

# ENVIRONMENTAL UPDATE AND MANAGEMENT OF FILL POLICY

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# PADEP's New Management of Fill Policy (MOFP)



# Policy Overview

- New Policy represents an overhaul of the original policy enacted in 2004
- Effective January 1, 2020
- Determines the circumstances under which fill material can be transported and deposited at sites without being considered a waste under the Solid Waste Management Act.
- Any projects or activities involving earth disturbance work, excavation work, demolition work, site redevelopment, infrastructure projects, and utility projects are subject to the new provisions of the Policy.



# Overview of Major Changes

- Procedural changes for determining whether material can qualify as clean fill
- Fill material is now a clearly defined term
- Sampling and analysis of material is not necessary unless environmental due diligence indicates material may have been affected by a release
- Policy provides more guidelines for completing due diligence and sampling (e.g. sampling of historic fill now mandatory)
- Analytical results are now compared to the Clean Fill Concentration Limits (CFCLs) which incorporate the use of Act 2 Statewide Health Standards (Tables FP-1a and FP-1b have been eliminated)
- Policy now requires that fill material containing polychlorinated biphenyls (PCBs) in excess of 2 mg/kg may only be used if prior approval is obtained from USEPA.



# Important Provisions that Remain in New Policy

- Fill material that does not qualify as clean fill may still be beneficially used under a residual waste general permit (WMGR-096) if it meets the established limits for regulated fill
- Fill demonstrated to be clean fill can still be used in an unrestricted manner, with the exception of placing in the Waters of the Commonwealth
- Environmental due diligence still a major factor
- Analytical results still compared to numeric standards
- Goal is to determine whether material has actually been impacted from a release of regulated substances



# New Policy Definitions

**Fill** – The term is limited to clean, regulated and historic fill that is soil, rock, stone, gravel, used asphalt, brick, block or concrete from construction and demolition activities that is separate from other waste and recognizable as such, and “dredged material,” as the term is defined by the municipal and residual waste regulations, 25 Pa. Code § § 271.1 and 287.1, whichever is applicable. It does not include reclaimed asphalt pavement, naturally occurring asbestos, mine spoils, or acid producing rock.

**Clean fill** – Uncontaminated, nonwater-soluble, nondecomposable, inert solid material used to level an area or bring an area to grade.



# New Policy Definitions (cont.)

**Historic fill** – Material, excluding material disposed in landfills, waste piles and impoundments, used to bring an area to grade prior to 1988, and consisting of a conglomeration of soil and residuals, such as ashes from the residential burning of wood and coal, incinerator ash, coal ash, slag, dredged material and construction and demolition waste.

- The term does not include iron or steel slag that is separate from residuals if it is a coproduct, as the term is defined in 25 Pa. Code § 287.1 and satisfies the requirements of 25 Pa. Code § 287.8.
- The term does not include coal ash that is separate from residuals if it is beneficially used in accordance with 25 Pa. Code §§ 290.1 – 290.415.





# New Policy Definitions (cont.)

**Uncontaminated Material** – Either

- 1) Fill unaffected by a release of a regulated substance OR
- 2) 2) Fill affected by release of a regulated substance, if the concentrations of regulated substances in the fill do not exceed the clean fill concentration limits.

**Regulated Fill** – Fill that has been affected by a release of a regulated substance and is not uncontaminated material.



# New Policy Definitions (cont.)

**Project area** – The boundary within which earth disturbance activities occur, including areas in close proximity to the earthmoving activities that are necessary for the completion of a construction project, or other human activity which disturbs the surface of the land, including land clearing and grubbing; grading; excavations; embankments; land development; agricultural plowing or tilling; operation of animal heavy use areas; timber harvesting activities; road maintenance activities; linear projects such as utility line work; oil and gas activities; well drilling; mineral extraction; and the moving, depositing, stockpiling, or storing of soil, rock or earth materials. The term includes the boundary within which all earth disturbance activity, construction, materials storage, grading, landscaping and related activities occur.



# New Policy Definitions (cont.)

**Donor site** – The area from which fill originates that is separate from a receiving site. Multiple donor sites may be identified on a single project area.

**Receiving site** – The area to which fill is proposed to be relocated. A receiving site is separate from a donor site and not part of a project area or right-of-way.



# New Policy Definitions (cont.)

**Environmental due diligence** – Investigative techniques used to determine whether fill from a donor site has been affected by a release of a regulated substance. Examples of investigative techniques included in this term are visual property inspections, electronic data base searches, review of ownership and historical use of a property, Sanborn maps, environmental questionnaires, transaction screens, analytical testing, environmental assessments, audits, or procedures outlined in ASTM standard E1527-13. A single investigative technique may not be used as the basis for environmental due diligence. Environmental due diligence includes visual property inspection and a review of ownership and historical property use, at a minimum, unless analytical sampling is performed in lieu of a review of ownership and historical property use.



# New Clean Fill Concentration Limits (CFCLs)

- Numeric Standards defining “clean fill” found in former Tables FP-1a and FP-1b have been eliminated
- New CFCLs incorporated by direct reference to 25 PA Code, Chapter 250 (Act 2 Land Recycling Program Cleanup Standards)
- Applicable numeric limit is determined by using **the lower** of the current Residential direct contact numeric values for soils and the Residential generic soil to groundwater numeric values for soils (used aquifers) established under Act 2 (non-residential values used for Regulated Fill Limits)
- Quick Reference Tables for Organic and Inorganic Regulated Substances can be found at:

<http://files.dep.state.pa.us/Waste/Bureau%20of%20Waste%20Management/WasteMgtPortalFiles/SolidWaste/ResidualWaste/OrganicRegulatedSubstances.pdf>

<http://files.dep.state.pa.us/Waste/Bureau%20of%20Waste%20Management/WasteMgtPortalFiles/SolidWaste/ResidualWaste/InorganicRegulatedSubstances.pdf>



From 25 Pa. Code Chapter 250, APPENDIX A

TABLE 3 - MEDIUM-SPECIFIC CONCENTRATIONS (MSCs) FOR ORGANIC REGULATED SUBSTANCES IN SOIL

Clean Fill Concentration Limits (CFCL) Effective January 1, 2020

REGULATED SUBSTANCE	CASRN	CFCL (mg/kg)	A. Direct Contact Numeric Values			B. Soil to Groundwater Numeric Values				
			Residential 0-15 feet	Non-Residential		TDS ≤ 2500				Soil Buffer Distance (feet)
				Surface Soil 0-2 feet	Subsurface Soil 2-15 feet	Residential		Nonresidential		
						Generic Value	Generic Value	Generic Value	Generic Value	
ACENAPHTHENE	83-32-9	3100	13000 G	190000 C	190000 C	3100 E	4700 E	15		
ACENAPHTHYLENE	208-96-8	2800	13000 G	190000 C	190000 C	2800 E	8000 E	15		
ACEPHATE	30560-19-1	1	880 G	10000 G	190000 C	1.0 E	4.6 E	NA		
ACETALDEHYDE	75-07-0	0.23	170 N	720 N	830 N	0.23 E	0.96 E	NA		
ACETONE	67-64-1	430	10000 C	10000 C	10000 C	430 E	1200 E	NA		
ACETONITRILE	75-05-8	1.5	1100 N	4800 N	5500 N	1.5 E	6 E	NA		
ACETOPHENONE	98-86-2	230	10000 C	10000 C	10000 C	230 E	640 E	NA		
ACETYLAMINOFLUORENE, 2- (2AAF)	53-96-3	0.08	4.9 G	24 G	190000 C	0.08 E	0.37 E	20		
ACROLEIN	107-02-8	0.00047	0.38 N	1.6 N	1.8 N	0.00047 E	0.002 E	NA		
ACRYLAMIDE	79-06-1	0.0033	1.7 N	22 N	26 N	0.0033 E	0.043 E	NA		
ACRYLIC ACID	79-10-7	0.039	19 N	79 N	91 N	0.039 E	0.16 E	NA		
ACRYLONITRILE	107-13-1	0.01	6.6 N	33 N	38 N	0.01 E	0.051 E	NA		
ALACHLOR	15972-60-8	0.077	330 G	1600 G	190000 C	0.077 E	0.077 E	NA		
ALDICARB	116-06-3	0.05	220 G	3200 G	190000 C	0.05 E	0.05 E	NA		
ALDICARB SULFONE	1646-88-4	0.027	220 G	3200 G	190000 C	0.027 E	0.027 E	NA		
ALDICARB SULFOXIDE	1646-87-3	0.045	220 G	3200 G	190000 C	0.045 E	0.045 E	NA		
ALDRIN	309-00-2	0.52	1.1 G	5.4 G	190000 C	0.52 E	2.4 E	10		
ALLYL ALCOHOL	107-18-6	0.0025	1.9 N	8 N	9.1 N	0.0025 E	0.01 E	NA		
AMETRYN	834-12-8	6.5	2000 G	29000 G	190000 C	6.5 E	6.5 E	NA		
AMINOBIIPHENYL, 4-	92-67-1	0.0014	0.89 G	4.3 G	190000 C	0.0014 E	0.0062 E	NA		
AMITROLE	61-82-5	0.032	20 G	97 G	190000 C	0.032 E	0.15 E	NA		
AMMONIA	7664-41-7	360	1900 N	8000 N	9100 N	360 E	360 E	NA		
AMMONIUM SULFAMATE	7773-06-0	24	44000 G	190000 C	190000 C	24 E	24 E	NA		
ANILINE	62-53-3	0.12	19 N	79 N	91 N	0.12 E	0.52 E	NA		
ANTHRACENE	120-12-7	350	66000 G	190000 C	190000 C	350 E	350 E	10		
ATRAZINE	1912-24-9	0.13	81 G	400 G	190000 C	0.13 E	0.13 E	NA		
AZINPHOS-METHYL (GUTHION)	86-50-0	15	660 G	9600 G	190000 C	15 E	40 E	NA		
BAYGON (PROPOXUR)	114-26-1	0.057	880 G	13000 G	190000 C	0.057 E	0.057 E	NA		
BENOMYL	17804-35-2	970	11000 G	160000 G	190000 C	970 E	970 E	20		
BENTAZON	25057-89-0	2.9	6600 G	96000 G	190000 C	2.9 E	2.9 E	NA		
BENZENE	71-43-2	0.13	57 N	290 N	330 N	0.13 E	0.13 E	NA		
BENZIDINE	92-87-5	0.018	0.018 G	0.4 G	190000 C	0.13 E	2 E	5		





From 25 Pa. Code Chapter 250, APPENDIX A

Table 4 - Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil

Clean Fill Concentration Limits (CFCL) Effective January 1, 2020

A. Direct Contact Numeric Values

B. Soil to Groundwater Numeric Values

REGULATED SUBSTANCE	CASRN	CFCL (mg/kg)	Residential MSC 0-15 feet	Nonresidential MSCs		TDS ≤ 2500		Soil Buffer Distance (feet)
				Surface Soil 0-2 feet	Subsurface Soil 2-15 feet	Residential	Nonresidential	
						Generic Value	Generic Value	
ALUMINUM	7429-90-5	190000	190000 C	190000 C	190000 C	NA	NA	NA
ANTIMONY	7440-36-0	27	88 G	1300 G	190000 C	27	27	15
ARSENIC	7440-38-2	12	12 G	61 G	190000 C	29	29	15
BARIUM AND COMPOUNDS	7440-39-3	8200	44000 G	190000 C	190000 C	8200	8200	15
BERYLLIUM	7440-41-7	320	440 G	6400 G	190000 C	320	320	10
BORON AND COMPOUNDS	7440-42-8	1900	44000 G	190000 C	190000 C	1900	1900	30
CADMIUM	7440-43-9	38	110 G	1600 G	190000 C	38	38	15
CHROMIUM (III)	16065-83-1	190000	190000 C	190000 C	190000 C	190000	190000	5
CHROMIUM (VI)	18540-29-9	4	4 G	220 G	20000 N	190	190	15
COBALT	7440-48-4	59	66 G	960 G	190000 N	59	160	15
COPPER	7440-50-8	8100	8100 G	120000 G	190000 C	43000	43000	10
CYANIDE, FREE	57-12-5	130	130 G	1900 G	190000 C	200	200	20
FLUORIDE	16984-48-8	44	8800 G	130000 G	190000 C	44	44	NA
IRON	7439-89-6	150000	150000 G	190000 C	190000 C	NA	NA	NA
LEAD	7439-92-1	450	500 U	1000 S	190000 C	450	450	10
LITHIUM	7439-93-2	440	440 G	6400 G	190000 C	2500	6900	10
MANGANESE	7439-96-5	2000	10000 G	150000 G	190000 C	2000	2000	15
MERCURY	7439-97-6	10	35 G	510 G	190000 C	10	10	15
MOLYBDENUM	7439-98-7	650	1100 G	16000 G	190000 C	650	650	15
NICKEL	7440-02-0	650	4400 G	64000 G	190000 C	650	650	15
PERCHLORATE	7790-98-9	0.17	150 G	2200 G	190000 C	0.17	0.17	NA
SELENIUM	7782-49-2	26	1100 G	16000 G	190000 C	26	26	20
SILVER	7440-22-4	84	1100 G	16000 G	190000 C	84	84	20



# Establishing Alternative Soil-to-Groundwater Values

- In cases where the CFCL or RFCL for a compound is driven by the soil-to-groundwater standard and concentrations of the contaminant in the subject material do not exceed the direct contact standard, the Synthetic Precipitation Leaching Procedure (SPLP) can be utilized to establish a site-specific and alternative soil-to-groundwater value.
- Details are in Appendix A, Section F, of the MOFP
- Important to confirm that analytical results do not show concentrations exceeding the applicable direct contact standard before deciding to establish alternative soil-to-groundwater value
- Direct contact value will drive determination in the event that the SPLP method yields a concentration higher than the respective direct contact value





# Establishing Alternative Soil-to-Groundwater Values

## Sampling and Analysis Protocol for establishing alternative standard with SPLP:

1. Characterize the proposed fill by sampling and total concentration (TC) analysis. A minimum of 10 samples of the fill need to be collected (volumes less than 125 CY, 8 samples are acceptable). This is already achieved in the initial sampling because 12 samples are required for quantities above 125 CY.
2. The 4 samples exhibiting the highest total concentration should be submitted for SPLP analysis.
3. Determine the lowest total concentration (TC) that generates a failing SPLP result. The alternative soil-to-groundwater value will be the next lowest TC.
4. If all samples result in a passing SPLP level, the alternative soil-to-groundwater value will be the TC corresponding to the highest SPLP result. Additional samples may be collected for further SPLP analysis.
5. If none of the samples generates a passing SPLP, additional samples may be collected and concurrent TC/SPLP analyses performed to satisfy the above conditions for establishing an alternative soil-to-groundwater value



# Historic Fill

- Historic fill that is a conglomeration of soil, residuals, can qualify as clean fill
- Policy indicates historic fill that is comprised primarily of residuals (ash and slag) cannot qualify as clean fill. (i.e. important to differentiate between primary material or conglomeration)
- Residuals should be removed and managed separately from historic fill prior to making clean fill determination
- Sampling is now mandatory to determine whether historic fill constitutes clean fill, and PADEP has published required screening parameters



**TABLE 1: Screening Parameters for Historic Fill**

<b>Regulated Substance</b>	<b>CASRN</b>
Aldrin	309-00-2
Anthracene	120-12-7
Benzene	71-43-2
Benzo(a)anthracene	56-55-3
Benzo(a)pyrene	50-32-8
Benzo(b)fluoranthene	205-99-2
Benzo(ghi)perylene	191-24-2
Chrysene	218-01-9
Cumene (Isopropyl benzene)	98-82-8
DDD, 4,4	72-54-8
DDE, 4,4	72-55-9
DDT, 4,4	50-29-3
Dichloroethylene, cis-1,2-	156-59-2
Dieldrin	60-57-1
Ethylbenzene	100-41-4
Fluorene	86-73-7
Ideno(1,2,3-cd) pyrene	193-39-5
Napthalene	91-20-3

<b>Regulated Substance</b>	<b>CASRN</b>
PCB-1254 (Aroclor)	11097-69-1
Phenanthrene	85-01-8
Pyrene	129-00-0
Toluene	108-88-3
Trichloroethane, 1,1,1-	71-55-6
Trichloroethylene (TCE)	79-01-6
Xylenes (Total)	1330-20-7
Aluminum	7429-90-5
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Boron	7440-42-8
Cadmium	7440-43-9
Chromium(III)	16065-83-1
Chromium(VI)	18540-29-9
Chromium (total)	7440-47-3
Cobalt	7440-48-4

<b>Regulated Substance</b>	<b>CASRN</b>
Copper	7440-50-8
Iron	7439-89-6
Lead	7439-92-1
Manganese	7439-96-5
Mercury	7439-97-6
Molybdenum	7439-98-7
Nickel	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Vanadium	7440-62-2
Zinc	7440-66-6
Ammonia	7664-41-7
Chloride	7647-14-5
Fluoride	7681-49-4
Sulfate	7757-82-6



# Development of Sampling Plans

- Section A of Appendix A of the new MOFP provides guidelines and minimum scientific objectives for developing a plan to obtain representative samples of fill.
- Sampling plans will differ based on the characteristics of the donor site, including the volume of fill to be evaluated, depth of excavation, and areas of known releases
- Provides guidance for demonstrating background – donor site vs. receiving site
- Sampling Guidance for Piles vs. In-Situ
  - policy retains much of guidance for sampling piles but adds language re: in-situ sampling
  - composite and discrete sampling can be used for both piles and in-situ sampling
  - When characterizing in-situ fill it is important to characterize the full vertical and horizontal extent of the fill to be transported. Random sampling should be utilized and the same sampling frequency as the soil pile sampling guideline should be applied.



# Basics of Sampling Plans

The first step in characterizing fill material is to develop a sampling plan. Sampling plans are prepared in accordance with the most recent version of the EPA's publication *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*.

The minimum objectives of a sampling plan developed under the new policy are as follows:

1. Identify and quantify known or suspected contaminants in the fill
2. Collect samples that will allow measurements of the chemical properties of the fill that are both accurate and precise
3. Collect representative samples, which for the purposes of implementing this policy are samples exhibiting typical properties of the whole volume of fill.
4. Collect enough samples, and in no case less than eight discrete samples or two composite samples, to sufficiently represent the variability of the fill.
5. Obtain a statistically valid and reliable estimate of the fill's chemical properties.



# PADEP Submittals

- Certifications of clean fill using Form FP-001 will be submitted and managed through an electronic submission platform.
- The electronic Form FP-001 can be accessed via PA DEP Residual Waste Webpage at: <https://www.dep.pa.gov/Business/Land/Waste/SolidWaste/Residual/Pages/default.aspx>
- Must Complete and submit the FP-001 for all clean fill determinations – no exceptions
- PADEP does not formally approve Clean Fill Determination submissions
- Clean fill is not allowed to be moved from the donor site to the receiving site until this certification is submitted. If deficiencies are identified, the form will be returned and the material is not considered clean fill until the deficiencies are corrected.



# Other Important Provisions:

- New Policy makes it clear that it does not apply to fill material that has already been used unless and until that material is planned to be moved to another site
- Fill material that has previously been determined to be clean fill and has been stockpiled for use at the receiving site is not subject to new policy
- If material was determined to be clean fill under the old policy but has not yet been moved to the receiving site, the provisions of the new MOFP do apply and a new form should be submitted.
- New Policy implies that the only situations where material is “grandfathered” is in those cases where material was transported to the receiving site prior to Jan 1, 2020.





# Advantages of New MOFP

- New Policy defines Project Area and clarifies that determinations are not needed for movement of material within a designated project area.
- Historic fill can qualify as Clean Fill
- Use of the SPLP to establish alternative standards instead of being tied to low residential soil to groundwater numeric values under Act 2
- Reliance on due diligence and clarification that only those substances suspected to be present must be evaluated
- Provides a path for demonstrating background conditions





# Disadvantages/Drawbacks of New MOFP

- Changes to the Act 2 Land Recycling Program will have direct change to Clean Fill Standards
- Standards for various substances are significantly lower under the new MOFP
- Stakeholders must have increased awareness and knowledge of new requirements and the amount of time and resources expended will likely need to increase when determining whether material qualifies as clean fill.
- All determination forms must be submitted to PADEP with no exceptions, and deficiencies will be identified
- Still questions remain regarding handling of historic fill



# Additional Resources

- PADEP Residual Waste Webpage:

<https://www.dep.pa.gov/Business/Land/Waste/SolidWaste/Residual/Pages/default.aspx>

- Electronic Form FP-001

<http://www.depgreenport.state.pa.us/CleanFill>

- For information regarding EPA's requirements for determining whether PCB-containing fill can be used and associated procedures for collecting and analyzing samples, contact the PCB Coordinator for EPA Region 3 by email at

[R3\\_PCB\\_Coor@epa.gov](mailto:R3_PCB_Coor@epa.gov)



# Additional Resources



## RT Environmental Services, Inc.

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