

Environmental Management System: Guidance Notes

1. What is Environmental Management System?

- 1.1 An Environmental Management System (EMS) can be described as 'a set of tools for managing an organisation's environmental impact'. In other words, it is a systematic approach to minimising an organisation's environmental impact.
- 1.2 It includes the processes, procedures, planning and resources for developing, implementing and maintaining the policy for environmental protection.
- 1.3 An EMS follows the Plan-Do-Check-Act cycle or PDCA.

It shows the process of developing an EMS and then implementing it, and then acting on it. It is a process of continuous improvement and revising the system.

1.4 The key points of an EMS are:

- 1.4.1 **Policy** - The statement of the organisation's commitment to environmental protection.
- 1.4.2 **Identification of environmental impacts**: the identification of the environmental attributes of the products, activities or services and their effects on the environment.

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- 1.4.3 **Develop** environmental goals you want your company to be and how you want to achieve them.
- 1.4.4 **Implement** the plan to meet the objectives you have set out.
- 1.4.5 **Training** courses your employees need to go on to fulfil their environmental responsibilities.
- 1.4.6 **Management** ensuring that the process is continually monitored and improved by senior management.

The Likely Costs of Having An EMS.

Potential Costs	Potential Benefits
Internal <ul style="list-style-type: none"> • Staff (manager) time • Other employee time <p>(Note: Internal labour costs represent the bulk of the EMS resources expended by most organisations)</p> External <ul style="list-style-type: none"> • Potential consulting assistance • Outside training of personnel 	<ul style="list-style-type: none"> • Improved environmental performance • Improved compliance • Prevention • Resource conservation • Improved customer/market relations • Improved efficiency/reduced costs • Improved employee morale • Improved image with public, regulators, investors • Increased awareness of environmental responsibilities

2. Getting Management Commitment

- 2.1 Getting and maintaining management commitment, even if you are a very small company, is essential for the successful implementation of an EMS. Even if your EMS never runs smoothly, commitment will be needed to ensure it runs in a par with other business decisions with the environment. That changes are made and resources allocated to the environment get difficult. Even in a two-person partnership, a consistent approach to the EMS, hence 'commitment', is essential.
- 2.2 Don't just think of the environment as a separate issue. Involved responsibilities will help to maximise the benefits of the environment involving people at all levels of the organisation.

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EMS forward.

- 2.3 A common ap
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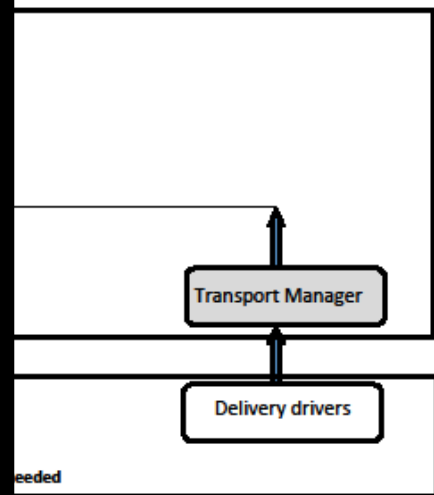
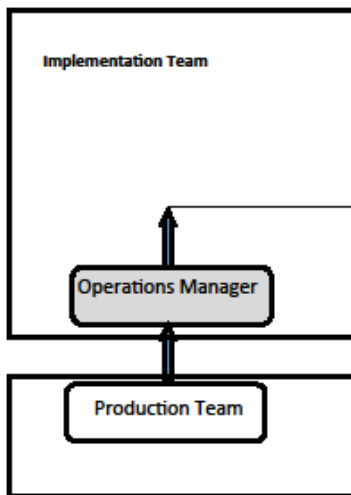
Identifying opportunities to drive the

Implementation team, which
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Example Organog

Management System



3. Environmental Goal

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monitoring, and work to the
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relevant

, and the indirect costs (legal
also need to weigh up the
organisation's reputation. *Having
will help you to identify the*

- 3.3 Marketing opportunities
clients - whether
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chain. This means
existing business
products/services
requirements
programmes.

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— is increasing and many
green credentials of their supply
unities exist for new and
environmental attributes of your
you to identify customer
to projects or supplier

- 3.4 Interested Parties
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relation to the
will be a part of
EMS will provide
environmental
those interested

external. From employees to the
everyone may have an interest
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ch, accommodating these views
maintaining good relationships. *An*
asuring and monitoring your
communicating information to all

4. Environmental Management

Baseline Assessment

- 4.1 When you come
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progress and
develop your
Setting the baseline
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already does
are, who is responsible
changes or what

of improvements you need to
which you can measure your
have your baseline you then can
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determine what areas of your
g, what your organisation
the current plans and policies
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- 4.2 Making assumptions
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assessment of
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- 4.3 Many companies
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lly anticipated.

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- 4.4 If your business is already marked on a site map, try to establish your own series of simple process flow diagrams. Identify the activities and then mark on the same diagram environmentally related inputs and outputs. An example diagram can be seen on page 8 of these guidance notes.
- 4.5 Establish the baseline assessment. This will include both the actual assessment of your premises and a description of the current state of the environment.
- 4.6 Try mapping your proposed EMS - include environmental impacts, a drainage plan (both surface and foul drains), points, location of waste skips, chimney stacks, service lines, car parks, wind direction, local pollution sources, frequent pollution/spills etc, previous uses of the site, and any contaminated land. This list is not exhaustive but should cover what could be included.
- 4.7 Consider the processes or services over which your organisation has influence. These could include electricity/gas/water usage, business travel and company car use, and other business activities.
- 4.8 These might not be immediately apparent, so this can best be done in a mapping and brainstorming group brainstorming, process mapping and mapping.
- 4.9 Using the outputs from clause 5 below, identify any changes to the organisation causes (in other words- **Impacts**) and what cause them (**Aspects**) using a Process Analysis. An example of which is at page 7 of these guidance notes. Use clause 6 below.
- 4.10 Try to use a consistent method of taking notes – brainstorming is an effective method of taking notes. Don't forget to use the outputs from either the mapping or the process flow model.
- 4.11 If you know of any legal or regulatory requirements, make a note of them. Such obligations may include environmental requirements, make a note of them. Such obligations may include environmental requirements, make a note of them.
- 4.12 Finally, your business should include a review of your existing management system. For example, you may already have a system for managing your training under Investors in People, or use a system for managing your QMS or H&S. If you have an effective system, build them into your EMS.

5. Process Flow Chart

The first step is to complete the activity. A Walk-round Check example is available to download. Speak to operators or maintenance staff to understand the process. It is important to walk the site as a desktop survey may miss sources of environmental impact or service.

5.1 Activity/Product

5.1.1 Identify the activity or service. Do not include planned maintenance or resource use.

5.1.2 Example:

- a) Activity
- b) Product
- c) Service

5.2 Inputs

List the generic inputs and identify the source.

5.3 Outputs

List the generic outputs and identify the destination.

5.4 Outputs – Air

Assess if there are any emissions from the boundary of the site.

5.5 Outputs – Land

List the waste streams arising from the activity.

5.6 Outputs – Water

Identify if any effluent is generated, surface drain or direct to collection. A drainage plan for the site.

6. Conclusion

Use the template to summarise and visit each relevant activity. Use the template for use at this stage and an example is available in this folder. If necessary, use the template to understand the process. It is important to walk the site as well as using this approach, as a desktop survey may miss sources of environmental impact or service. Often there are many main activity, product or service.

Identify the activity or service and enter it into the box. Do not include planned maintenance or resource use. Activities carried out on-site, such as energy or materials.

Example:

Inputs: water, electricity etc.

Outputs: noise, vibration or odour.

Outputs – Air: emissions or dust (this could be done)

Outputs – Land: waste streams if they are contained correctly.

Outputs – Water: effluent is discharged (foul or clean) it is advisable to obtain a

6. Process Analysis Matrix

Following completion of the process analysis exercise, the matrix can now be used to identify the environmental impacts. The following example is similar to the standard, ISO 14004.

Activity/Product/Service	Impact
Activity – Handling of hazardous chemicals	Contamination of soil or water
Product – Product refinement	Conservation of natural resources
Service – Vehicle maintenance	Reduction of air emissions

6.1 The information (whether you use the aspects and impacts chart) can be used to complete

6.2 The organisation's activities are defined as follows:

6.2.1 Definition

Aspect
product
example

which will cause :-

Impact
benefit
activity
fuels will
a control

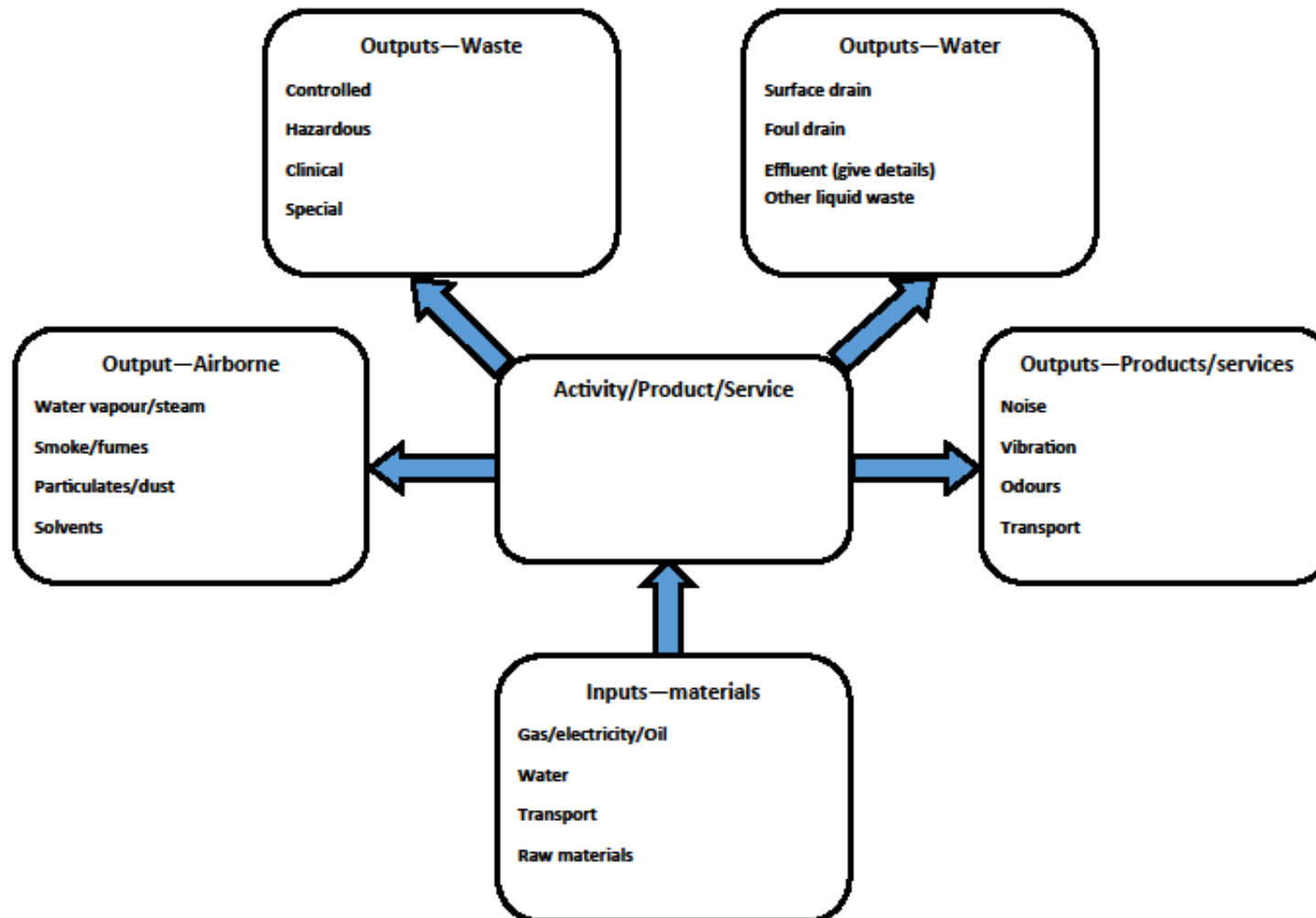
process analysis exercise (chart) can be used to complete

ts are defined as follows:

an organisation's activities interact with the environment. For the burning of fossil fuels...

to the environment whether from the organisation's The Impact of burning fossil effects on local air quality and change.

Process Flow Chart

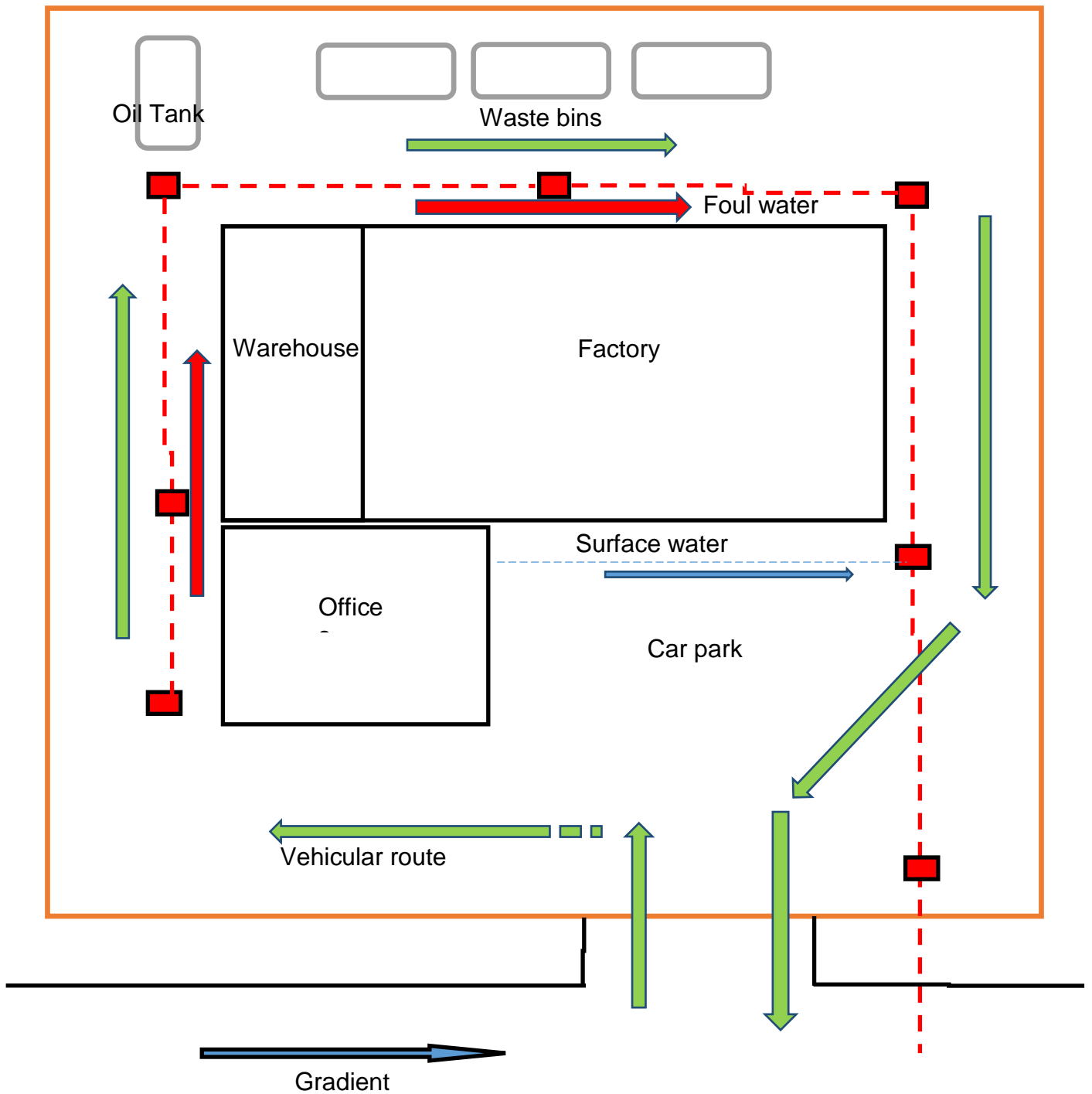


7. Site Drainage Plan

- 7.1 Now that you know what your environmental 'outputs' are, you need to know how your site layout will affect how they impact on the environment. So the next thing to do is to create a site drainage plan.
- 7.2 This should be a clear diagram of your site showing the layout and access details along with a basic schematic of the drainage arrangements. There is an example on the next page.
- 7.3 It should show:
 - 7.3.1 The general layout of the buildings
 - 7.3.2 Site access routes for emergency vehicles
 - 7.3.3 Any on-site treatment facilities for dealing with waste or sewage
 - 7.3.4 Storage areas for materials, products or waste
 - 7.3.5 Oil, water or chemical tanks
 - 7.3.6 Bunding
 - 7.3.7 Any unmade ground – porous
 - 7.3.8 The routes of foul and surface water including any soakaways
 - 7.3.9 Location of mains water supplies and sprinkler control valves
 - 7.3.10 Hydrants or fire boxes, spill kits
- 7.4 Now that you have done all this you have set your baseline.

Site Plan

Site boundary



Front elevation

10

8. EMS Risk Assessment

- 8.1 Once the EMS baseline assessment has established what is going on in your organisation, the next question is what are the issues to be addressed and what are you going to manage and how?
- 8.2 The organisation's Aspects and Impacts have now been determined using the Process Analysis Matrix. The Aspects and Impacts were defined as follows:
- Definitions
Aspect = cause.
Elements of an organisation's activities products or services that can interact with the environment. For example, using energy means the burning of fossil fuels...
which will cause :-
Impact = the effect.
Any change to the environment whether beneficial or adverse that results from the organisation's activities, products or services. The Impact of burning fossil fuels will be resource depletion, effects on local air quality and a contributory factor in climate change.
- 8.3 The next step is to complete your EMS Risk Assessment for each task or location, as follows:
- 8.3.1 Column 1 – Identify the aspect,
8.3.2 Column 2 – List the source,
8.3.3 Column 3 – List the frequency of the activity,
8.3.4 Column 4 - Potential environmental impact – how will this affect the environment?
8.3.5 Column 5 - Responsible Person – who is responsible for the aspect i.e. the cleaner.
8.3.6 Many example Risk Assessments for common tasks and locations are available in this folder.
- 8.4 For each environmental aspect work out the Level of Risk:
- 8.4.1 S - The severity of the Impact. We have used the same scale as other risk assessments 5= Very severe: 1 = Minimal
P – Likelihood/Probability – the chance of anything happening.
R – The Risk Factor/Score
- 8.4.2 These scores should be done as you are now. If you do not have any controls to mitigate the severity as yet you should not score as you would like it to be but as is.
- 8.4.3 Assess Severity by asking: What would happen if something went wrong? Answering 'yes' to any of the following will increase the score;

- 8.4.3.1 Will the impact cause substantial damage or nuisance?
- 8.4.3.2 Is there a large quantity or volume?
- 8.4.3.3 It is toxic/hazardous?
- 8.4.3.4 Might the impacts be perceived in a very negative way by the public or press?
- 8.4.3.5 Are there legal ramifications from the impact with possible prosecution and fines?
- 8.4.3.6 Will it cost much to fix the issue?
- 8.4.4 When considering likelihood you need to ask the following questions, which will affect the score.
- 8.4.4.1 Is the activity continuous or very frequent ie daily? – 5
- 8.4.4.2 Is the activity regular *and* frequent ie weekly/monthly – 4
- 8.4.4.3 Is the activity regular but infrequent ie bi-annual/annual – 3
- 8.4.4.4 Might it occur occasionally? - 2
- 8.4.4.5 Will it occur rarely if ever? – 1
- 8.4.5 Severity x Likelihood = the Significance Score. In other words the higher the score the more significant the impact will be – therefore the greater the need for you to control these activities.
- 8.4.6 In the example below we have fuel storage tanks used to refill trucks onsite. The source of contamination would be leaks from the tanks or spills from refilling. The trucks are refuelled weekly. You would need to add probable fines and a lot of adverse publicity to the environmental damage should there be an incident.

EMS Baseline Assessment Form						RA Ref No:		
Assessor		Job Title		Assessment Date		Review Dates / Initials		
Assessment task or location:								
H Z N o.	Environmental Aspect	Source	Frequency	Environmental Impact	Level of Risk			Responsible Person
					S	P	R	
1	Storage of fuel for trucks	Leaks or spills during weekly filling	Weekly	Potential to enter water table/ groundwater. Toxic to wildlife	5	4	20	A Bloggs – Workshop supervisor
2								
3								
4								

So we have a very high severity (5) combined with a high likelihood (4) giving a significance score of 20.