

THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

January 18, 2013

DESIGN BULLETIN No. 13-01

SUBJECT: GUIDELINES FOR MANAGEMENT OF CLEAN CONSTRUCTION OR DEMOLITION DEBRIS (CCDD), UNCONTAMINATED SOIL USED AS OFFSITE FILL, and CONTAMINATED SOIL

1.0 INTRODUCTION

On July 30, 2010, Public Act 96-1416 became effective which significantly broadened the regulatory oversight on the use of clean construction or demolition debris (CCDD) and uncontaminated soil used as fill. The law includes interim standards for CCDD fill facilities and uncontaminated soil fill operations. The Illinois Pollution Control Board published the final regulations which became effective on August 24, 2012.

These guidelines have been prepared based on the *Final Notice* regulations.

2.0 ILLINOIS STATE TOLL HIGHWAY AUTHORITY (Tollway) POLICY ON EXCESS SOIL

These guidelines outline the soil management objectives and procedures to be followed and supplement the Tollway's Environmental Studies Manual Section F. The Tollway recognizes that there is a significant cost that can be incurred from the management of CCDD and uncontaminated soil generated from its projects. In addition, as will be discussed herein, the definition of *contaminated soil* under the proposed CCDD regulations is more restrictive than in any other Illinois program. This difference has significant implications on management of soil that is classified as *contaminated soil*. The combination of *uncontaminated soil* and *contaminated soil* under these regulations will be herein referred to as *soil*. These soils are not wastes as defined under the Illinois Environmental Protection Act.

First and foremost, the Tollway's goal is to balance all *soil* on its projects. To balance the *soils* generated from each project, the soil can be moved anywhere on the project and is not subject to the CCDD regulations. So in areas where cuts are necessary, the Design Section Engineer (DSE) is to work diligently to find an area that such material can be used as fill somewhere else on the project. In the case where the cuts will occur before the soil can be immediately used for fill, the DSE is to specify that the Contractor is to temporarily store this soil at a predetermined location, following appropriate Storm Water requirements. (If over 1 acre in size, the storage facility will require a General Storm Water National Pollutant Discharge Elimination System Permit. Erosion control would be required for all storage locations; independent of the size of the area involved, additionally, the soil pile will be graded and stabilized with a vegetative cover within 14 days of Completion of the pile.) Soil stockpiled for temporary storage shall be restricted to a maximum height of 20 ft so as to not become a visual distraction

to the community. The Tollway’s Design Corridor Manager or DSE will identify the temporary storage areas.

It is expected that most, if not all, stockpiled areas will be located on undeveloped parcels within or adjacent to Tollway right-of-way. The Tollway will screen each proposed location to identify any Environmental Justice issues prior to approval.

Second, where *contaminated soil* has been identified, such soils should be managed within the project limits as long as there is no risk to human health or the environment. Risk will be assessed utilizing 35 Ill Adm Code 742 *Tiered Approach to Corrective Action Objectives*. Thus, use of the engineered barriers, as described later to reduce risk is an acceptable Tollway practice. Actual soil pH values will be used for assessing the risk *contaminated soil* poses to groundwater if left in the project corridor. Where *contaminated soil* cannot be managed without posing a threat to human health or the environment within the Tollway’s property, it is the Tollway policy to remove and landfill as a waste material, under the proper classifications of wastes, as described in the Tollway’s *Environmental Studies Manual* Section F.

3.0 OVERVIEW OF THE CCDD and UNCONTAMINATED SOIL REGULATIONS

The primary intent of the revisions to the Illinois Environmental Protection Act (PA96-1416) was to develop a workable definition of *uncontaminated soil*. The Pollution Control Board has decided that uniform Maximum Allowable Concentrations (MACs) should be established for the entire state. The regulations allow the use of background values for polynuclear aromatic compounds (PNAs) and arsenic, as developed in 35 Ill Adm Code 742 (742 regulations). The CCDD regulations are loosely based on the 742 regulations, but with significant differences. Under the 742 regulations, there are three pathways that are to be evaluated for soil contaminants:

- Soil migration to groundwater
- Ingestion
- Inhalation

Under the 742 regulations, engineering and institutional controls that can be used to manage risk and exclude pathways, as summarized in the following table:

Pathway	Engineering Control
Soil Migration to Groundwater	Groundwater Use Restriction to assure no water supply wells installed on property or the community.
Ingestion	Covered with concrete, asphalt or three feet of clean soil
Inhalation	Covered with concrete, asphalt or ten feet of clean soil

If a groundwater use restriction is placed on a property to exclude the future installation of groundwater supply wells, then the soil migration remedial objectives can be re-computed based on achieving

groundwater standards at the property line. If a community has a community-wide ordinance, this can be used to exclude the soil migration to groundwater pathway.

Under the CCDD regulations, no pathway exclusions are allowed, and the most restrictive pathway for each contaminant was used to establish the MACs for determining the acceptability of offsite placement in a former quarry.

Under the CCDD regulations, all samples involving Potentially Impacted Properties (PIPs) are to be grab samples for determining acceptability for offsite placement in a former quarry. Where no PIPs have been identified, composite sampling in accordance with the Tiered Approach to Corrective Action Objectives regulations is acceptable, should testing be conducted.

The CCDD and uncontaminated soil regulations are codified as 35 Ill. Adm. Code 1100. A brief summary of key portions of these regulations is presented below:

Section 1100.103 Definitions

“Potentially impacted property (PIP)” is intended to identify soil that is more likely to be contaminated and in need of professional evaluation and certification before placement in a fill site. The following should be considered when determining whether property is “potentially impacted property”: the current use of the property, prior uses of the property, and the uses of adjoining property. For example, for transportation rights of way or utility easements, the current use of the property as a right of way or easement, the uses of the property prior to its use as right of way or easement, and the uses of adjoining property should be considered.

Section 1100.205 Load Checking

For all soil, including when mixed with CCDD material, the receiving quarry must obtain:

A certificate (Form 662) from the source site owner or operator that the site is not a *potentially impacted property*, as determined by *ASTM E 1528-06, Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process* per the *Illinois State Toll Highway Authority “Environmental Studies Manual, Section F”* and is presumed to be uncontaminated soil. Note, the only analytical testing contemplated for such sites is soil pH, or

A certificate from a Professional Engineer (PE) or Professional Geologist (PG) (Form 663) that the soil is uncontaminated soil based on a site evaluation conducted in accordance with *ASTM E 1527-05 Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process for the Illinois State Toll Highway Authority “Environmental Studies Manual, Section F”*, or the *ASTM E1528-06* referenced previously. If no Potentially Impacted Properties (PIPs) are identified from the due diligence, no testing is contemplated. If a PIP is identified, then testing is required.

Load checking with a photoionization detector with a 10.6 eV lamp or greater is required at the receiving facility, and any load in excess of background levels is cause for rejection.

Rejected loads can be accepted at the CCDD facility if the owner demonstrates the reason for rejection has been addressed by measures which include testing or retesting of the material, with a revised certification.

For painted CCDD to be accepted, a certification from a PE or PG that the painted CCDD material satisfies the requirement of Section 1100.212, must be obtained.

Section 1100.212 Use of Painted CCDD as Fill Material

Painted CCDD must be tested for leachable metals (arsenic, cadmium, chromium, lead, mercury, and zinc) unless it originated from pavement markings, that complied with IDOT specifications, as found in Section 1095 of IDOT's "Specifications for Road and Bridge Construction." Painted CCDD must be accompanied by a PE or PG Certification. The Tollway will provide such forms to the Contractors.

Section 1100.605 Maximum Allowable Concentrations for Chemical Constituents in Uncontaminated Soils

As noted earlier, background concentrations for polynuclear aromatic compounds and arsenic can be used as the MACs for these compounds. For metals, there are three possible tests that can be done:

- Total metals compared to the mandatory soil pH 6.25 to 6.64 remedial objectives
- Synthetic Precipitation Leaching Procedure (SPLP) metals compared to drinking water standards
- Toxicity Characteristics Leaching Procedure (TCLP) metals compared to drinking water standards

Results will vary between *contaminated* and *uncontaminated*, depending upon the test method selected. For total arsenic, the background value has essentially been set at the 95th percentile of all uncontaminated soil in Illinois. Thus, 5% of the soil tested in Illinois will fail the total arsenic MAC, even though it is naturally occurring arsenic.

A table of the MACs as they currently exist is included in Appendix A of this document.

4.0 TOLLWAY CCDD GUIDELINES

The Tollway is in the process of pre-qualifying CCDD and uncontaminated soil fill sites throughout Illinois, based upon the expected guideline that will be used for all Tollway construction activity. Contractors will be required to use one or more of the pre-approved facilities, as long as the agreed upon guideline is followed. Should a Contractor elect to use an alternate facility for CCDD and uncontaminated soil, the Contractor shall be responsible for all testing, trucking, and tipping fees for proper disposal of all accepted and all rejected loads.

As outlined in Section F of Tollway's *Environmental Studies Manual*, the DSE is responsible for conducting a Phase I Environmental Site Assessment (ESA) in accordance with ASTM E 1527-97. This document will identify all *Recognized Environmental Conditions* (RECs), which is identical to the Part 1100 definition of *Potentially Impacted Property* (PIP). For the remainder of this document, these will be referred to as *PIPs*. It is imperative that this Phase I ESA be completed early in the design phase.

Once the Phase I ESA is completed, a Phase II study will be undertaken to investigate all PIPs, testing only for those compounds that are associated with each individual PIP. For example, if a gasoline station is identified as a PIP, testing will be limited to benzene, toluene, ethyl benzene, xylenes (BTEX) and

MTBE, plus for PNAs and total lead and soil pH. As a general rule, if there are no PIPs, no soil testing should be conducted, except a single sample for soil pH. Where PIPs have been identified, testing will be limited to the pollutants associated with the PIP and soil pH. This practice is consistent with ASTM Phase II protocols (E 1903). All sampling in areas of PIPs are to be grab samples, with samples collected from the surface to the expected depth of the cut, with continuous two foot thick samples. The number of borings is based on the frontage owned by facilities identified as PIPs and the specific contaminant. Also information received under a Freedom of Information Request can provide more exacting information on contaminant plumes.

The following is offered as general guidance on the number of borings associated for the more common PIPs:

Gasoline releases	2 borings
Heating oil releases	1 boring
Transformers	1 boring
Railroad crossings	2 borings, one each side of tracks
Dry cleaners	2 borings
Industrial Properties	1 boring per 200 ft

Metals require special comment. As noted above, there are three approaches to determining if metals achieve the MAC limits. The Tollway policy is to initially ANALYZE for TOTAL METALS, and never run TCLP metals to determine if soil is uncontaminated. Where a total test result exceeds an MAC, the DSE should immediately have the laboratory run SPLP metal for ONLY THE METAL(S) THAT FAILED THE SPLP MAC. The exception here is arsenic, where the 13 mg/kg total arsenic MAC must be achieved.

Arsenic also requires special note because of the Pollution Control Board's adoption of a MAC that will result in 5% of the soil in Illinois failing due to naturally occurring arsenic. The CCDD and Uncontaminated Soils law and regulations both contemplate testing only where PIPs are identified, and then only for contaminants associated with the PIP. Therefore, testing for arsenic should be limited to PIPs where arsenic use is associated. This would include; railroad crossings, pesticides, herbicides, and insecticide manufacturing, orchards, manicured lawns, such as golf course greens and tee boxes, where arsenic based insecticides were commonly used, semiconductor manufacturing; and optical electronic manufacturing. Outside of these types of locations, there is no reason to test for arsenic, as arsenic would not be a PIP. This policy is consistent with *ASTM E 1903* for conducting Phase II ESAs.

Upon completion of all required Phase I and Phase II (where appropriate) ESAs, the consulting firm responsible for conducting the environmental investigations will furnish the Tollway with the appropriate completed 662 for Tollway signature or signed and sealed 663 form with the final bid documents. The Tollway will in turn furnish the Construction Manager (CM) with the project's Tollway signed 662 or consultant signed and sealed 663 form as part of the conformed copy of the bid documents. Once the construction contract is awarded, the CM shall coordinate with the Contractor to determine the receiving facility that shall be utilized for the duration of the construction contract and furnish the selected facility

with the appropriate form along with an estimated volume/truck loads of material to be received at the site and the CM's contact information.

To minimize rejected loads, the Contractor is expected to have a 10.6 eV Photoionization Detector (PID meter) at the construction site to be available to screen loads going offsite. It is up to Contractor to decide if all loads need to be screened. However, it is the expectation that all loads will be screened when loads are being rejected, an odor is detected, and when earth moving activities are approaching a PIP.

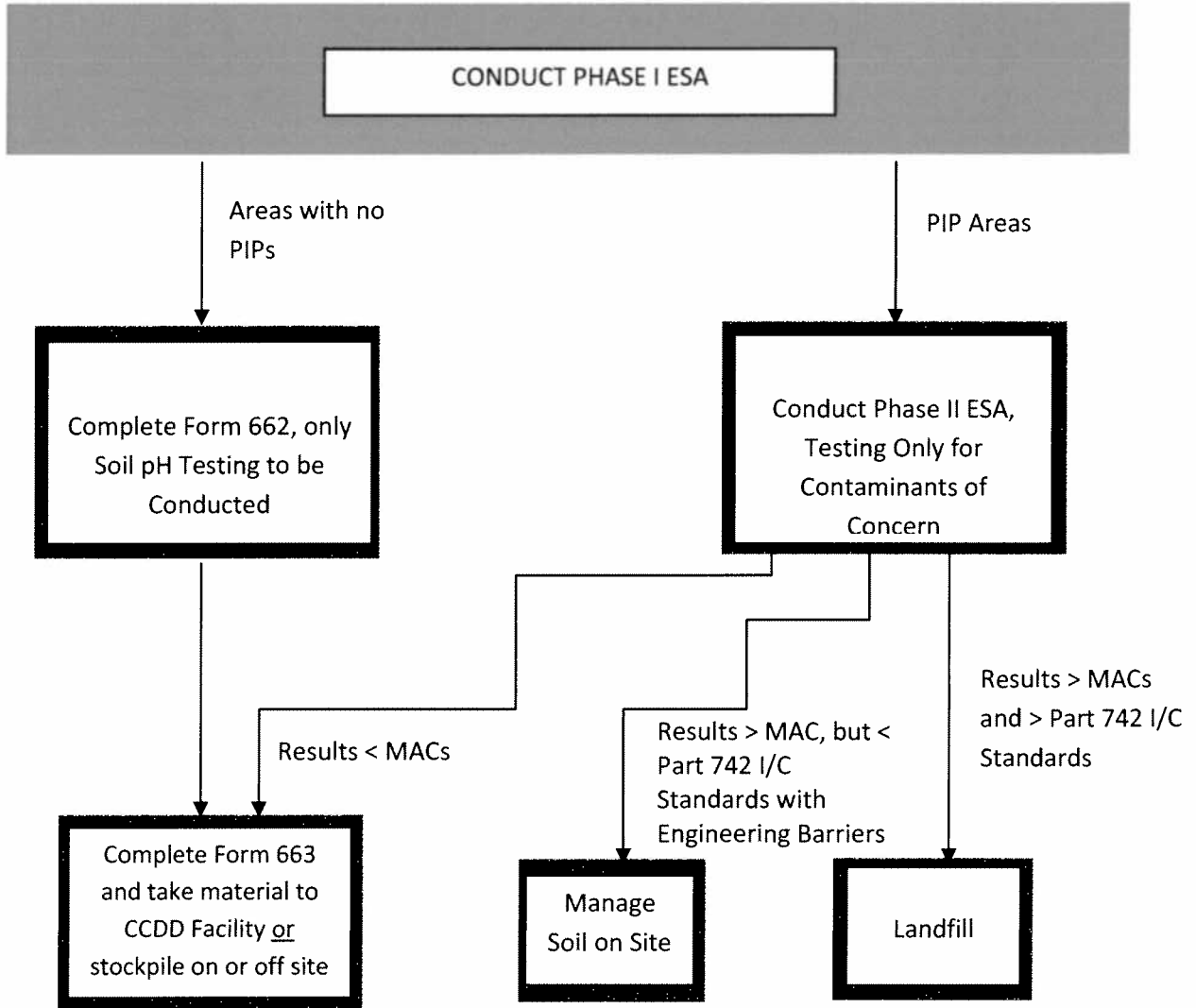
As noted previously, the definition of *uncontaminated* under the CCDD regulations is more restrictive than in any other program in Illinois. The Tollway's desire is to keep on site all contaminated soil that meets the Industrial/Commercial remedial objectives outlined in 35 Ill Adm. Code 742, taking advantage of engineered barriers as appropriate. Therefore, when a site is not balanced, the DSE should specify areas of *uncontaminated* soil to be taken to CCDD facilities and/or staging areas. Areas of suspected or known *contaminated* soil are to stay on site or be landfilled. Some *contaminated* soil will likely be discovered during construction. This soil should be tested by the CM, and then every effort made to keep on site if it meets the 35 Ill Adm. Code 742 remedial objectives.

For rejected loads, it is the expectation that the CCDD and uncontaminated fill sites will quarantine these loads and notify the CM. The CCDD and uncontaminated sites will test this material for the suspected contaminant (likely volatile organics, as that is the only class of contaminants that is detected by a photoionization detector). The results will be shared with the CM, and if contaminated, the CM will make arrangements to have the quarantined material picked up and either brought back to the site to manage or arrange for landfilling.

5.0 Closing

The Tollway's policy is to maximize reuse of soils excavated during construction to the maximum extent possible, while being protective of human health and the environment. Identifying PIPs and subsequent soils testing is critical to progressing the construction program under the schedule and cost commitments made by the Tollway.

SOILS MANAGEMENT FLOW CHART



**Summary of
Maximum Allowable Concentrations of Chemical Constituents
In Uncontaminated Soil Used as Fill Material
At Regulated Fill Operations
(35 Ill. Adm. Code 1100.Subpart F)**

Chemical Name	Maximum Allowable Concentration ^a
Acenaphthene	570b mg/kg
Acetone	25b mg/kg
Alachlor	0.04b mg/kg
Aldicarb	0.013b,l mg/kg
Aldrin	0.94c mg/kg
Anthracene	12,000b mg/kg
Antimony	5d,m mg/kg
Arsenic:	
within a MSA county	13.0e mg/kg
within a non-MSA county	11.3e mg/kg
Atrazine	0.066b mg/kg
Barium	1,500d,m mg/kg
Benzene	0.03b mg/kg
Benzo(a)anthracene:	
within Chicago corporate limits	1.1f mg/kg
within a populated area in a MSA excluding Chicago	1.8f mg/kg
within a populated area in a non-MSA county or outside a populated area	0.9g mg/kg
Benzo(b)fluoranthene:	
within Chicago corporate limits	1.5f mg/kg
within a populated area in a MSA excluding Chicago	2.1f mg/kg
within a populated area in a non-MSA county or outside a populated area	0.9g mg/kg
Benzo(k)fluoranthene	9g mg/kg

Chemical Name	Maximum Allowable Concentration ^a
Benzoic Acid	400d mg/kg
Benzo(a)pyrene:	
within Chicago corporate limits	1.3f mg/kg
within a populated area in a MSA excluding Chicago	2.1f mg/kg
within a populated area in a non-MSA county	0.98f mg/kg
outside a populated area	0.09g mg/kg
Beryllium	22d,m mg/kg
Bis(2-chloroethyl)ether	0.66c mg/kg
Bis(2-ethylhexyl)phthalate	46g mg/kg
Boron	40h,m mg/kg
Bromodichloromethane (Dichlorobromomethane)	0.6b mg/kg
Bromoform	0.8b mg/kg
Butanol	17b mg/kg
Butyl benzyl phthalate	930i mg/kg
Cadmium	5.2d,m mg/kg
Calcium	---j
Carbazole	0.6b mg/kg
Carbofuran	0.22b,1 mg/kg
Carbon disulfide	9g mg/kg
Carbon tetrachloride	0.07b mg/kg
Chlordane	1.8g mg/kg
Chloride	4,000h,m mg/kg
4-Chloroaniline (<i>p</i> -Chloroaniline)	0.7b mg/kg
Chlorobenzene (Monochlorobenzene)	1b mg/kg
Chlorodibromomethane (Dibromochloromethane)	0.4b mg/kg
Chloroform	0.3g mg/kg
2-Chlorophenol	1.5d mg/kg
Chromium, total	21d,m mg/kg
Chrysene	88g mg/kg
Cobalt	20h,m mg/kg
Copper	2,900g

Chemical Name	Maximum Allowable Concentration ^a
Cyanide	40d,m mg/kg
2,4-D	1.5b mg/kg
Dalapon	0.85b mg/kg
DDD	3g mg/kg
DDE	2g mg/kg
DDT	2g mg/kg
Dibenzo(<i>a,h</i>)anthracene:	
within Chicago corporate limits	0.20f mg/kg
within a populated area in a MSA excluding Chicago	0.42f mg/kg
within a populated area in a non-MSA county	0.15f mg/kg
outside a populated area	0.09g mg/kg
1,2-Dibromo-3-chloropropane	0.002b mg/kg
1,2-Dibromoethane (Ethylene dibromide)	0.005c mg/kg
Di-n-butyl phthalate	2,300i mg/kg
1,2-Dichlorobenzene (<i>o</i> – Dichlorobenzene)	17b mg/kg
1,4-Dichlorobenzene (<i>p</i> – Dichlorobenzene)	2b mg/kg
3,3'-Dichlorobenzidine	1.3c mg/kg
1,1-Dichloroethane	23b mg/kg
1,2-Dichloroethane (Ethylene dichloride)	0.02b mg/kg
1,1-Dichloroethylene	0.06b mg/kg
<i>cis</i> -1,2-Dichloroethylene	0.4b mg/kg
<i>trans</i> -1,2-Dichloroethylene	0.7b mg/kg
2,4-Dichlorophenol	0.48d mg/kg
1,2-Dichloropropane	0.03b mg/kg
1,3-Dichloropropene (1,3- Dichloropropylene, <i>cis</i> + <i>trans</i>)	0.005c mg/kg
Dieldrin	0.603c mg/kg
Diethyl phthalate	470b mg/kg
2,4-Dimethylphenol	9b mg/kg
2,4-Dinitrophenol	3.3c mg/kg
2,4-Dinitrotoluene	0.25c mg/kg
2,6-Dinitrotoluene	0.26c mg/kg

Chemical Name	Maximum Allowable Concentration ^a
Dinoseb	0.25d <i>mg/kg</i>
Di-n-octyl phthalate	1,600g <i>mg/kg</i>
Endosulfan	18b <i>mg/kg</i>
Endothall	0.4b,l <i>mg/kg</i>
Endrin	1b <i>mg/kg</i>
Ethylbenzene	13b <i>mg/kg</i>
Fluoranthene	3,100g <i>mg/kg</i>
Fluorene	560b <i>mg/kg</i>
Fluoride	80h,m <i>mg/kg</i>
Heptachlor	0.871c <i>mg/kg</i>
Heptachlor epoxide	1.005c <i>mg/kg</i>
Hexachlorobenzene	0.4g <i>mg/kg</i>
<i>Alpha</i> -HCH (<i>alpha</i> -BHC)	0.0074c <i>mg/kg</i>
<i>Gamma</i> -HCH (Lindane)	0.009b <i>mg/kg</i>
Hexachlorocyclopentadiene	1.1g <i>mg/kg</i>
Hexachloroethane	0.5b <i>mg/kg</i>
Indeno(1,2,3- <i>c,d</i>)pyrene:	
within a populated area in a MSA excluding Chicago	1.6f <i>mg/kg</i>
within Chicago corporate limits or within a populated area in a non-MSA county or outside a populated area	0.9g <i>mg/kg</i>
Iron:	
within a MSA county	15,900e,m <i>mg/kg</i>
within a non-MSA county	15,000e,m <i>mg/kg</i>
Isophorone	8b <i>mg/kg</i>
Lead	107d,m <i>mg/kg</i>
Magnesium	325,000g <i>mg/kg</i>
Manganese:	
within a MSA county	636e,m <i>mg/kg</i>
within a non-MSA county	630e,m <i>mg/kg</i>
Mercury:	
elemental	0.1g,n <i>mg/kg</i>

Chemical Name	Maximum Allowable Concentration ^a
Mercury:	
ionic	0.89d,m,n <i>mg/kg</i>
Methoxychlor	160b <i>mg/kg</i>
Methyl bromide (Bromomethane)	0.2b <i>mg/kg</i>
Methyl tertiary-butyl ether	0.32b <i>mg/kg</i>
Methylene chloride (Dichloromethane)	0.02b <i>mg/kg</i>
2-Methylphenol (<i>o</i> – Cresol)	15b <i>mg/kg</i>
Naphthalene	1.8g <i>mg/kg</i>
Nickel	100d,m <i>mg/kg</i>
Nitrate as N	200h,m <i>mg/kg</i>
Nitrobenzene	0.26c <i>mg/kg</i>
<i>N</i> -Nitrosodiphenylamine	1b <i>mg/kg</i>
<i>N</i> -Nitrosodi- <i>n</i> -propylamine	0.0018c <i>mg/kg</i>
Pentachlorophenol	0.02d <i>mg/kg</i>
Phenol	100b <i>mg/kg</i>
Phosphorus	---j
Picloram	2b <i>mg/kg</i>
Polychlorinated biphenyls (PCBs)	1k <i>mg/kg</i>
Potassium	---j
Pyrene	2,300g <i>mg/kg</i>
Selenium	1.3d,m <i>mg/kg</i>
Silver	4.4d,m <i>mg/kg</i>
Simazine	0.04b <i>mg/kg</i>
Sodium	---j
Styrene	4b <i>mg/kg</i>
Sulfate	8,000h,m <i>mg/kg</i>
Tetrachloroethylene (Perchloroethylene)	0.06b <i>mg/kg</i>
Thallium	2.6d,m <i>mg/kg</i>
Toluene	12b <i>mg/kg</i>
Toxaphene	0.6g <i>mg/kg</i>
2,4,5-TP (Silvex)	11d <i>mg/kg</i>

Chemical Name	Maximum Allowable Concentration ^a
1,2,4-Trichlorobenzene	5b mg/kg
1,1,1-Trichloroethane	2b mg/kg
1,1,2-Trichloroethane	0.02b mg/kg
Trichloroethylene	0.06b mg/kg
2,4,5-Trichlorophenol	26d mg/kg
2,4,6-Trichlorophenol	0.66c mg/kg
Vanadium	550g mg/kg
Vinyl acetate	10g mg/kg
Vinyl chloride	0.01b mg/kg
m-Xylene	6.4g mg/kg
o-Xylene	6.5g mg/kg
p-Xylene	5.9g mg/kg
Xylenes (total)	5.6g mg/kg
Zinc	5,100d,m mg/kg

^a = Concentrations are the results after using methods described in 35 IAC 1100.Subpart F for determining the Maximum Allowable Concentrations of chemical constituents in uncontaminated soils used as fill material at regulated fill operations.

^b = Value is the TACO Class I Soil Component of the Groundwater Ingestion Exposure Route concentration (35 IAC 742.Appendix B, Tables A and B).

^c = Value is the TACO-defined Acceptable Detection Limit (ADL) for the chemical in soil.

^d = Value is the lowest TACO Class I concentration between column range 6.25 to 6.64 and column range 8.75 to 9.0 from the pH-Specific Soil Remediation Objectives table for Inorganic and Ionizing Organic Chemicals for the Soil Component of the Groundwater Ingestion Route (35 IAC 742.Appendix B, Table C). (See 35 IAC 1100.605(a)(2); 1100.605(a)(3)(A)).

^e = Value is the location-specific allowable concentration based upon TACO-defined background values for inorganic chemicals (35 IAC 742.Appendix A, Table G). The location of the fill site determines the allowable concentration. Two background locations are defined; one for counties that are designated as Metropolitan Statistical Areas (MSA) (see Board Note, 35 IAC 742.Appendix A, Table G), the other for counties designated as a non-MSA.

^f = Value is the location-specific allowable concentration based upon TACO-defined background values for polynuclear aromatic hydrocarbon chemicals (35 IAC 742.Appendix A, Table H). The location of the fill site determines the allowable concentration. Three background locations are defined; one for areas within the corporate limits of the City of Chicago, another for populated areas (defined at 35 IAC 742.200) in counties that are designated as Metropolitan Statistical Areas (MSA) (see Board Note, 35 IAC 742.Appendix A, Table G) excluding the City of Chicago, and the third for populated areas within non-MSA counties. No background concentrations have been defined for locations outside of populated areas; therefore, the

maximum allowable concentrations in these locations are determined using 35 IAC 1100.Subpart F.

^g = Value is the lowest TACO Soil Remediation Objective by the ingestion or inhalation routes of exposure for the Residential and Construction Worker receptors (35 IAC 742.Appendix B, Tables A and B). When applicable, definitions for “MSA” and “populated area” are presented in 35 IAC 742.Appendix A, Table H and 35 IAC 742.200, respectively.

^h = Value is the TACO Class I Soil Component of the Groundwater Ingestion Exposure Route value multiplied by 20.

ⁱ = Soil saturation concentration (C_{sat}).

^j = This chemical is of no concern for soil ingestion and no data are available to assess other routes of exposure. There is no soil concentration limit established for this constituent.

^k = Value for PCBs is the highest allowable concentration requiring no controls based on USEPA TSCA (40 CFR 761) policy.

^l = SW-846 methods may not support analytical detection at the concentration specified. Modified or alternative methods may be required to achieve the lowest practical detection level possible.

^m = As an alternative to the subject maximum allowable concentration value, compliance verification may be determined by comparing soil sample extraction results (TCLP/SPLP) for this constituent to the respective TACO Class I Soil Component of the Groundwater Ingestion Exposure Route objective (35 Ill. Admin. Code 742.Appendix B, Table A). (See 35 IAC 1100.610(b)(1)(B); 1100.610(b)(3)(C)).

ⁿ = Elemental mercury is an inhalation hazard and is evaluated based upon the IRIS inhalation reference concentration for elemental mercury (CAS No. 7439-97-6). All other forms of mercury are evaluated using the IRIS oral reference dose for mercuric chloride (CAS No. 7487-94-7). The inhalation MAC only applies where elemental mercury is a contaminant of concern; the MAC for ionic mercury applies everywhere.



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Chief Engineer

01/18/13

Date