

Managing Imported Fill



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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.

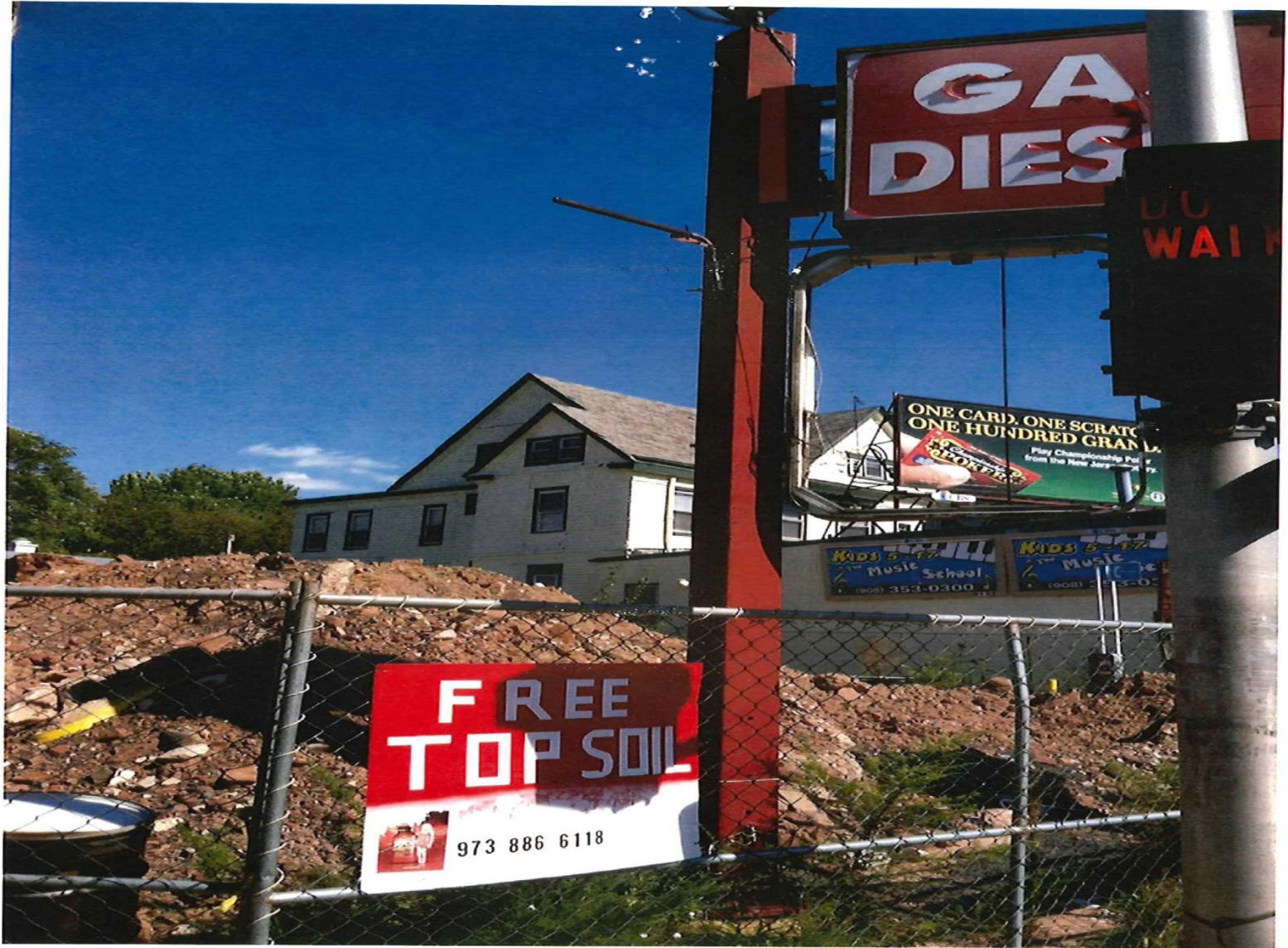
Some Perspective



Concentrations of Benzo(a)Pyrene in Common Foods:

<u>Source Food</u>	<u>Mg of B(a)P Per Serving</u>
<i>Charcoal Broiled Meats</i>	0.0020
<i>Kale or Spinach</i>	0.0003
Total Daily Intake B(a)P	0.0023 Mg

The B(a)P Direct Contact Non-Residential Soil Remediation Standard of 2.0 mg/Kg is based on an ingestion rate of 100 mg/day (dust inhalation, dermal contact, incidental ingestion) which results in an adult ingesting about 87 times more B(a)P than is their diet.







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 and found that over 90% of the samples failed.
- Developer hired LSRP pursuant to the ARRCS process who proceeded to employ both engineering and institutional controls.

Examples of Documenting Clean Fill



- ∞ Inert materials derived from a virgin quarry.
- ∞ 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)

Documenting Clean Fill (continued)



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 the responsible party is claiming that it is being used for surcharge loading and therefore not a waste.



Documenting Soil Sampling DATA For Court Testimony



Laboratory Containers:

NJDEP Certified Laboratory provides custody sealed containers that utilize appropriate:

- Material construction
- Tinting
- Lid structure
- Carrier solvent
- Preservatives

Quality Assurance/Quality Control Analyses



- Field Blanks
- Trip Blanks
- Method Blanks
- Matrix Spikes
- Matrix Spike Duplicates

Sampling Procedures



- ⌘ Protective gear should include disposable gloves per each sample location.
- ⌘ Retrieving Sample from Auger head, scoop/spatula
- ⌘ VOC Sampling - Encores or Methanol Extraction
- ⌘ Non-VOC Homogenization



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Sampling Procedures

(continued)



- œ Dedicated plastic sheeting per sample location.
- œ Documented time of sampling should match in the field notes, laboratory containers and Chain of Custody
- œ Actual person(s) collecting the samples and their actual roles should be defined in the field notes.

Sample Care and Management



- ❧ Seal lab containers in Nalgene Bags to protect the labels from melting ice.
- ❧ Wrap each suite of sample containers in tightly packed bubble wrap.
- ❧ Add the Chain of Custody to the cooler within a sealed bag to ensure ink does not run.
- ❧ Add copious amounts of ice.
- ❧ Apply and record cooler Custody Seal # & shipping paper work ID in field notes, secure cooler with tape.

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 \leq 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 $<6\text{mm}$ (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 !!!



Photographic Documentation



- œ Start with a Distance Shot for Sample Location Perspective
- œ Try not to include any information that can be scrutinized
- œ End with a close up shot





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19 ft

Eye alt 706 ft



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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.

Sample Location Map



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”.

Example of NJDEP's Sampling Report Contents



- ⌘ Regulatory Background
- ⌘ Sampling/Analytical Approach, Quality Assurance Plan & Implementation
- ⌘ Sample and Data Quality Assurance Performance
- ⌘ Data Results and Evaluation

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.
- ❧ Additional Guidance for sites not undergoing remediation.
- ❧ Special licensing for transporters of recyclable soils.