ETHEKWINI WATER AND SANITATION UNIT

POLICY FOR THE INSTALLATION OF PRIVATELY OWNED LOW VOLUME DOMESTIC SEWAGE TREATMENT SYSTEMS

September 2005

CONTENTS

1. PURPOSE AND SCOPE

1.1 This Policy has been prepared for Developers, Professionals, Property Owners and Treatment Plant suppliers seeking approval from the eThekwini Water and Sanitation Unit for the "on-site" treatment of domestic wastewater where:

a) the application falls within the scope of the Department of Water Affairs and Forestry General Authorisations [1]

b) the discharge is less than 2MR/day.

c) the disposal of the treated wastewater is to a natural surface watercourse.

d) Extraordinary terrain or geological conditions are not prevalent.

1.2 This Policy applies

a) to the treatment of domestic wastewater[2] only. As such it excludes consideration of wastewater arising from any commercial or industrial activities[3]. However, the case of a predominantly residential estate development incorporating a small component of "non-domestic" activity (e.g. a restaurant or frail care centre) contributing less than 20% of the total wastewater loading, is included.

With the above exception privately owned sewage treatment plants treating wastewater from any commercial or industrial activity will not be permitted.

b) to all applications for new treatment plant installations and where existing plants are to be replaced or extended.

1.3 This Policy excludes

the disposal of treated wastewater by surface irrigation for any purpose other than crop production and cultivation of pasture. In the absence of a Department of Water Affairs and Forestry General Authorisation covering the case of the use of treated effluent for the irrigation of gardens or other public or private areas where human contact is likely, a licence application must be made to Department of Water Affairs and Forestry for such use.

1.4 Plants currently in operation at the time of commencement of this Policy will continue to be regulated jointly with the Department of Water Affairs and Forestry, in accordance with the principle of "best practicable environmental option".

1.5 Separate approvals for the installation of an on-site sewage treatment plant are required from

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[1] "General Authorisation 3", published by DWAF in terms of the National Water Act 1998 (Act No. 36 of 1998), in Government Notice No. 1191 dated 8 October 1999, as amended by Government Notice No. 399 dated 26 March 2004 and as may be further amended from time to time.

[2] Domestic Wastewater for the purpose of the guidelines is defined as normal domestic household wastewater.

[3] Wastewater from industrial and commercial undertakings shall include, but is not limited to, wastewater from garages, restaurants, shopping centres which might include food outlets of any nature, hairdressers, laundries and frail care / nursing centres.

a) Department of Water Affairs and Forestry in order to comply with the National Water Act 1998[1].

b) The KZN Provincial Department of Agriculture and Environmental Affairs in order to comply with the Environment Conservation Act 1989 and / or the National Environmental Management Act, 1998.

c) eThekwini Health Department in terms of the Scheduled Trades and Occupations Bylaws.

1.6 Water Services Provider Agreements

Should a developer be contemplating one treatment plant to cater for the wastewater from several adjacent freehold sites early discussion needs to take place with eThekwini Water and Sanitation Unit and Department of Water Affairs and Forestry regarding the feasibility and acceptability of such an arrangement.

1.7 A separate Guideline document is available where the on-site disposal of domestic sewage via septic tanks and sub-surface soak-aways is being considered by the Developer.

2. APPLICATION TO ETHEKWINI WATER AND SANITATION UNIT

2.1 In the process of seeking planning permission and / or approval in terms of the National Building Regulations from the Council in the case of a proposed development involving / requiring the provision of an on-site sewage treatment and disposal system, or in the case of the proposed installation of such a system on an existing (developed) property, application must be made to the eThekwini Water and Sanitation Unit (EWS) for approval to install such an on-site sewage treatment plant / system (hereinafter referred to as the "Plant").

2.2 The information listed in Annexure 1 must be submitted with the application.

2.3 Any approval that may be granted will be in writing and will be deemed to be subject to the conditions and minimum requirements detailed in Section 3 of this document plus any other requirements that may be imposed in instances where special circumstances exist as may be deemed necessary by the Head : Water and Sanitation.

If approved EWS will register the plant and institute periodic inspection and sampling of the installed plant for the purpose of effluent compliance auditing for which a charge will be levied in accordance with the Council's tariff of charges. (Any further cost incurred by the Council, such as additional audits due to non compliance, will be at the rate based on the full cost for the service rendered, as required in the "Polluter Pays" principle of the National Environmental Management Act).

The development, together with all future extensions / alterations / sub-divisions, will be subject to the limitations imposed by the approval issued and the relevant bylaws.

3. MINIMUM REQUIREMENTS AND CONDITIONS FOR APPROVAL OF A PLANT INSTALLATION

3.1 Effluent Quality Requirements

When the proposed discharge of treated wastewater is into a watercourse, either directly or via a constructed stormwater drain, the Unit will require quality compliance with the "General Limit Values" (GLVs) (see Annexure 2).

As these are national standards no local relaxation of these values is possible; however, these can be made stricter at local level if a procedurally fair and transparent process is followed.

The only alternatives to full compliance with the GLVs is for the applicant to make a "licence" application to DWAF or to motivate for the introduction of "catchment specific" limits.

3.2 Discharge via a Council Stormwater Drain

Discharge of treated wastewater from a plant via a Council stormwater drain will only be considered under exceptional circumstances if

- No alternative of direct discharge to a watercourse is reasonably available.
- Irrigation of crops or pasture within the property is not possible.
- Irrigation of crops or pasture within an adjacent property (in terms of an agreement written into the Title Deeds) is not possible.

Treated wastewater discharging into a constructed open channel stormwater drain will be visually unacceptable and unlikely to meet approval.

Application for treated wastewater to discharge into a constructed stormwater channel or drain must be accompanied by a certificate from the Municipality's Coastal, Stormwater and Catchment Management Department that the constructed channel or drain has sufficient capacity to accept the additional effluent discharge or the accumulation of wastewater discharges at design storm flows.

For discharge to stormwater EWS may require additional sampling / monitoring.

Any privately owned pipe crossing an adjacent property to discharge to a stormwater system (or to a watercourse) shall require an agreement written into the Title Deeds.

3.3 Prior Approval in Terms of Guideline 8

No application for approval of a plant installation will be considered unless there has been prior approval of the plant by EWS in terms of Guideline 8. (attached as Annexure 4)

3.4 Application by Professional Engineer / Professional Technologist

Application for approval must be made to eThekwini Water and Sanitation whenever the installation of a small or "package-type" sewage treatment plant on a particular (private) property / development is contemplated. Such application must be made by a professional engineer / technologist (appointed by and acting on behalf of the Developer / Home Owner) who will undertake the design / selection and supervise the installation, construction and commissioning of the plant.

3.5 Financial Guarantee

Except in the case of a single house unit[4], any approval which might be given will be subject to the Developer lodging a bank guarantee in favour of the Municipality in a sum equivalent to 1,5 times the cost of the design, supervision, installation, construction and commissioning of the plant or such reasonable sum as may be decided by the Head : Water and Sanitation. The above financial guarantee is to be for a duration of 5 years commencing from the date of completion of successful commissioning of the plant and is to be lodged with the Head : Water and Sanitation at 3 Prior Road, Durban at the time of commissioning and when the full cost is known.

The purpose of the bank guarantee is to hold the Developer responsible for the performance of the plant, for the above five year period, for achieving compliance, at all material times - as determined through monitoring and compliance protocols agreed between DWAF and EWS - with the "General Limit Values".

In the event that there is inadequate compliance with the GLVs the sum held under the bank guarantee may be used by the eThekwini Municipality to alter or replace all or part of the installed plant.

Single household installations will not require such a bank guarantee.

3.6 Operation and Maintenance Service Contract

In addition to the design, supervision, installation, construction and commissioning, the application by the professional engineer / technologist must be accompanied by a commitment from the Developer / Home Owner that he/she will enter into a five year contract with the professional engineer / technologist submitting the application (to cover the same period as covered by the financial guarantee) for ensuring adequate operational control, monitoring and maintenance of the plant. This requirement will be for all plants, with the exception of single house units, where the home owner will be required to enter into a three year contract.

3.7 Assignment of Rights and Obligations referred to in 3.6 above

[4] For the purpose of this Policy Guideline a single house unit is deemed to be one that does not generate more than 1,4kℓ/day of sewage for treatment and disposal (as given in the National Building Regulations, PP10.4, Table 1, for a 5 bed-roomed dwelling house) and / or does not have more than 5 bedrooms.

The professional engineer / technologist submitting an application will be required to satisfy the Head that:

In those circumstances when the service contract commitment is provided initially by the Developer, the management rules of the Body Corporate, shall

(a) make provision for the assignment to the Body Corporate of all rights and obligations of the service contract commitment, and

(b) make provision for, once the above contract expires, a similar service contract to be entered into with a professional engineer / technologist in respect of the plant, such that there is at all times a professional engineer / technologist who has responsibility for compliance with the General Authorisations of the Department of Water Affairs and Forestry. This requirement will be for all plants with the exception of single household units.

In the case of a sectional title development, the professional engineer / technologist will be required to confirm that the rule contained in Annexure 6 is added to the statutory management rules referred to in section 35 (2) (a) of the Sectional Titles Act, when application is made for the opening of the sectional title register.

3.8 Extension to an Existing / Replacement Plant

Application for approval to install an extension to an existing plant, or a replacement plant, to accommodate increased development, shall be made in accordance with the procedures set out above with the requirement for both a financial guarantee and an ongoing service contract being applicable from the date of commissioning of the extended plant (see Clause 3.10 below).

3.9 Replacement of an Existing Plant

Application for approval to install a replacement plant to accommodate an existing development shall be made in accordance with the procedures set out above but there shall be no requirement for a financial guarantee.

3.10 Commissioning

For the purpose of clauses 3.5, 3.8 and 3.9 above, commissioning of the plant shall mean that all electrical and mechanical equipment is operating correctly and the plant is producing an effluent which is shown, by means of three representative samples taken over a two-week period, to be fully compliant with the General Authorisations.

3.11 Start-up Period

A reasonable start-up period will be permitted and is to be agreed in writing with eThekwini Water Services. The agreed period will take into account the type of plant and the phased occupation of the development. During such period EWS will allow effluent to be discharged from the plant which does not necessarily comply with the GLVs.

Direct discharge to a watercourse during this period will only be permitted under exceptional conditions and with the written permission of EWS who will require that monitoring takes place to ensure no unacceptable risk to human health and the environment. The preferred methods of disposal during the start-up period are:

a) Tankering;

b) Soak away if conditions are acceptable; and

c) Irrigation under very strict conditions.

3.12 Arrangements for Non-Domestic Wastewater

All future developments which are to be served by package plants must have a separate means for the collection and legal disposal of non domestic wastewater (refer to foot note 2). Only once it can be demonstrated that the plant can treat such non domestic wastewater, will consideration be given by EWS to the bleeding in of such non domestic wastewater to the package plant influent.

3.13 Monitoring and Reporting

The Professional Engineer / Technologist will have overall responsibility for the control and monitoring of the plant for compliance with the General Limit Values.

For the purpose of carrying out the required monitoring and reporting he / she will engage a recognised laboratory which is accredited under the SANAS or approved by DWAF.

The results must be reported in writing by the laboratory directly to EWS (and to DWAF as required) with a copy to the Professional Engineer / Technologist responsible for the O & M service contract for the plant.

The minimum reporting requirements in the General Authorisation in respect of plants in the 0 – 100kℓ/ day range are considered as insufficient to effect proper monitoring of compliance with the General Limit Values. EWS will thus require certain additional monitoring and reporting over and above such minimum requirements. These are set out in Annexure 7.

In the event of monitoring results reflecting non-compliance with effluent quality requirements, or in the event of specific incidents of plant or process failure or malfunction having occurred, resulting in non-compliance, details of the steps taken to rectify the position shall be reported to EWS.

The monitoring and compliance protocols to be applied to the bank guarantee will be based on a scientific assessment of both the plant design and the performance of the plant together with the risks to the receiving environment associated with any non-performance of the plant. As such the protocol adopted jointly by DWAF and EWS might well vary from one situation to another in order to take into account the individual circumstances of a particular installation.

ANNEXURE 1

INFORMATION TO BE SUBMITTED BY THE PROFESSIONAL ENGINEER / TECHNOLOGIST WITH THE APPLICATION MUST INCLUDE:

A. Relating to the Developer and Professional Engineer / Technologist:

1. Name and address of the developer.

2. Name, Address and professional registration number of professional engineer / technologist

3. Confirmation that his / her appointment covers the design / selection and supervision of the installation, construction and commissioning of the plant.

4. Confirmation that the developer agrees to issue the financial guarantee (as required in terms of clause 3.5 of this policy) in the form attached hereto as Annexure 5.

5. Confirmation that the professional engineer / technologist has been contracted to provide an operation and maintenance service for the first five years of operation of the plant (as required in terms of clause 3.6)

6. Confirmation that the Management Rules of the Body Corporate will incorporate a clause, as per Annexure 6 attached to this policy, binding the Body Corporate for a service contract commitment not only for the first five years of operation but on an ongoing basis, for the life of the plant.

B. Relating to the Proposed Development:

7. Physical Address of property / subdivision.

8. Property description and size (area).

9. Number of dwelling units proposed on the site.

10. Description of dwelling unit type (s).

11. Details of any industrial or commercial undertakings (reference footnote 2 and 3)

12. Anticipated daily quantity of domestic wastewater that will be generated on the development site.

13. Anticipated daily quantity of non domestic wastewater that will be generated on the development site.

14. Estimated maximum instantaneous peak rate of inflow to the treatment plant.

15. Plans to be submitted showing:

    - Position of all buildings

- Position of sewage treatment plant and final discharge point / route of the treated wastewater.

C. Relating to the Proposed Treatment Plant:

16. Brief description of sewage treatment plant / process to be installed including capacity.

17. Names and addresses of the manufacturers / suppliers of the main components of the treatment plant.

18. Estimated cost of design, supervision, installation, construction and commissioning of the plant (the actual full cost is to be certified at time of commissioning).

19. Measures to be taken to provide for mechanical, electrical operational or process failure and malfunction of the plant including details of all back-up systems.

20. Measures to be taken to avoid or mitigate nuisance or complaint arising from the operation of the sewage treatment plant / system and to ensure protection of public health and safety, including the proposed method of disposal of plant byproducts / waste materials (sludge, detrus, screenings).

ANNEXURE 2

WASTEWATER LIMIT VALUES APPLICABLE TO DISCHARGE OF WASTEWATER INTO A WATER RESOURCE #

Substance / Parameter	General Limit	Special Limit
Faecal Coliforms (per 100ml)	1 000	0
Chemical Oxygen Demand (mg/l)	75*	30*
pH	5,5 – 9,5	5,5 – 7,5
Ammonia (ionised and unionised) as Nitrogen (mg/l)	6	2
Nitrate / Nitrite as Nitrogen (mg/l)	15	1,5
Chlorine as Free Chlorine (mg/l)	0,25	0
Suspended Solids (mg/l)	25	10
Electrical Conductivity (mS/m)	70mS/m above intake to a maximum of 150 mS/m	50mS/m above background receiving water, to a maximum of 100mS/m
Ortho-Phosphate as phosphorous (mg/l)	10	1 (median) and 2,5 (maximum)
Fluoride (mg/l)	1	1
Soap, oil or grease (mg/l)	2,5	0
Dissolved Arsenic (mg/l)	0,02	0,01
Dissolved Cadmium (mg/l)	0,005	0,001
Dissolved Chromium (VI) (mg/l)	0,05	0,02
Dissolved Copper (mg/l)	0,01	0,002
Dissolved Cyanide (mg/l)	0,02	0,01
Dissolved Iron (mg/l)	0,3	0,3
Dissolved Lead (mg/l)	0,01	0,006
Dissolved Manganese (mg/l)	0,1	0,1
Mercury and its compounds (mg/l)	0,005	0,001
Dissolved Selenium (mg/l)	0,02	0,02
Dissolved Zinc (mg/l)	0,1	0,04
Boron (mg/l)	1	0,5

*After removal of algae

From Government Notice No 399 dated 26 March 2004

ANNEXURE 3

FACTORS TO BE CONSIDERED IN THE PLANNING AND

DESIGN OF ON-SITE SEWAGE TREATMENT PLANTS

Whereas the specific design, location and operating parameters for small sewage treatment plants are the responsibility of the professional engineer / technologist engaged by the developer / home owner for that function some of the factors relating to:

- The environmental impact of such plants
- The potential nuisance of such plant to premises in close proximity
- The potential of such plant to cause pollution of local streams
- Public health and safety

are listed below.

All such plant installations must accord with best practice, be designed to generally accepted engineering principles and avoid or mitigate problems of nuisance or malfunction.

1. Load Variation

The design must allow for the large variations in flow and organic loading, both on a diurnal and seasonal (holiday periods etc) basis, that are typically experienced by small treatment plants serving small groups of people such as in the case of cluster housing schemes, schools and institutions.

The source and nature of the wastewater treated and the type of development served must be accurately known and the plant designed and sized appropriately.

If the plant is not adequately designed to cater for the peak hydraulic and organic loads, consequences could be suspended solids carry over, off-spec. effluent, soak-away clogging, stream pollution and inadequate sterilisation of the effluent.

Some form of flow balancing may well be necessary. This is often accomplished by incorporating an enlarged septic tank ahead of the biological treatment stage but care must be taken to avoid increased risk of odour nuisance with such an arrangement or with sewage holding/balancing tanks.

There can be other advantages associated with the inclusion of such an anaerobic stage and the responsible professional will be required to provide motivation if a septic tank is not to be provided.

In the case of Biological Trickling Filter plants the adequate design, operation and maintenance of the flow distribution system is important for adequate treatment of the sewage particularly during periods of low flow.

2. Back Up System

Measures must be taken to provide for mechanical, electrical, operational or process failure and malfunction of the plant.

Details in this regard are to be submitted with the application for installation of the plant.

As a minimum there must be

- an alarm system to warn of an electrical failure
- sufficient standby equipment / (eg aerator / blower / pump etc) such that there is a reasonable assurance that the plant can be fully functional within 24 hours.

3. Odour

- Package sewage plants, by their very nature, will generate odours at times and under certain conditions but sewage odours are normally confined to the immediate vicinity of the plant and do not usually carry great distances.

- Odour nuisance may arise as a result of mechanical failure, organic overload or under-capacity aeration equipment.

- In valley situations on calm winter nights temperature inversions occur, which condition is conducive to entrapment and build-up of any odour release.

- The plant should be located as far as possible from the closest residential unit on the property but should also not be positioned any closer to the boundary of the neighbouring property than it is to the closest residential unit on its own property.

- Prevention of odour nuisance may be dealt with by enclosure of the plant and extraction of off-gasses for recycling through the aerobic biological treatment unit or through a separate biofilter unit (The latter unit will require media replacement approximately every 3 to 5 years).

4. Noise

- High speed blowers, compressors and motors should either be housed in a sound proof room or their use avoided.

- As in the case of odour, to avoid noise nuisance the plant should be located as far from residential units as possible, whilst also taking neighbouring properties into account.

5. Psychoda Flies

- These inhabit Biological Trickling Filters as an important component of the biological life on the filter necessary for good performance of the filter. They

are normally confined to the immediate vicinity of the filter but may at times and under certain wind conditions be blown to nearby residence where they may constitute a temporary nuisance.

6. Visual Intrusion

- The plant should be screened from residences and neighbours (with trees or shrubs) and/or sunk into the ground. Note however that leaves shed from trees can cause clogging problems in treatment units.

- If the plant is totally enclosed in an aesthetically pleasing building it will be essential to provide adequate ventilation before persons enter (see below).

7. Public Health and Safety

- Access to children must be prevented at all times.

- Adequate ventilation must be provided before any person, including the plant supervisor and maintenance and operating personnel, enters enclosed areas or confined spaces on the plant due to the possible presence of toxic or explosive gases (such as hydrogen sulphide and methane) or to oxygen deficiency.

- For effluent sterilisation, if chlorine is to be used it should preferably be in the form of solid or liquid hypochlorite rather than chlorine gas from cylinders of liquid chlorine which constitute a potential hazard and has implications for public safety if not properly supervised, handled, maintained and secured.

  Continuous flow-proportional dosage system and adequate contact time essential.

- The plant must be secured to prevent unauthorised access.

8. Waste Disposal

- The removal of waste sludge from the plant should be arranged through a registered waste disposal contractor and disposed of at an approved Metro disposal point (not into a sewer manhole) or in such a manner as approved by the Department of Water Affairs in consultation with the Metro Health authority.

- Adequate access to allow for the removal of waste sludge must be provided.

ANNEXURE 4

ETHEKWINI WATER AND SANITATION UNIT

POLICY GUIDELINES FOR

THE SUBMISSION OF ALTERNATIVE

ON-SITE WATERBORNE SANITATION SYSTEMS

Approved December 1997
Guideline / Policy
Document No. 8

ETHEKWINI WATER AND SANITATION UNIT

GUIDELINES FOR THE SUBMISSION OF ALTERNATIVE, ON-SITE WATERBORNE SANITATION SYSTEMS FOR APPROVAL

INTRODUCTION

These guidelines gives a broad outline of the procedures followed by eThekwini Water and Sanitation (EWS) in order to assess the functioning of alternative on site sanitation systems. These guidelines cover general policy of the Department regarding testing of products and its approach to acceptance of products as well as details of specific data requirements and criteria for assessment of products for use in the eThekwini Municipal Area (EMA).

These guidelines will generally only apply to those systems which do not comply with the National Building Regulations and S.A.B.S. 0400.

General Policy with Respect to Testing Products and Acceptance

EWS will not undertake product testing on behalf of a private organisation seeking acceptance of his product. All information and proof of performance required by EWS in order to gauge acceptability of the product must be supplied by the applicant at his cost. EWS may however wish to conduct further Ain-house@ testing on the product to either clarify or confirm certain data or information supplied by the applicant. Although the applicant may be informed of the broad outcome of such tests the detailed results will not be released.

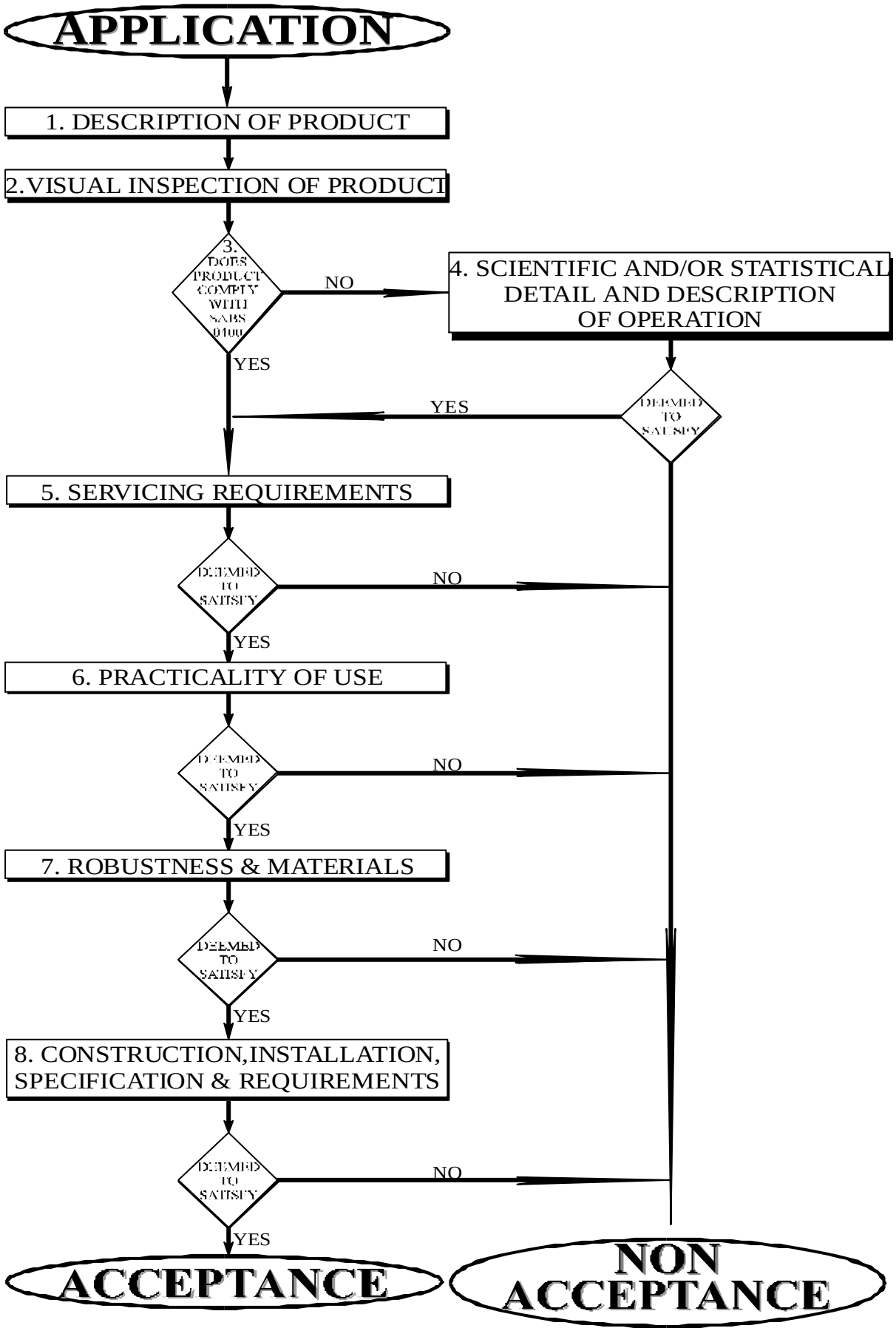
In instances where a product shows wide potential but the applicant is unable at that stage to supply all relevant information or test results for EWS to adequately assess the product then approval for use within the Metropolitan area will not be given. However EWS will endeavour to facilitate such further development testing, or research that it considers necessary, by the applicant.

Once evaluated, should the product satisfy the requirements, EWS will accept the product for use in the eThekwini Municipal Area (EMA) subject to compliance with all applicable policies, bylaws and legislation. This is in no way to be construed as an endorsement of the product for widespread use outside of the EMA.

Procedure and Criteria Applied by EWS

In assessing products EWS will use the National Building Regulations (NBR) and SABS 0400 as a datum. However EWS does not wish to limit efforts to resolve sanitation problems to existing technology only and by its very nature, future technology will not necessarily be covered by the NBR.

THE FOLLOING FLOW CHART INDICATES THE BROAD PROCEDURE AND CRITERIA UNDER WHICH APPLICATIONS WILL BE SCRUITINESED.



Information That Needs to Be Supplied to the Assessors

As a minimum, the supplier and / or promoter of a product and / or system must supply the following information to EWS. This information requirement is in no way intended to be exhaustive and should further information be required to adequately assess a specific application then EWS will call for it as and when required.

1. Description of Product and System

   i) A clear description and / or illustration of the product / system, as well as descriptions/ illustrations of the unit parts.

   ii) A clear and full specification of the product / systems intended use and how it is intended to function from the point of acceptance of waste, through its treatment, to ultimate disposal of all treated waste products.

   iii) The applicant shall state clearly the level of hygiene and public health impact achievable with specific reference to effective barriers against faecal related diseases, fly and vector infestation and odours.

   iv) A clear and detailed specification of the products intended purpose, its range of use, limiting factors, and operational criteria, which should include; geographic or geological conditions under which it may function; full application / design specifications in terms of hydraulic loading, biological loading, sizing of the units for applied loads and installation conditions.

   v) Whether the applicant considers the system to comply with the NBR or not.

2. Visual Inspection

   i) The vendor must make the system / product easily available for visual inspection by the assessor.

   ii) Details of actual installations, period of operation, failures which have occurred, feedback of users, etc.

3. Scientific and / or Statistical Details and Description of Operation

   i) A full scientific explanation of how the product should work and statistical evidence that the system works and under what limiting parameters it works.

   ii) Mass balance and loading diagrams, which indicate the functioning of the unit parts as well as the whole, for the following parameters

      a) Materials entering and leaving
      b) BOD / COD / OA / PV entering and leaving
      c) Water entering and leaving

iii) If the parameters, in the influent to any unit part, exceed the ranges implied by NBR, then a description and scientific proof of how the subsequent units / system copes with the additional loads.

iv) Scientific / statistical evidence confirming the operation and claims of the special features where appropriate.

v) Applicants should make comment and indicate whether the system will cater for all waste water generated on the site. Water balance diagram should be provided for total water consumption on site where product / system is being used to dispose of only portions of the water.

NOTE: *Where testing or sampling has been undertaken by reputable, independent 3rd parties on behalf of the applicant this data would obviously carry more weight.*

Where scientific or statistical evidence is used a detailed description of the intention of the tests, the method, result, interpretation of the results and conclusion are required.

4. Servicing Requirements and User Operation

i) Description of intended method of use by user.

ii) Description of maintenance services required by the user including the frequency of services.

iii) Description of services to be undertaken by the agent and the frequency of these services and costs where appropriate .

iv) Description of services to be undertaken by the local authority including frequency and cost.

v) List and or description of other services or additives (e.g. access, water, etc) required to maintain the product / system.

vi) Diagram indicating access points and critical dimensions.

vii) Description, number required, and cost of special tools and / or materials required for servicing.

viii) For products / systems intended for the low income areas the following are required:

a) Description of how and where hard paper is handled (all systems intended for the low income areas must be able to handle newspaper as a minimum)

b) Description of how and where grit is handled.

c) Description of closures to access points with particular reference to the provision of ingress of extraneous materials.

ix) Description, cost and availability of all specials.

x) Ease of repair / replacement of components and costs.

5. Practicality of Use

i) Description and diagrams with critical dimensions illustrating the minimum space requirements and positions of components.

ii) Description of light requirements and sources.

iii) Description of ventilation requirements and sources.

iv) Description of odour control methods.

v) Description of user operation

vi) Cleaning methods

vii) Description of all prohibitions on the system / product

viii) Cost of running the system - Operating costs

ix) Description of suitability of system to Ado it yourself@ repairs.

6. Robustness and Materials

i) Copies of all JASWIC, Agrément Board or SABS certificates indicating fitness for use should be supplied where appropriate.

ii) List and description of all parts and components which do not have JASWIC, Agreement Board or SABS certificates.

iii) List of components and materials with a description of the appropriateness of the material for the application.

7. Construction / Installation Specification and Requirements

i) Instructions, description and diagrams for installation / construction

ii) Specifications and description of special parameters and or requirements for construction / installation

iii) Description of expertise required by personnel doing installation

iv) Description of any special techniques required for installation

v) Description of site conditions which make installation inappropriate.

ANNEXURE 5

DETAILS OF FINANCIAL GUARANTEE

PERFORMANCE GUARANTEE

To :

The City Manager
eThekwini Municipality
City Hall
DURBAN

Sir

PERFORMANCE GUARANTEE

I /.We, in my/our capacity/capacities……. and as the duly authorised representative/s of ……..
(hereinafter referred to as 'the Bank') hereby bind the Bank irrevocably unto the eThekwini Municipality (hereinafter referred to as the 'Municipality') for the effective and efficient performance of the sewage treatment plant to be installed at ……. by…….(hereinafter referred to as 'the Developer') in terms of achieving, at all material times, quality compliance with the General Limit Values (hereinafter referred to as 'the prescribed General Limit Values') applicable to the Discharge of Wastewater into a Water Resource, as published in Government Notice No 399 dated 26 March 2004.

This Guarantee shall be on the following conditions :-

1. The total liability of the Bank to the Municipality arising from this Guarantee shall not exceed the sum of ……

2. The Municipality shall, without reference and/or notice to the Bank, have complete liberty of action to take whatever steps the Municipality may deem appropriate for the purposes of ensuring that the sewage treatment plant achieves quality compliance, at all material times, with the prescribed General Limit Values. The Head : Water and Sanitation shall have sole discretion as to whether the sewage treatment plant is/is not achieving quality compliance, at all material times, with the prescribed General Limit Values.

3. The Bank undertakes to pay to the Municipality such amounts as may be claimed from time to time, in writing, by the Municipality's Head : Water and Sanitation. The Bank shall, within fourteen (14) days of receipt of a claim, make payment to the Municipality's Head : Water and Sanitation at 3 Prior Road, Durban.

4. A payment made by the Bank to the Municipality in terms of this Guarantee shall be subject to adjustment as between the Bank and the Municipality as and when final details of the Municipality's claim are ascertained.

5. The Bank reserves the right to withdraw from this Guarantee at any time by depositing the guaranteed amount with the Municipality, whereupon the Bank's liability ceases.

6. This Guarantee is neither negotiable nor transferable, and is limited to the payment of money only and -

   (a) must be returned to the Bank pursuant to the provisions of clause 5 above, and
   (b) shall lapse pursuant to the provisions of clause 8.

7. This Guarantee shall be produced for endorsement if any part payment is made.

8. This Guarantee shall remain valid for a period of five years calculated from …….and shall terminate upon the expiry of such period and be of no further force and effect : provided that if any claim made by the Municipality prior thereto, has not been paid at that date, the Bank's liability to the Municipality under this Guarantee in respect of such claim shall only be extinguished when such claim has been paid.

9. The Bank hereby chooses domicilium citandi et executandi for all purposes arising hereof at…….

SIGNED at _____on this _____day of _____2005

For and on behalf of_____

Address _____

_____

ANNEXURE 6

ADDITION TO MANAGEMENT RULES OF BODIES CORPORATE REGARDING OPERATION AND MAINTENANCE SERVICE CONTRACT OBLIGATIONS IN RESPECT OF THE SEWAGE TREATMENT PLANT

The management rules of the Body Corporate shall contain a rule / provision, reading substantially as follows-

1. Operation and Maintenance of Sewage Treatment Plant on Common Property

1.1 The sewage treatment plant on the common property shall at all times be operated, monitored and maintained by a professional engineer / technologist for the purposes of ensuring quality compliance with the General Limit Values applicable to the discharge of waste water into a water resource, as prescribed by legislation.

1.2 It shall be the duty of the owners / members to ensure that an operation and maintenance contract is at all times in existence with a person contemplated in 1.1 above.

1.3 The owners / members shall be bound to accept the assignment (accrued debts and obligations excepted) of an operation and maintenance contract entered into by the Developer during the development period.

1.4 This rule may not be amended or repealed without the prior written consent of the municipality.

ANNEXURE 7

MINIMUM MONITORING REQUIREMENTS

FOR TREATED EFFLUENT DISCHARGE

For plants handling flows of less than 10m³ / day:	
Faecal Coliforms (per100mℝ)	Annually
Chemical Oxygen Demand (mg/ℝ)	
Amonia as Nitrogen (mg/ℝ)	
Suspended Solids(mg/ℝ)	
For plants handling flows between 10 and 100 m³ / day	
Faecal Coliforms (per100mℝ)	Monthly
pH	Monthly
Electrical Conductivity (mS/m)	Monthly
Chemical Oxygen Demand (mg/ℝ)	Quarterly
Amonia as Nitrogen (mg/ℝ)	Quarterly
Suspended Solids(mg/ℝ)	Quarterly
For plants handling flows between 100 and 1000 m³ / day	
Faecal Coliforms (per100mℝ)	
pH	
Electrical Conductivity (mS/m)	Monthly
Chemical Oxygen Demand (mg/ℝ)	
Amonia as Nitrogen (mg/ℝ)	
Suspended Solids(mg/ℝ)	
For plants handling flows between 1000 and 2000 m³ / day	
Faecal Coliforms (per100mℝ)	
pH	
Electrical Conductivity (mS/m)	
Chemical Oxygen Demand (mg/ℝ)	Monthly
Amonia as Nitrogen (mg/ℝ)	
Nitrate / Nitrite as Nitrogen (mg/ℝ)	
Free Chlorine (mg/ℝ)	
Suspended Solids(mg/ℝ)	
Ortho – Phosphate as Phosphorous (mg/ℝ)	