use of appropriate quality assurance procedures, EPA has used industry-generated data to set standards. Must hazardous waste incinerator ash be treated to BOAT before it is land disposed? If the incinerated wastes are listed hazardous wastes, ash derived from those wastes remains a hazardous waste because of the "derived from" rule see 40 CFR If the wastes are subject to the LDRs, the ash must meet any numerical treatment standards before it is land disposed. If the treatment standard for the restricted waste is expressed as a method i. Does treatment to reach the treatment standard have to be by the BOAT technology? September 1, 1. In this case, the treated waste probably would not achieve the numerical treatment standard measured by the required total waste analysis, because the hazardous constituents in the waste would not have been removed or destroyed, but simply fixed in placed. How are wastewaters defined? EPA provides a dividing line below which wastewater treatment standards based on wastewater treatment technologies apply. In the November 8, , solvents rule, wastewater standards apply to those materials with less than one percent total organic carbon. In the First Third rule, the Agency added the criterion of less than one percent total filterable i. Where can the Regions obtain information on the different types of treatment technologies used to set the LDR treatment standards? The preambles to the final and proposed First Third rules are a good place to start. More information is available on obtaining these documents from the RCRA Hotline by phoning The Treatment, Storage, Disposal and Recycling TSDR survey, which the Agency uses to evaluate treatment capacity, indicates that stabilization capacity is readily available. The capacity survey does take into account the land disposal capacity for the stabilized waste. The stabilization processes tested in setting the LDR standards generally used from 20 to 50 percent stabilizing agent e. The determination of landfill capacity needed took into account this added volume. The survey only looked at pozzolanic stabilization relying on cement kiln dust and did not count other types of stabilization technologies. Consequently, the survey actually understates total stabilization capacity. Relatively little data are available on the volumes from these actions. EPA did, however, consider all available data from these sites in making capacity determinations. Six mining wastes were recently listed as RCRA hazardous wastes, and several others were proposed to be removed from the exclusion under the Bevill Amendment 53 FR , October 20, Was the capacity required for treating such mining wastes considered in making determinations about

effective dates? Under the statute, EPA is to set treatment standards for newly listed and identified wastes within six months. Unlike listed and characteristic wastes, however, no hard hammers apply to newly listed wastes. The Agency is in the process of establishing priorities for setting standards for these and other newly listed wastes. Until more is known of the timing for these standards, EPA will not take the newly listed waste volumes into account in capacity determinations. Many of these wastes are commonly land disposed at RCRA permitted and interim status facilities. Regulation of some First Third wastes prompted the expression of concerns from the regulated industry. General Waste Issues Q: If a waste stream contains multiple waste codes, and there is more than one treatment standard for a given constituent, to what levels should that waste be treated before it is land disposed? The waste must meet the most stringent treatment level for each regulated constituent. When will characteristic hazardous wastes become restricted from land disposal? At that time, characteristic wastes will be restricted from land disposal unless they have been treated to established treatment levels see 40 CFR Suppose a restricted waste, such as acetone, is present in a waste stream that is not a spent solvent - would that waste steam be regulated under the LDRs? In many cases, a facility will produce wastes that have concentrations of similar "ingredients" coming from multiple sources. In order to be a regulated solvent waste i. Therefore, the sources of the wastes must be known to determine the applicability of the LDRs. Are there any established treatment standards for ash resulting from solid waste incineration?

Chapter 3 : Questions and Answers on Land Disposal Restrictions for Solvents and Dioxins

Land disposal means the placement in or on the land, except in a corrective action management unit or staging pile. It includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation.

See 40 CFR section The LDR program applies to both generators of hazardous waste and facilities that treat, store or dispose of hazardous waste i. Hazardous waste handlers looking to determine if they are subject to LDRs, must answer three questions: Do I generate, treat, store or dispose of hazardous waste? Are my hazardous wastes destined for land disposal? The foundation of the LDR program consists of three prohibitions â€" disposal, dilution, and storage. The first and most fundamental prohibition is the prohibition against land disposal of untreated hazardous waste. The storage prohibition prevents the indefinite storage of hazardous wastes in lieu of treatment. Finally, the dilution prohibition ensures that wastes are properly treated and not simply diluted. The disposal prohibition requires wasteâ€"specific treatment standards to be met before a waste can be land disposed. Top of Page The Dilution Prohibition Impermissible dilution can occur if a waste is improperly treated. For example, biological treatment does not effectively remove toxic metals from wastes. Therefore, waste with treatment standards for metals could be impermissibly diluted if managed in biological treatment systems that provide no additional treatment i. The dilution prohibition states that a waste handler cannot dilute a hazardous waste as a substitute for adequate treatment. Dilution is not permitted when it is used to avoid meeting an applicable treatment standard. Wastes that are aggregated or mixed as part of a legitimate treatment process, and are subsequently diluted as a result are not considered to be impermissibly diluted under LDR. This prohibition can be found in 40 CFR section This storage is only allowed if it is to accumulate a sufficient volume of waste to facilitate proper treatment, recovery, or disposal of that waste. This storage must take place in either a tank, container, or containment building. If storage exceeds one year, then the waste handler bears the responsibility to prove that the storage is necessary to facilitate proper recovery, treatment, or disposal. Top of Page Recordkeeping Requirements There are a number of records that a waste handler must prepare, submit, and keep at their facility to show compliance with the LDR requirements and to track wastes from generation to land disposal. Generators and treatment, storage and disposal facilities TSDFs that manage wastes subject to LDR must comply with notification, certification, waste analysis and recordkeeping requirements. The notification and recordkeeping requirements are found in 40 CFR section

Chapter 4 : Resource Conservation and Recovery Act - Wikipedia

Could you provides an overview of the hazardous waste land diposal restriction (LDR) regulations. Ohio EPA has a guidance document titled " Land Disposal Restrictions (An Overview) " which should answer your questions.

Page 11 Share Cite Suggested Citation: History of the Committee. The Disposal of Radioactive Waste on Land. The National Academies Press. The scope of the agreement was stated as follows: The work shall consist of the fol1 owing: Conducting the conferences; Reporting to the Corurnission on the proceedings and comments of these conferences; d. Recommending programs of research that should be carried out. Hess, Chairman, John N. King Hubbert, Chester R. In the fan of , Dr. Benson and William B. Heroy were appoznted. The entire problem was described and the previous gen- eral studies of disposal reviewed: The mutes of his meeting were prepared by He Hopkins group. During the summer of arrangements were made to hold the Brat coherence at the Graduate School of Princeton University, Princeton, N. The participants During the afternoon ant! During and after the Gene via Conference on the Peaceful Uses of Atomic Energy July a great deal of heretofore classified information was released: After the conclusion of the eleventh talk on the morning of September Ilth, a lengthy period of general discus- sion and review followed. The conference deliberations were recorded by the stenotypist, Mids Jean Buricigh, and by a tape recorder provides] by the Hopkins croups and operated by Mr. The minutes of the Committee meetings were prepared by volunteers and are given in Appendices C and D. It was decided that it was not necessary to hold a second conference because the first had succeeded in both generating add evaluating ideas as weU as coulid be expected within the limitations of existing knowledge -- significant improvements on the ideas expressed could be made only by direct investigation, not by additional exchanges of opinions. Until the deliberations of the Conference were available, the Commit- tee could do little to document the suggestions or prepare a report: By that time the proceedings were complete with one exception. Heroy along with his study of the production and availability of Me wo ricing s in salt. Oak Ridge - Feb. BrooRhaven - March 29, Thurston, Secretary; April 19,

Chapter 5 : Land Disposal Restrictions for Hazardous Waste | Hazardous Waste | US EPA

The 3 Rules of Land Disposal Restrictions. In , the Resource Conservation and Recovery Act (RCRA) was updated to prevent the disposal of certain hazardous wastes on land. Out of this new rule came the Land Disposal Restrictions (LDR) program, which mandates that certain protective measures be taken before any hazardous waste is disposed of o.

Toxic waste has become more abundant since the industrial revolution , causing serious global health issues. Disposing of such waste has become even more critical with the addition of numerous technological advances containing toxic chemical components. Products such as cellular telephones , computers, televisions , and solar panels contain toxic chemicals that can harm the environment if not disposed of properly to prevent the pollution of the air and contamination of soils and water. A material is considered toxic when it causes death or harm by being inhaled, swallowed, or absorbed through the skin. The waste can contain chemicals , heavy metals , radiation, dangerous pathogens, or other toxins. Even households generate hazardous waste from items such as batteries, used computer equipment , and leftover paints or pesticides. Not all hazardous substances are considered toxic. It is classified as a carcinogen. Inhalation of asbestos fibers can lead to lung cancer and asbestosis. It can be inhaled through cigarette smoke , or digested when included as a pigment in food. Exposure leads to lung damage, irritation of the digestive track, and kidney disease. It is known to cause cancer, and prolonged exposure can cause chronic bronchitis and damage lung tissue. In large doses it can lead to paralysis , convulsions , and respiratory distress. When ingested or inhaled can cause harm to the nervous and reproductive systems, and kidneys. It is also used in the production of chlorine gas. Exposure can lead to birth defects and kidney and brain damage PCBs, or polychlorinated biphenyls , are used in many manufacturing processes, by the utility industry, and in paints and sealants. Damage can occur through exposure, affecting the nervous, reproductive, and immune systems, as well as the liver. POPs, persistent organic pollutants. They are found in chemicals and pesticides, and may lead to nervous and reproductive system defects. They can bio-accumulate in the food chain or persist in the environment and be moved great distances through the atmosphere. Strong acids and alkalis used in manufacturing and industrial production. They can destroy tissue and cause internal damage to the body. The most overlooked toxic and hazardous wastes are the household products in everyday homes that are improperly disposed of such as old batteries, pesticides, paint, and car oil. Toxic waste can be reactive, ignitable, and corrosive. They can release toxic gases into the air. They are unstable even in normal conditions. An example is lithiumâ€”sulfur batteries. Ignitable wastes have flash points of less than 60 degrees Celsius. They are very combustible and can cause fires. Examples are solvents and waste oils. Corrosive wastes are liquids capable of corroding metal containers. These are acids or bases that have pH levels of less than or equal to 2, or greater than or equal to An example is battery acid. With the increase of worldwide technology, there are more substances that are being considered toxic and harmful to human health. Some of this technology includes cell phones and computers. This term is also used for goods such as refrigerators, toys, and washing machines. These items can contain toxic components that can break down into water systems when discarded. The reduction in the cost of these goods has allowed for these items to be distributed globally without thought or consideration to managing the goods once they become ineffective or broken. In the US, the Environmental Protection Agency EPA and state environmental agencies develop and enforce regulations on the storage, treatment and disposal of hazardous waste. The EPA requires that toxic waste be handled with special precautions and be disposed of in designated facilities around the country. Also, many US cities have collection days where household toxic waste is gathered. For example, a cluster of the rare blood cancer polycythemia vera was found around a toxic waste dump site in northeast Pennsylvania in They conducted this study in western Massachusetts within a 1-mile radius of the North Hampton Regional Landfill. Some toxins, such as mercury, persist in the environment and accumulate. As a result of the bioaccumulation of mercury in both freshwater and marine ecosystems , predatory fish are a significant source of mercury in human and animal diets. Handling and disposal[edit] This section needs additional citations for verification. Please help improve this article by

adding citations to reliable sources. Unsourced material may be challenged and removed. Before the passage of modern environmental laws in the US, this was in the s , it was legal to dump such wastes into streams, rivers and oceans, or bury it underground in landfills. The oceans can be polluted from the stormwater runoff of these chemicals as well. Toxic waste in the form of petroleum oil can either spill into the oceans from pipe leaks or large ships, but it can also enter the oceans from everyday citizens dumping car oil into the rainstorm sewer systems. Disposal is the placement of waste into or on the land. Disposal facilities are usually designed to permanently contain the waste and prevent the release of harmful pollutants to the environment. Waste transporters and waste facilities may charge fees; consequently, improper methods of disposal may be used to avoid paying these fees. Where the handling of toxic waste is regulated, the improper disposal of toxic waste may be punishable by fines [6] or prison terms. Burial sites for toxic waste and other contaminated brownfield land may eventually be used as greenspace or redeveloped for commercial or industrial use. History of US toxic waste regulation[edit] This section may contain an excessive amount of intricate detail that may interest only a particular audience. August Learn how and when to remove this template message RCRA governs the generation, transportation, treatment, storage, and disposal of hazardous waste. In North Carolina, PCB-contaminated oil was deliberately dripped along rural Piedmont highways, creating the largest PCB spills in American history and a public health crisis that would have repercussions for generations to come. For example, in , the base of a major toxic waste landfill could be no closer than five feet from ground water, but this regulation and others could be waived. Citizens argued that the waivers to the siting regulations were discriminatory mechanisms facilitating the shift from scientific to political considerations concerning the siting decision and that in the South this would mean a discriminatory proliferation of dangerous waste management facilities in poor black and other minority communities. They also argued that the scientific consensus was that permanent containment could not be assured. As resistance to the siting of the PCB landfill in Warren County continued and studies revealed that EPA dry-tomb landfills were failing, EPA stated in its Federal Register that all landfills would eventually leak and should only be used as a stopgap measure. Other measures included in the amendments included increased enforcement authority for EPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program. Due to the hazards associated with toxic waste handling and disposal, communities often resist the siting of toxic waste landfills and other waste management facilities; however, determining where and how to dispose of waste is a necessary part of economic and environmental policy-making. In September , the Human Rights Council decided to strengthen the mandate to include the entire life-cycle of hazardous products from manufacturing to final destination aka cradle to grave , as opposed to only movement and dumping of hazardous waste. The Human Rights Council has further extended the scope of its mandates as of September due to the result of the dangerous implications occurring to persons advocating environmentally sound practices regarding the generation,management, handling, distribution and final disposal of hazardous and toxic materials to include the issue of the protection of the environmental human rights defenders.

Chapter 6 : County of Greenville, SC

For the purpose of the LDRs, land disposal and placement are synonymous; land disposal of waste is the same as placement of waste in a land disposal unit. SCHEDULE FOR RESTRICTED WASTES The land disposal restrictions contained in RCRA Â§ and 40 CFR Part will eventually apply to all RCRA hazardous wastes.

This chapter focuses on RCRA closure and related issues. It is interesting to note that the Chemical Weapons Convention CWC , which dictated many requirements pertaining to the destruction of chemical warfare materiel, is not a factor during closure. States adopt these regulations but may choose to be more stringent. Moreover, through their authority to dispense RCRA permits, some states impose conditions that are not reflected in their established regulations. Of the four states with baseline incineration sites, Utah and Oregon have established more stringent regulations than those of the EPA, and all have imposed permit conditions that go beyond regulatory requirements. This qualitative standard requires facilities to close in a manner that is protective of human health and the environment and that minimizes post-closure releases of hazardous waste or hazardous waste constituents. These criteria are dependent on the future use of the site. Criteria developed for residential uses are generally more protective i. The treaty was signed by the United States in and ratified by Congress in Page 36 Share Cite Suggested Citation: The National Academies Press. The closure plan becomes part of the permit when the permit is issued. The closure plan may be amended for a number of reasons, but such amendments require facilities to undergo a permit modification. Permit modifications are designated Class 1, 2, or 3, reflecting an increase in impact and complexity. Closure plans are typically amended one or more times as the date for actual facility closure approaches. Some closure permit modifications can be processed as Class 1; more complex modifications would be processed as Class 2 or 3. The decision as to the class of a modification is made by the regulatory authority, often in consultation with the permittee. In addition, especially with complex facilities, more detailed closure plans for specific operations may be prepared that, although not officially part of the permit, may still require regulatory approval. These supplemental closure documents may also be modified as a closure approaches and as it is under way. Under RCRA regulations, there are also strict requirements pertaining to the time allowed for closure, but extensions to these deadlines may be approved by the regulatory authority. At the completion of closure, requirements for submitting certifications and survey plats must likewise be met. If a facility is closed in conformance with a residential performance standard, few if any limitations are placed on future land use. However, if a facility is closed in conformance to an industrial standard, use restrictions may be imposed to prevent uses requiring a more protective cleanup e. Both non-agent and agent-contaminated waste materials, residues, and contaminated media would also be expected to be generated during closure. For the third option, off-site TSDF permits would need to be broad enough to allow acceptance of closure waste. However, TSDFs would not be obligated to accept agent-associated 4 or other waste. Thus, waste materials produced during closure, even those that result from treatment of F waste, are required to be managed as F hazardous waste, even if they are known or suspected to contain no detectable agent or other hazardous constituents. Page 37 Share Cite Suggested Citation: Utah includes as F waste those waste materials that result from actual or potential contact with agent vapors. Consequently, significant additional volumes of various types of materials, which have or potentially have contacted agent vapors even if such materials present little or no risk, could be regulated as hazardous waste during closure. In Utah, waste must be tested against waste control limits WCLs and may only be transported off-site if these levels are met. Since the early days of the chemical stockpile disposal program, the Army, being concerned primarily with worker exposure to hazardous agent vapor, has applied a vigorous program of vapor screening of materials and waste that have been exposed to chemical agents AR Utah has been reluctant to accept vapor screening as a means of waste characterization for chemical agent-associated waste. In those limited cases where Utah has accepted vapor screening, Utah has required the Army to apply more stringent criteria than the Army has established. Further, some waste streamsâ€”particularly those that may absorb chemical agentâ€”are required to have been decontaminated before being cleared for off-site shipment. Waste Carbon and P Waste carbon that is actually or potentially

contaminated with chemical agent is designated P in Utah. Because P waste may not be sent off-site for treatment and disposal in Utah, the Army must develop appropriate on-site treatment options or other means of ensuring that the carbon does not pose an unacceptable risk during subsequent handlingâ€"including transport, treatment, or disposal. Dual Waste Code for Some Materials. Some types of waste materials, primarily permeable solids, can be difficult to sample and analyze for chemical agents. A good example is demilitarization protective ensemble suits for worker protection, which become waste after being used. Because of the difficulty in sampling and analyzing these suits, application of a WCL is problematic for this waste. RCRA allows hazardous waste generators to use generator knowledge in lieu of actual testing in characterizing waste as hazardous or not. A good example would be using generator knowledge to classify waste as non-F based on its having had a low potential for contact with agent vapors. Of these constituents, arsenic and mercury are of primary concern. Additional characteristics that may be exhibited would include corrosivity and, potentially, reactivity. Page 38 Share Cite Suggested Citation: For those batches of waste characterized by sampling and testing, extraction and analysis is used to determine agent concentrations. Agent vapor space monitoring is performed by placing wastes in a container e. After equilibrium is reached, the concentration of agent in the headspace is measured. The specific methodology to be used for characterization analysis of wastes is detailed in the waste analysis plan NRC, Hence, in Alabama, chemical agent-associated wastes would be considered hazardous waste only if they exhibited any of the four hazardous waste characteristics 40 CFR Methods developed by the Army are used for materials with no prescribed EPA methods. The committee notes that in reality, these terms denote waste materials that have been treated to a certain specification or tested and shown not to contain agent above analytical detection limits. Of these constituents, arsenic and mercury would be of primary concern. The committee notes that in reality these terms denote waste that has been treated to a certain specification or tested and shown to not contain agent above analytical detection limits. It is similar in numerical value to the exposure limits found in the STEL but without the minute time component. Page 39 Share Cite Suggested Citation: In addition to RCRA requirements, Alabamaâ€"like a number of other statesâ€"recently established a program of uniform environmental covenants. The Alabama Uniform Environmental Covenants Act places limitations on properties undergoing a response action e. The Oregon regulations also list residues from demilitarization, treatment, and testing of blister agents as F, and residues from demilitarization, treatment, and testing of nerve agents as F Also, as with Utah, the derived-from rule would render waste produced during closureâ€"including waste that result from treatment of listed wasteâ€"to be managed as listed hazardous waste materials even if they are known or suspected to contain no detectable agent or other hazardous constituents. Oregon has also established some permit conditions that go beyond regulatory requirements. Examples of these additional requirements are described below. This would include waste, residues, and media generated during closure. Samples are considered agent-free if they are below the established PCCs. This procedure tailors the analysis to the sample matrix NRC, The statute is available online at http: The committee notes that in reality these terms denote waste that has been treated to a certain specification or tested and shown to not contain agent above analytical method detection limits. A summary of the LDR program is available online at http: Page 40 Share Cite Suggested Citation: Closure according to background can be considered a type of residential standard; however, it is a considerably more stringent requirement. The Influence of Base Realignment and Closure Since the late s, many military installations or portions of installations have been identified for realignment or closure under BRAC. However, much of the facility, including storage igloos, land, and remaining structures, is expected to be turned over to the Tooele Army Depot. Fish and Wildlife Service 40 percent , and the reuse authority 40 percent. Following closure, the land and remaining structures at the disposal facilities will be returned to the respective installations. At UMCD, which will be transferred from Army ownership, closure according to residential standards may preserve a broader range of future land uses, to include farming or residential use. Even at UMCD, if portions of the land are to be slated for post-closure industrial use, closure to an industrial performance standard will be significantly less expensive and time-consuming. As indicated above, however, Oregon currently requires that the closure performance standard over the entire installation be set based on background concentrations. During closure, in contrast

with agent disposal operations, there will not be any significant amount of agent present and there will be no munitions. Thus, the risks to human health and the environment from agent and munitions will be significantly reduced during closure from those that existed during disposal processing. This difference in risk represents a fundamental change in the working environment that will exist during closure operations from that which will have existed during disposal operations, and it should provide a basis for considering less restrictive practices. The risk of exposure to chemical agents during closure operations is expected to be significantly lower than what potentially could be encountered during agent disposal operations. The regulatory standards and practices used by some states for controlling 29 Additional information is available online at http: Last accessed June 9, These practices and regulations may be more restrictive than necessary considering the nature of the closure operations. The Army should evaluate the reduced risk of exposure to chemical agents and their degradation products from closure operations and waste materials in view of restrictive regulatory practices. It should also consider negotiating with the regulatory community to obtain less restrictive, but still safe, regulatory practices that allow for more efficient closure operations. One of the means by which less restrictive but still protective requirements could be employed is by allowing more use of generator knowledge for waste classification during closure activities. As indicated previously, some states have been cautious, and in some cases reluctant, about allowing stockpile facilities to use generator knowledge for characterizing agent waste as either hazardous or nonhazardous. Another means to tailor current regulatory practices to the conditions likely to be faced during closure is to use tailored more appropriate off-site requirements. As indicated above, most of the baseline facility RCRA permits restrict off-site transportation of chemical agent-associated waste. Because closure does not normally entail dealing with materials having significant agent contamination, tailoring requirements to closure conditions such as those described above can be a reasonable approach that does not compromise worker or public safety. By focusing on controlling only wastes that are truly hazardous, the Army could actually strengthen its protection of human health and the environment. One additional area where more tailored practices can be employed during RCRA closure is in allowing baseline facilities to delay the formal commencement of closure operations until building environmental controls e. In this manner, gutting of the internal units and equipment within the building may be conducted as a normal part of facility operations, rather than as part of the official closure. By keeping the building environmental controls in place during this dismantlement and removal period, protection of human health and the environment is maintained. Closure will not entail dealing with significant amounts of agent or munitions. The following are examples of practices that can be used to expedite the overall closure schedule while still protecting human health and the environment:

Chapter 7 : Implementing the Land Disposal Restrictions: Question and Answer Document

The U.S. Environmental Protection Agency (EPA) was introduced on December 2, by President Richard Nixon. The agency is charged with protecting human health and the environment, by writing and enforcing regulations based on laws passed by Congress.

Among other things, the amendments prohibit land disposal of untreated hazardous wastes beyond specified dates, unless a petitioner demonstrates to the Administrator of the Environmental Protection Agency EPA that there will be no migration of hazardous constituents from the land disposal unit for as long as the waste remains hazardous. These prohibitions are intended to protect the. These treatment- standards are based on tech- nologies that substantially reduce the toxicity of the waste or the likelihood of migration of hazardous constituents from the waste. Wastes and treatment residuals that meet these treatment. This framework includes, among other things, the procedures for: In addition, the rule establishes treatment standards and effective dates for the first class of hazardous wastes to be prohibited: Since its promulgation, the Agency has received a number of questions concerning interpretation and applicability of the land disposal restrictions final rule. Many of these questions have been similar or duplicates of one another. This document -presents a summary of the most frequently asked questions and the appropriate responses. Some of the questions contained in this volume concern the application of regulations to specific situations. Because the regulations are complex, their applicability can depend heavily upon individual circumstances. The reader should, therefore, avoid reading more into the responses than has been provided. EPA staff are prepared to respond to specific questions regarding the. Contact the EPA Regional Offices for additional information, and for guidance on specific wastes or sites. The answers provided in this document reflect land disposal prohibition requirements covered by the Federal rules promulgated on November T, The regulated community should note, however, that compliance with applicable Federal requirements does not relieve an individual from compliance with applicable State requirements. What specific solvent and dioxin wastes are covered bv the November 7, final rule? F, F, and F,. The "California list" is expected to be promulgated as the next phase of Land Disposal Restrictions in July Petition procedures for ca. To the extent there is an overlap of regulatory requirements between the November 7, final rule and the? Can EPA extend the effective date of the land disposal restric- tions beyond the 2-year national capacity extension provided under the statute? Are injection wells covered under the November 7, final rule? Congress established a separate schedule for making determinations regarding the prohibition of disposal of solvent, dicxin, and California list hazardous wastes in injection wells. The statutory deadline for disposal of these hazardous wastes in injection wells is August 8, Qj Does the November 1, rule for solvents and dioxins apply to the disposal of lab packs? If a lab pack contains restricted wastes, the entire lab pack is subject to the land disposal restrictions. Thus, a lab pack may not be land disposed unless the solvents or other restricted wastes are removed before land disposal, the solvents in the lab pack meet the treatment standard, or a successful petition demonstration. Do the Land Disposal Restrictions apply to disposal of restricted wastes in on-site land disposal facilities? All restricted wastes must meet the treatment standards or be the subject of a successful "no-migration" petition before being placed in or on the land regardless of whether the land disposal facility is located on- or. Who has the ultimate responsibility for. The land disposal facility must maintain all documentation that the wastes are in compliance with the applicable treatment standards. Is "the ash or residue resulting from incineration of restricted wastes subject: Residuals from treatment of restricted wastes must meet. Does the November 7, final rule require that wastes subject to the 2-year nationwide capacity extension be placed. Are the "P" and "U" listed solvent wastes i. The statute does not require EPA to set treatment.. The Agency will evaluate the "P" and "U" solvent wastes in accordance with the final schedule for land disposal prohibitions which was promulgated on May 28, 51 FR What is the effect of the November 1, rule on reclamation or other recycling of restricted hazardous wastes? Restricted wastes may continue to be recovered or reclaimed. Still bottoms and other residues from reclamation of restricted wastes remain subject to the land disposal restrictions. If restricted wastes are excavated and removed after the November 8, effective date, are they subject to

restrictions although they were originally placed in the ground prior to November 8,? The Agency interprets the land disposal restrictions adopted. Where restricted wastes land disposed prior to the applicable effective date are removed, subsequent placement of such wastes in or on the land would be subject to the prohibitions and treatment provisions. What happens when a State rule requires more stringent treatment methods than are mandated ,by the Federal rule e. State requirements which are determined to be more restrictive than Federal requirements are fully enforceable and may be enforced by both Federal and State authorities. State requirements that are broader in scope than Federal requirements i. When Federal and State requirements are mutually exclusive e. The percentage of total FF solvent constituents is by weight. The final rule states that open detonation and open burn- ing of explosive wastes do not constitute land disposal. These methods are primarily treatment processes that typically result in by-products which are no longer reactive, and, therefore, are not considered hazardous. However, in cases where explosive wastes are mixed with FF solvents or other restricted wastes before being open detonated or: What is the definition of land disposal? For the purposes of land disposal restrictions, the statute specifically defines land disposal to include, but not be limited to, any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome or salt bed formation, or underground mine or cave RCRA section k , 42 U. The Agency also considers placement in concrete vaults or bunkers intended for disposal purposes as methods of waste management subject to the land disposal restrictions. What materials are considered residue after incineration? To be considered a "demonstrated" treatment technology, a full scale facility must be known to be in operation for;the waste or similar wastes. The determination of "available" treatment technologies is based on a showing that the technology does not pose greater risks than land disposal, that it provides substantial treatment, and that if the technology is a pro- prietary or patented process it can be purchased from the proprietor. Identification of BOAT results from a statistical-analysis of performance data from well-designed and well-operated treatment units. Is there a provision for changing the treatment standards if new treatment technologies are developed? If a new technology is shown to be more effective in reducing the concentration of hazardous constituents in the waste or the waste extract than the existing technology upon which the treatment standard has been based, the Agency may revise the treatment standard. Such a revision would follow the normal regulatory amendment process i. How did EPA collect the data upon which the treatment standards for solvents and didxins were based? Treatment which necessarily involves some degree, of dilution such as biological treatment or steam stripping is accentable" under, the Land. Also, mixing wastes together prior to- treatment is not considered dilution? Dilution is prohibited if it is.. Does the November 7, final rule require treatment restricted spent se-lvent wastes by the technology EPA used, in setting its treatment standards? Appendix II to When the Agency has specified a technology as the treatment standard, the. Solidification may, nonetheless, be a necessary prerequisite to iSmd disposal to comply with the prohibition against free liquids in landfills 40 CFR Do innovative technologies have to be permitted? The Agency has recently proposed regulations to be codified- in. Subpart X of Part which provide the mechanisms for obtaining permits for innovative and miscellaneous technol- ogies 51 PR , November 7, When the Subpart X rules are promulgated, innovative technologies used to treat hazardous wastes will have to be permitted. Subpart X regulations when promulgated will be used to permit hazardous waste management technologies not covered by the existing design or performance standards addressed elsewhere in the RCRA regulations e. Are small quantity generators SQGs of kilograms per month of hazardous wastes subject to the November 8, effective date? While these generators are subject to the land disposal restrictions regulations in general, SQGs have, beeri granted a 2-year nationwide capacity extension to the effective date. Therefore, the effective date for FF spent solvent wastes generated by these small quantity generators is November 8, During the period from November 8, to November 8, , SQGs may dispose of restricted wastes only at land disposal facilities which meet the minimum technological requirements for any new, expanded, or replace- ment units which may be present. Does the 2-year -nationwide capacity extension granted to SQG wastes apply if the waste is accepted by a transfer facility? The 2-year capacity extension is applicable to these wastes as long as it can be clearly demonstrated that the wastes were generated by SQGs. In order for the capacity ex- tension to apply when wastes are consolidated by the transfer facility, the transfer facility must be able to identify with

certainty that each container of waste was generated by a SQG. Are SQG wastes which are combined for transport considered large quantity wastes? These wastes remain SQG wastes. Proper certification will be required to demonstrate to the disposal facility that these wastes are SQG wastes. Are SQGs of less than kilograms per month of non-acute hazardous waste subject to the Land Disposal Restrictions regulations? These generators are conditionally exempt from regulation under RCRA; therefore, they are not subject to the Land Dis- posal Restrictions. Does the statutory exemption cover soil and debris-generated during non-Federally ordered cleanups such as- State-ordered or State-funded cleanups? The Agency determined that there is insufficient capacity to handle these wastes; there- fore, EPA promulgated a two-year extension of the effective. Is a non-Federally ordered cleanup of FF wastes non- soil and debris covered under any exemption? Are wastes that are cleaned up during closure of a permitted facility subject to Land Disposal Restrictions? RCRA corrective action wastes i. Also, where wastes from a facility closure are disposed in situ e. The TCLP, as promulgated, included improvements and modifications based on comments received on: EPA will malce decisions regarding the applicability of the TCLP to other restricted wastes according to the final schedule for land disposal restrictions which was promulgated on: On June 13, FR , the Agency proposed to. The Agency expects to promulgate the Toxicity Characteristic by late AJ Under the November 7, 1.