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Environmental Affairs, Department of

General Notice

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GENERAL NOTICE

NOTICE 233 OF 2012

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008)

DRAFT NATIONAL NORMS AND STANDARDS FOR THE REMEDIATION OF CONTAMINATED LAND AND SOIL QUALITY

I, Bomo Edith Edna Molewa, Minister of Water and Environmental Affairs, hereby give notice of my intention, under section 7(2)(d) read together with section 73 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), to set national norms and standards for the remediation of contaminated land and soil quality as set out in the Schedule hereto.

Members of the public are invited to submit to the Minister, within sixty (60) days of publication of this notice in the Gazette, written representations or objections to the following addresses:

By post to: The Director General
 Department of Environmental Affairs
 Attention: Mr Thendo Nethengwe
 Private Bag X447
 Pretoria
 0001

By hand at: 2nd Floor (Reception), Fedsure Forum Building, 315 Pretorius Street, Pretoria, 0001
By e-mail: tnethengwe@environment.gov.za, or by Fax to: (012) 310 3753 or Tel (012) 310 3897.

The draft Norms and Standards can be accessed at www.sawic.org.za under **Documents for comment** or obtained in the Department's offices.

Comments received after the closing date may not be considered.



BOMO EDITH EDNA MOLEWA

MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

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DEFINITIONS

In these Norms and Standards, unless the context indicates otherwise, a word or an expression that is defined in the National Environmental Management: Waste Act, 2008 and the National Environmental Management Act, 1998 (Act No. 107 of 1998), has the same meaning, and—

“**contaminant**” refers to biological, chemical, physical or radiological substance present in an environmental medium at concentrations which can cause adverse effect on living organisms;

“**exposure**” refers to contact between a contaminant and a receptor;

“**monitoring**” means the continuous or non-continuous measurement of a concentration, or other parameters for purpose of assessment or control of environmental quality or exposure, and the interpretation of such measurements;

“**remediation**” means the interim or permanent elimination through mitigation or abatement of toxic or biohazard contaminants that pose human health consequences or threats to the environment;

“**Soil Screening Value 1**” refers to soil quality values that are protective of both human health and eco-toxicological risk for multi-exposure pathways, inclusive of contaminant migration to the water resource;

“**Soil Screening Value 2**” refers to soil quality values that are protective of risk to human health in the absence of a water resource;

“**Toxicity**” refers to the inherent property of a substance to cause injury or an adverse effect in a living organism.

LIST OF ACRONYMS

DEA: Department of Environmental Affairs

NEMA: National Environmental Management Act, 1998 (Act No. 107 of 1998)

NEM: WA: National Environmental Management: Waste Act, 2008 (Act No.59 of 2008)

SSVs: Soil Screening Values

CHAPTER 1 BACKGROUND AND PURPOSE OF NORMS AND STANDARDS

1. Background

The Constitution of the Republic South Africa, 1996 makes the provision for environmental protection for the benefit of the present and future generations and the right to an environment that is not harmful to human health and well-being. The DEA thus fulfill and continue to fulfill these rights through the application of the NEMA and any other Specific Environmental Management Acts (SEMAs) among other tools. Section 2 of NEMA introduces a number of guiding principles into South African environmental legislation. NEMA also places duty of care on any person who has caused or may cause significant pollution or degradation to the environment to take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring. Where pollution cannot be reasonably be avoided or stopped, measures must be put in place to minimize or rectify such pollution or degradation of the environment.

NEM: WA seeks to regulate waste management in order to protect health and environment by providing reasonable measures, including the provision of the remediation of contaminated land. Section 7(2)(d) of the NEM: WA requires the Minister to set National Norms and Standards for the remediation of contaminated land and soil quality. These norms and standards have been developed as part of the implementation of Part 8 of NEM: WA which provides for the remediation of contaminated areas. The remediation of contaminated land forms part of a comprehensive environmental strategy for the sustainable management of environmental resources in South Africa.

The development of SSVs to protect human health via direct exposures routes and indirect exposure routes is the key starting point. Numerical criteria for priority contaminants of concern have been determined so that they can be used to define appropriate management actions.

2. Purpose

The purpose of these norms and standards is to:

- (a) Provide for a uniform national approach relating to the remediation of contaminated sites;
- (b) Limit uncertainties about the most appropriate criteria and method to apply in the assessment of contaminated land; and
- (c) Provide minimum standards for:
 - (i) Assessing necessary environmental protection measures for remediation activities;
 - (ii) Sampling and analysis of contaminated areas; and
 - (iii) The sites that do not need to undergo site specific assessment.

3. Application

The requirements set out in these norms and standards apply to any person who undertakes any remediation activity within South Africa.

4. Scope of these Norms and Standards

- (1) These norms and standards may only be used for the remediation of sites contaminated with compounds listed in Table 1 & 2. In case where a contaminant has not been listed in Table 1 or 2 the remediation plan must indicate the levels at which the contaminants will be remediated to.
- (2) The SSVs in Table 1 & 2 should not be seen as—
 - (a) absolute minimum values as the Minister or MEC may request the landowner to remediate beyond the SSVs specified in these Norms and Standards or Remediation Plan;
 - (b) screening values applicable to occupational exposures;
 - (c) a substitute for a thorough site assessment as may be required in terms of regulations published in terms of Section 69(1)(v) of NEM: WA.

CHAPTER 2
SOIL SCREENING VALUES

5. Soil Screening Values

The contaminated site must be remediated to the levels as per Table 1 and 2 below. However, Section 4 of these Norms and Standards should also be taken into consideration.

Table 1: Soil Screening Values for Metals and Organics

Parameter	Units	SSV1	SSV2	SSV2	SSV2	Protection of Ecosystem Health
		All Land-Uses Protective of the Water Resource	Informal Residential	Standard Residential	Commercial/Industrial	
Metals and metalloids						
Arsenic	mg/kg	5.8	23	48	150	580
Cadmium	mg/kg	7.5	15	32	260	37
Chromium (III)	mg/kg	46,000	46,000	96,000	790,000	n/a
Chromium (VI)	mg/kg	6.5	6.5	13	40	260
Cobalt	mg/kg	300	300	630	5,000	22,000
Copper	mg/kg	16	1,100	2,300	19,000	16
Lead	mg/kg	20	110	230	1,900	100
Manganese	mg/kg	740	740	1,500	12,000	36,000
Mercury	mg/kg	0.93	0.93	1.0	6.5	4.1
Nickel	mg/kg	91	620	1,200	10,000	1,400
Vanadium	mg/kg	150	150	320	2,600	-
Zinc	mg/kg	240	9,200	19,000	150,000	240
Petroleum Organics						
Alkanes						
C7-C9	mg/kg	2,300	2,300	2,400	23,000	-
C10-C14	mg/kg	440	440	500	4,400	-
C15-C36	mg/kg	45,000	45,000	91,000	740,000	-
MAHs						
Benzene	mg/kg	0.03	13	1.4	10	81
Toluene	mg/kg	25	120	120	1,100	170
Ethylbenzene	mg/kg	26	57	60	540	1,700

Parameter	Units	SSV1	SSV2	SSV2	SSV2	Protection of Ecosystem Health
		All Land-Uses Protective of the Water Resource	Informal Residential	Standard Residential	Commercial/ Industrial	
Xylenes	mg/kg	45	91	95	890	260
Aromatics						
Naphthalene	mg/kg	28	28	33	290	28
Pyrene	mg/kg	5.3	920	1,900	15,000	5.3
Benzo(a)pyrene	mg/kg	0.34	0.34	0.71	1.7	280
Petroleum Additives						
MTBE	mg/kg	0.0036	360	370	5,800	810
Organics						
Carbon Tetrachloride	mg/kg	0.25	0.27	0.26	4	62
Chlorobenzene	mg/kg	620	620	1,200	10,000	960
Chloroform	mg/kg	0.11	0.11	0.11	1.7	11
2 Chlorophenol	mg/kg	140	150	320	2,600	140
1,2 Dichlorobenzene	mg/kg	89	2,700	5,800	47,000	1,400
1,4-Dichlorobenzene	mg/kg	26	1,100	1,200	19,000	520
1,2-Dichloroethane	mg/kg	0.23	0.23	0.24	3.7	2,400
1,1 Dichloroethene	mg/kg	10	10	10	150	-
1,2 Dichloroethene	mg/kg	0.4	620	1,200	10,000	18
Trichlorobenzenes (total)	mg/kg	0.069	310	650	5,300	0 14
Nitrobenzene	mg/kg	2.8	2.8	2.9	45	710
1,1,2,2	mg/kg	0.32	0.32	0.34	5	
Tetrachloroethane						190
2,4,6-Trichlorophenol	mg/kg	4	210	320	1,800	-
Vinyl Chloride	mg/kg	0.0037	0.10	0.11	1.5	-
PCBs	mg/kg	0.61	1.7	3.6	11	n/a
Cyanide	mg/kg	14	620	1,200	10,000	20

Table 2: Soil Screening Values for Anions

Anions	Soil Screening Level (mg/kg)
Chlorides	12 000
Fluorides	30
Nitrates-nitrite	120
Sulphates	4000

CHAPTER 3
GENERAL PROVISIONS

6. Access Control and Notices

- (1) Access to remediation area must be limited to employees who have been trained with respect to the remediation of contaminated land, emergency response procedures and any other person authorized by the landowner or any person delegated by the landowner.
- (2) Authorized entry must be received from the landowner or a person delegated by the landowner, with exception of government officials, who may be undertaking audits or inspections.

7. General Requirements for the Management of Remediation Activities

- (1) Immediate action must be taken to ensure that migration of compounds does not occur or that impacts are not aggravated as a result of remediation activities.
- (2) Contaminated soil and any waste materials must be stored in an area that is capable of preventing migration of any potentially harmful compounds.
- (3) No on-site burying or dumping of contaminated material or soil should take place.
- (4) All contaminated soil or material handled during the remediation activities must be disposed of at an appropriate licensed waste disposal site.
- (5) Any material or soil imported to the site for remediation activities should be analyzed before it can be used for on-site remediation or stabilization.
- (6) Measures must be taken to curb dust during and after remediation.
- (7) No exotic plant species may be used for rehabilitation purposes.
- (8) All contaminated soil should be kept in a manner that will reduce the possibility of the loss of soil in the event of precipitation.
- (9) Contaminated soil or material should not be stockpiled in areas where surface water may accumulate, in drainage channels or areas susceptible to erosion.
- (10) Under no circumstance should contaminated material supplies be placed on adjacent properties, roads or road reserves during and after the remediation activities.

8. Training

- (1) Training must be provided to all employees including contract workers working on remediation activities that might be exposed to contaminants.
- (2) The training programme must include the following:
 - (a) Precautionary measures that need to be taken;
 - (b) Procedures that they need to apply to their particular type of work;
 - (c) Procedures for dealing with potential migration of contaminants as a result of remedial works;
 - (d) Appropriate use of protective clothing; and
 - (e) The risks of the hazardous substances to their health which they are likely to be exposed to.

9. Emergency Preparedness Plan

Remediation sites must have an emergency preparedness plan that must include the following:

- (a) Hazard identification;
- (b) Prevention measures;
- (c) Emergency planning;
- (d) Emergency response; and
- (e) Remedial actions.

10. Monitoring and Inspection

It is the responsibility of the landowner to ensure that an ongoing management and monitoring of remediation activities is carried out until the site is fully rehabilitated and declared free of any contamination or harmful substances.

11. Auditing**(1) Internal Audits**

Internal audits must be conducted bi-annually for remediation activities that will take more than two years for the site to be declared clean, and on each audit occasion an official report must be compiled by the internal auditor to report the findings of the audits, which must be made available to the external auditor.

(2) External Audits

- (a) An independent external auditor must be appointed to audit the remediation activities annually for the sites that require remediation for more than two years, and compile an audit report documenting the findings of the audit, which may be submitted to the relevant authority.
- (b) An external audit must be undertaken after the completion of all remediation activities.
- (c) The audit report must:
 - (i) specifically state whether, conditions of these standards are adhered to;
 - (ii) include an interpretation of all available data and test results regarding the remedial work and all its impacts on the environment;
 - (iii) specify target dates for the implementation of the recommendations to achieve compliance;
 - (iv) contain recommendations regarding non-compliance or potential non-compliance and must specify target dates for the implementation of the recommendations and

- whether corrective action taken for the previous audit non conformities was adequate;
and
(v) show monitoring results graphically and conduct trend analysis.

12. Reporting

- (1) Any emergency incident must be dealt with in accordance with sections 28 or 30 of NEMA, whichever is applicable under the circumstances.
- (2) A detailed report must be submitted to the relevant authority after proper rehabilitation has taken place, and the landowner is satisfied that the disturbed area has been returned almost to its natural state. The report should include the monitoring activities that will be undertaken until the site is able to sustain itself.
- (3) All remediation activities must be registered with the relevant authority in terms of section 41 of NEM: WA on the Contaminated Land Register.
- (4) Complaints register must be made available to the external auditor and the government auditors.

13. Records

- (1) Records relating to deviation from these norms and standards must be recorded and made available to the relevant authority when requested;
- (2) Records must be kept for a minimum of five (5) years and must also be available for inspection.

CHAPTER 4 MISCELLANEOUS

14. Transitional Arrangements

Any person who is remediating a contaminated site in compliance with a directive issued by the Department of Water Affairs or a waste management licence, should continue to comply with the conditions as set out in the directive or a waste management licence.

15. Short Title and Commencement

These Norms and Standards are called the Norms and Standards for the Remediation of Contaminated Land and Soil Quality in South Africa, and take effect on a date determined by the Minister in the *Gazette*.
