Critical review of the quality of Environmental Authorizations in South Africa

AB Caddick

13132288

Mini-dissertation submitted in partial fulfilment of the requirements for the degree *Magister* in *Environmental Management* at the Potchefstroom Campus of the North-West University

Supervisor: Prof FP Retief

May 2015

Declaration

I, the undersigned, hereby declare that the work contained in this mini-dissertation is my own original work and that I have not submitted it previously in its entirety or in part to any other university or institution.

Signature:

Date: 11 May 2015

Abstract

This dissertation critically reviews the quality of South African environmental authorisations through the application of a methodology adopted from the Lee and Colley (1999) environmental impact assessment (EIA) report review package. The literature review shows that to date limited research has been conducted on the quality of environmental authorisations nationally. Anecdotal evidence suggests that environmental authorisations are of weak quality; hence the development of guidelines on the compilation of environmental authorisations by the Department of Environmental Affairs (DEA). In this dissertation, the quality of the environmental authorisations is critically reviewed against the requirements of the National Environmental Management Act (Act No. 107 of 1998) and departmental guidelines. The research concludes that only 64% of reviewed authorisations are deemed satisfactory, while 36% were unsatisfactory. When the basic assessment report (BAR) and scoping and environmental impact assessment (S&EIA) process authorisations are compared it is concluded that the there is a minimal difference in quality. The BAR achieved a 69% satisfactory rating while the S&EIA process achieved a 61% satisfactory rating. The dissertation concludes by making recommendations to improve the quality of authorisations.

Keywords: environmental authorisation, quality, Department of Environmental Affairs, environmental impact assessment, Lee and Colley review package, National Environmental Management Act (Act No. 107 of 1998)

Table of Contents

List of Tables

List of Figures

List of Abbreviations

BA	Basic Assessment
BAR	Basic Assessment Report
CO	Case Officer
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Tourism
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMI	Environmental Management Inspector
EMP	Environmental Management Programme
EMS	Environmental Management Systems
GNR	Regulation of General Notice
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEMWA	National Environmental Management Waste Act (Act No. 59 of 2008)
NWA	National Water Act (Act No. 36 of 1998)
S&EIA	Scoping and Environmental Impact Assessment
SANS	South African National Standard
WUL	Water Use License

1. Chapter 1: Introduction

This Chapter provides a description of the background to the research, by presenting the problem statement and associated research aim and sub-questions. The introduction concludes by laying out the structure of the mini-dissertation.

1.1. Background to the Research

The Constitution (Republic of South Africa, 1996) drafted at the dawn of the 'New South Africa' provides for a completely reconstituted governance system at national, provincial and local level, reflecting a paradigm shift in the values underpinning South African society. A rights-based approach was introduced by the Constitution, supported by the principles of accountability and transparency in governance (Wiseman & Rossouw, 2004). In order to meet the requirements of the so-called environmental right described in Section 24 of the Constitution, environmental considerations must now be incorporated into the assessment and overall project management of developments (O'Brien & Owen, 2012). This can be achieved through the effective functioning of the environmental impact assessment (EIA) system to influence decision making during the planning phase of a project.

South Africa does not have a fully developed command-and-control approach to environmental management covering the entire management cycle, with only EIA formally enacted. Fundamentally EIA entails the communication of the potential environmental impacts associated with a particular development to the relevant authorities who then make a decision captured in a so-called environmental authorisation. The environmental authorisation is important because it provides the basis for subsequent implementation and management related to the construction and operational phases of the activity. Although extensive strides have been made in recent years, the monitoring of compliance to the conditions included in the environmental authorisations remain limited, irrespective of the enabling provisions provided for in legislation (DEAT, 2004; EIAMS, 2011).

Environmental authorisation processes in South Africa have been criticised on a number of grounds since the formal introduction of EIA in 1997. For example the EIA system needs improvement with regards to the consistency of the quality of the EIA reports submitted to decision makers (Sandham & Pretorius, 2008; Retief, 2010; Sandham, *et al*., 2013). The quality of reports ultimately affects the environmental authorisations issued to by the competent authority. Furthermore, the EIA system has been criticised for being fragmented and for a lack of coordination between authorities, which has been blamed for inordinate delays and added costs in the consideration of development projects (Gore, 2009; DEA, 2013; EIAMS, 2011). Thus, although the mandatory system of EIAs has been in place for almost two decades, questions continue to be asked about the quality of the system as well as the effectiveness related to unwarranted and needless time delays and costs. South Africa is therefore in need of improved quality, efficiency and effectiveness within the EIA and decision–making system (Retief & Chabalala, 2009; DEA, 2013). An important component of this system is the environmental authorisation itself.

1.2. Problem Statement

The environmental authorisation represents the outcome of the EIA process and provides the link between the EIA recommendations and implementation. As the authorisation is a legally binding document it is of utmost importance to the applicant because it contains and stipulates the legal requirements related to the activity. Therefore environmental authorisations are one of the most important regulatory mechanisms established through the National Environmental Management Act

(Act No. 107 of 1998) (NEMA). These authorisations set out conditions that must be adhered to during all phases of development and ensure that relevant concerns raised by interested and affected parties (I&APs) as well as the competent authorities are included as a legal requirement for the development.

However, the literature review shows that limited research has been conducted to date on the quality of environmental authorisations in South Africa. Moreover, anecdotal evidence suggests that environmental authorisations are of poor quality (EIAMS, 2011); hence the development of guidelines in 2009 on the compilation of environmental authorisations by the Department of Environmental Affairs and Tourism (DEAT), now called the Department of Environmental Affairs (DEA) (DEAT, 2009).

In light of the importance of environmental authorisations, it is necessary that the aforementioned be of good quality, provide clarity, and are not contradictory (EIAMS, 2011). Misinterpretation of this legally binding document may result in misunderstanding of the conditions stipulated in the authorisation, resulting in misdirected effort and ultimately legal non-conformance (EIAMS, 2011). For example, poorly formulated environmental authorisations may make it impossible to conform to certain conditions because the conditions are unclear or too extensive. In extreme cases environmental authorisations which are not completely adhered to may result in criminal prosecution in terms of NEMA (EIAMS, 2011). Therefore to improve the EIA system in South Africa it is important to gain a better understanding of the quality of environmental authorisations, which is what this research is attempting.

1.3. Research Aim and Sub-Questions

In view of the problem statement, the main aim of the research is:

To investigate the quality of NEMA environmental authorisations in South Africa

In order to achieve the main aim of this research, a number of sub-questions will be answered:

- What criteria exist against which to evaluate the quality of environmental authorisations?
- What is the quality of authorisations issued for the Basic Assessment (BA) process?
- What is the quality of the authorisations issued for the Scoping and Environmental impact Assessment Process (S&EIA)?
- How does the quality of environmental authorisations compare across the BA and S&EIA processes?

1.4. Structure of the Dissertation

This mini dissertation is structured according to the following chapters:

- **Chapter 1: Introduction and Problem Statement**

Chapter 1 serves as the introductory chapter, and includes the problem statement, research aim and sub-research questions. This chapter also includes a discussion on the limitations of the research.

- **Chapter 2: Literature Review**

Chapter 2 provides a literature review based on existing research and information concerning the research aim. The literature sources were peer reviewed articles, books and book chapters, legislation, guideline documents and reports.

- **Chapter 3: Research Methodology**

This chapter provides the outline of the methodological design. It describes the quality review areas, categories and review method used to determine the quality of the environmental authorisations.

- **Chapter 4: Research Results and Discussion**

In this chapter the data analysis and results are described and interpreted in relation to the research aim and sub-questions.

- **Chapter 5: Conclusion and Recommendations**

In this chapter the outcomes of the research results are discussed in relation to the set research aim and sub-questions.

Table 1-1: Structure of the Mini-Dissertation

Sub-research questions (Refer to Chapter 1 Section 1.3)	Methodology (Refer to Chapter 3)	Chapters (Refer to Chapter 1, Section 1.4)
What criteria exist against which to evaluate the quality of environmental authorisations?	Literature Study (Section 2.4.1, 2.4.2 & 2.4.3)	Chapter 2 - Literature Review Chapter 3 – Methodology
What is the quality of authorisations issued for the BA process?	Sampling Lee and Colley Review Package (Section 3.1)	Chapter 4 - Research Results and Discussion Chapter 5 - Conclusion and Recommendation
What is the quality of the authorisations issued for the S&EIA?	Sampling Lee and Colley Review Package (Section 3.1)	Chapter 4 - Research Results and Discussion Chapter 5 - Conclusion and Recommendation
How does the quality of environmental authorisations compare across the BA and S&EIA process?	Systematic Comparison Section (3.4)	Chapter 4 - Research Results and Discussion Chapter 5 - Conclusion and Recommendation
What recommendations can be made to improve the quality of environmental authorisations in South Africa?	Result Analysis Section (3.4)	Chapter 5 - Conclusion and Recommendation

1.5. Limitations to the Research

The scope of this research is limited to the environmental authorisations issued in terms of NEMA. There are various other authorisations related to waste, mining, water use, air quality, heritage resources, etc. which are not covered.

The information contained in the authorisation is potentially sensitive albeit not legally confidential. For sensitivity reasons, the identity of the applicants related to each authorisation, and the reference numbers of the authorisations, are not divulged. Furthermore, in all tables presented in the dissertation, numerical figures are rounded to the nearest percentage and may result in minor computational discrepancies.

It is noted that the quality of an environmental authorisation is not only limited to the competent authority issuing the authorisation and their decision making capabilities, but on the quality of the EIA and the accuracy of the information provided by the EAP in support of an authorisation. These factors contributing towards the quality of the environmental authorisation are not discussed or taken into account as part of this research.

2. Chapter 2: Literature Review

This chapter provides a review of the national and international literature related to the research aim.

An EIA is a systematic process whereby environmental impacts and consequences are identified and mitigation measure proposed, where necessary, for planned activities (Tinker, *et al*., 2005; Wood, 2003). One of the main aims of an EIA, especially in South Africa, is to strive for more sustainable outcomes (Morrison Saunders & Retief, 2012). EIA is also seen as an important contributor to protecting the environment for present and future generations.

An environmental authorisation may be defined as being a written order, document or certificate that may be issued by a competent authority (government department, minister, authorised official) to an applicant, subsequent to the approval of an EIA, to grant the applicant permission to perform certain acts or activities that may have an impact on the environment. Condition set in the environmental authorisation and adherence thereto are a crucial mechanism towards achieving more sustainable outcomes during implementation and operational phases (Wessels, 2005).

Moreover, compliance monitoring is effective only if the EIA and environmental authorisation are of good quality. The authorities base their decision and the environmental authorisation largely on the EIA report and expect that the information about the predicted impacts is to a large extent accurate. The authorities also expect that the mitigation measures proposed in the environmental authorisation designed to minimise impacts on the environment will be implemented during all phases of a project. Post-authorisation activities such as monitoring and auditing are the only feedback mechanisms to provide the authorities with information on the extent to which the predicted impacts materialised and whether or not the mitigation measures were implemented (Freemantle, 2008). It is normally at this stage that the importance of the conditions contained in the environmental authorisation is realised.

The majority of the literature covered focused on the quality of environmental authorisation issued under South African environmental legislation. Previous national and international studies and literature on environmental authorisations and EIA follow-up are included in the review. The next sections start by providing a brief historical overview of environmental management in South Africa after which the environmental authorisation process and purpose are described followed by the quality requirements for environmental authorisations. The latter provided the basis for the quality review categories applied to the research and described in Chapter 3.

2.1. History of South African Environmental Management

The EIA process was the first environmental regulatory tool utilised in South Africa. This was initiated on a voluntary basis in South Africa in the 1970s. In September 1997 the EIA regulations were promulgated in terms of the Environment Conservation Act (Act No. 73 of 1998) (ECA) (Coert, *et al*., 2011). The ECA regulations were in operation for just over a year before the first comprehensive environmental legislation in South Africa was promulgated, namely NEMA (Glazewski, 2005). In 2006 the ECA Regulations were repealed by NEMA and replaced with the promulgation of NEMA EIA Regulations. This was followed by a number of amendments (Sandham, *et al*., 2013), including the most recent amendment to NEMA in 2014.

Under the voluntary EIA system prior to the ECA legislation, EIA was not legally required prior to the construction of activities; however a limited number of EIAs were conducted based on international best practice at the time. However, because it was not a legislative process no formal authorisation was issued. Under the ECA the first formal authorisations issued were referred to as a record of decision (RoD). In 2006 NEMA Regulations replace the reference to RODs with so-called

environmental authorisations. The most recent trend is to move towards 'integrated authorisations', thereby improving the efficiency of decision making by aligning other environmental authorisation and licensing processes (i.e. Waste License, Water Use License, and Air Emissions License).

According to van Sandham *et al.* (2013) and Coert, *et al*. (2011) the primary changes to the 1997 ECA and 2006 NEMA legislation included the following:

- The extension of the sector coverage of activities requiring EIA (across waste, air quality, heritage, etc.);
- The identification of activities to be subject to EIA;
- Differentiating the process requirements based on the nature and extent of activities;
- Provision for post-decision follow-up;
- The introduction of two types of assessment processes, namely the Basic Assessment Report (BAR), and S&EIA;
- The average number of EIA applications submitted per month reduced by 27% nationally from 1997 under ECA to 2006 under NEMA.

Considering the above list of alternations in comparison to the old regulations, it is apparent that more intense provision has now been made for follow up on compliance to the environmental authorisations issued and a more effective means of prosecution. Furthermore, an activity requiring an environmental assessment, where the environmental impacts are more generic and easily identified, a separate process, namely BA, is followed. Where activities requiring an environmental assessment are more complex and impacts not easily identified, a more intense process, namely S&EIR, is followed. An environmental authorisation, positive or negative, is issued at the end of each process.

2.2. Environmental Authorisation Process

The following sections describe the process of obtaining an environmental authorisation in terms of NEMA.

2.2.1. Authorisation in terms of NEMA

The most recent EIA Regulations were published on 18 June 2010 and came into effect on 2 August 2010. The EIA regulations (GNR 543) stipulate that the applicant for a development listed under GNR 544, 545 or 546 must appoint an independent environmental assessment practitioner (EAP) to manage the EIA process. It defines two broad categories of EIA, namely a BA, and S&EIA. A BA is generally intended for smaller scale projects, or activities whose impacts are well understood and can be easily managed. The BA process requires the EAP to conduct an impact assessment on the receiving biophysical and social environment as described in regulations 21 to 25 of GN R 543. In addition to this, the EAP must conduct a public participation process (PPP) as set out in regulations 54 to 56.

A S&EIA, as stipulated in GNR 543, consists of a scoping and impact assessment phase. This form of an EIA is generally intended for larger scale projects in which the environmental impacts are more diverse and extensive. A more comprehensive means of impact identification is therefore required. The impacts of such a project may lead to extensive environmental degradation and require scoping to evaluate and identify impacts not easily predicted or identified. The process for a S&EIA is described in regulations 26 to 35 of GNR 543. The EAP must conduct a scoping process, followed by an impact assessment process, with public participation as set out in regulations 54 to 56.

Both these processes require an environmental authorisation prior to the commencement of the proposed activity. These processes are illustrated in Figure 2-1. The environmental authorisation document gets issued at the end of the processes described as 'Authorise' in Figure 2-1.

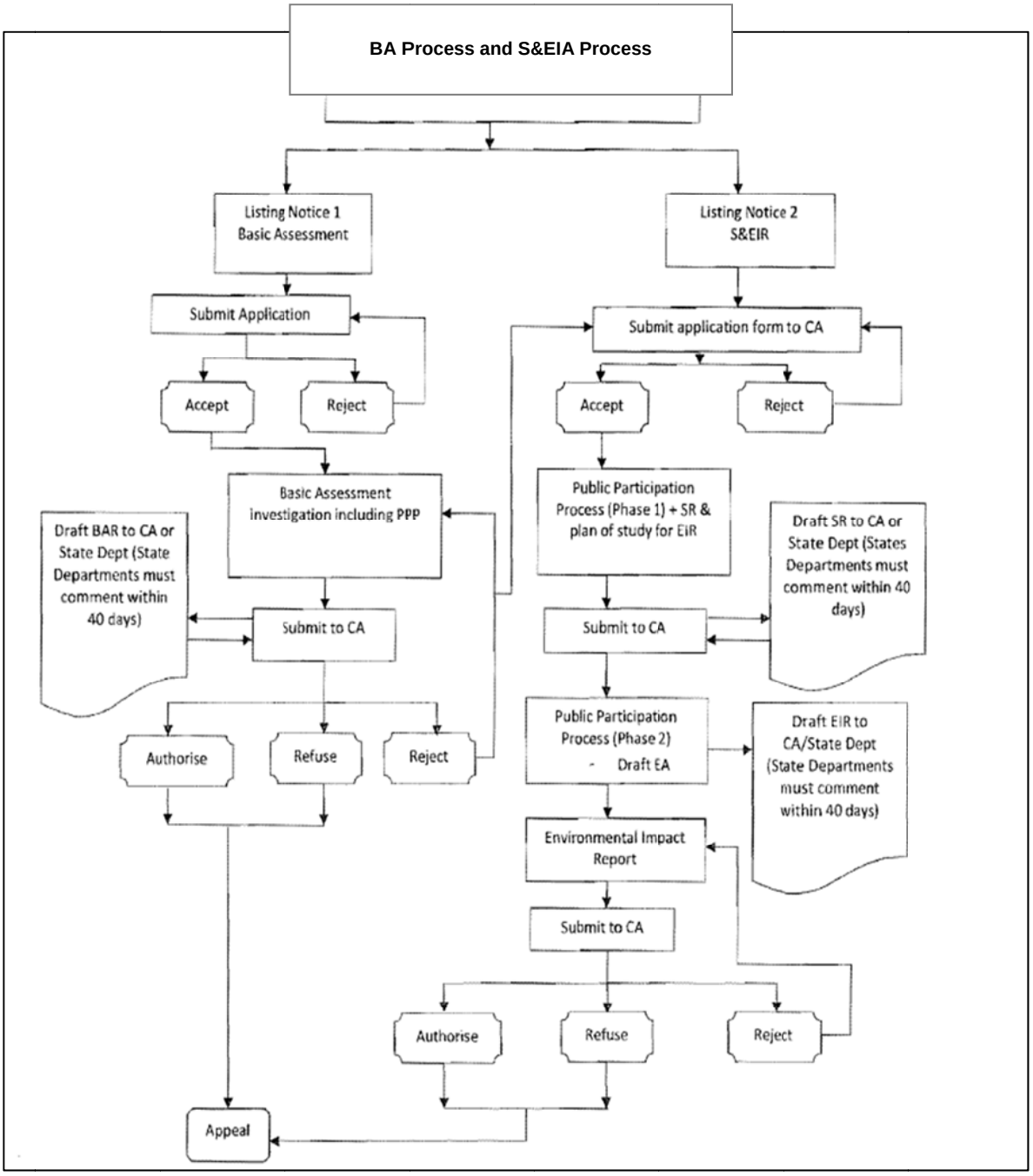

Figure 2-1: Flow Diagram of the BA and S&EIA Process (DEA, 2012)

Considering the broader authorisation context it is important that the environmental authorisations issued in terms of NEMA, the National Environmental Management: Waste Act (Act No. 58 of 2009) (NEM:WA), MPRDA, and the Water Use License (WUL) issued in terms of the National Water Act (Act No. 36 of 1998) (NWA), are issued in alignment and do not contradict one another. Over time the intention of NEMA is to make provision for the issuing of integrated environmental authorisations, but the current lack of coordination between governmental departments has complicated the issuing of so-called 'integrated authorisations' to date. Therefore this research only focuses on authorisations issued in term of NEMA.

2.3. Environmental Management Programme

The Environmental Management Programme (EMP) is an EIA mechanism that is used to ensure that undue or reasonably avoidable adverse environmental impacts are prevented during all phases of a development. An EMP is compiled in conjunction with a S&EIR or BAR. The EMP is important to ensure management actions that have arisen from the EIA are defined and implemented throughout all phases of the project life-cycle. In addition EMPs mitigate negative environmental impacts and enhance the positive impacts identified during the EIA process. The EMP is a flexible document and should be amended as the project life cycle progresses promoting the best practice in environmental management. Once a S&EIA or BAR is authorised the EMP becomes a legal document to which all project team members should adhere (Lochner, 2005).

2.4. Purpose and Process of an Environmental Authorisation

The environmental authorisation is the final step in the authorisation process as indicated in Figure 2-1. The authorisation becomes a public and legally binding document applying legal conditions to minimise the negative and enhance the positive impacts of certain activities. The authorisation further ensures that all concerns raised by I&APs as well as those of the competent authority are addressed as legal requirements for the development. In the light of the importance of environmental authorisations it is necessary that the content of the authorisation should be of good quality. Environmental authorisations are legally binding documents and therefore misinterpretation of the authorisations due to distorted quality, may result in non-conformances. A weakly compiled environmental authorisation may lead to a situation where it is impossible to conform to certain conditions. Such an environmental authorisation would then have to be refined a number of times until it is aligned with the EIA and associated management plan for the proposed development. The authorisation of an EIA may be furthermore prolonged through the necessity to amend the environmental authorisations by the applicant, adding numerous costs and time implications to important economic activities (DEA, 2013).

This section serves to provide a brief overview of the review categories as derived from the literature review with Table 2-1 providing a summary of the review categories in relation to the different review areas. These review areas and review categories shadow the Lee and Colley (1999) review methodology explained in more detail in Chapter 3.

2.4.1. Quality review categories according to the DEAT Guideline for authorisations

Following the literature review and more specifically an evaluation of the DEAT guideline, which is classified as review area 1 and illustrated in Table 2-1, a number of review categories were identified and used in the evaluation of the environmental authorisations, namely:

Are the conditions feasible in the context of the activity?

The conditions should be specific to the activities which are applied for in the environmental authorisation. The compilation of the authorisation must ensure that the conditions are feasible, and are able to be monitored and enforced in accordance with the activities applied for. Activities must be specific, measurable, achievable, reasonable, and time bound (DEAT, 2009; DEAT, 2004).

Are conditions too general with a wide spectrum?

Cognisance is taken that most authorisations have generic conditions. The category relating to conditions being too general with a wide spectrum, specifically relates to authorisations that make no

reference to conditions that are site and activity specific. Conditions should be to the point and not allow for a high level of interpretation.

With regard to this question, it is difficult to strike the correct balance between generic and prescriptive conditions and those which may allow for some level of interpretation according to the project and site-specific challenges and circumstances. Conditions should therefore not be too generic and applicable to a wide spectrum of activities, but should primarily focus on the activities being applied for in relation to the biophysical and social conditions within the area (Magaliesberg Protection Association vs Kgaswane Country Lodge (Pty) Ltd, 2010).

Has monitoring and enforcement been stipulated?

There must be a clear strategy for monitoring compliance with conditions that require the submission and approval of further reports. This requires cooperation between the compliance and enforcement directive, if there is one, and the line function responsible for reviewing the authorisation (DEAT, 2009; EIAMS, 2011).

Is the responsibility for implementation included when there is more than one party involved?

Should more than one party apply for authorisation and subsequently be issued with an environmental authorisation, the accountability for implementation of the authorisation should fall under the jurisdiction of both parties, and the environmental authorisation should stipulate the responsibilities of each party (DEAT, 2009).

Is the grammar up to standard?

This category strictly applies to the standard of grammar of the environmental authorisation. Poor grammar may lead to misconception of the intention of the conditions, and confusion between the applicant, the competent authorities, the auditors and the employees (DEAT, 2009).

Has reference been made to highly technical conditions - e.g. policies, standards and processes?

This category largely relates to the difficulty in determining appropriate conditions in applications which are highly technical. The applicant experiences difficulties in determining what particular standards, practices or processes are specified (DEAT, 2009). The authorisation must stipulate the conditions that are required for compliance, and not just inherently reference a legislation or South African National Standard (SANS) code, but specify what in the code or legislation needs to be adhered to (DEAT, 2009).

Are there any further investigation requirements?

This category relates to the incorporation of conditions in the environmental authorisation that have the potential to delay the project authorised because additional authorisations are required to comply with the environmental authorisation. This may relate to the incorporation of certain activities which are not authorised under that specific authorisation but would require authorisation. The need for integrated licencing as discussed in Section 24 L of NEMA is thus a matter of concern, and may aid in eliminating such confusion in the authorisation process (DEAT, 2009).

Has the priority of commitments been distinguished?

It is important that within the authorisation, differentiation is made between conditions which should receive more attention or priority than others. Conditions should be defined as conditions of high priority against conditions that would be less important or peripheral (DEAT, 2009).

2.4.2. Quality review categories according to NEMA

The following review categories were taken from Section 37(1) of NEMA, and classified as review area 2, and used for the evaluation of the environmental authorisations. These quality criteria are further referred to as review categories as defined in the Lee and Colley (1999) review package and illustrated in Table 2-1.

Has the name, address and telephone number of applicant been included?

The name, address and telephone number of the applicant must be displayed in the environmental authorisation as stipulated in the EIA Regulation 37 (a). This allows the competent authority and Environmental Management Inspectors (EMI) to identify who is ultimately responsible for the implementation of the environmental authorisation, and therefore of who should be made liable for any non-conformances.

Has a detailed description of the activity been included?

A holistic project description is required which should comprise all the project activities, and not just those requiring an environmental authorisation as stipulated in the EIA Regulation 37 (b).

Does the authorisation describe the property on which the activity is to be undertaken?

The property on which the activities are to be undertaken should correctly be described in the environmental authorisation as stipulated in the EIA Regulation 37 (c). This limits the developer to undertake the applied activities only on the property as applied for. The use of the Survey General 21 digital key code for the affected farms and farm portions is advisable to prevent misinterpretation.

Do the conditions stipulated the period for which the environmental authorisation is valid?

It is necessary that the allowable period prior to construction is stipulated in the environmental authorisation as stipulated in the EIA Regulation 37 (d)(i). The construction of a specific activity applied for must commence before a certain period of time has lapsed. Construction should commence within the stipulated timeframe else the authorisation should expire.

Do the conditions stipulate the requirements for management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity?

The authorisation must stipulate the conditions which must be adhered to during all phases of the planned development. These conditions should focus on the protection, management and mitigation of biophysical and social impacts. The foundation of the EIA process is the requirement to identify and mitigate environmental impacts transpiring from the planned development (Marshall, 2001; Carrol & Turpin, 2002).

Do the conditions stipulate the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place?

If an environmental authorisation is transferred from one owner to another, it is important that the liabilities, rights and obligations of the environmental authorisation are transferred in parallel. An environmental authorisation applicable to a certain activity on a specific piece of land must be transferred to the new owner, who will take over the authorisation responsibilities, as stipulated in the EIA Regulation 37 (d)(iii).

2.4.3. Additional quality review categories

Following the literature review the following quality criteria have also been identified to supplement the quality criteria stipulated in the DEAT guideline and NEMA. Additional criteria have been identified and classified as review area 3. These quality criteria are stipulated in Table 2-1, and referred to as review categories as defined in the Lee and Colley (1999) review package.

Are the farm portions and location of the activity correctly captured?

It is important that the environmental authorisation correctly stipulates the property on which the activity is to be undertaken. This is especially important when determining what/where licences and environmental authorisation have been issued and where pending authorisations are to be authorised. This category does not just determine if the location of the proposed activity has been described, but weather this has been done accurately.

Is the authorisation granted only for activities under the mandate of a particular competent authority?

South Africa's environmental legislation is dynamic and is constantly being amended. A number of activities, depending on their extent, location and degree of impact, fall under the jurisdiction of different spheres of government. It is important that the competent authority authorises only the activities under its own jurisdiction and stipulates this in the environmental authorisation.

Are the activities auditable?

As previously stated in Section 2.4.1, monitoring and enforcement are important factors to be included in the environmental authorisation. However, it is necessary to eliminate the need for interpretation by independent consultants and EMIs conducting audits as far as possible. Conditions should be stipulated in such a way that they are easily interpreted and are measurable, in order for accurate audits to be undertaken that can add value to the environmental performance of the development.

Are rehabilitation requirements stipulated?

It is important that the environmental authorisation makes provision for rehabilitation requirements, and does not only rely on the consultant's recommendations in the EIA relating to rehabilitation.

Rehabilitation refers to Rehabilitation is defined as the returning of a disturbed area to a state which approximates the state that it was prior to disruption and construction activities. It is an important process whereby vegetation once disturbed can return to functionality within an area, ultimately conserving and preserving integral ecosystem goods and services (Terratest (Pty) Ltd, 2010) .

Rehabilitation should not only be focused on during closure, but concurrent rehabilitation should take place during construction and operation of the proposed development. This must be done in consultation with the I&APs as required by NEMA and MPRDA.

Does the environmental authorisation stipulated site visits and correspondence with the relevant department?

The EAP and the competent authority should be in constant communication. It is essential that the competent authority is invited to visit the site or insists that a site visit is conducted. These site visits and communication needs to be reflected in the authorisation.

Does the environmental authorisation stipulate the requirements for the applicant and I&APs to submit an appeal?

According to NEMA, I&APs have the opportunity to appeal against the decision made by the competent authority. It is thus necessary that the environmental authorisation stipulates the process

of submitting an appeal, and states that the applicant must make registered I&APs aware of the appeal process.

Have alternatives been covered in by the authorisation?

This category was decided upon as most EIAs conducted by EAPs mainly focus on the proposed alternative, assuming that this alternative will be evaluated and approved. It is necessary to indicate to the applicant which alternative was approved and the reasons therefore. It can thus be seen that the evaluation of alternatives in the environmental authorisation is of critical importance, and should the EIA not adequately address these, it should be raised by the competent authority as being inadequate.

2.5. Importance of the Quality of an Environmental Authorisation

Minimal research has been conducted on the quality of environmental authorisations. Anecdotal evidence suggests that environmental authorisations are of poor quality. The DEAT guideline was further designed to assist in improving the quality of environmental authorisations issued and aid the competent authorities who issue environmental authorisations to be legally robust, unlikely to be the subject of a successful appeal or legal challenge, and to facilitate consistency in practices across different competent authorities (DEAT, 2009).

It must be noted that an important component of the quality of an environmental authorisation deals with the quality of the EIA submitted in support of the authorisation. These EIA's are submitted, preferable by a registered EAP, with sufficient qualification and experience in conducting EIA's. The EAP conducts the work subsequent to a specific request from a client to do so. Weak quality reports could contribute to a weak environmental authorisation as these reports are utilised in decision making by the competent authority (Glasson, *et al*., 2005).

In view of the importance of these authorisations it is prudent to explore and critically evaluate their quality measured against the requirements of the DEAT (2009) guidelines and NEMA. The existing authorisation system and process may need to be improved to allow for a smoother process in obtaining an environmental authorisation for the benefit of government and the applicants (EIAMS, 2011). The research of this mini dissertation aims to fill these gaps in knowledge. According to the DEAT guideline document the following review categories, should be considered prior to the issuing of an environmental authorisation:

- Are the conditions feasible in the context of the triggered activity, and are the listed activities stipulated in accordance with what was applied for?
- Are the conditions too generic and cover a wide spectrum?
- Has monitoring and enforcement been stipulated?
- When there is more than one party involved, has the person responsible for implementation been identified?
- Is the grammar up to standard?
- Have the highly technical conditions been stipulated - e.g. policies, standards and processes?
- Do the conditions require further investigation, thus requiring an additional authorisation?
- Has the priority of important commitments and nice-to-have commitments been distinguished?

According to GNR 543 regulation 53 published in terms of NEMA, the following must be included within an environmental authorisation:

- The name, address and telephone number of the person to whom the authorisation is issued included;
- Detailed description of the activity been included;
- Description the property on which the activity is to be undertaken;
- The period for which the environmental authorisation is valid;
- The requirements for management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity;
- The transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place.

2.6. Summary of Quality Requirements of an Environmental Authorisation

A summary of the review areas and associated review categories are illustrated in Table 2-1.

Table 2-1: List of review categories associated with Review Area 1and 2.

Review Area 1 (DEAT Guidelines)	
No	**Review Categories According to the Guideline**
1.1	Are the conditions feasible in the context of the triggered activity?
1.2	Are the conditions too general with a wide spectrum?
1.3	Has monitoring and enforcement been stipulated?
1.4	Has the responsibility of implementation been included when there is more than one party involved?
1.5	Are grammar issues up to standard?
1.6	Have highly technical conditions - e.g. Policies, standards and processes been included?
1.7	Do conditions require further investigation?
1.8	Has the priority of important commitments and nice-to-have commitments been distinguished?
Review Area 2 (NEMA)	
Review Categories According to NEMA	
2.1	Has the name, address and telephone number of authorisation holder been included?
2.2	Has a detailed description of the activity been included?
2.3	Has a description of the property on which the activity is to be undertaken been included?
2.4	Do conditions stipulate the period for which the environmental authorisation is valid?
2.5	Do conditions stipulate the requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity?
2.6	Do conditions stipulate the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place?

These review areas and categories are further assessed according to the methodology illustrated in Chapter 3. Table 2-2 further illustrates the review categories identified based on the literature to supplement the quality criteria stipulated in the DEAT guideline and NEMA.

Table 2-2: List of review categories associated with Review Area 3

Review Area 3 (Additional Categories)	
Additional Review Categories	
3.1	Are the farm portions and location of the activity correctly captured?
3.2	Is the authorisation granted only for activities under the jurisdiction of the competent authority?
3.3	Are the activities auditable?
3.4	Are rehabilitation requirements stipulated?
3.5	Has the environmental authorisation entered into correspondence with the applicant and made a site visit?
3.6	Has the environmental authorisation stipulated the requirements for the applicant and I&APs to submit an appeal?
3.7	Has an alternative been evaluated or decided upon in relation to the proposed activity?

Table 2-1 and Table 2-2 have further been used to quantify the quality of environmental authorisations according to the identified categories.

3. Chapter 3: Research Methodology

The main challenge posed for this research is to develop valid categories against which to evaluate the quality of environmental authorisations. Both legislation and guidelines typically provide a good point of departure when considering criteria against which to evaluate quality. The content requirements for environmental authorisation are prescribed through Regulations 37 and 40 of NEMA. However, the description of requirements contained in the legislation is quite broad and therefore require further interpretation. In this regard the DEA (previously known as the DEAT) published a guideline document in 2009 to be used by those drafting environmental authorisations (DEAT, 2009). Therefore the methodology for this research relied mainly on review categories developed from the legislation and the guideline as described in Chapter 2. An additional seven review categories were identified based on the literature review and also described in the previous section. The complete list of review areas and review categories used in this research has been presented and summarised in Chapter 2 and is therefore not repeated here. However, the following sections provide a description of the sampling approach, review package and the review areas and review categories used to evaluate authorisations.

3.1. Sample Design

In terms of EIA quality review the main methodological references considered for this research are the work done on general EIA report quality review in South Africa (Sandham and Pretorius, 2008; Retief, 2010; Retief & Chabalala, 2009; Morrison-Saunders & Retief, 2012). EIA report quality review is very similar to the evaluation of environmental authorisations because both involve the evaluation of documentation content. In terms of sampling design the main questions are typically what the scope and size of the sample should be.

According to Leedy and Omrod (2005) the basic rule in sampling is that the larger the sample size the more robust your research results. In South Africa more than 3500 EIA applications were submitted annually (Kidd & Retief, 2009). Due to the resource and time constraints it was not considered feasible, to within the scope of a mini-dissertation, conduct a review of what would be considered a representative sample or utilises two reviewers as recommended by the Lee and Colley (1999) review package. Rather, as is generally accepted in EIA report quality review, the research relied on ‘replication logic’ and a so-called reasonable sample, which provides enough data to draw reasonable conclusions but not statistically representative conclusions. In the end this research included a total of fifty authorisations issued for a combination of BAR and S&EIA processes. Considering that most published peer reviewed research on EIA report quality includes samples between 10 and 25 reports, this sample is considered valid for the purpose of the mini-dissertation.

3.2. Sample Assortment

Environmental authorisations used for the purposes of this research were authorisation issued to clients for whom the author applied for, as well authorisations that were advertised and publically available. These authorisations were not limited to any specific activity and ranged from authorisations issued under the ECA and NEMA legislative regime extending across all nine provinces of South Africa. Cognisance has been taken that the DEAT guideline was only published in 2009, following the promulgation of the ECA and NEMA 2006 regime. These have not been distinguished in the research. However the quality of the authorisation, regardless of the legislative regime or activity, was the major driving point for the research.

3.3. Lee and Colley Review Package

The Lee and Colley (1999) review package has been successfully used to identify strengths, weaknesses and omissions in EIA report quality for a wide spectrum of EIAs (Mbhele, 2009; Sandham, *et al*., 2008; Sandham, *et al*., 2008; Sandham, *et al*., 2010). It comprises a set of hierarchically arranged review topics which are used to review the quality of EIA reports. These topics are used to direct the reviewer's attention to specific areas of importance within the EIA, and to evaluate the quality of these areas. The review topics are arranged hierarchically (Lee & Colley, 1999).

An adapted version of this well-established method was applied in the review of the environmental authorisations. This research made use of three review areas, namely:

1. Quality requirements determined from the DEAT guidelines;
2. Legislative requirements according to NEMA;
3. Additional review categories.

Through past experiences, comprehensive evaluations of environmental authorisations, and the author's judgement of the criteria required to provide an authorisation of exceptional quality, a number of additional review categories were identified, which might add value to the environmental authorisations.

The review areas were further sub-divided into review categories. Each review category was issued a quality rating which was later used to determine the final rating for each review area. The Lee and Colley (1999) review package as illustrated in Figure 3-1 was amended, through the exclusion of sub categories from the analysis considering the limited possible inclusions of an environmental authorisation as determined from NEMA, DEAT guidelines and other review categories. Figure 3-1 illustrates the Lee and Colley (1999) review methodology.

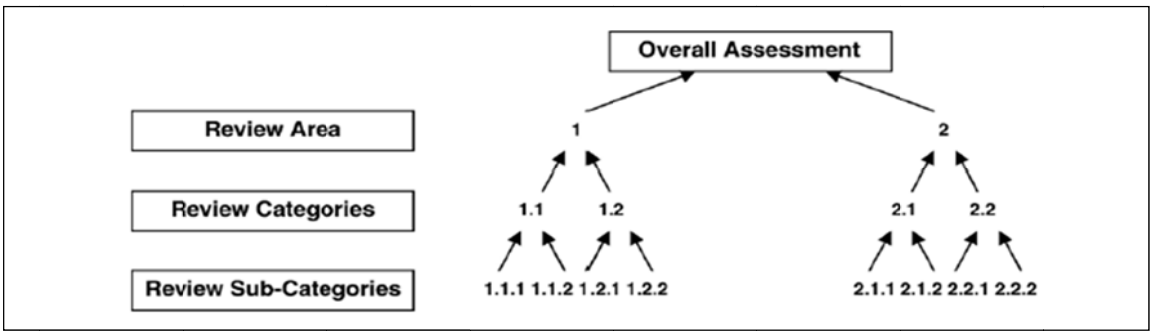

Figure 3-1: Lee and Colley Review Hierarchy (Lee & Colley, 1999)

The reviews were conducted according to Lee and Colley (1999) at the lowest level. Each review category should be reviewed according to Figure 3-1 and given a symbol according to the quality of each review category. Once these review categories have been reviewed each review area must further be evaluated according to Table 3-1. After each review category has been awarded a quality score the review areas must be evaluated and assigned a symbol. These review areas should not be evaluated as an average of the review categories rating, but by the importance of each review area and review category. An average cannot be accurate in this review package as some areas are of more importance than others.

According to Lee and Colley (1999), reviews between "A" and "C" can be seen as acceptable/satisfactory, while ratings between "D" and "F" are deemed unsatisfactory and do not

meet the necessary requirements. Table 3-1 illustrates the evaluation symbols used for the review of each category, with the explanation of how each rating was determined.

Table 3-1: Review symbols corresponding with the explanation of each (Lee & Colley, 1999)

Review symbol	Explanation
A	Relevant tasks well performed; no important tasks left incomplete.
B	Generally satisfactory and complete; only minor omissions and inadequacies.
C	Can be considered just satisfactory despite omissions and/or inadequacies.
D	Parts are well attempted but must, as a whole, be considered just unsatisfactory because of omissions or inadequacies.
E	Not satisfactory; significant omissions or inadequacies.
F	Very unsatisfactory; important task(s) poorly done or not attempted.
N/A	Not applicable, the review topic is not applicable or it is irrelevant in the context of this statement.

3.4. Result Analysis and Comparison

Following the research on the quality of the environmental authorisations, each authorisation has been differentiated into those authorised for a BAR and those authorised for a S&EIA process. The quality of the authorisation for each process has been reviewed and compared against each other by the author, identifying the areas of weakness and strengths. Recommendations have further been made by the author in order to improve the quality of environmental authorisations issued in terms of NEMA.

4. Chapter 4: Research Results and Discussion

This chapter describes the quality of the environmental authorisations issued in South Africa as reflected by the sample of fifty authorisations. The problem statement and research aim and sub-questions presented in Section 1.2 and 1.3 are addressed.

The results obtained from this research have been evaluated and interpreted by applying the research methodology as described in Chapter 3. Firstly the discussion considers the results obtained from the total sample of environmental authorisations (see Section 4.1 to 4.2). Secondly the analysis distinguished between BAR and S&EIA and the quality of each level of assessment compared against each other (see section 4.3 to 4.5). The performance of the authorisations evaluated is then compared across review areas, and the weakest performing review categories determined (see section 4.2.1 to 4.2.3 and 4.4.1 to 4.4.2).

4.1. Evaluation of Environmental Authorisations

A total of fifty environmental authorisations were evaluated according to the review categories as described in Chapter 3. Each authorisation was further given a final rating and the results of this evaluation illustrated in Figure 4-1.

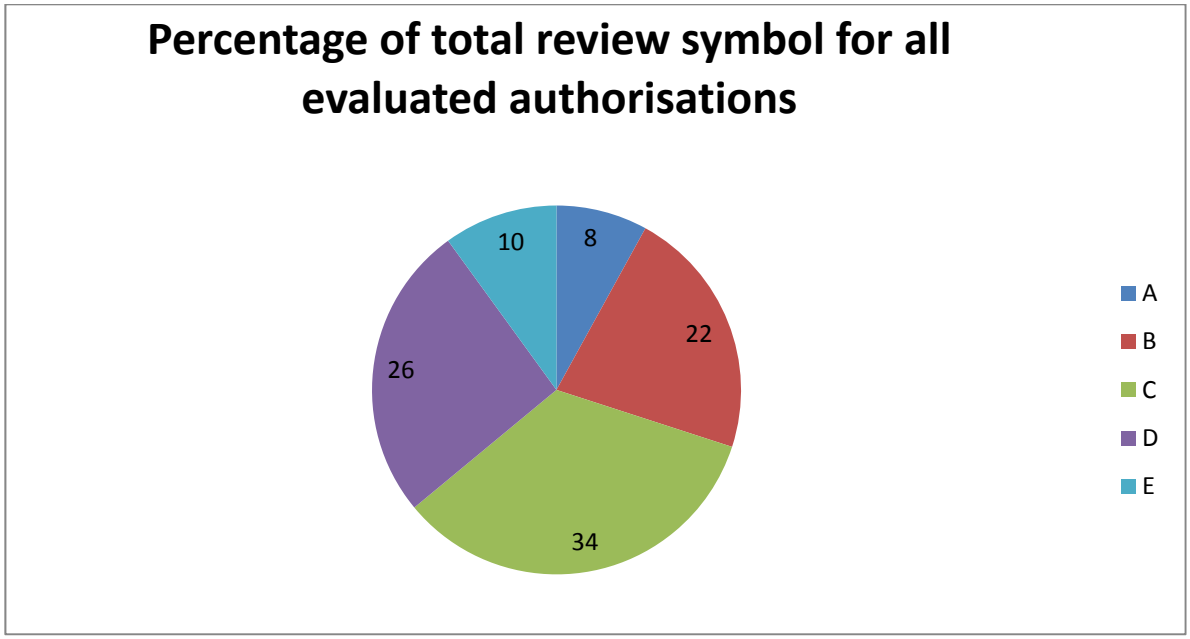

Figure 4-1: Percentage occurrence of evaluation ratings at review category for evaluated environmental authorisations

Environmental authorisations were evaluated according to the identified quality categories and a final rating provided to each review areas for each environmental authorisation. No environmental authorisation ended with an “F” rating, as there were no authorisations that completely omitted the consolidated requirements of NEMA, the DEAT guidelines and the additional review categories. Taking into consideration the quality review categories as determined in this research, the importance of aligning the environmental authorisations with Chapter 5 of NEMA, integrated environmental management, is realised.

A low percentage (8%) of environmental authorisations evaluated received an “A” rating. This shows that a small percentage of environmental authorisations are in complete adherence to the legal requirements, the DEAT guidelines, and the review categories determined in this research. In addition to this, only 10% of the authorisation evaluated received an “E” review rating. The majority of the authorisations thus fall under the “C” and “D” review symbol. Considering that the “E” rating

refers to “not satisfactory; significant omissions or inadequacies” it is concerning that a percentage of these authorisations did not satisfy the quality review categories.

The “B” rating received the third lowest percentage. It is distressing that only 22% of all authorisations evaluated received a rating which was generally satisfactory and complete, with minor omissions and inadequacies. The middle ratings of “C” and “D” received 34% and 26% respectively. This high percentage illustrates that the majority of the authorisations were deemed just satisfactory or just unsatisfactory.

The consolidated analysis revealed that 64% of the authorisations are considered to be satisfactory (between “A” and “C”), while 36% are deemed to be unsatisfactory (between “D’ and “E”). Again, approximately a third of the authorisations evaluated show that the applicant was issued with an authorisation of weak quality, whether this is due to grammatical or legal failures.

4.1.1. Evaluation of Review Areas

This section takes each review area and determines the area of highest concern according to the ratings of each review area. The review ratings of each review area are illustrated in Figure 4-2.

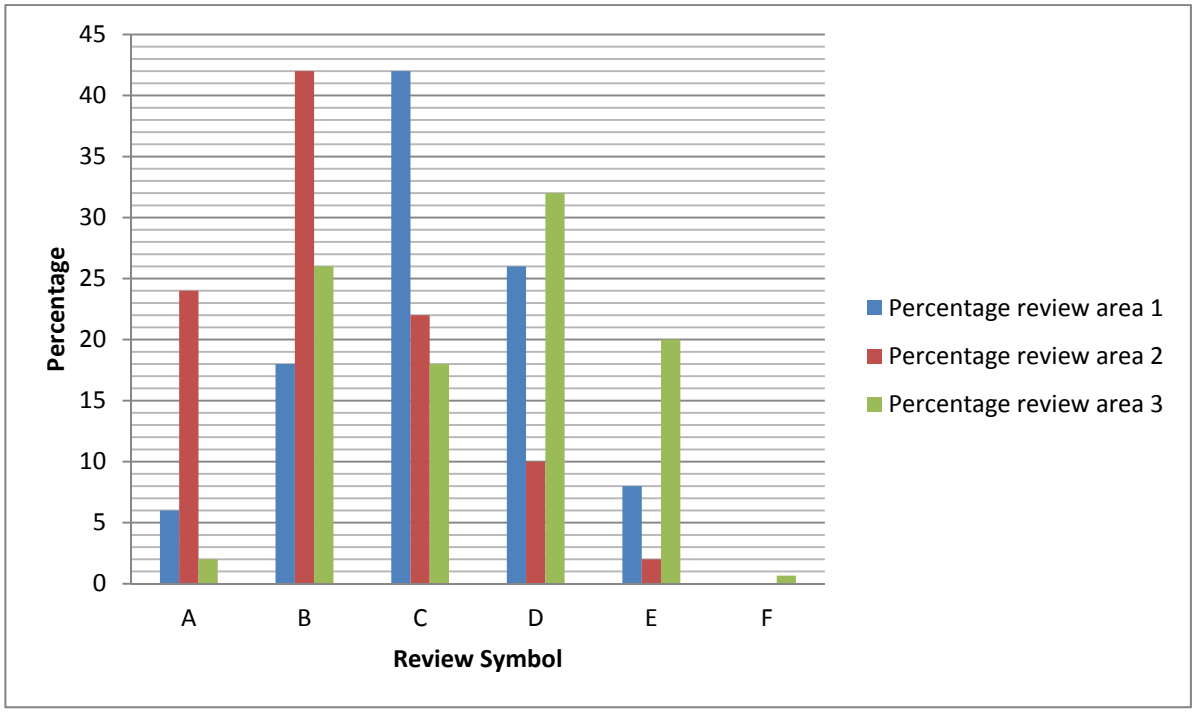

Figure 4-2: Evaluation ratings per review area

Review area 1: Quality review categories according to the DEAT Guideline (review area 1)

Figure 4-2 illustrates that review area 1 receives the highest percentage of 42% in the review rating “C”. There is a very low occurrence of “A”, “E” and “F”, although it would be preferable to see a higher percentage of “A” ratings. Review area 1 shows a percentage of 66% of ratings between “A” and “C”, which is thought to be acceptable, while 34% rated between “D” and “F”. Therefore, looking at review area 1, the majority of the environmental authorisations evaluated met the bulk of the requirements proposed in the DEAT guidelines.

Review area 2: Quality review categories according to NEMA (review area 2)

From Figure 4-2 it can been seen that the highest percentage falls under rating “B” (42%), illustrating that most of the environmental authorisations evaluated showed a good adherence to the legislative requirements as stipulated in NEMA. An 88% of the environmental authorisations fall between the

ratings of “A” and “C” while 12% falls within the ratings “D” to “F”. It can thus be concluded that the majority of the environmental authorisations assessed met the requirements as stipulated in NEMA.

Review area 3: Quality review categories of significance (review area 3)

Regarding the review area 3, Figure 4-2 illustrates that only 46% of the environmental authorisations fall between ratings “A” and “C” while a significant 54% falls between ratings “D” and “F”. It must be noted that review area 3 is not a legal requirement, nor is it stipulated in the DEAT guideline. These are a set of quality review categories deemed significant, by the author, to reach the objectives of Chapter 5 of NEMA.

4.2. Evaluation According to Review Categories of Each Review Area

As per Section 4.1.1 it is illustrated that review area 2 achieved the highest ratings of conformance. It is, however, necessary to further evaluate each review category. In this section of the research, each review category is analysed to identify the review categories which are deemed to be the principal problematic and excelled area of the authorisations evaluated.

4.2.1. Quality review categories according to the DEAT guidelines

The review categories discussed in the section below focus on the quality review categories identified through the analysis of the DEAT guidelines on the issuing of environmental authorisations. Table 4-1 and Figure 4-3 illustrate the performance of each category identified in terms of the DEAT guidelines and portray categories of concern in red and categories of good performance green.

Table 4-1: Evaluation according to the DEAT guidelines

No.	Criteria Evaluation / Review Categories	“A” – “C”	“D” – “F”
1.1	Are the conditions feasible in the context of the triggered activity?	84% [42]	16% [8]
1.2	Are the conditions too general with a wide spectrum?	72% [36]	38% [14]
1.3	Has monitoring and enforcement been stipulated?	44% [22]	56% [28]
1.4	Has the responsibility of implementation been included when there is more than one party involved?	N/A	N/A
1.5	Are grammar issues up to standard?	98% [49]	2% [1]
1.6	Have highly technical conditions - e.g. Policies, standards and processes been included?	92%[46]	8% [4]
1.7	Do conditions require further investigation?	98% [49]	2% [1]
1.8	Has the priority of important commitments and nice-to-have commitments been distinguished?	22% [11]	78%[39]

* The number presented in brackets refers to the number of authorisations evaluated rating between “A” – “C” and “D” – “F” respectively.

None of the environmental authorisations evaluated involved more than one party; therefore category 1.4 received a “Not Applicable” rating throughout the review. Most of the categories conformed to the DEAT guidelines. The categories evaluated to have performed the best relate to review categories 1.5 and 1.7, as illustrated above in green with a 98% rating for “A” and “C”. Exactly 2% of these conditions showed a rating between “D” and “F”, which was deemed to be unsatisfactory. Although this figure is extremely low, it must be noted that two of the authorisations stipulated conditions which would further require an EIA to be in adherence to the environmental authorisation which is in contradiction to the principles of Integrated Environmental Management as specified in NEMA.

In review area 1, condition 1.8 performed the worst, with 22% reviewed to be satisfactory. A high 78% was evaluated as being unsatisfactory. The majority of the authorisations reviewed did not distinguish between important conditions that must be adhered to and recommendations or nice-to have-conditions.

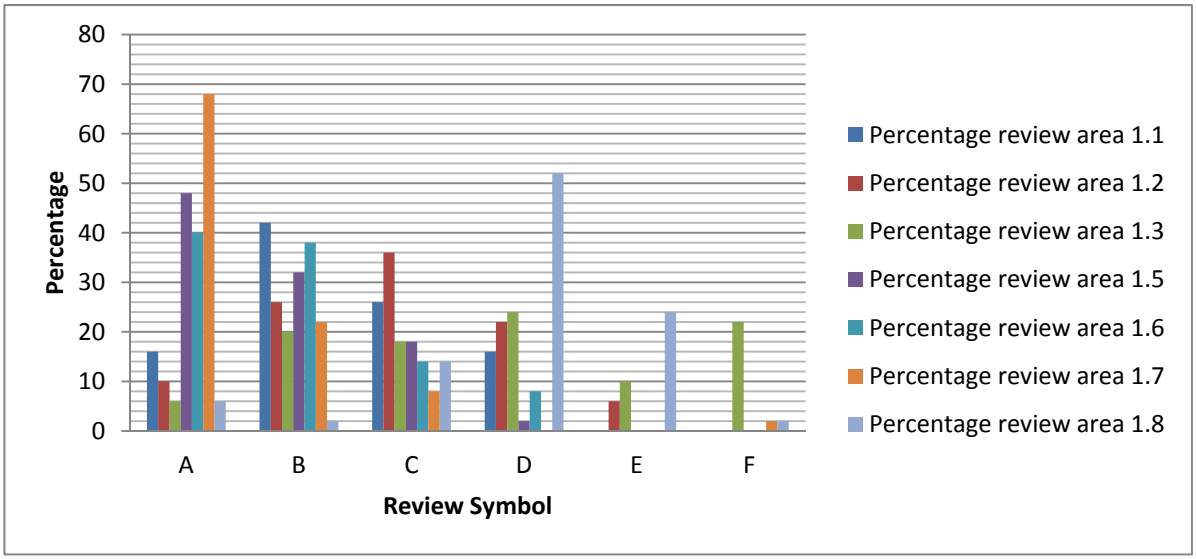

Figure 4-3: Performance illustration of the DEAT guidelines for each category

4.2.2. Quality review categories according to NEMA requirements

The section below focuses on the criteria stipulated in NEMA. These principles should at a minimum be adhered to throughout all authorisations reviewed. Each category has been evaluated and the results are discussed in Table 4-2 and Figure 4-4. The percentage conformance of each review category has been determined and the condition with the highest and the lowest level of conformance highlighted in green and red respectively in Table 4-2.

Table 4-2: Evaluation according to NEMA requirements

No.	Criteria Evaluation / Review Categories	"A" – "C"	"D" – "F"
2.1	Has the name, address and telephone number of authorisation holder been included?	100% [50]	0% [0]
2.2	Has a detailed description of the activity been included?	86% [43]	14% [7]
2.3	Has a description of the property on which the activity is to be undertaken been included?	96% [48]	4% [2]
2.4	Do conditions stipulate the period for which the environmental authorisation is valid?	80% [40]	20% [10]
2.5	Do conditions stipulate the requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity?	48% [24]	52% [26]
2.6	Do conditions stipulate the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place?	76% [38]	24% [12]

* The number presented in brackets refers to the number of authorisations evaluated rating between "A" – "C" and "D" – "F" respectively.

It can be seen in Table 4-2 and Figure 4-4 that most of the environmental authorisations effectively met the requirements of NEMA. Category 2.1 was satisfactory in all the environmental authorisations

reviewed. As illustrated in Table 4-2, 100% of the environmental authorisations reviewed were rated between “A” and “C”.

Category 2.5 performed the worst amongst all of the review categories evaluated according to NEMA requirements. A large number of authorisations did not effectively address the requirements of reporting and monitoring throughout the life-cycle of the project. This category only received a 48% compliance rating between “A” and “C”.

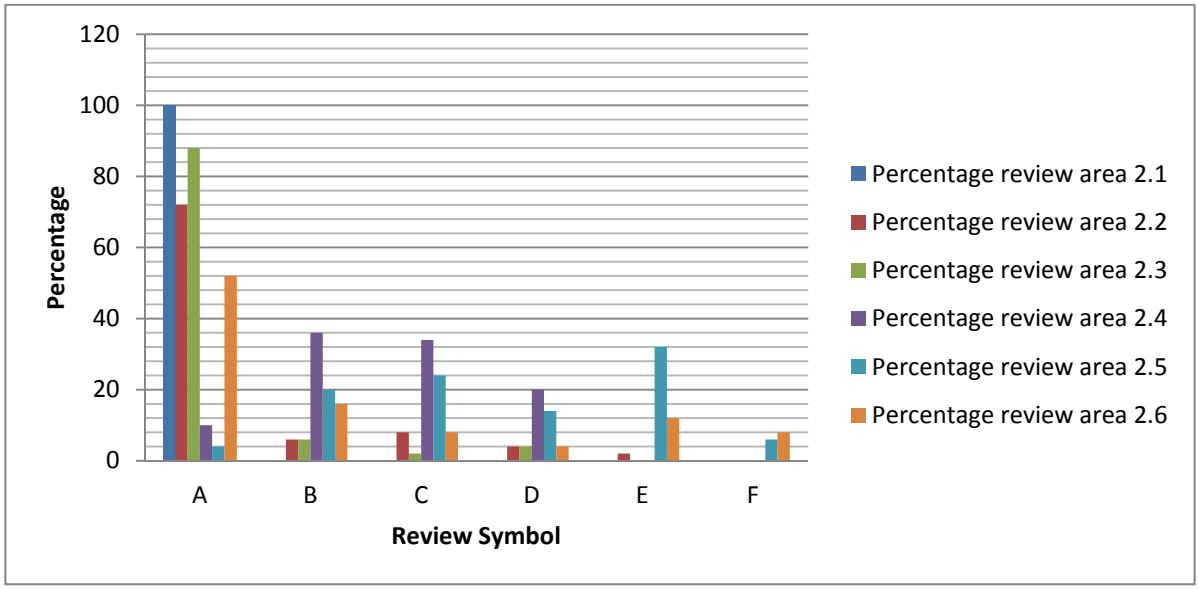

Figure 4-4: Performance illustration of NEMA review categories

4.2.3. Quality review categories deemed to be of significance

Through the literature review described in Chapter 2 a number of additional review categories were identified, which are not included under NEMA or the DEAT Guidelines. These were reviewed and the level of conformance to each review category was determined. Table 4-3 and Figure 4-5 illustrates the performance of these review categories. Areas of concern and of good performance are highlighted in red and green respectively.

Table 4-3: Evaluation according to identified review categories

No	Criteria Evaluation / Review Categories	“A” – “C”	“D” – “F”
3.1	Are farm portions and the location correctly stipulated?	96% [48]	4% [2]
3.2	Is the authorisation granted only for activities under the jurisdiction of the competent authority?	94% [47]	7% [3]
3.3	Are the activities auditable?	64% [32]	36% [18]
3.4	Are rehabilitation requirements stipulated?	24% [12]	76% [38]
3.5	Has the environmental authorisation entered into correspondence with the applicant and made a site visit?	72% [36]	28% [14]
3.6	Has the environmental authorisation stipulated the requirements for the applicant and I&APs to submit an appeal?	100% [50]	0% [0]
3.7	Has an alternative been evaluated or decided upon in relation to the proposed activity?	34% [17]	66% [33]

* The number presented in brackets refers to the number of authorisations evaluated rating between “A” – “C” and “D” – “F” respectively.

Table 4-3 and Figure 4-5 demonstrate the performance of each category reviewed in all of the environmental authorisations. It is illustrated that category 3.1 performed the best, as 96% of the authorisations fall between “A” and “C”.

Category 3.4 performed the worst with 76% of the authorisations falling between “D” and F” and 24% of the authorisations were deemed acceptable and were rated between “A” and “C”. The requirements of rehabilitation have thus not been stipulated in the majority of the authorisations and the entire issue of the rehabilitation of the site during and following construction and closure was reliant on the degree to which an evaluation of the requirements for rehabilitation had been done in the EIA/EMP. This was closely followed by category 3.7, which focused on the effective use of alternatives reviewed by the competent authority in the EIA/EMP. It is of paramount importance that reasonable and feasible alternatives are evaluated and that reasons are given for the decision made on the preferred alternative evidently stipulated in the authorisation. The results of this evaluation were surprisingly high in category 3.7 (34%), with 17 of the authorisations either making mention of the evaluation of alternatives or deciding upon an alternative different from the alternative preferred in the EIA.

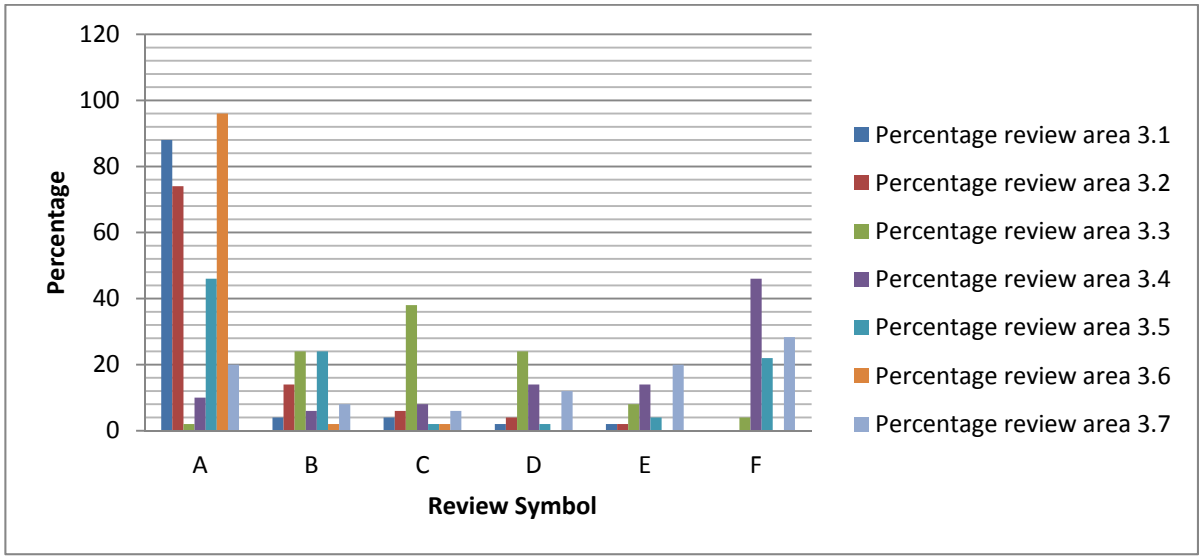

Figure 4-5: Performance illustration of the identified review categories

4.3. Evaluation of BA Authorisations

Fifty environmental authorisations were evaluated in this research. Of the fifty authorisations nineteen were issued based on a BA and thirty one based on the S&EIA process as described in Section 2.2. The authorisations issued based on a BA have been further analysed to determine the quality of the authorisations, taking cognisance that the purpose of a BA is to assess a listed activity in terms of NEMA where the impacts are known and of a relatively small scale. All nineteen authorisations were assessed according to the review categories as described in Chapter 3. The results of this evaluation are illustrated in Figure 4-6.

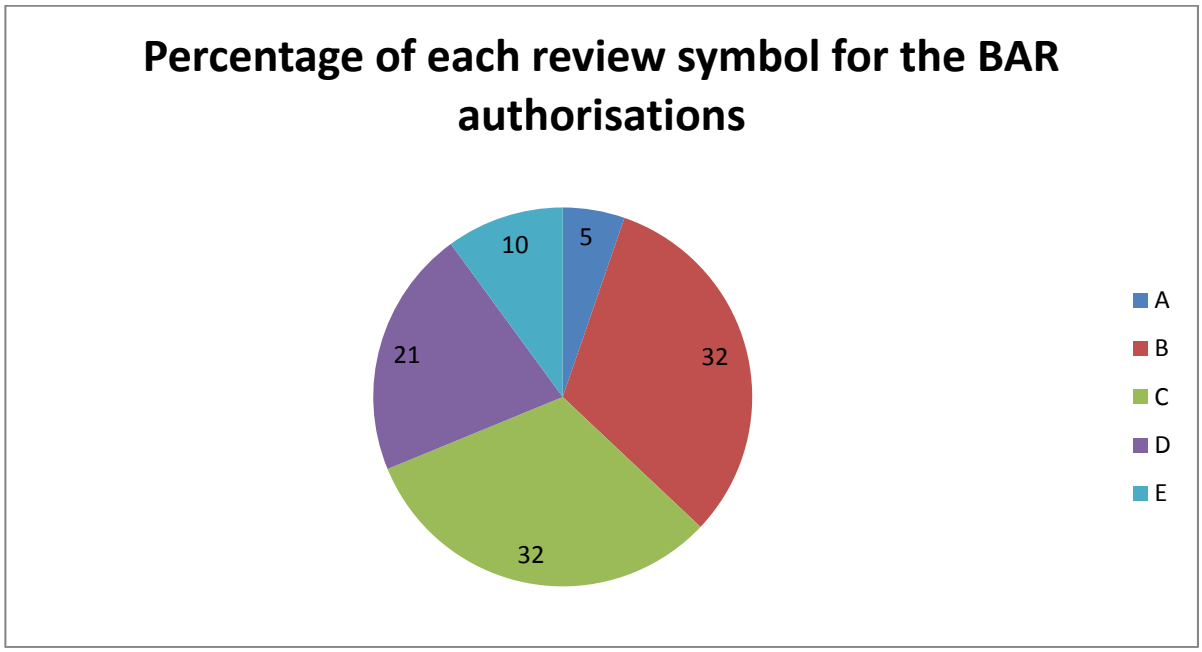

Figure 4-6: Percentage of evaluation ratings for BAR environmental authorisations

A low percentage (5%) of environmental authorisations evaluated received an “A” rating. This shows that a small percentage of environmental authorisations are in complete adherence to the legal requirements, the DEAT guidelines, and the additional review categories introduced by this research. This illustrates that there is room for improvement across all authorisations.

Following the “A” rating, the “E” rating received only 10%. This presents a more positive portrait of the environmental assessments used in this research. However, considering that the “E” rating refers to “not satisfactory; significant omissions or inadequacies” it is concerning that an insignificant 10% of these authorisations did not satisfy all the quality review categories used in this research.

The third lowest percentage received during this review was rated “D”. A high, 21%, of all authorisations evaluated received a rating which was “just unsatisfactory because of omissions or inadequacies”.

Only 67% of the authorisations evaluated are thus deemed to be satisfactory (between “A” and “C”), while 33% are deemed to be unsatisfactory (between “D’ and “F”). This high percentage of authorisations that are considered unsatisfactory is of concern. Approximately a third of the authorisations evaluated show that the applicant was issued with an authorisation of weak quality, whether this is due to grammatical or legal failures.

4.3.1. Evaluation of Review Areas

This section takes each review area and determines the area of highest concern, looking at all the BA authorisations evaluated. The review ratings of each review area are illustrated in Figure 4-7.

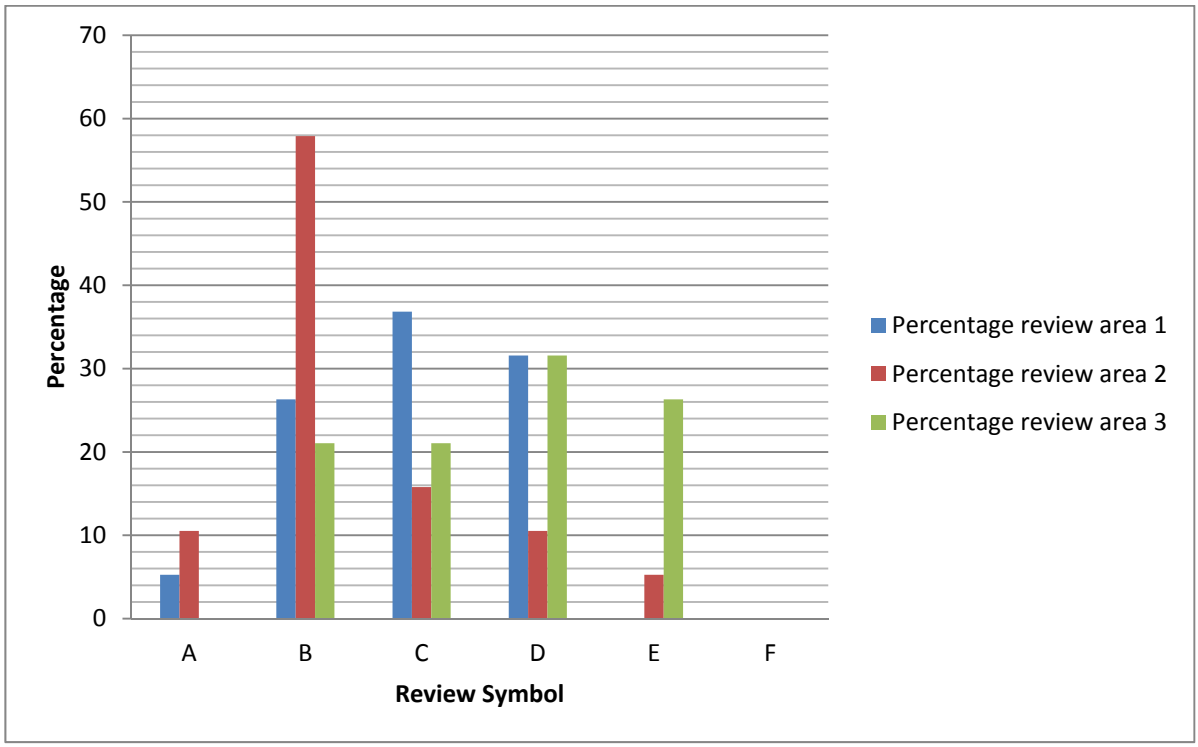

Figure 4-7: Evaluation ratings per review area

Review area 1: Quality review categories according to the DEAT Guideline

As illustrated in Figure 4-7 review rating "C" received the highest rating of 37 %. This can be seen as satisfactory as rating "C" relates to minor omissions or inadequacies. As a large percentage of authorisations fall under rating "C" there is ample room to improve on these authorisations. Review area 1 received a low occurrence of symbols "E" and "F". These rating relate to being unsatisfactory and do not meet the requirements of the DEAT guidelines as a result of the low occurrence of review symbol "A". This symbol relates to a full compliance to the DEAT guidelines, which authorisations should strive to meet. The final rating breakdown of review area 1 shows a ratio of 68% of ratings between "A" and "C" to a 32% rating between "D" and "F". A large percentage of the authorisations evaluated can be deemed satisfactory in terms of the DEAT guideline requirements.

Review area 2: Quality review categories according to NEMA

Figure 4-7 further illustrates the quality of review area 2. The majority of the authorisations received a "B" rating. This high percentage of 58% can be seen as positive as the majority of the authorisations were satisfactory in terms of NEMA. The final breakdown of review area 2 illustrates a ratio of 85% of authorisations falling with the review symbols of "A" and C", while an insignificant 15% falls within the review symbols of "D" to "F".

Review area 3: Quality review categories of significance

From Figure 4-7 it can be seen that the highest percentage of the authorisations fall within the review symbol "D" and "E" showing an unsatisfactory adherence to the proposed review categories. The final review symbol ratio shows that 42% of the authorisations fall within review symbols "A" – "C", while 58% fall between review symbols "D" to "F". On a positive note, no authorisations received a "F" rating, illustrating that none of the authorisations completely omitted the proposed review categories.

4.3.2. Evaluation according to each category

As per Section 4.3.1 it is illustrated that review area 2 achieved the highest rating deemed to be acceptable. It is, however, necessary to further evaluate each review category and determine the level of conformance. In this section of the research, each review category is scrutinised to identify the criteria which is deemed to be the prime challenging and good performed area of the authorisations evaluated.

Quality review categories according to the DEAT guidelines

Review categories discussed in the section below focus on the quality criteria identified through the analysis of the DEAT guidelines on the issuing of environmental authorisations. Table 4-4 and Figure 4-8 demonstrate the performance of each category identified in terms of the DEAT guidelines and depict areas of concern and good performance highlighted in red and green respectively.

Table 4-4: Evaluation according to the DEAT guidelines

No.	Criteria Evaluation / Review Categories	"A" – "C"	"D" – "F"
1.1	Are the conditions feasible in the context of the triggered activity?	95% [18]	5% [1]
1.2	Are the conditions too general with a wide spectrum?	74% [14]	26% [5]
1.3	Has monitoring and enforcement been stipulated?	37% [7]	63% [12]
1.4	Has the responsibility of implementation been included when there is more than one party involved?	N/A	N/A
1.5	Are grammar issues up to standard?	100% [19]	0% [0]
1.6	Have highly technical conditions - e.g. Policies, standards and processes been included?	95%[18]	5% [1]
1.7	Do conditions require further investigation?	95% [18]	5% [1]
1.8	Has the priority of important commitments and nice-to-have commitments been distinguished?	5% [1]	95%[18]

* The number presented in brackets refers to the number of authorisations evaluated rating between "A" – "C" and "D" – "F" respectively.

None of the environmental authorisations evaluated involved more than one party; therefore category 1.4 received a "Not Applicable" rating throughout the review.

The majority of the conditions followed the DEAT guidelines. The condition evaluated to have performed the best relates to category 1.5. This condition received a 100% rating between "A" and "C" as highlighted in green in Table 4-4.

The condition evaluated to have performed the worst relates to category 1.8, with 5% reviewed to be of an acceptable standard. A high percentage of 95% was evaluated as being unsatisfactory. The majority of the authorisations reviewed did not distinguish between important conditions that must be adhered to and recommendations or nice-to have-conditions.

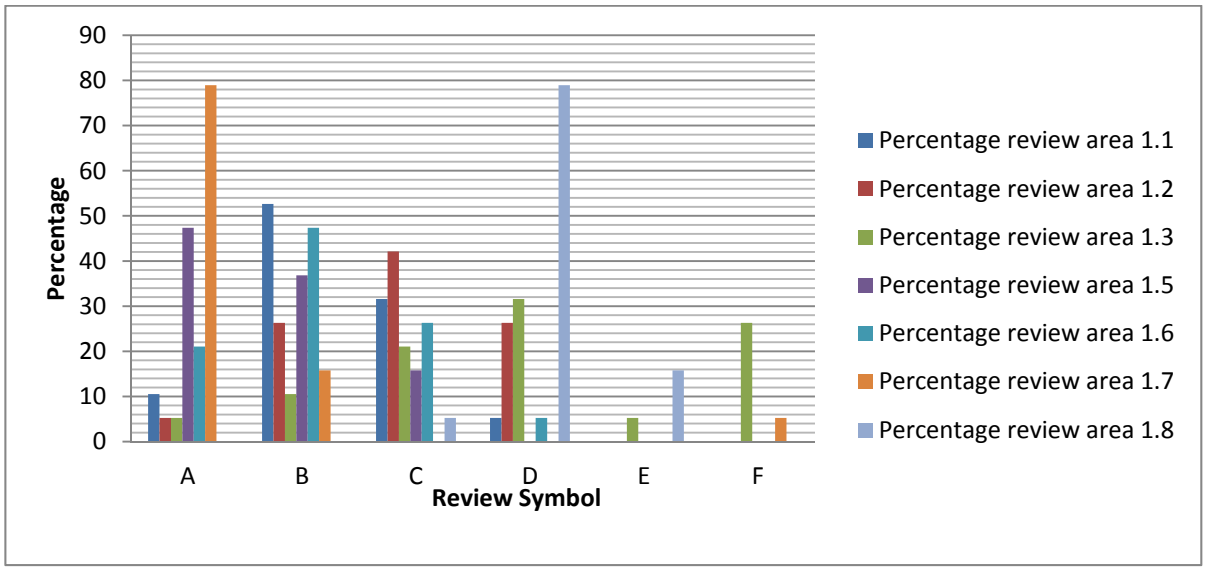

Figure 4-8: Performance illustration of the DEAT guidelines for each category

Quality review categories according to NEMA requirements

The section below focuses on the criteria acknowledged in NEMA. These requirements should at a minimum be adhered to throughout all authorisations reviewed. Each category has been evaluated and the results are discussed below. Table 4-5 and Figure 4-9 illustrate the percentage conformance of each review category and highlight the condition with the highest and the lowest level of conformance highlighted in green and red respectively.

Table 4-5: Evaluation according to NEMA requirements

No.	Criteria Evaluation / Review Categories	"A" – "C"	"D" – "F"
2.1	Has the name, address and telephone number of authorisation holder been included?	100% [19]	0% [0]
2.2	Has a detailed description of the activity been included?	84% [16]	16% [3]
2.3	Has a description of the property on which the activity is to be undertaken been included?	95% [18]	5% [1]
2.4	Do conditions stipulate the period for which the environmental authorisation is valid?	84% [16]	16% [3]
2.5	Do conditions stipulate the requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity?	53% [10]	47% [9]
2.6	Do conditions stipulate the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place?	73% [14]	27% [5]

* The number presented in brackets refers to the number of authorisations evaluated rating between "A" – "C" and "D" – "F" respectively.

It can be seen in Table 4-5 and Figure 4-9 that the majority of the environmental authorisations successfully met the requirements of NEMA. Category 2.1 was deemed satisfactory in all the environmental authorisations reviewed. As illustrated in Table 4-5, 100% of the environmental authorisations reviewed were rated between "A" and "C".

Amongst all the review categories required in terms of NEMA, category 2.5 performed the worst. A large number of authorisations did not effectively address the requirements of reporting and monitoring throughout the life-cycle of the project. This condition only received a 53% compliance rating between "A" and "C".

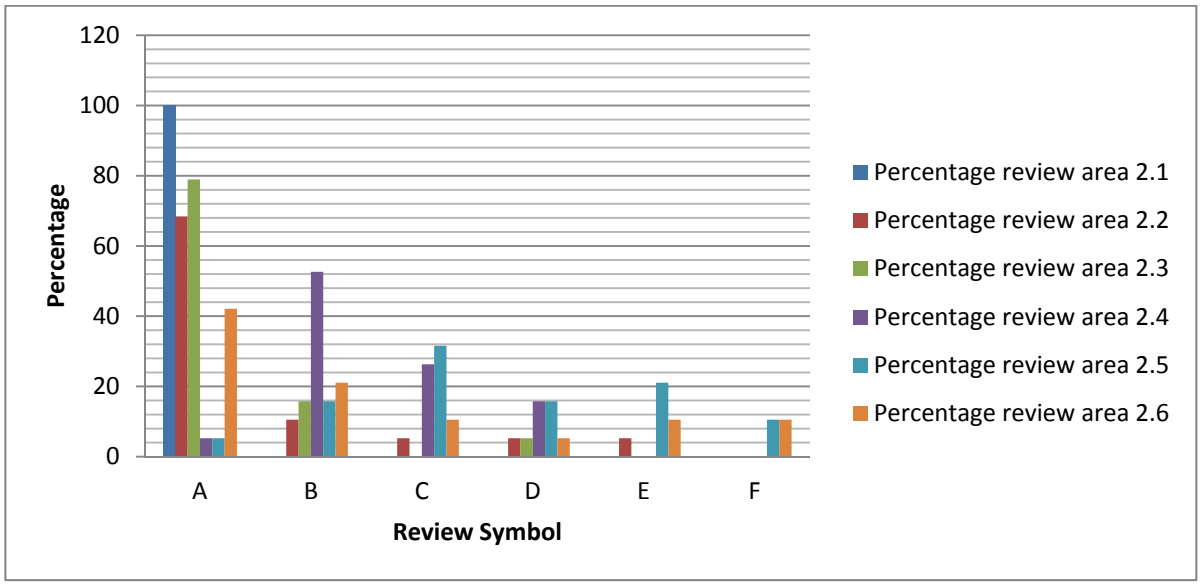

Figure 4-9: Performance illustration of NEMA review categories

Quality review categories deemed to be of significance

Table 4-6 and Figure 4-10 illustrate the performance against the additional criteria. Areas of concern and of good performance are highlighted in red and green respectively.

Table 4-6: Evaluation according to identified review categories

No	Criteria Evaluation / Review Categories	"A" – "C"	"D" – "F"
3.1	Are farm portions and the location correctly stipulated?	100% 19]	0% [0]
3.2	Is the authorisation granted only for activities under the jurisdiction of the competent authority?	90% [17]	10% [2]
3.3	Are the activities auditable?	63% [12]	37% [7]
3.4	Are rehabilitation requirements stipulated?	21% [4]	79% [15]
3.5	Has the environmental authorisation entered into correspondence with the applicant and made a site visit?	79% [15]	21% [4]
3.6	Has the environmental authorisation stipulated the requirements for the applicant and I&APs to submit an appeal?	100% [50]	0% [0]
3.7	Has an alternative been evaluated or decided upon in relation to the proposed activity?	26% [5]	74% [14]

* The number presented in brackets refers to the number of authorisations evaluated rating between "A" – "C" and "D" – "F" respectively.

Table 4-6 and Figure 4-10 demonstrate the performance of each category reviewed in all of the environmental authorisations. It was determined that category 3.1 and 3.6 performed the best, with 100% of the authorisations falling between "A" and "C" review symbols.

It was determined that category 3.4 performed the worsts. Through the assessment of Category 3.4 it was determined that 79% of the authorisations fall between "D" and F" and 21% of the authorisations fall between "A" and "C" review symbols. Again, it must be noted that the requirements for rehabilitation are essential throughout the project life cycle, whether concurrent during construction and operation or post closure. These requirements have not been effectively stipulated in the majority of the authorisations. The requirements of rehabilitation are therefore determined by the degree that these were addressed in the EIA and EMP which supported the environmental authorisation.

Category 3.7 relates to the review of alternatives assessed in the EIA by the competent authority. It is important that reasonable and feasible alternatives are assessed in the EIA and taken cognisance of during the compilation of the environmental authorisation. The authorisation should state that alternatives have been assessed and why, or why not, an alternative was been decided upon. Category 3.7 received a high percentage rating between "D" and "F", with a nominal 26%, 5 authorisations, making reference to alternatives in the authorisation.

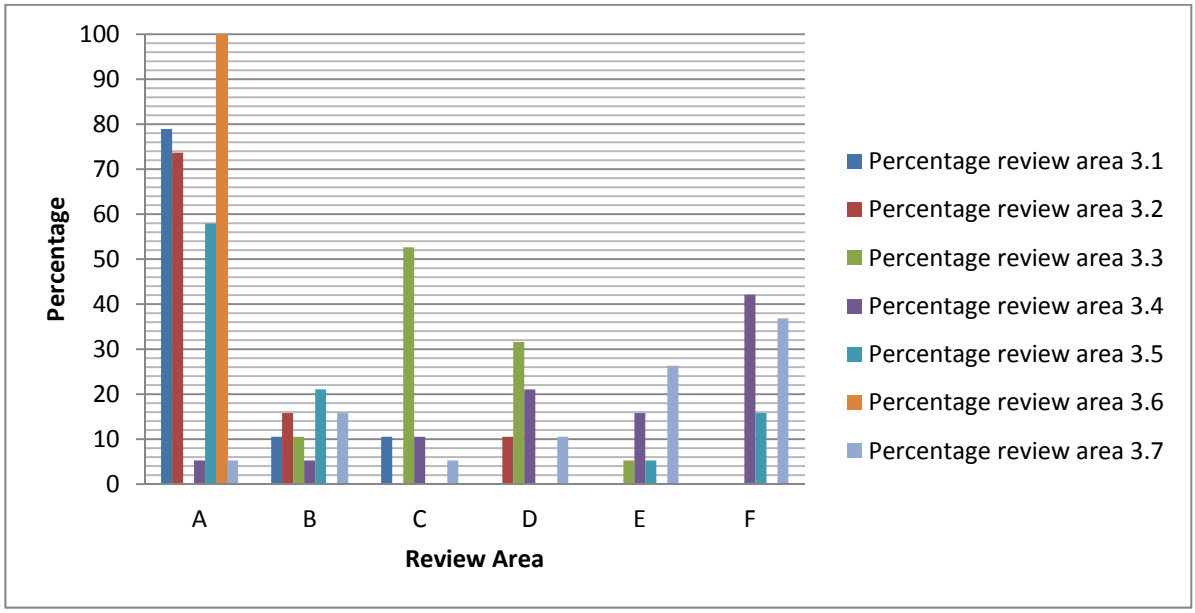

Figure 4-10: Performance illustration of the identified review categories

4.4. Evaluation of S&EIA Environmental Authorisations

Fifty environmental authorisations were evaluated in this research. Of these fifty authorisations thirty one were based on the S&EIA process as described in Section 2.2. These authorisations issued based on a S&EIA process have been further analysed in order to determine the quality of these authorisations, taking cognisance that the purpose of a S&EIA process is to assess a listed activity in terms of NEMA, where the impacts are complex and unknown and of a relatively large scale. All thirty one authorisations were assessed according to the review category as described in Chapter 3. The results of this evaluation are illustrated in Figure 4-11.

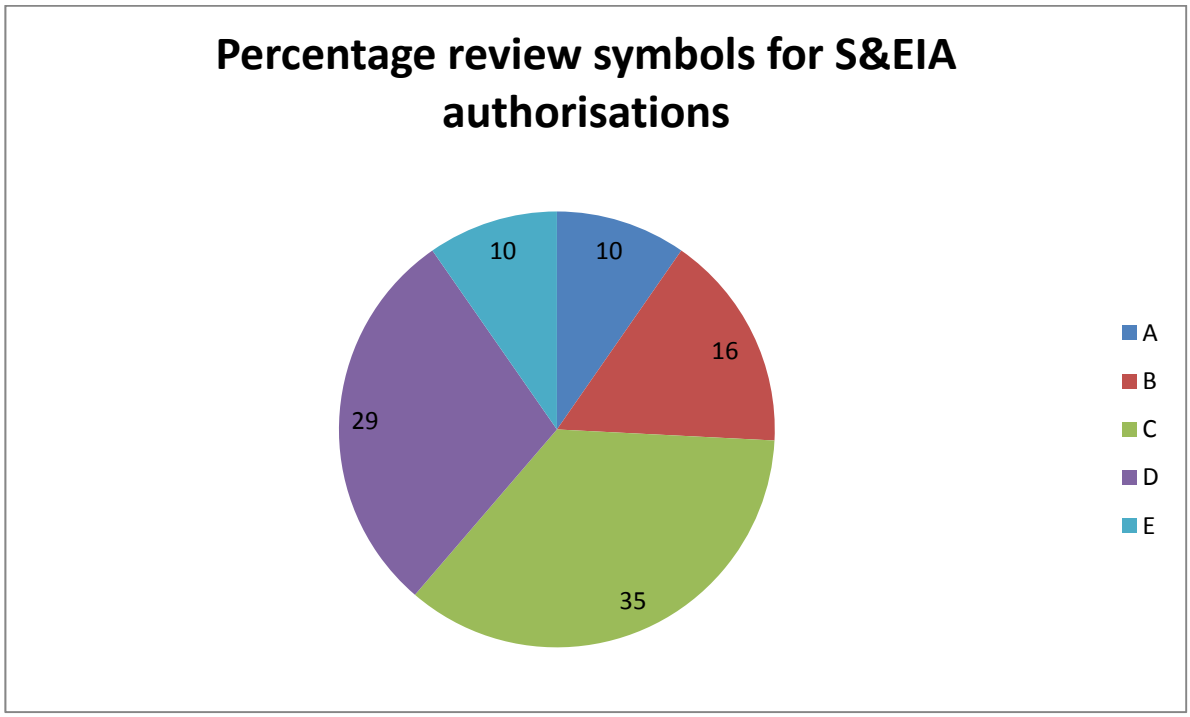

Figure 4-11: Percentage of evaluation ratings for BAR environmental authorisations

A trifling 10% of environmental authorisations evaluated received a highly satisfactory "A" rating. A percentage of environmental authorisations are thus in complete adherence to the legal requirements, the DEAT guidelines, and the review categories determined in this research.

Furthermore only 10% of the authorisations evaluated received an "E" rating. This illustrates a more positive picture, as only a small percentage were considered to be "not satisfactory; significant omissions or inadequacies" and therefore did not meet all the requirements of the review categories used in this research. The review shows that the third lowest percentage received was the "B" review symbol. A 16% of all S&EIA authorisations evaluated received a rating which was "satisfactory with only minor omissions and inadequacies."

The percentage of authorisations that fell under the "C" and "D" review ratings were 35% and 29% respectively. This shows that there is a close relationship of authorisations that were just satisfactory and those that were just unsatisfactory.

About 61% of the authorisations evaluated are deemed to be satisfactory (between "A" and "C"), while 39% are considered to be unsatisfactory (between "D' and "E"). There are a high percentage of authorisations that are considered unsatisfactory. More than a third of the authorisations evaluated show that the applicant was issued with an authorisation of weak quality.

4.4.1. Evaluation of each Review Area

This section takes each review area and determines the area of concern, looking at all the S&EIA authorisations evaluated. The review ratings of each review area are illustrated in Figure 4-12.

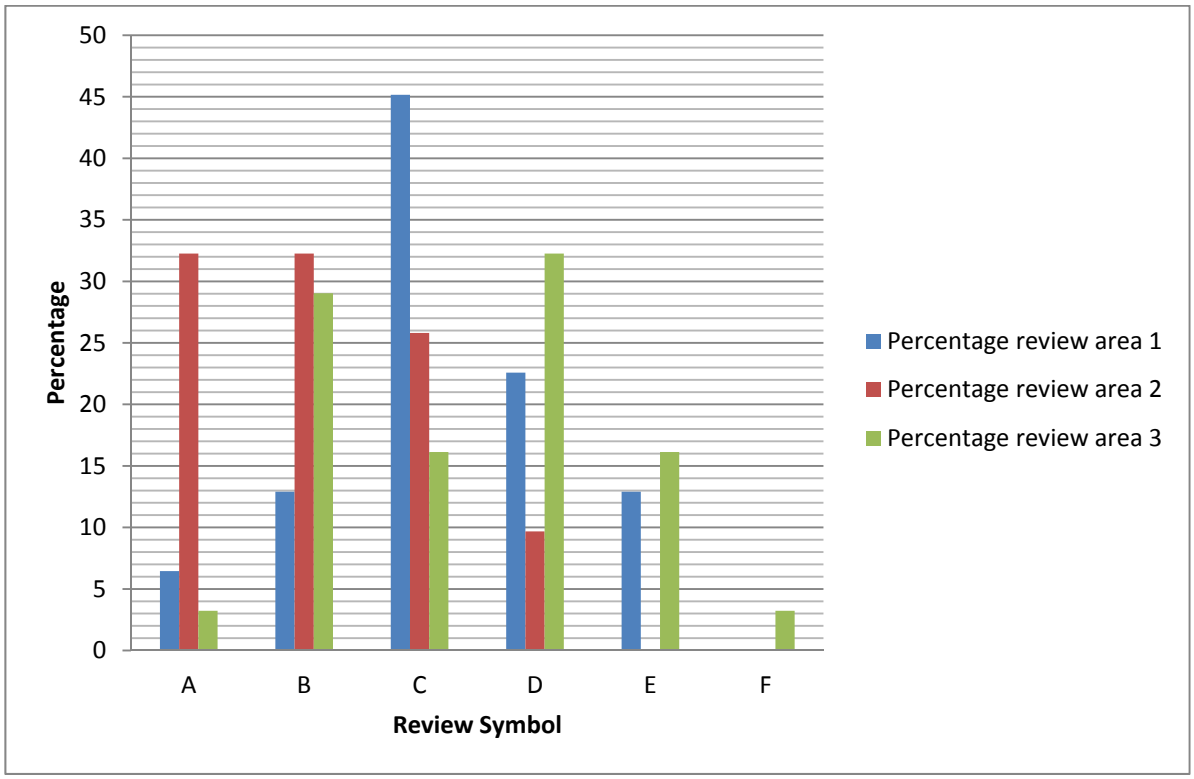

Figure 4-12: Evaluation ratings per review area

Review area 1: Quality review categories according to the DEAT Guideline

It is clear from Figure 4-12 that review area 1 receives the highest percentage of 48% in the review rating "C". There is a very low occurrence of "A" and "F", although it would be preferable to see a higher percentage of "A" ratings. Review area 1 shows a percentage of 67% of ratings between "A" and "C", while a nominal 31% rated between "D" and "F". Therefore, looking at review area 1, the majority of the environmental authorisations evaluated met the bulk of the requirements proposed in the DEAT guidelines.

Review area 2: Quality review categories according to NEMA

From Figure 4-12 it can been seen that the highest percentage falls under rating "A" and "B" (32% each), illustrating that most of the environmental authorisations evaluated showed an excellent adherence to the legislative requirements as stipulated in NEMA. A significant 90% of the environmental authorisations fall between the ratings of "A" and "C with 10% falling within the ratings "D" to "F". It can thus be concluded that the majority of the environmental authorisations assessed meet the requirements as stipulated in NEMA.

Review area 3: Quality review categories of significance

Regarding the review area 3, Figure 4-12 illustrates that only 48% of the environmental authorisations fall between ratings "A" and "C" while a significant 52% falls between ratings "D" and "F". It must be noted that review area 3 is not a legal requirement, nor is it stipulated in the DEAT guideline. It is a set of quality review categories deemed significant, by the author, in order to reach the objectives of Chapter 5 of NEMA.

4.4.2. Evaluation according to each Review Category

As per Section 4.4.1 it is illustrated that review area 2 achieved the highest ratings of conformance. It is, however, necessary to further evaluate each review category. In this section of the research, each

review category is analysed to identify the review categories which is deemed to be the principal problematic area of the authorisations evaluated.

Quality review categories according to the DEAT guidelines

The categories discussed in the section below focus on the quality review categories identified through the analysis of the DEAT guidelines on the issuing of environmental authorisations. Table 4-7 and Figure 4-13 illustrates the performance of each category identified in terms of the DEAT guidelines and portray areas of concern and good performance highlighted in red and green respectively.

Table 4-7: Evaluation according to the DEAT guidelines

No.	Criteria Evaluation / Review Categories	"A" – "C"	"D" – "F"
1.1	Are the conditions feasible in the context of the triggered activity?	77% [24]	23% [7]
1.2	Are the conditions too general with a wide spectrum?	71% [22]	29% [9]
1.3	Has monitoring and enforcement been stipulated?	48% [15]	52% [16]
1.4	Has the responsibility of implementation been included when there is more than one party involved?	N/A	N/A
1.5	Are grammar issues up to standard?	97% [30]	3% [1]
1.6	Have highly technical conditions - e.g. Policies, standards and processes been included?	90%[28]	10% [3]
1.7	Do conditions require further investigation?	100% [32]	0% [0]
1.8	Has the priority of important commitments and nice-to-have commitments been distinguished?	32% [10]	68%[21]

* The number presented in brackets refers to the number of authorisations evaluated rating between "A" – "C" and "D" – "F" respectively.

None of the environmental authorisations evaluated involved more than one party, so category 1.4 received a "Not Applicable" rating throughout the review. Most of the conditions conformed to the DEAT guidelines. The condition evaluated to have performed the best relates to condition 1.7, as illustrated above in green with a 100% rating between "A" and "C".

The condition evaluated to have performed the best relates In review area 1 relates to condition 1.8, with 5% reviewed to be of an acceptable standard. A high 95% was evaluated as being unsatisfactory. The majority of the authorisations reviewed did not distinguish between important conditions that must be adhered to and recommendations or nice-to have-conditions.

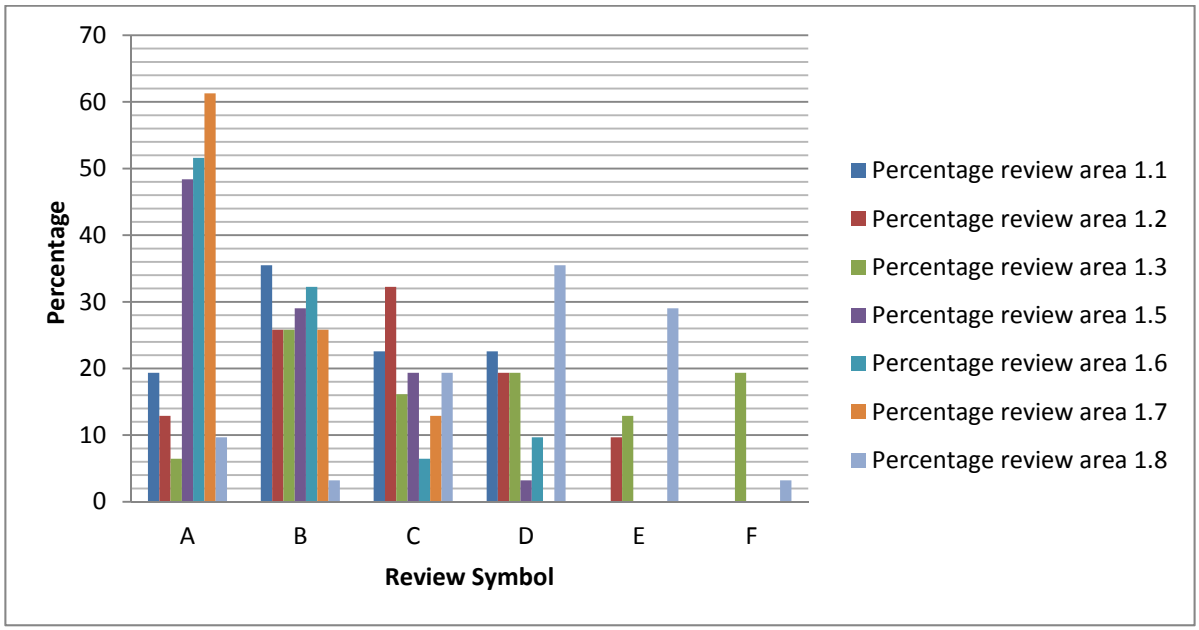

Figure 4-13: Performance illustration of the DEAT guidelines for each category

Quality review categories according to NEMA requirements

The section below focuses on the review categories acknowledged in NEMA. These principles should at a minimum be adhered to throughout all authorisations reviewed. Each category has been evaluated and the results are discussed below. Table 4-8 and Figure 4-14 illustrate the percentage conformance of each category and highlight the condition with the highest and the lowest level of conformance highlighted in green and re respectively.

Table 4-8: Evaluation according to NEMA requirements

No.	Criteria Evaluation / Review Categories	"A" – "C"	"D" – "F"
2.1	Has the name, address and telephone number of authorisation holder been included?	100% [31]	0% [0]
2.2	Has a detailed description of the activity been included?	87% [27]	13% [4]
2.3	Has a description of the property on which the activity is to be undertaken been included?	97% [30]	3% [1]
2.4	Do conditions stipulate the period for which the environmental authorisation is valid?	77% [24]	23% [7]
2.5	Do conditions stipulate the requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity?	48% [15]	52% [16]
2.6	Do conditions stipulate the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place?	71% [22]	29% [9]

* The number presented in brackets refers to the number of authorisations evaluated rating between "A" – "C" and "D" – "F" respectively.

It can be seen in Table 4-8 and Figure 4-14 that the majority of the environmental authorisations that have been evaluated successfully met the legal requirements stipulated in NEMA. Category 2.1 received the highest review rating with all the environmental authorisations reviewed deemed to be compliant. As illustrated in Table 4-8, 100% of the environmental authorisations reviewed were rated between "A" and "C".

Numerous authorisations did not effectively address the requirements of reporting and monitoring throughout the life-cycle of the project. This condition only received a 48% compliance rating between "A" and "C". Category 2.5 performed the worst of all criteria required in terms of NEMA.

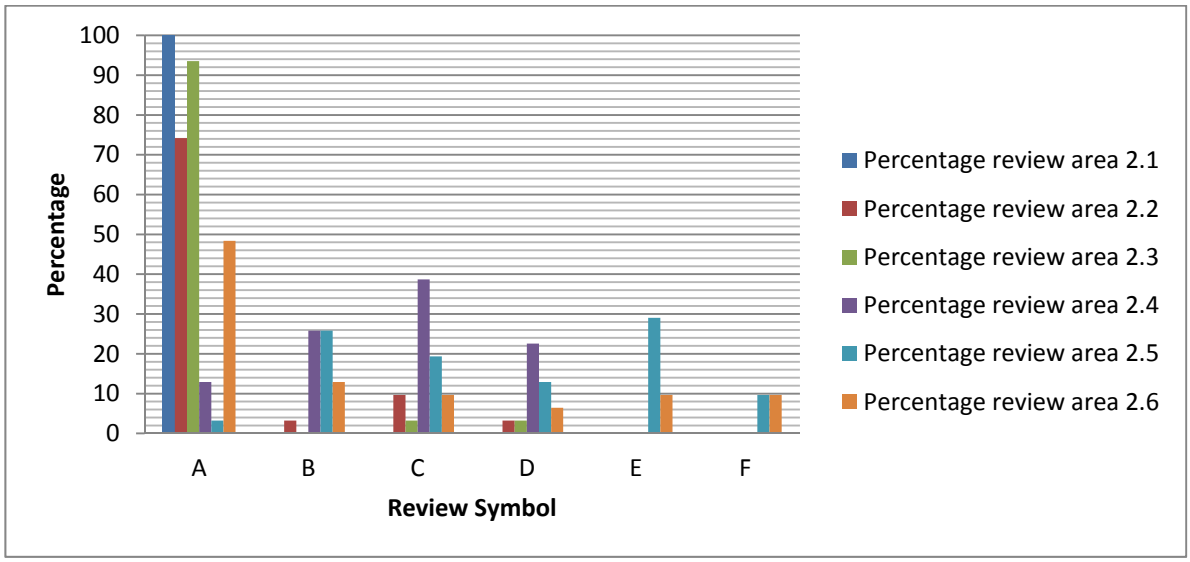

Figure 4-14: Performance illustration of NEMA review categories

Quality review categories deemed to be of significance

The section below focuses on the review categories identified by the author to be of significant to the issuing of good quality EA. These were assessed in order to determine the level of conformance to each review category. Table 4-9 and Figure 4-15 illustrate the performance of these review categories. Areas of concern and of respectable performance are highlighted in red and green respectively.

Table 4-9: Evaluation according to identified review categories

No	Criteria Evaluation / Review Categories	"A" – "C"	"D" – "F"
3.1	Are farm portions and the location correctly stipulated?	94% [29]	6% [2]
3.2	Is the authorisation granted only for activities under the jurisdiction of the competent authority?	97% [30]	3% [1]
3.3	Are the activities auditable?	65% [20]	35% [11]
3.4	Are rehabilitation requirements stipulated?	26% [8]	74% [23]
3.5	Has the environmental authorisation entered into correspondence with the applicant and made a site visit?	68% [21]	32% [10]
3.6	Has the environmental authorisation stipulated the requirements for the applicant and I&APs to submit an appeal?	100% [31]	0% [0]
3.7	Has an alternative been evaluated or decided upon in relation to the proposed activity?	39% [12]	61% [19]

* The number presented in brackets refers to the number of authorisations evaluated rating between "A" – "C" and "D" – "F" respectively.

Table 4-9 and Figure 4-15 present the performance of each category reviewed in all of the environmental authorisations. It is illustrated that category 3.6 performed the best, as 100% of the authorisations fall between "A" and "C". Category 3.4 performed the worst with 74% of the authorisations falling between "D" and F". The requirements of rehabilitation have thus not been stipulated in the majority of the authorisations and the entire issue of the rehabilitation of the site during and following construction and closure was reliant on the degree to which an evaluation of the requirements for rehabilitation had been done in the EIA/EMP. This was closely shadowed by

category 3.7, which focused on the effective use of alternatives reviewed by the competent authority in the EIA/EMP. It is of the highest importance that reasonable and feasible alternatives are evaluated and that reasons are given for the decision made on the preferred alternative stipulated in the authorisation. The evaluation of alternatives should not be a checklist conducted by organs of states, but should be reviewed in detail to determine if the preferred alternative as stipulated in the EIA is indeed the preferred option. The results of this evaluation were surprisingly low in category 3.7, with twelve (39%) of the authorisations either making mention of the alternatives or authorising an alternative above the proposed alternative stipulated in the EIA.

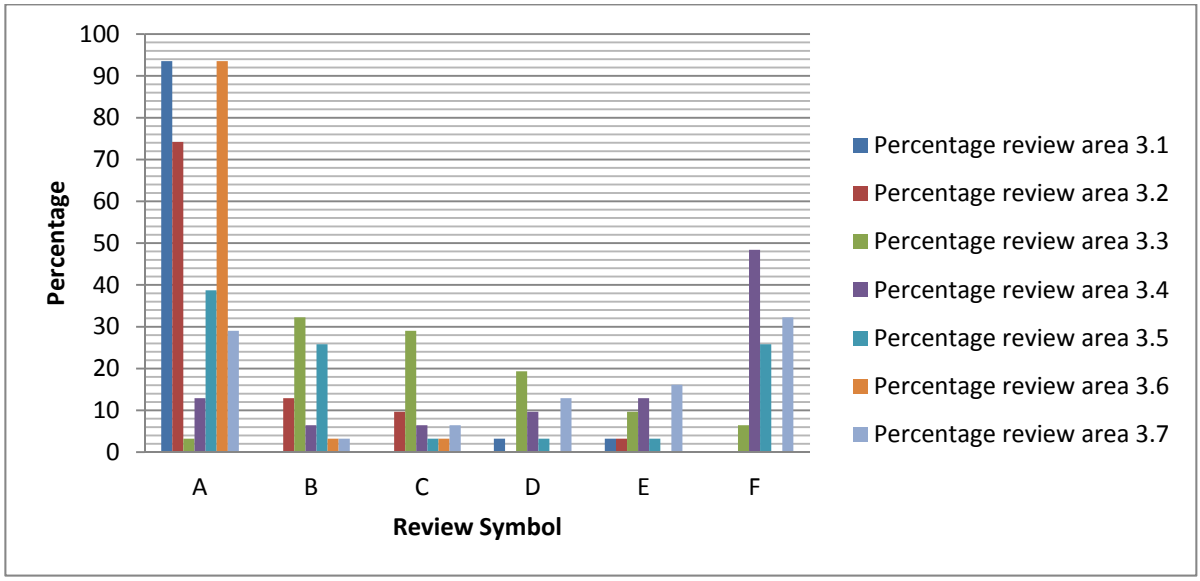

Figure 4-15: Performance illustration of the identified review categories

4.5. Quality Comparison between BAR and S&EIA Authorisations

This sections describes a comparison in quality of environmental authorisations issued between BAR and S&EIA projects.

The total quality percentage for each review symbol was compared against the authorisation for BAR and S&EIA. Furthermore, each review area was compared against the authorisations for each process and the areas of weakness determined. Strengths and weakness in the quality of BAR and S&EIA authorisations are highlighted. Table 4-10 illustrates the comparison between BAR and S&EIR authorisation quality.

Table 4-10: Comparison between BAR and S&EIA authorisation quality

Process	Review Symbols					
	A	B	C	D	E	F
BAR	69%			31%		
	5%	32%	32%	21%	10%	0%
S&EIA	61%			39%		
	10%	16%	35%	29%	10%	0%

From Table 4-10 it can be seen that the BAR authorisation review performance illustrates a better quality once compared to authorisations issued for the S&EIA process. The BAR process received a rating of 69% between “A” and “C” while the S&EIA process received a 61% rating between “A” and “C”. It must be noted that a higher percentage of the authorisations issued for a S&EIA received an “A” rating, illustrating that the authorisation was in complete compliance with all review areas. The decline in the S&EIA authorisation quality was the lower “B” and higher “D” rating.

4.5.1. Evaluation of each Review Area

This section takes each review area and determines the area of highest concern, looking at all the BAR and S&EIA authorisations evaluated. The review ratings of each review area are illustrated in Table 4-11.

Table 4-11: Comparison of review areas for BAR and S&EIA authorisation quality

Review Area	A	B	C	D	E	F	A - C	D - F
BAR 1[1]	5%	26%	37%	32%	0%	0%	68%	32%
S&EIA 1[1]	6%	13%	45%	23%	10%	0%	64%	36%
BAR 2[2]	11%	58%	16%	11%	5%	0%	84%	16%
S&EIA 2[2]	32%	32%	26%	10%	0%	0%	90%	10%
BAR 3[3]	0%	21%	21%	32%	36%	0%	42%	58%
S&EIA 3[3]	3%	29%	16%	32%	16%	3%	48%	52%

1. Quality review categories according to the DEAT guidelines
2. Quality review categories according to NEMA
3. Quality review categories deemed to be of significance

From Table 4-11 it can be seen that the quality of a BAR and S&EIA does not differ significantly.

Quality review categories according to the DEAT Guidelines

The S&EIA authorisations received higher “A”, “C” and “E” rating than the BAR process with a final rating of 64% between “A” and “C”, thus illustrating that more than half of the authorisations assessed received a rating that was acceptable. The BAR process received a higher “B” and “D” rating with a final rating between “A” and “C” of 68%, slightly higher than the S&EIA process. This illustrates that there is not much difference between the S&EIA and BAR process with regards to quality review categories determined in the DEAT guidelines. Both the S&EIA and BAR thus have conformed equally to the DEAT guidelines, irrespective of the level of assessment.

Quality review categories according to NEMA

The BAR authorisations received higher “B”, “D”, and “E” ratings with a final rating between “A” and “C” of 85%. The S&EIA received a high rating in “A”, “C” giving a final rating between “A” and “C” or 90%. The S&EIA process performed slightly better with regards to the requirements of NEMA described in the authorisations. Taking consideration of the level of assessment and the size of developments that fall within a S&EIA more effort has been placed on meeting NEMA requirements.

Quality review categories deemed to be of significance

The S&EIA authorisations received a higher “A”, “B” and “F” rating with a final rating between “A” and “C” of 48%. The BAR process received a higher rating in “C” and “E” with an equal rating to the S&EIA in “D” ratings. The BAR final rating of 42% between “A” and “C” illustrates that there is minimal difference between the BAR and S&EIA process with regards to the authorisations reviewed in this research.

Following the comparison between the BAR and S&EIA it can be concluded that regardless of the infrastructure or project importance and level of assessment between a BAR and S&EIA there is minimal difference in the quality of the environmental authorisation issued. The BAR process received a 69% while the S&EIA received a 61% rating between the review symbols of “A” and “C”. The S&EIA and BAR differed by 4% when reviewed according to the DEAT guidelines, 6% when reviewed according to NEMA and additional categories. The S&EIA performed the best review areas 2 and 3 while the BAR performed the best I review areas 1.

5. Chapter 5: Conclusions and Recommendations

This section discusses the conclusions drawn from the research results and makes recommendations in the light of the research aims and objectives as explained in Chapter 1. Each research question will be answered according to the results obtained in this research project.

5.1. What Criteria Exist, against which to Evaluate the Quality of Environmental Authorisations?

The literature review resulted in the identification of three review areas with a total of 31 review categories. The breakdown of the review areas and review categories can be found in Table 2-1.

As explained in Section 2.4, review categories have been determined using NEMA requirements, DEAT guideline requirements as well as additional review categories deemed necessary to achieve the objectives of Chapter 5 of NEMA. Eight review categories were determined using the DEAT guidelines (Section 2.4.1), six from NEMA (Section 2.4.2) and seven additional criteria (Section 2.4.3).

5.2. What is the Quality of Authorisations Issued for the BA Process?

Nineteen authorisations issued under the BAR process of NEMA were assessed according to the quality review categories designed for the purpose of this research. The analysis of these authorisations showed that 69% of all the authorisations were rated between “A” and ”C” iterating the high percentage of authorisations within the range that is deemed acceptable.

Each review area was further analyses and compared to determine the area of weakness and strength. From this analysis it is concluded that review area 2 performed the best with an 85% rating deemed acceptable, illustrating that most of the authorisation were in complete compliance to NEMA requirements. Review area 1 followed with 68% acceptable ratings, with review area 3 performing the worst with 42% acceptable ratings.

5.3. What is the Quality of the Authorisations Issued for the S&EIA Process?

Thirty one authorisations issued for S&EIA in terms of NEMA were reviewed according to the quality review categories determined for the purpose of this research. The analysis showed that 61% of all authorisations fell within the acceptable range of between “A” and “C”. Each review area was further analysed and the areas of weakness and strength determined. Review area 2 performed the best with a 90% acceptable rating. Review area 1 followed with 67% rating deemed to be acceptable. Review area 3 performed the worst with 48% rating deemed acceptable.

5.4. How does the Quality of Environmental Authorisations Compare across the BA and S&EIA Process?

All authorisations whether for a BAR or S&EIA were compared and the difference in quality of the authorisations determined. The BARs performed best with a 69% acceptable rating compared to a 61% acceptable rating for the S&EIAs. This was further broken down for each review area. Review area 2 performed the best for both BAR and S&EIA with an 85% and 90% acceptable rating respectively followed by review area 1 with a 68% and 64% acceptable rating respectively. Finally review area 3 performed the worst in both the BAR and S&EIA with 42% and 48% acceptable ratings respectively.

The BAR process overall slightly outperformed the S&EIA process with can be attributed to the increased complexity of S&EIA. It is reasonable to argue that the quality of S&EIA authorisations is particularly important because these applications generally represent higher impact activities which require intense mitigation and management to prevent undue environmental harm.

5.5. How do Environmental Authorisations perform against the designed quality review areas and categories?

5.5.1. DEAT guidelines

Most of the conditions set in the authorisations adhered to the DEAT guidelines. The categories that performed the best were 1.5 and 1.7. A nominal 2% of all the conditions showed a rating between "D" and "F", which was deemed to be unsatisfactory with 98% of the authorisations were deemed acceptable (between "A" and "C" ratings).

Review area 1, category 1.8 performed worst, with only 18% evaluated as being of an acceptable standard. The DEAT guidelines stipulate that the authorisations should determine whether conditions are essential and have a higher priority than others, and whether conditions can have a lower priority rating in the broader spectrum of the project authorised. Most of the authorisations did not distinguish between important conditions that must be adhered to, and recommendations or nice-to-have conditions.

5.5.2. NEMA requirements

Most of the environmental authorisations effectively meet the requirements of NEMA. Review category 2.1 was deemed satisfactory in all the environmental authorisations evaluated. As illustrated in Table 4-2, 100% of the environmental authorisations evaluated were rated between "A" and "C".

Review category 2.5 performed the worst with numerous authorisations (52%) that did not effectively address the requirements of reporting and monitoring throughout the life-cycle of the project.

5.5.3. Additional review categories

It has been illustrated that category 3.1 performed the best with 97% of the authorisations rated between "A" and "C".

Category 3.4 performed the worst with 76% of the authorisations rating between "D" and F". About 24% of the authorisations were deemed acceptable and were rated between "A" and "C". The requirements of rehabilitation have thus not been stipulated in the majority of the authorisations. Category 3.4 was closely followed by category 3.7, which focused on the effective evaluation by the competent authority of the alternatives given in the EIA/EMP. It must be iterated that alternatives form an important aspect of the EIA. The authorisation should make reference to the review of the proposed alternatives and the reasoning why a certain alternative has been preferred. The results of the review show that only 34% made mention of the evaluation of alternatives.

It can be clearly seen that the quality criteria identified as part of this research performed the worst. These additional review categories identified should be used as additional quality criteria should be taken into consideration when compiling an environmental authorisation.

5.6. Concluding remarks

Through this research it is concluded that conformance is higher in relation to NEMA than in relation to the DEAT guidelines, with most authorisations receiving a rating between "A" and "C" for NEMA related categories. This is not unexpected since NEMA would typically be considered the minimum

requirements and the DEAT guidelines more as a best practice. Authorisations achieved a relatively weak performance against the additionally proposed categories described in section 2.4.3, which is confirmed by the low percentage of “A” to “C” ratings. The authorisations issued for the BA process ultimately performed better than the authorisation issued for a S&EIA process. This was not expected, considering the nature, complexity and importance of activities triggering a S&EIA process.

In order to progress research on authorisation quality this dissertation concludes by recommending the following areas of future research:

- Analyse the quality of authorisations for specific types of applications. This might indicate particular strengths of weaknesses related to particular activities;
- Expanding the review to include authorisations for mining, air quality, waste, etc. Such research could potentially shed light on the potential difference in quality between different regulatory regimes;
- Exploring the link between the quality of the EIA report and the eventual authorisation quality. Also, to what extent the content of EIA reports are incorporated in the eventual authorisation;
- Explore the qualifications and competencies of the EAP, which indirectly has an impact on the quality of an EIA report.

References

AWARD, 2008. *Water Legislaton for Local Government,* Pretoria: DWA.

Carrol, B. & Turpin, T., 2002. *Environmental Impact Assessment Handbook.* London: Thomas Telford.

Chamber of Mines Of South Africa, 2007. *Guideline for the Rehabilitation of Mine Land,* Johannesburg: Chamber of Mines Of South Africa/Coaltech.

Coert, N. J., C, W., Retief, F. & Sandham, L., 2011. Performance of environmental impact assessment (EIA) screening in South Africa: a comparative analysis between the 1997 and 2006 EIA regimes. *South African Geographical Journal,* 93(2), pp. 154-171.

Council on Environmental Quality, 2007. *A Citizen's Guide to the NEPA: Having Your Voice Heard,* USA: Executive Office of the Presedent of the United States.

Currumbin Wildlife Sanctuary, 2010. *Responsible Tourism: The Case of Currumbin Wildlife Sanctuary. The Triple Bottom Line.* [Online]
Available at: http://daniellegunning.wordpress.com/2010/04/27/the-triple-bottom-line/
[Accessed Monday 13 May 2013].

DEA, 2011. *National Environmental Compliance and Enforcement Report.* Pretoria: DEA.

DEA, 2012. *Integrated Environmental Management Guideline Series (Guideline 5) - Companion to the Environmental Impact Assessment Regulations 2010.* Pretoria: Governmental Gazette.

DEA, 2013. *Efficacy of SA's Environmental Impact Assessment (EIA) Regime.* Pretoria , Portfolio Committee Parliamentary Hearing.

DEAT, 1998. *Environmental Management Policy for South Africa,* Pretoria: Governmental Gazzette.

DEAT, 2004. *Environmental Auditing, Integrated Environmental Management, Infomration Series 14,* Pretoria: Department of Environmental Affairs and Tourism.

DEAT, 2004. *Environmental Auditing, Integrated Environmental Management, Information Series 14, Department of Environmental Affairs and Tourism (DEAT).* Pretoria: s.n.

DEAT, 2009. *Authorization Manual for assessing Environmental Authorizations.* Pretoria: DEAT.

DETR, 1997. *Mitigation Measures in Environmental Statements. Department of the Environment, Transport and the Regions (DETR),* London: Rotherham UK.

DWA, 2011. *Letsema Project on Target to Achieve WULA. [press release]..* Pretoria, DWA.

DWAF, 1997. *White paper on a National water policy for South Africa,* Governmental Printers, Pretoria: DWA.

DWAF, 2008. *Best Practise Guideline H1: Integrated Mine Water Management,* Pretoria: DWAF.

EIAMS, 2011. *Subtheme 4: Compliance and Enforcement,* Pretoria: Department of Environmental Affaris.

Freemantle, S., 2008. *A comparative study of the quality and outcomes of Environmental Impact Assessment Reports from the Free State and Northern Cape Provinces,* Bloemfontein: University of the Free State.

Gaunteng Department of Environmental Affairs and Development Planning, 2006. *NEMA Environmental Impact Assessment Regulations, Guideline and Information Document Series. Guideline on Alternatives,* Johannesburg: GDARD.

Glasson, J., Therivel, R. & Chadwick, A., 2005. *Introduction to Environmental Impact Assessment.* 3rd ed. London: Routledge.

Glazewski, J., 2005. *Environmental Law in South Africa.* 2nd ed. Durban: Butterworth.

Gore, S., 2009. *Expediting Environmental Authorization Processes - International Law Office.* [Online]
Available at: http://www.internationallawoffice.com/newsletters/Detail.aspx?g=33f1565c-2368-40f5-af5e-2b19e6c6557f
[Accessed 15 July 2013].

Jennings, P., 2011. *An Assessment of the formulation of permit conditions associated with Environmental Authorizations and Implications for Compliance Monitoring. Dissertation,* Alice: University of Fort Hare.

Kidd, M. & Retief, F., 2009. *Environmental assessment. In. Strydom H, King N, editors. Fuggle and Rabie's Environmental Management in South Africa.* Cape Town: Juta Publishing.

Leedy, P. & Omrod, J., 2005. *Practical Research: Planning and Design,* USA: Pearson Merrill Prentice Hall.

Lee, N. & Colley, R., 1999. *Reviewing the quality of Environmental statements. EIA Centre, Department of Planning and Landscape, University of Manchester..* 2nd ed. Manchester. Occational paper 55: EIA Centre, Department of Planning and Landscape, University of Manchester.

Lochner, P., 2005. *Guideline for Environmental Management Plans.* Cape Town: Republic of South Africa, Provincial Government of Western Cape, Department of Environmental Affairs & Development Planning.

Magaliesberg Protection Association vs Kgaswane Country Lodge (Pty) Ltd. (2010) Leeuw.J.P.

Marshall, R., 2001. Application of mitigation and its resolution within environmental impact assessments: an industrial perspective. *Impact Assessment and Project Appraisal,* 19(3), pp. 195-204.

Mbhele, P. M., 2009. *The quality of EIA reports for housing developments in the Nkangala district of the Mpumalanga province, South Africa. Dissertation.* Potchefstroom: NWU.

Molwantwai, D. J. & Nthab, N., 2010. *Streamlining the Integrated Water Use License Application (IWULA) process for easier assessment by the Department of Water Affiars (DWA),* Johannesburg: Digby Wells Environmental.

Morrison Saunders, A. & Retief, F., 2012. Walking the Sustainable Development Talk - Progressing the Practice of Environmental Impact Assessment (EIA). *Environmental Impact Assessment Review,* Volume 36, pp. 34-41.

Nkondo, M., Van Zyl, F., Keuris, H. & Schreiner, B., 2012. *Draft National Resources Strategy 2 (NWRS 2): Managing Water for an equitable and Sustainable future.,* Pretoria: Department of Water Affairs.

O'Brien, J. & Owen, J. B., 2012. *Final Basic Assessment Report for the Proposed Bulk Fuel Storage Expansion Project,* Johannesburg: WSP Environmental.

OECD, 2004. *Assuring Environmental Compliance:A toolkit for building better environmental inspectorates in Eastern Europe, Caucasual and Central Asia.,* Europe: European Commission.

Owens, A. & Burke, J., 2009. *A consolidated approach to Implementing Best Practice Guidelines, Water Use License Conditions and Integrated Water and Waste Management Plans in the Mining Environment - Opportunities and Challenges.* Pretoria, Document Transformation Technologies cc.

Peterson, K., 2010. Quality of environmental impact statements and capability of scrutiny by reviewers. *Environmental Impact Assessment Review,* Volume 30, pp. 169-176.

Pischke, F. & Cashmore, M., 2006. Decision-oriented environmental assessment: An empirical study of its theory and methods. *Environmental Impact Assessment Review,* 26(2006), pp. 643-662.

Pope, J., Bond , A., Morrison-Saunders , A. & Retief, F., 2013. Advancing the theory and practice of impact assessment: Setting the research agenda.. *Environmental Impact Assessment Review,* Volume 41, pp. 1-9.

Retief , F. P. & Chabalala, B., 2009. The cost of Environmental Impact Assessment (EIA) in South Africa. *Journal of Environmental Assessment Policy and Management,* 11(1), pp. 51-68.

Retief, F., 2010. The Evolution of environmental assessment debates - Critical Perspective from South Africa. *Journal of Environmental Assessmnent Policy and Management,* 12(4), pp. 1-23.

Sandham, L. A. & Pretorius, H. M., 2008. A review of the EIA report quality in the North West province of South Africa. *Environmental Impact Assessment Review,* 28(4-5), pp. 229-240.

Sandham, L., Carrol, T. & Retief, F., 2010. 'The contribution of Environmental Impact Assessment (EIA) to decision making for biological pest control in South Africa – the case of Lantana camara. *Biological Control,,* 55(1), pp. 141-149.

Sandham, L., Hoffmand, A. & Retief, F., 2008. Reflections on the quality of mining EIA reports in South-Africa. *The Journal of The Southern African Institute of Mining and Metallurgy,* 108(1), pp. 701-706.

Sandham, L., Retief, F. & Moloto, M., 2008. The quality of environmental impact assessment reports for projects with the potential of affecting wetlands. *Water SA,,* 34(2), pp. 155-162.

Sandham, L., Van Heerden, A., Jones, C. & Retief, F., 2013. Does Enhanced Regulation Improve EIA Report Quality? Lessons from South Africa. *Environmental Impact Assessment Review,* 38(1), pp. 155-162.

Steenkamp, C., 2009. *The efficiency and alignment of planning and environmental impact assessment (EIA) authorisation processes in the Mpumalanga Province.* Potchefstroom: M. Environmental Management, NWU.

Terratest (Pty) Ltd, 2010. *Greater Mpofana Bulk Water Supply Scheme, Environmental Impact Assessment: Rehabilitation Plan.* Hilton: Terratest (Pty) Ltd.

Tinker, L., Cobb, D., Bond, A. & Cashmore, M., 2005. Impact mitigation in environmental impact assessment: paper promises or the basis of consent conditions. *Impact Assessment and Project appraisal,* 23(4), pp. 265-280.

Tucker, C. & Muleza, T., 2010. *Penalty for failing to obtain water-use licence can be severe.* [Online] Available at: http://www.polity.org.za/article/penalty-for-failing-to-obtain-water-use-licence-can-be-severe-2010-04-12
[Accessed Sunday May 2013].

Wessels, J. A., 2005. *Environmental Authorisations and Mining Organisations.* Potchefstroom: North West University. Dissertation - M.Sc.

Wiseman, N. & Rossouw, N., 2004. Learning from the implementation of environmental public policy instruments after the first ten years of democracy in South Africa. *Impact Assessment and Project Appraisal,* 22(2), p. 131–140.

Wood, C., 2003. *Environmental Impact Assessment: A Comparative Review.* Edinburgh, Prentice Hall.

Wood, C. & Jones, C. E., 1997. The effect of environmental assessment on UK local planning authority decisions. *Urban Studies ,* 34(8), pp. 1237-1257.

Appendix 1 – Authorisation Matrix

Review Category	AUTHORISATIONS									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	45-50
1.1	B	D	B	B	B	A	C	C	D	B
	D	B	C	A	B	C	D	D	D	B
	C	B	C	A	C	B	C	B	B	A
	C	C	A	A	D	C	A	B	B	B
	C	B	A	B	B	B	D	B	B	C
1.2	C	D	D	B	C	B	D	C	D	C
	D	B	D	A	B	D	E	E	E	B
	C	B	C	B	C	B	C	C	D	C
	D	C	A	A	C	C	A	B	B	C
	C	C	A	C	B	C	D	D	B	B
1.3	C	B	B	B	D	A	E	E	F	D
	C	F	E	B	F	F	F	E	E	F
	C	C	F	F	D	F	C	C	F	D
	C	B	B	B	D	F	B	B	C	A
	D	D	A	D	D	C	D	B	D	D
1.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.5	B	D	B	A	A	A	C	C	B	A
	A	A	B	C	A	C	C	C	B	A
	B	C	B	B	A	B	A	A	B	A
	A	B	A	B	A	B	A	A	C	A
	A	A	A	C	B	A	B	A	A	B

Review Category	AUTHORISATIONS									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	45-50
1.6	A	A	A	A	A	A	D	A	A	A
	B	B	A	A	C	B	B	B	B	D
	A	B	B	B	D	B	C	C	C	B
	A	A	A	A	D	A	A	A	B	B
	A	B	B	B	C	B	B	B	C	C
1.7	A	C	C	A	A	A	A	A	A	A
	B	B	B	A	C	A	A	A	A	C
	B	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	B	B	B	B	B
	A	A	A	A	A	A	B	B	F	A
1.8	C	E	D	E	C	C	A	D	D	C
	E	D	D	F	C	E	E	E	E	E
	E	A	E	D	D	D	D	D	D	D
	E	E	B	D	D	D	D	D	D	C
	D	D	A	C	D	D	D	D	D	D
2.1	A	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	A
2.2	A	A	A	A	A	A	A	A	A	A
	B	A	B	A	A	D	D	C	C	B
	C	A	B	A	B	B	A	A	C	A
	E	B	A	A	A	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	A

Review Category	AUTHORISATIONS									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	45-50
2.3	A	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	B	A	A	A	A
	A	A	A	A	A	B	A	A	A	A
	A	A	A	A	A	C	A	A	A	A
	A	A	A	A	B	A	D	A	A	D
2.4	B	C	C	C	C	A	C	C	D	C
	D	B	C	B	B	D	D	D	D	C
	D	B	C	A	B	B	C	B	D	B
	C	C	A	A	D	D	B	B	C	B
	C	B	A	B	B	B	C	B	C	B
2.5	B	C	C	C	C	A	C	C	D	C
	D	B	C	B	B	D	D	D	D	C
	D	B	C	A	B	B	C	B	D	B
	C	C	A	A	D	D	B	B	C	B
	C	B	A	B	B	B	C	B	C	B
2.6	B	C	C	C	C	A	C	C	D	C
	D	B	C	B	B	D	D	D	D	C
	D	B	C	A	B	B	C	B	D	B
	C	C	A	A	D	D	B	B	C	B
	C	B	A	B	B	B	C	B	C	B
3.1	A	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	B	A	A	A	A
	A	A	A	A	A	B	A	A	A	A
	A	A	A	A	A	D	A	A	A	A
	A	A	A	A	C	A	E	A	A	C

Review Category	AUTHORISATIONS									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	45-50
3.2	B	B	C	A	A	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	C
	A	A	A	A	A	D	A	A	A	A
	A	A	A	A	E	C	A	A	B	B
	A	A	B	B	A	A	A	D	B	A
3.3	B	C	C	C	D	B	D	D	D	D
	E	B	C	C	D	E	F	F	E	E
	C	C	D	B	D	C	C	C	D	C
	D	B	B	B	D	A	B	B	C	C
	C	C	B	B	C	B	D	C	C	C
3.4	F	F	E	A	F	A	F	F	F	F
	F	F	E	C	F	F	F	F	F	F
	D	B	F	F	E	F	E	B	E	D
	F	E	D	D	F	F	D	A	C	A
		E	A	B	F	F	C	C	D	D
3.5	F	F	A	A	F	A	A	A	F	F
	B	F	A	B	F	B	C	A	B	A
	B	A	A	A	A	F	B	A	B	A
	B	B	A	A	E	A	B	A	F	A
	F	B	B	D	A	A	F	A	E	A
3.6	A	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	A
	A	A	A	A	A	A	B	A	A	A
	A	A	A	A	A	A	A	A	A	A
	C	A	A	A	A	A	A	A	A	A

Review Category	AUTHORISATIONS									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	45-50
3.7	A	F	A	F	F	A	F	F	F	F
	E	C	A	E	F	F	E	E	E	D
	F	D	A	C	B	F	F	E	E	F
	F	F	A	D	B	A	D	D	D	C
	F	E	A	A	F	E	A	E	B	B

* Green – BAR;

* Red – S&EIA.