Managing Imported Fill

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DISCLAIMER

Information presented in this presentation contains a mixture of excerpts from current regulations, policies and opinions. Any opinions expressed herein are not the official position of the New Jersey Department of Environmental Protection. Any data researched and presented has not been vetted and should not be considered NJDEP's position on any matters.

September 2017 Updates to Definitions in N.J.A.C. 7:26- 1.4

- Definition of clean fill is removed. No longer is product from a Class B Recycling facility automatically considered as clean fill.

- "Contaminated soil" is now defined and tied to the Direct Contact Soil Remediation Standards at N.J.A.C. 7:26D.

September 2017 Updates to Definitions in N.J.A.C. 7:26- 1.6

- **Amended the definition of solid waste to include: *"…processed or unprocessed mixed construction and demolition debris.."***
- **Amended the description of materials excluded from the definition of solid waste as being compliant with the Direct Contact Soil Remediation Standards at N.J.A.C. 7:26D.**

Some Perspective

BaP Ingestion Rate Used in RDCSRS	At 0.5 mg/Kg BaP, Mass BaP Ingested per day in Mg	Food	Serving Volume	Serving Weight	Serving in Milligrams	Mass of BaP in Mg per Serving [1]	% of Rate of Daily Intake of RDCSRS BaP in Soils
200 mg dirt/ dust per day for 6 yrs.	0.0001	Cereal	8 oz.	35g	35,000	0.00215	**2,150**
		Charcoal Broiled Beef	N/A	3 oz.	85,048	0.00068	**680**
		Spinach	8 oz.	225 g	225,000	0.00166	**1,660**

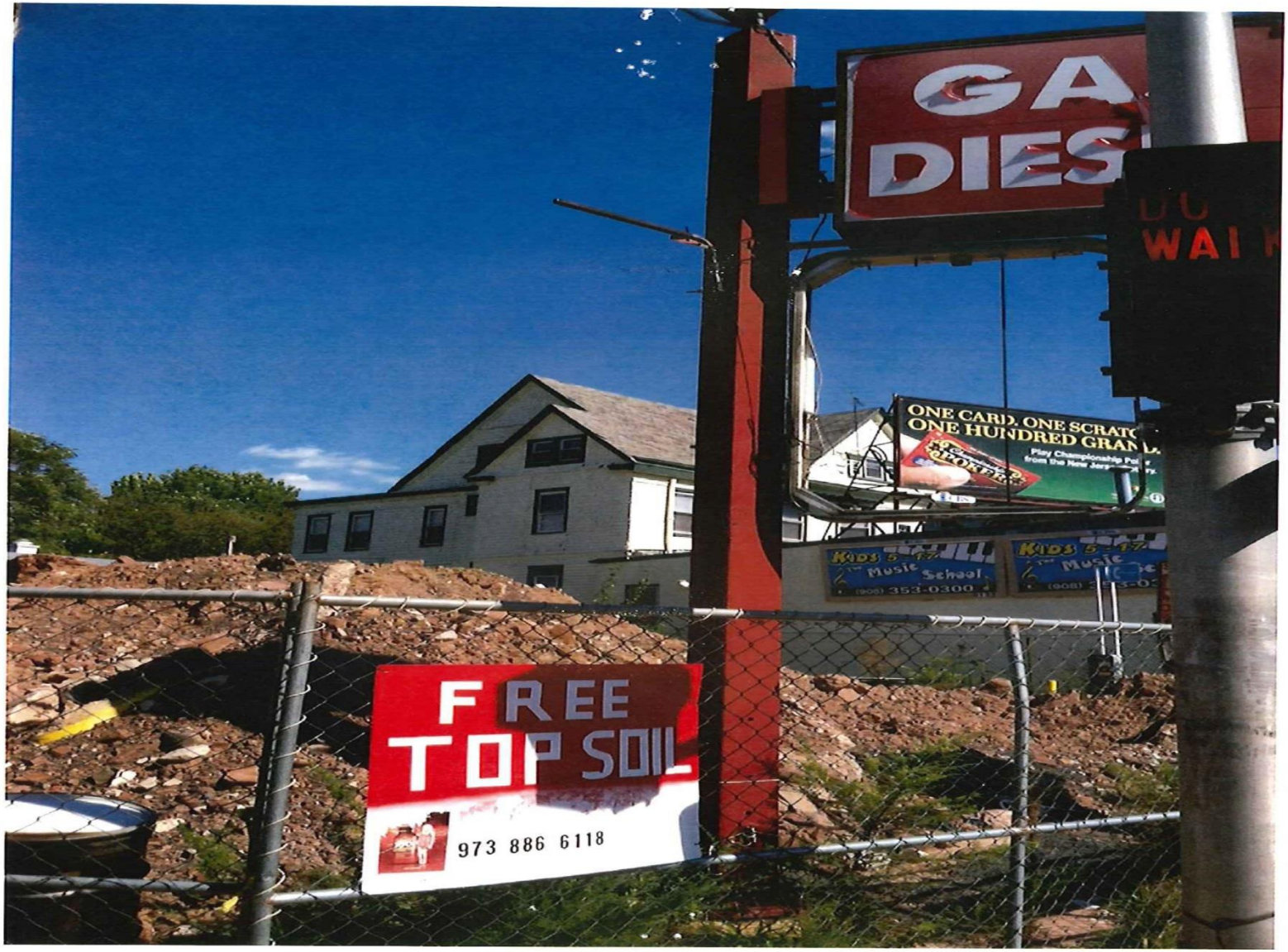
Mass of BaP in Mg per Meal	% of Rate of Daily Intake of RDCSRS BaP in Soils
0.00449	**4,490**

1: https://www.ncbi.nlm.nih.gov/books/NBK217754/ (National Center for Biotechnology Information)

HYPERBOLE!

RDCSR vs. Hazardous Waste –

In the public eye, does it make a difference?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Music School
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TOP SOIL
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Is this fill Solid Waste?

On-Site Processing

Is this fill Solid Waste?

Residential vs. Non-Residential Soil Standards

Case History

- Soil Broker had written contract with developer of a combined residential/commercial use property to provide 20,000 cubic yards of "clean fill that met all NJ standards" and delivered same to construction site.

- Construction nearly completed when NJDEP discovered that Broker's documentation of soil quality included only 1 sample and it exceeded the RDCSRS by 0.05 ppm for B(a)P prompting Order.

Case History (continued)

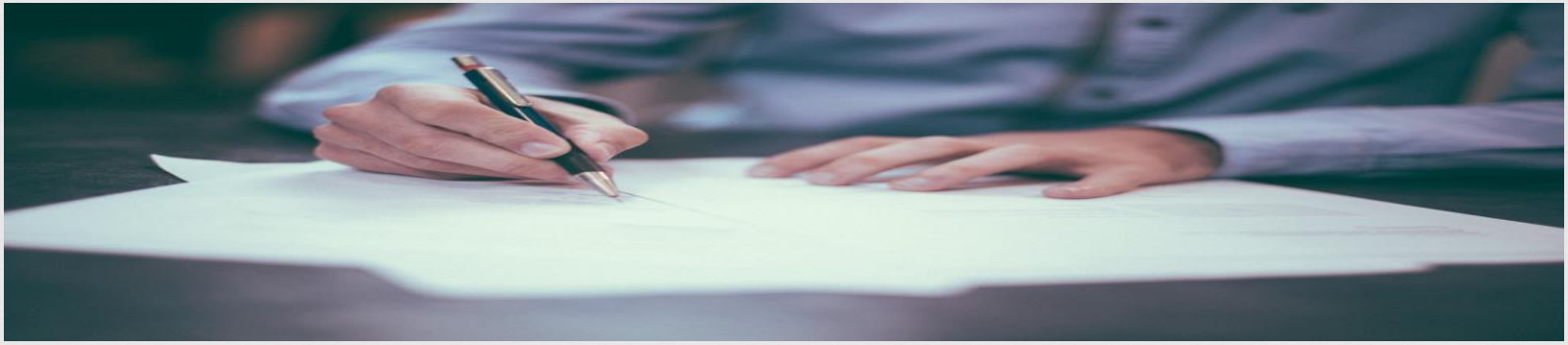
- Developer hired consultant to fully characterize the soils from the Broker that had been deposited and graded and built upon and found that over 90% of over 30 samples collected failed.

- Developer hired LSRP pursuant to the ARRCS process who proceeded to employ both engineering and institutional controls.

Examples of Documenting Clean Fill

Receipts from Virgin Quarry

Documenting Clean Fill (continued)



- **Certificate of Authorization to Operate via a Beneficial Use Determination (BUD).**
- **Sampling and analysis conducted in accordance with the most recent Guidance (currently "Fill Materials Guidance for SRP Sites" of April 2015)**
- **Subject to the restrictions of the ARRCS rules at N.J.A.C. 7: 26 C, authorization from the LSRP registered with the NJDEP for the site being remediated.**

When is Fill Required to be Sampled to be Documented as Suitable?

- Absent appropriate quality information, when being brought onto a site undergoing remediation.
- As may be specified by a local Ordinance.
- As part of a Beneficial Use Determination (BUD).
- Although "clean fill" may be a requirement of other Approvals or Permits, there may or may not be sampling and analysis specifications geared to determine if soil remediation standards have been met.

When is DEP Sampling Appropriate?

- When there is probable cause that would categorize the material as likely being solid waste without any visual evidence of solid waste.

- When there is visual evidence of solid waste, yet there is a defense offered that it is being used for surcharge loading and therefore not a waste.

- When there is a claim that any solid waste is incidental yet further scrutiny is warranted.

Model Soil Importation Ordinance

- Designed for the non-professional
- Provides a quick method to compare data to standards
- Refers to existing guidance from DEP's Site Remediation and Waste Management Program

Login Sample Receipt Checklist

Client: New Jersey Dept of Environmental Pro

Job Number: 200-31674-1
SDG Number: 31674

Login Number: 31674
List Number: 1
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	DO 1/21
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.0°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

WE DID OUR JOB WELL !!!

Evaluation and Reporting Lab Results

- Analytical data package Non-Compliance Summary example statement:

"The responses for each target analyte met the relative standard deviation criterion in the initial calibration with the exception of pyrene".

Condensing Significant Data

SUMMARY OF ANALYTE SUITES WITH CONCENTRATIONS OVER STANDARDS

SAMPLES COLLECTED 6/16/15, [redacted]

ANALYTES	SOIL STANDARDS (mg/Kg)		ANALYTICAL RESULTS (mg/Kg)															
	RDCSRS	NRDCSRS	RH001	RH001RE	RH001DU	RH001MS	RH001MSD	RH002	RH003	RH003DL	RH004	RH004DL	RH004RE	RH005	RH005DL	RH006	RH007	RH007RE	RH008
Benzo(b)fluoranthene	0.6	2	0.36	ND	NA	0.097 J B	0.100 J B	0.18 J	0.25	NA	0.42	NA	0.54	0.64	NA	0.210 J	0.32 J	0.35	0.22 J
Benzo(a)pyrene	0.2	0.2	0.33	0.32	NA	0.081 J B	0.086 J B	0.16 J	0.2	NA	0.41	NA	0.4	0.53	NA	0.18 J	0.24 J	0.23 J	0.19 J
N-Nitroso-di-n-propylamine	0.2	0.3	ND	ND	NA	1.6	1.5	ND	ND	NA	ND	NA	ND	ND	NA	ND	ND	ND	ND
2,4-Dinitrotoluene	0.7	3	ND	ND	NA	1.3	1.2	ND	ND	NA	ND	NA	ND	ND	NA	ND	ND	ND	ND
Aroclor-1016	NS	NS	ND	NA	NA	0.14	0.14	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND
Aroclor-1248	NS	NS	ND	NA	NA	ND	ND	0.053	3.0 E	3.4 D	3.5 E P	4.1 D	NA	0.6 E	0.63 D	0.22	ND	NA	ND
Aroclor-1254	NS	NS	0.013 J	NA	NA	0.032 J	0.031 J	0.021 J	1.1 E	1.2 D	1.3 E	1.4 D	NA	0.26	0.27 D	0.11	0.011 J	NA	0.013 J
Aroclor-1260	NS	NS	ND	NA	NA	0.13	0.15	ND	0.032 J P	0.039 J D	0.035 J P	0.048 J D	NA	0.016 J P	0.023 J D	0.010 J P	ND	NA	ND
Total PCBs[1]	0.2	1	ND	NA	NA	0.27	0.29	0.053	4.1 E	4.6 D	1.3 E	5.5 D	NA	0.32 E	0.90 D	0.33	ND	NA	ND
Total Chromium	NS	NS	17.5	NA	14.7	50.9	NA	15.7	12.4	NA	13.5	NA	NA	13.5	NA	14.3	13.3	NA	10.50
Chromium (Trivalent)[2]	120,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (Hexavalent)[2]	*	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	5	79	ND	NA	ND	9.1	NA	ND	ND	NA	ND	NA	NA	ND	NA	ND	ND	NA	ND
Vanadium	78	1,100	32.9	NA	28.3	120	NA	21.2	24.3	NA	22.5	NA	NA	19.9	NA	19.0	19.9	NA	13.4

KEY

Exceeds Residential Direct Contact Soil Remediation Standard (RDCSRS)

Exceeds both RDCSRS and Non-Residential Direct Contact Soil Remediation Standard (NRDCSRS)

Concentration of Total Chromium Requires Speciation Analysis

NA = Not Analyzed

ND = Not Detected

NS = No Standard

J = estimated value

D = sample analyzed at a higher dilution factor

P = The % difference between columns is > 25%

B = The analyte was found in an associated blank, as well as in the sample.

E (Inorganics) = The reported value is estimated because of the presence of interference based on serial dilution analysis

E (Organics) = Compound concentration exceeds the upper level of the calibration range of the instrument for that specific analysis

* = 240 mg/Kg or Allergic Contact Dermatitis value (whichever is lower)

[1] = Aroclors totaled for only those results for which a data qualifier does not put the reported concentration in question

[2] = Chromium concentration noted is based on an interim criteria per Department policy and not a promulgated standard.

TCLP or SPLP vs. Total Values

- No analysis slated to test for leachate should be used to compare the data to the Department's Direct Contact Soil Remediation Standards.


12/08/2011


06/13/2012 10:00

Presenter's Opinion: Possible Paths to Better Manage Fill?

- **State-wide Soil Importation Ordinance Template.**
- **Increased flexibility to manage fill with minimal documentation when the use of the fill at its removal point is consistent with the end use of this material provided BMPs employed.**
- **Public education as well as engagement with other government agencies addressing management of daily exposures to contamination from a multitude of potential sources.**
- **Studies on background PAH contamination for potential regional standards.**
- **Additional Guidance for sites not undergoing remediation (need more staff).**
- **Special licensing for transporters of recyclable soils.**

References

- https://unsplash.com/photos/EN1tF2EG-50 (aerial photo of dump trucks for “On-Site Processing”)
- https://unsplash.com/photos/45NYWH5kBA8 (for “Residential vs. Non-Residential Soil Standards”
- https://unsplash.com/photos/OQMZwNd3ThU (for documentation photo)
- https://unsplash.com/photos/89hUOLtVfoI (virgin quarry)
- https://www.sweet2eatbaking.com/measurements/breakfast-cereals/
- https://www.ncbi.nim.nih.gov/books/NBK217754/