

2075

POTENTIAL ARARS OPERABLE UNIT 1
ALTERNATIVES 09/90

XX/XX/XX

FEED MATERIALS PRODUCTION CENTER
FERNALD, OHIO
POTENTIAL ARARs
OPERABLE UNIT 1 ALTERNATIVES

Chemical Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Radionuclide Emissions (Except Airborne Radon-222)	40 CFR 61, Subpart H Emissions of radionuclides to the ambient air from DOE facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem per year.	Applicable	Radioactive materials within this operable unit could contribute to the dose to members of the public from the air pathway.	All

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Radon-222 Emissions	40 CFR 61, Subpart Q No source at a DOE facility shall emit more than 20 pCi/m ² -s of radon-222 as an average for the entire source.	Applicable	Facilities within this operable unit qualify as sources since they contain radium-226 in sufficient concentrations to emit radon-222.	All

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Radioactive Materials in Ohio River and in Receiving Waters Outside the Mixing Zone	OAC 3745-1-32 (c) (9) Gross alpha particle activity (including radium-226, but excluding radon and uranium) shall not exceed 15 pCi/l and combined radium-226 and radium-228 shall not exceed 5 pCi/l in receiving waters of the Ohio River.	Applicable	Radioactive materials in this operable unit could be released such that they could contribute to radioactivity in receiving waters of the Ohio River.	All
	The concentration of gross total beta particle activity shall not exceed 50 pCi/l; the concentration of tritium shall not exceed 20,000 pCi/l; the concentration of total strontium-90 shall not exceed 8 pCi/l in receiving waters of the Ohio River.			

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Radiation Doses, Levels, and Concentrations in Restricted and Unrestricted Areas.	10 CFR 20.101-106 OAC 3701-38	Relevant and Appropriate	Radioactive materials in this operable unit can contribute radiation doses, levels, and concentrations to individuals in restricted and unrestricted areas, which could exceed the specified limits.	All

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Radionuclides in Drinking Water	40 CFR 141.15 OAC 3745-81-15 Maximum Contaminant levels for radioactivity in community water systems are set as follows: <ul style="list-style-type: none"> • 5 pCi/l of combined radium-226 and radium-228 • 15 pCi/l of gross alpha particle activity (including radium-226, but excluding radon and uranium) 40 CFR 141.16 OAC 3745-81-16	Relevant and Appropriate	Radioactive materials in this operable unit could be released such that the radioactive materials could contribute to radioactivity in community water systems.	All
The average annual concentration of beta particle and photon (i.e., gamma) radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 mrem.				

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Residual Radioactive Material	40 CFR 192, Subparts A and C Control of residual radioactive material from inactive uranium processing sites shall be designed to:	Relevant and Appropriate	Radioactive materials in this operable unit include residues from uranium processing. Requirements for design of controls should be consistent with design for control of other residual radioactive materials such as mill tailings.	All
	<ul style="list-style-type: none"> • Be effective for up to 1000 years, to the extent reasonably achievable, and in any case, for at least 200 years. 			
	<ul style="list-style-type: none"> • Provide reasonable assurance that releases of radon-222 from residual radioactive material to the atmosphere will not exceed an average release rate of 20 pCi/m²-s or increase the annual average concentration of radon-222 in air at or above any location outside the disposal site by more than 0.5 pCi/l. 			

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Chemical or Radionuclides in Drinking Waters	40 CFR 141 OAC 3745-81-11	Relevant and Appropriate	Contents of the operable unit may migrate into the underlying aquifer and into drinking water systems as a consequence of remedial actions.	All
	Maximum contaminant levels for inorganic chemicals in community water systems are set as follows:			
	<ul style="list-style-type: none"> • Arsenic 0.05 mg/l • Barium 1.00 mg/l • Cadmium 0.010 mg/l • Chromium 0.05 mg/l • Lead 0.05 mg/l • Mercury 0.002 mg/l • Nitrate 10.0 mg/l • Selenium 0.01 mg/l • Silver 0.05 mg/l 			

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Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Radioactive Materials Discharged to Surface Waters	40 CFR 440.33 Under best available technology effluent limitations, the concentration of pollutants discharged in drainage from mines that produce uranium ore shall not exceed:	Relevant and Appropriate	Radioactive materials in the operable unit include materials similar to the radioactive materials in mines that produce uranium ore and could be discharged from this operable unit under removal and stabilization actions.	All
	<ul style="list-style-type: none"> • 10 pCi/l of dissolved radium-226 in any one day or 3 pCi/l averaged over 30 consecutive days; • 30 pCi/l of total radium-226 in any one day or 10 pCi/l averaged over 30 consecutive days; and • 4 mg/l of uranium in any one day or 2 mg/l averaged over 30 consecutive days. 			

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Radiation Dose Limit (All Pathways)	DOE Order 5400.5, Chapter II, Section 1.a	To be considered	Radiation sources within this operable unit could contribute to the total dose to members of the public from this DOE facility.	All
	<p>The exposure of members of the public to radiation sources as a consequence of all routine DOE activities shall not cause, in a year, an effective dose equivalent greater than 100 mrem from all exposure pathways.</p>			

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Radiation Dose Limit (Drinking Water)	DOE Order 5400.5, Chapter II, Section 1.d	To be considered	Radioactive materials within this operable unit could contribute to the dose to members of the public from drinking water.	All
	Provide a level of protection for persons consuming water from a public drinking water supply operated by the DOE so that persons consuming water from the supply shall not receive an effective dose equivalent greater than 4 mrem in a year.			

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Radiation Protection of Individuals	DOE Order 5480.11, Section 9 Operations at DOE facilities will be conducted in such a manner that personnel will be protected in accordance with DOE Order 5480.11, Section 9.	To be considered	Radioactive materials in this operable unit can contribute exposure conditions such that the exposure limits for personnel inside of the facility boundaries could be exceeded.	All

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Area affecting Stream or River	U.S. Fish and Wildlife Coordination Act 16 U.S.C. 661	Applicable	In-situ isolation or stabilization would require diverting and/or rechanneling the flow of Paddy's Run in order to have sufficient ground area to cap areas within the operable unit. Such action would be coordinated with State and Federal wildlife agencies to ensure preservation of wetlands and aquatic biota and wildlife.	1, 2, 3
	40 CFR 6.302 (a)		Adverse impacts of activities associated with the destruction or loss of wetlands are to be avoided where practicable alternatives exist.	
	40 CFR 6.302 (g)		After consultation with the U.S. Fish and Wildlife Service and appropriate State agency, actions necessary to protect fish and wildlife from the structural modification of a natural stream are to be implemented.	

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Stream Modification	ORC 307.85	Applicable	Some alternatives propose relocating or modifying Paddy's Run, a stream which has been declared as a Special Flood Hazard by Hamilton County. County approval of design plans is required.	1, 2, 3
	No restrictions shall be placed in the floodway of Paddy's Run without County approval. Any drainage structures shall be designed to pass a 50-year frequency design basis flood.			

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Protection of Wetlands	Executive Order 11990	To be considered	Implementation of the alternatives involving in-situ isolation and capping of areas within the operable unit will impact Paddys Run and adjacent wetlands areas.	1, 2, 3
	Federal agencies are directed to avoid construction located in wetlands unless the agency head finds: (1) no practical alternative to such construction, and (2) the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.			

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Protection of Wetlands (continued)	Federal agencies proposing actions that may adversely impact wetlands shall consider certain factors relevant to the proposal's effect on the survival and quality of the wetlands. These include:			
	a) public health, safety, and welfare, including water supply, quality, recharge and discharge; pollution; flood and storm hazards; and sediment and erosion;			
	b) maintenance of natural systems, including conservation and long-term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, wildlife, timber, and food and fiber resources; and			
	c) other uses of wetlands in the public interest, including recreational, scientific and cultural uses.			

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Flood Plain Management	Executive Order 11988	To be considered	Paddy's Run, west of this operable unit, is a flood plain area. The alternatives which involve in situ stabilization and capping may result in placement of fill material in the flood plain.	1, 2, 3
	Federal agencies proposing actions to be located in a flood plain must first evaluate the potential adverse effects those actions may have on the natural and beneficial values served by the flood plain.			

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Discharge of Treatment System Effluent	40 CFR 122.41 OAC 3745-33-05	Applicable	Required of all direct discharges to waters of the U.S. in order to ensure effluent limitations, water quality standards, and toxic pollutant limitations are being met.	1, 2, 3, 4, 5
	<u>Monitoring Requirements</u> Discharges must be monitored to assure compliance. Discharges will be monitored for: <ul style="list-style-type: none"> • the mass of each pollutant • the volume of each pollutant • frequency of discharge and other measurements as appropriate. 40 CFR 136.1 - 136.4		Approved test methods must be followed for waste constituents to be monitored. Detailed requirements for analytical procedures and quality controls are provided.	
			Sample preservation procedures, container materials, and maximum allowable holding times are prescribed.	

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Discharge of Treatment System Effluent	40 CFR 122.41 Comply with additional substantive conditions such as:	Applicable	Required of all direct discharges to waters of the U.S. All alternatives have the potential to result in discharges of wastewaters produced during treatment of wastes, sludges and/or removal of standing waters.	1, 2, 3, 4, 5
	<ul style="list-style-type: none"> • Duty to mitigate any adverse effect of any discharge; and • Proper operation and maintenance of treatment systems. 			

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Discharge of Treatment System Effluent	<p>40 CFR 122.44(a)</p> <p><u>Best Available Technology</u></p> <p>Use of best available technology (BAT) economically achievable is required to control toxic and nonconventional pollutants. Use of best conventional pollutant control technology (BCT) is required to control conventional pollutants. Technology-based limitations may be determined on a case-by-case basis.</p>	Applicable	<p>Applicable to direct discharges of wastewater to waters of the U.S. Treatment of wastewaters that will be discharged to waters of the U.S. will be required to meet all applicable effluent limitations, water quality standards and toxic pollutant discharge standards as determined by State and/or Federal agencies having discharge permitting authority.</p>	1, 2, 3, 4, 5
	<p>40 CFR 122.44</p> <p>OAC 3745-33-04</p>			
	<p><u>Water Quality Standards</u></p> <p>Applicable federally approved State water quality standards must be complied with. These standards may be in addition to or more stringent than other Federal effluent standards under the CWA.</p>			
	<p>40 CFR 122.44(c)</p>			
	<p>Discharge limitations must be established at more stringent levels than technology-based standards for toxic pollutants.</p>			

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Land Disposal On-Site	10 CFR 61, Subpart C Land disposal facilities must be sited, designed, operated, closed, and controlled after closure so that reasonable assurance exists that exposure to humans are within the limits established in the following performance objectives:	Relevant and Appropriate	Facilities which are to be used for on-site land disposal of radioactive materials contained within this operable unit should meet the performance objectives of facilities for similar radioactive materials from NRC-licensed facilities.	1, 2, 3, 4
	<ul style="list-style-type: none"> • Annual dose equivalent limit of 25 mrem (whole body), 75 mrem (thyroid) and 25 mrem (any other organ) for any member of the public due to radioactive materials which may be released from the land disposal facility. • Protection of any inadvertent intruder into the disposal site at any time after active institutional controls over the disposal site are removed. 			

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Land Disposal On-Site (continued)

- Operations at the disposal facility must be conducted in accordance with 10 CFR 20.
- Long-term stability and elimination of the need (to the extent practicable) for ongoing active maintenance of the disposal site following closure so that only surveillance, monitoring, or minor custodial care are required.

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Land Disposal On-Site	10 CFR 61, Subpart D Technical requirements for land disposal facilities for radioactive waste must be satisfied. These include: 10 CFR 61.50 <ul style="list-style-type: none"> • Disposal site suitability requirements for land disposal 10 CFR 61.51 <ul style="list-style-type: none"> • Design criteria for a land disposal site 10 CFR 61.52 <ul style="list-style-type: none"> • Operation and closure criteria 10 CFR 61.53 <ul style="list-style-type: none"> • Environmental monitoring requirements 	Relevant and Appropriate	Facilities which are to be used for on-site land disposal of radioactive materials contained within this operable unit should meet the performance objectives of facilities for similar radioactive materials from NRC-licensed facilities.	1, 2, 3, 4

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Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Land Disposal On-Site (continued)	10 CFR 61.55		<ul style="list-style-type: none"> • Waste classification requirements 	
	10 CFR 61.56		<ul style="list-style-type: none"> • Waste characteristics requirements 	

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Discharge of Treatment System Effluent	40 CFR 125.100 <u>Best Management Practices</u> Develop and implement a Best Management Practices (BMP) program to prevent the release of toxic or hazardous constituents to surface water. 40 CFR 125.104 The BMP program must:	Relevant and Appropriate	All of the proposed actions have the potential for releases and runoff from this operable unit. The requirement is not applicable because BMP under the NPDES permit program applies only to ancillary facilities from manufacturing units that may have releases of toxic or hazardous waste. The purpose of the BMP program is relevant and appropriate to prevent releases from spills or runoff during the implementation of remedial actions.	All
	<ul style="list-style-type: none"> • Establish specific procedures for the control of toxic and hazardous pollutant spills and runoff. • Include a prediction of direction, rate of flow, and total quantity of toxic and hazardous pollutants where experience indicates a reasonable potential for equipment failure. 			

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Cleanup of Land and Buildings Contaminated with Residual Radioactive Materials	40 CFR 192, Subparts B and C Remedial actions shall be conducted at any site, or other real property or improvement thereon containing residual radioactive materials from inactive uranium processing sites so as to provide reasonable assurance that:	Relevant and Appropriate	Radioactive materials in this operable unit include residues from uranium processing. Remedial actions should be consistent with design at other uranium processing facilities.	1, 2, 3, 4, 5

- Radium-226 concentrations in land averaged over any area of 100 m² shall not exceed the background level by more than 5 pCi/g averaged over the first 15 cm of soil below the surface and 15 pCi/g averaged over 15 cm thick layers of soil more than 15 cm below the surface.
- Annual average radon decay product concentrations (including background) in any occupied or habitable building shall not exceed 0.02 WL, or in any case it shall not exceed 0.03 WL.
- Gamma radiation level in any occupied or habitable building shall not exceed background level by more than 20 µR/hr.

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On-site Solid Non-hazardous Waste Management Facilities	40 CFR 241.200-241.201 Develop a solid, non-hazardous waste handling plan to determine what waste shall be accepted and identify any special handling required.	Relevant and Appropriate	Solid, non-hazardous wastes generated as a result of remediation must be managed in accordance with Federal and State regulations.	1, 2, 3, 4
	Also, determine specific wastes to be excluded and identify them in the plan. An alternative method of disposal for excluded wastes must also be a part of the solid waste handling plan.			

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Solid, Non-hazardous Waste Treatment and Disposal Facility Design Considerations	40 CFR 241.202 ORC 6111.45 OAC 3745-27-06	Relevant and Appropriate	Treatment/disposal facilities for solid, non-hazardous waste must be planned and designed by the facility owner, with the design approved by the Ohio EPA.	1, 2, 3, 4
	<p>A plan for the design shall be prepared by a professional engineer and approved by the responsible agency prior to authorization for construction.</p> <p>At a minimum, design shall consider hydrogeology, climate, socioeconomic impacts, land use, decomposition gases, leachate vector control, and aesthetics (pertinent details follow).</p> <p>40 CFR 241.204</p>			

Water Quality The location, design, construction, and operation of the land disposal site shall conform to the most stringent of applicable water quality standards established in accordance with, or effective under, the provisions

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Solid, Non-hazardous Waste Treatment and Disposal Facility Design Considerations (continued)	of the Federal Water Pollution Control Act, as amended.	40 CFR 241.205	<p><u>Air Quality</u></p> <p>The design, construction, and operation of the land disposal site shall conform to applicable ambient air quality standards and source control regulations established under the authority of the Clean Air Act, as amended, or Ohio EPA or local standards effective under that Act, if the latter are more stringent.</p>	40 CFR 241.209
<p><u>Cover Material</u> Cover material shall be applied as necessary to minimize infiltration of precipitation and provide a pleasing appearance.</p>				

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Solid, Non-hazardous Waste Treatment and Disposal Facility Design Considerations (continued)	40 CFR 241.211 <u>Compaction</u> Solid waste shall be compacted to the smallest practicable volume.		<u>Safety</u> The land disposal site shall be designed, constructed, and operated in such a manner as to protect the health and safety of personnel associated with the operations. Pertinent provisions of the Occupational Safety and Health Act of 1970 (Pub. L. 91-596) and regulations promulgated thereunder shall apply.	

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Off-site Transportation of Hazardous Waste	40 CFR 262, Subpart B EPA requires the use of a manifest to track hazardous waste from the point of generation to disposal. Generator must prepare, acquire and certify a manifest to treat, store, or dispose of hazardous waste off-site.	Relevant and Appropriate	One alternative necessitates the removal, treatment, and off-site disposal of radioactive and hazardous materials from this operable unit.	5
	40 CFR 262, Subpart C		Generator must meet technical requirements for pretransport. These include:	
	<ul style="list-style-type: none"> • 40 CFR 262.30 Waste must be packaged in accordance with DOT regulations under 49 CFR 173, 178, and 179 (see later sections). 			
	<ul style="list-style-type: none"> • 40 CFR 262.31 Waste must be labeled in accordance with DOT regulations under 49 CFR 172 (see later sections). 			

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Off-site Transportation of Hazardous Waste (continued)	<ul style="list-style-type: none"> 40 CFR 262.32 Waste must be marked in accordance with DOT regulations under 49 CFR 172, Subpart D. 	40 CFR 263, Subpart B	<p>Transporter must comply with all requirements of the manifest and recordkeeping system. A manifest must be used when transporting hazardous waste. The waste generator must maintain accurate records of manifest.</p> <p>In event of discharge of hazardous waste, the transporter must take immediate action to protect human health and the environment.</p>	

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Transportation of Hazardous Waste	49 CFR 172, Hazardous Materials Regulations	Relevant and Appropriate	One alternative necessitates the removal, treatment, and off-site disposal of radioactive materials from this operable unit.	5
	To transport hazardous waste, the following requirements must be met:			
	49 CFR 172, Subpart B		The waste must be properly designated by the Hazardous Waste Materials Table, which identifies the class of each material and specifies requirements for the packaging, labeling, and transport of that material.	
	49 CFR 172, Subpart C, Shipping Papers		The shipper must prepare shipping papers that include the material name, hazard class, hazard identification number, and total quantity of material to be shipped.	

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Transportation of Hazardous Waste (continued)	<ul style="list-style-type: none">49 CFR 172.203, Additional description requirements		<p>The name of each radionuclide must be listed along with its physical and chemical form, and specific activity of each container. The shipper must also specify if the waste is to be transported by air, rail, highways, or water.</p> <ul style="list-style-type: none">49 CFR 172.204, Shipper's certification <p>Shipper must certify that the materials are properly classified, described, packaged, marked, and labeled.</p> <ul style="list-style-type: none">49 CFR 172.205, Hazardous waste manifest <p>A hazardous waste manifest required by 40 CFR 262 must be properly signed, certified, and given to transport or deliver hazardous waste.</p>	

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Transportation of Hazardous Waste (continued)	Manifest must be prepared by the generator in accordance with 40 CFR 262.20. The generator must sign and date the manifest, certifying that the shipment has been properly classified, packed, marked, and labeled.	49 CFR 172, Subpart D - Marking	<ul style="list-style-type: none"> 49 CFR 172.301, General marking requirements 	
	Each package must be marked with the proper shipping name and identification number.		<ul style="list-style-type: none"> 49 CFR 172.304, Marking requirement 	
	The marking must be durable and obviously displayed.		<ul style="list-style-type: none"> 49 CFR 172.310, Radioactive materials 	
	Each package of radioactive materials must have its gross weight plainly marked on the outside of the package.			

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Transportation of Hazardous Waste (continued)	49 CFR 172, Subpart E - Labeling		With the exception of specific minor quantities and ORM classified materials, all packages must have at least one DOT-approved label. Multiple labels must be used if a package contains more than one hazard. Labels for radioactive packages are determined by the radiation level at the surface of the package.	
	49 CFR 172, Subpart F - Placarding		Color coded, diamond shaped placards are used on all hazardous material transportation vehicles to publicize the hazardous characteristics of the shipment. Placarding requirements for shipment by highway and rail are outlined in parts 172.507-10.	

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Transportation of Hazardous Waste (continued)	49 CFR 173, Subpart B - Preparation of Hazardous Materials for Transportation		The hazardous materials/waste shipper bears the responsibility of correctly identifying, classifying, packaging, labeling, and completing shipping papers for the transport of hazardous materials. All of the above must be certified on the shipping papers or on the manifest in the case of hazardous wastes. The complete package cannot exceed 65 pounds and must be certified by marking the following statement on the exterior of the package: "This package conforms to conditions and limitations specified in 49 CFR 173.4."	49 CFR 173, Subparts C-O - Materials Classification

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Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Transportation of Hazardous Waste (continued)	49 CFR 173, Subpart I - Radioactive Materials		Different types of packaging are required for different types of radioactive materials. For single radionuclides, the maximum activity level cannot exceed the values listed in Table 173.435. For mixtures of radionuclides, including radioactive decay chains, the maximum activity level is 10 curies.	
	Each package of radioactive materials offered for transportation must be designed so that under normal transportation conditions the external radiation level does not exceed 200 mrem/hour.			

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Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Transportation of Hazardous Waste (continued)	49 CFR 177 - Transportation Requirements for Shipment by Public Highway		Transporters are responsible for ensuring that their vehicle is properly loaded. Truck drivers must ensure that the shipping papers are in the vehicle's cab at all times.	
	Hazardous materials transporters, including waste transporters, are not required to have transporter permits by EPA or DOT. However, waste transporters must notify the regulatory agency (State or Federal) and obtain an EPA identification number. In addition, the State of Ohio requires that transporters obtain a special permit to ship wastes within State lines.			

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Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Transportation of Hazardous Waste (continued)	EPA has adopted the DOT regulations pertaining to waste classification, packaging, marking, and labeling. With few exceptions, all containers for transport of 100 gallons or less must bear the generator's name, address, manifest document number, and the following statement:		"Hazardous waste - Federal law prohibits improper disposal. If found contact the nearest police or public safety authority or the United States Environmental Protection Agency."	
	All waste containers could be free of nonshipping related markings.			

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Action Specific

Chemical, Location, or Action,	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Treatment (in a Unit)	40 CFR 264, Subpart J (Tanks) 40 CFR 264, Subpart K (Surface Impoundments) OAC 3745-56-70 through -83 40 CFR 264, Subpart L (Waste Piles) OAC 3745-67-58 OAC 3745-56-50 through -60 40 CFR 264, Subpart X (Misc. Units) OAC 3745-69-04 OAC 3745-68-10 OAC 3745-66-97 OAC 3745-67-28	Relevant and Appropriate	Specific goals and objectives of regulations for treatment units to meet design and operating standards are relevant and appropriate for alternatives. Treatment design and operating standards are relevant and appropriate to those alternatives proposing treatment of waste before disposal.	2, 3, 4, 5

Design and operating standards for unit in which hazardous waste is treated.

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
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Closure with No Post-closure Care	40 CFR 264.111 OAC 3745-66-11	Relevant and Appropriate	The alternatives call for removal and disposal in locations other than within the operable unit. Requirement is for closure of remaining residues after removal. RCRA is not applicable because wastes are not solid waste by definition and hence not hazardous waste. Wastes are similar to hazardous wastes and therefore requirements are relevant and appropriate. After removal of contaminants, residuals must meet health-based levels in order to preclude the requirement for post-closure care and monitoring.	4, 5
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General performance standard requires elimination of need for further maintenance and control; elimination of post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products.

40 CFR 264.114
OAC 3745-66-14

During the partial and final closure, all contaminated equipment, structures and soils must be properly disposed.

40 CFR 264.258

Removal or decontamination of all waste residues, contaminated containment system components (e.g., liners, dikes), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and management of them as hazardous waste.

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Closure with Waste in Place (Sec Capping for Additional Associated Requirements)	40 CFR 264.117 OAC 3745-66-17-20 Post-closure care must begin after completion of closure and continue for 30 years.	Relevant and Appropriate	Waste remaining in place after closure requires post-closure care and monitoring to insure elimination of escape of hazardous constituents, leachate, and contaminated run-off. Requirement is relevant and appropriate to meet the goals and objectives of post-closure care. For waste piles closed in place and on-site landfills to which the waste had been removed, the requirement is relevant and appropriate.	1, 2, 3, 4
	40 CFR 264.310 (b) OAC 3745-66-11 After closure, the owner or operator must comply with all post-closure requirements 40 CFR 264.117-264.120 including maintenance of cover, monitoring of leachate and groundwater monitoring required in 40 CFR 264, Subpart F.			

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Container Storage	Containers of RCRA hazardous waste must be:	Relevant and Appropriate	These requirements are relevant and appropriate to alternatives utilizing containers for temporary storage or storage before disposal. Requirement is not applicable because wastes (including associated contaminated construction wastes) are not solid waste and therefore not hazardous by waste definition.	4, 5
	40 CFR 264.171			
	OAC 3745-55-70 through -78			
	<ul style="list-style-type: none"> Maintained in good condition; 			
	40 CFR 264.172			
	<ul style="list-style-type: none"> Compatible with hazardous waste to be stored; and 			
	40 CFR 264.173			
	<ul style="list-style-type: none"> Closed during storage (except to add or remove waste). 			
	40 CFR 264.174			
	Inspect container storage areas weekly for deterioration.			

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Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Container Storage (continued)	40 CFR 264.175		Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide containment system with a capacity of 10 percent of the volume of containers of free liquids. Remove spilled or leaked waste in a timely manner to prevent overflow of the containment system.	
	40 CFR 264.177		Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier.	
	40 CFR 264.178		At closure, remove all hazardous waste and residues from the containment system, and decontaminate or remove all containers, liners.	

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Container Storage (continued)	40 CFR 268.5		Storage of banned wastes must be in accordance with 40 CFR 268. When such storage occurs beyond one year, the owner/operator bears the burden of proving that such storage is solely for the purpose of accumulating sufficient quantities to allow for proper recovery, treatment, and disposal.	

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Chemical Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Construction of New Landfill On-Site	40 CFR 264.301 <u>Minimum Technology Requirements</u> Install two liners or more, including a top liner that prevents waste migration into the liner, and a bottom liner that prevents waste migration through the liner. Install leachate collection system above and between liners. Construct run-on and run-off control system capable of handling the peak discharge of a 25-year storm. Control wind dispersion of particulates.	Relevant and Appropriate	Requirement is relevant and appropriate to those alternatives where wastes are removed and being placed in a new, replacement, or expanded landfill to prevent hazardous substances from being leached into surrounding soil and groundwater.4	

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Capping (See also Closure with Waste in Place for Additional Associated Requirements)	40 CFR 264.310(a) OAC 3745-66-11	Relevant and Appropriate	<p>Disposal in place or in a landfill will require a cap to prevent migration of waste constituents due to leaching.</p> <p>The requirement is not applicable because the wastes are excluded from the definition of solid wastes and therefore cannot be a part of the subset of hazardous waste. The wastes contain hazardous constituents, pollutants or contaminants and therefore the requirement is relevant and appropriate.</p>	1, 2, 3, 4
	<ul style="list-style-type: none"> • Provide long-term minimization of migration of liquids through capped area; • Function with minimum maintenance; • Promote drainage and minimize erosion or abrasion of the cover; • Accommodate settling and subsidence so that the cover's integrity is maintained; and • Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present. 			

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
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Capping
(See also
Closure with

40 CFR 264.117 (c)
OAC 3745-66-17-20

Waste in Place
for Additional
Associated
Requirements)
(continued)

Restrict post-closure use of property as
necessary to prevent damage to the
cover.

40 CFR 264.310 (b)
OAC 3745-66-11

Prevent run-on and run-off from
damaging cover.

40 CFR 264.310 (b)
OAC 3745-66-11

Protect and maintain surveyed
benchmarks used to locate waste cells
(landfills, waste piles).

40 CFR 264.310 (b)
OAC 3745-66-11

Maintain the integrity and effectiveness
of the final cover, including making
repairs to the cap as necessary to correct
the effects of settling, subsidence,
erosion, or other events, monitoring of
leachate and groundwater monitoring
required in 40 CFR 264, Subpart F.

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Construction of New Landfill On-site	<p>40 CFR 264, Subpart F</p> <p><u>Groundwater Monitoring</u></p> <p>Owners and operators of new landfill facilities must conduct a groundwater monitoring program to include:</p> <p>(1) under 40 CFR 264.99 if releases are detected; (2) institute a corrective action program under 40 CFR 264.100 if a groundwater protection standard is exceeded or if concentration limits established under 40 CFR 264.94 are exceeded between the compliance point and the downgradient facility property boundary; (3) or a detection monitoring program under 40 CFR 264.98. The design of the groundwater monitoring system shall be according to 40 CFR 264.97.</p>	Relevant and Appropriate	Requirement is relevant and appropriate to those alternatives where wastes are removed and being placed in a new, replacement or expanded landfill to insure hazardous substances are not leaching out to the soil or groundwater.	4

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Slurry Wall	40 CFR 268, Subpart D	Relevant and Appropriate	<p>Excavated soils near this operable unit may contain hazardous constituents from the operable unit. Affected soils will be disposed of with operable unit contents.</p> <p>Excavated soils for construction of a slurry wall may have to be disposed of with operable unit contents if contaminated.</p> <p>Requirement is not applicable as waste is not considered solid waste and therefore is not hazardous waste under RCRA.</p>	1, 2

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Chemical Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Placement of Waste in New Land Disposal Unit	40 CFR 268, Subpart D <u>Land Disposal Restrictions</u> Attain land disposal "treatment standards" before putting waste into landfill in order to comply with land ban restrictions.	Relevant and Appropriate	Requirement is relevant and appropriate to those alternatives proposing landfill disposal on-site because wastes contain hazardous constituents which are restricted from land disposal.	4

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Discharge of Wastewaters to POTW	40 CFR 403 OAC 3745-3-04	Relevant and Appropriate	Discharges of remedial action wastewaters to an existing wastewater treatment facility is similar to industrial discharges to POTWs and it is therefore reasonable to expect the discharger to meet the intent of 40 CFR 403.	1, 2, 3, 4, 5
	A user of a POTW may not discharge to a POTW:			
	<ul style="list-style-type: none"> Any pollutant which causes pass through or interference. 			
	<ul style="list-style-type: none"> Any pollutant which creates a fire or explosive hazard. 			
	<ul style="list-style-type: none"> Any pollutant which will cause corrosive damage and in no case with a pH lower than 5.0. 			
	<ul style="list-style-type: none"> Any solid or viscous pollutant which will cause obstruction. 			
	<ul style="list-style-type: none"> Any pollutant which would cause the POTW to violate its permit limitations. 			

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Wastewater Treatment	ORC 6111.44 OAC 3745-31	Relevant and Appropriate	The FMPC now has a central wastewater treatment facility. Implementation of remedial alternatives may result in new process waste streams which may be incompatible with the existing wastewater treatment facility and which may require the construction and operation of a separate facility to treat those wastes prior to discharge.	1, 2, 3, 4, 5
	New wastewater treatment facilities and/or industrial processes which produce process wastewater must meet substantive permitting requirements.			

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Worker Protection	29 CFR 1910, Subpart Z	To be considered	Implementation of certain alternatives may result in the exposure of workers to heavy metals and asbestos contained within the operable unit.	1, 2, 3, 4 5

[Note: Not an ARAR per the revised NCP]

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Residual Radioactive Material in Soil	DOE Order 5400.5, Chapter IV Concentrations of residual radioactivity in soil in areas for unrestricted use shall not exceed background concentrations averaged over an area of 100 m ² by the following:	To be considered	Radioactive materials in this operable unit could deliver an effective radiation dose exceeding 100 mrem per year if released onto soil in areas for unrestricted use.	1, 2, 3, 4, 5
	<ul style="list-style-type: none"> Generic guidelines for radium-226, radium-228, thorium-230, and thorium-232: 			
	a) 5 pCi/g, averaged over the first 15 cm of soil below the surface; and			
	b) 15 pCi/g, averaged over 15-cm-thick layers of soil more than 15 cm below the surface.			
	<ul style="list-style-type: none"> For other radionuclides, the residual concentration of the radionuclides in soil shall be derived from the basic dose limit (100 mrem effective dose equivalent per year) by means of an environmental pathway analysis 			

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Residual Radioactive Material in Soil (continued)	using site specific data where available. Procedures for derivations of residual radioactivity are given in "A Manual for Implementing Residual Radioactive Material Guidelines" (DOE/CH-8901).		<ul style="list-style-type: none"> • Criteria for "hot spots" are contained in DOE Order 5400.5, Chapter IV and DOE/CH/8901. • Explicitly formulas for calculating residual concentration guidelines for mixtures are given in DOE/CH-8901. • An exception to the above is that residual radioactive materials above the guidelines shall be managed in accordance with Chapter II of this Order, and the requirements of Section 6 of Chapter IV. 	

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Residual Radioactive Material as Surface Contamination	DOE Order 5400.5, Chapter IV, Section 4, Paragraph d.	To be considered	Radioactive materials in this operable unit could cause surface contamination levels to exceed the required guidelines.	All
	Surface contamination guidelines for release of equipment and building components for unrestricted use, and if buildings are demolished, for contamination in the ground, shall not be exceeded unless as indicated by supplemental limits and exceptions of Section 7 of this Order.			

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Land Disposal On-Site	DOE Order 5820.2A, Chapter III DOE solid low-level wastes shall be managed in accordance with DOE Order 5820.2A, Chapter III and the additional requirements cited therein.	To be considered	Radioactive materials within this operable unit include materials classified as low-level waste and are to be managed in accordance with DOE requirements for low-level waste.	1, 2, 3, 4, 5

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Action Specific

Chemical, Location, or Action	Requirement	ARAR/TBC	Rationale for Implementation	Alternative Number
Land Disposal On-Site	DOE Order 5820.2A, Chapter IV DOE waste containing byproduct material shall be stored, stabilized in-place, and/or disposed of consistent with the requirements of the residual radioactive material guidelines contained in 40 CFR 192.	To Be Considered	Radioactive materials within this operable unit include materials which meet the definition of byproduct material (DOE Order 5820.2A, Attachment 1, page 1, paragraph 3) and therefore are to be managed in accordance with DOE requirements for waste containing byproduct materials.	1, 2, 3, 4, 5