

**ENVIRONMENTAL
SCIENCE
ASSOCIATES**

BACKGROUND INFORMATION DOCUMENT

FOR

THE BASIC ASSESSEMENT FOR PROPOSED PLANT UPGRADE FOR BAE LAND SYSTEMS OMC

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**BACKGROUND INFORMATION DOCUMENT FOR
THE BASIC ASSESSEMENT IN TERMS OF GNR 385 PROMULGATED UNDER THE
NATIONAL ENVIRONMENTAL MANAGEMENT ACT: 1998**

**PROPOSED PLANT UPGRADE FOR BAE LAND SYSTEMS
OMC BENONI PLANT**

PREPARED FOR:

BAE SYSTEMS LAND SYSTEMS SOUTH AFRICA

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September 2007

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1. Introduction

Environmental Science Associates (ESA) was appointed by BAE Land Systems South Africa, to apply for the proposed upgrade of the Land Systems OMC light amoured vehicle facility located in Benoni.

In order to meet export demand for various vehicles the plant will increase its production capacity from 6 to 10 vehicles per day, resulting in a corresponding increase in the LPG, Oxygen and Argon storage capacity requirements for various processes and a corresponding increase in storage capacity of these gases. The project will also entail an increase in drying capacity for painted vehicle components.

2. Legal and Policy Framework

In terms of Regulation 21(1)(a) of the regulations gazetted in Government Notice No. R 385 promulgated in terms of Section 24(5) of the National Environmental Management Act (Act No. 107 of 1998), the so called NEMA 2006 EIA Regulations, Basic assessment must be applied to an application if the authorisation applied for is in respect of an activity listed in Government Notice No. R. 386 of 2006.

Government Notice No. R 386 Activity N^o 7 lists the above ground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30m³ but less than 1 000m³ at any one location or site. BAE Land Systems OMC plant upgrade will entail Installation of additional above ground Liquid Petroleum Gas (LPG), Oxygen and Argon storage facilities, with estimated capacities of 22kL, 10kL, and 6.5kL respectively. The combined capacity of the storage facilities will thus exceed 30 m³, consequently requiring a Basic Assessment to be undertaken.

3. Process Description

Land Systems OMC is South Africa's primary light amoured vehicle facility, covering all disciplines of the light amoured vehicle spectrum from conceptualisation through design and development, manufacture and production and in-service support. The business process is fundamentally illustrated in **Figure 1: Process Flow Chart 1**. The primary environmental impacts occur during vehicle production.

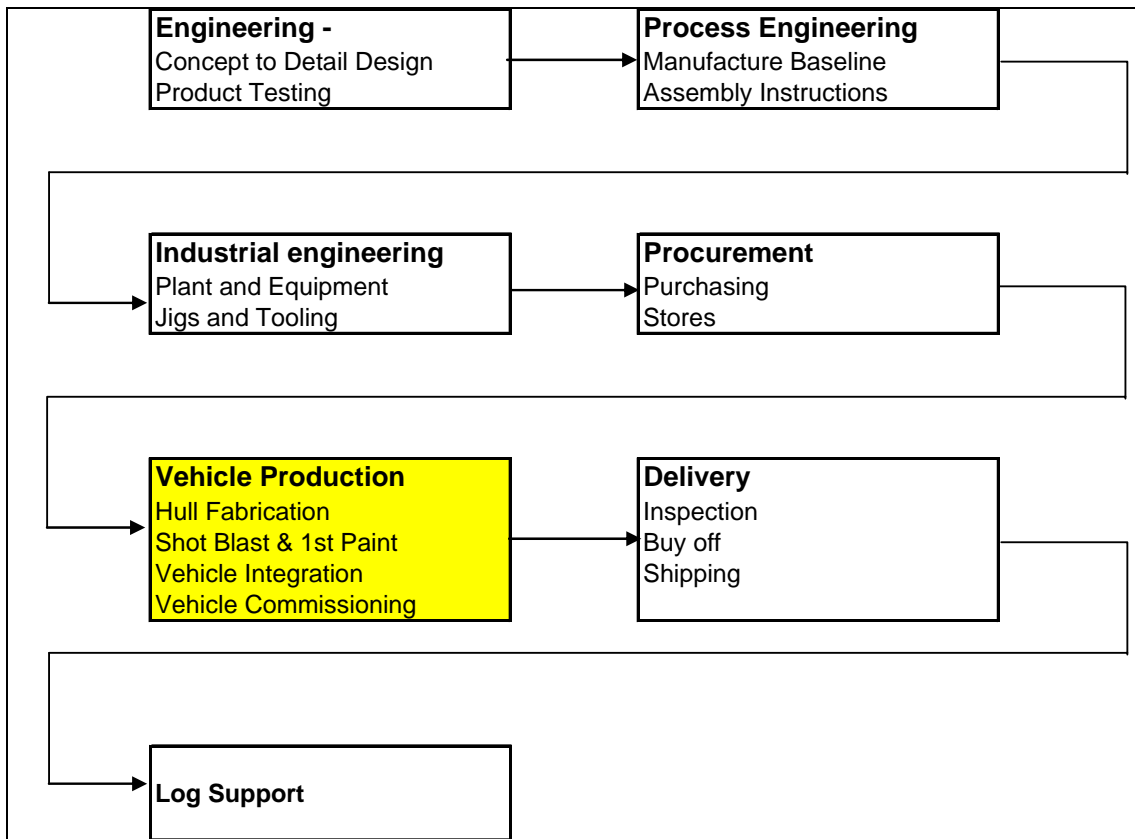


Figure 1: Process Flow Chart 1

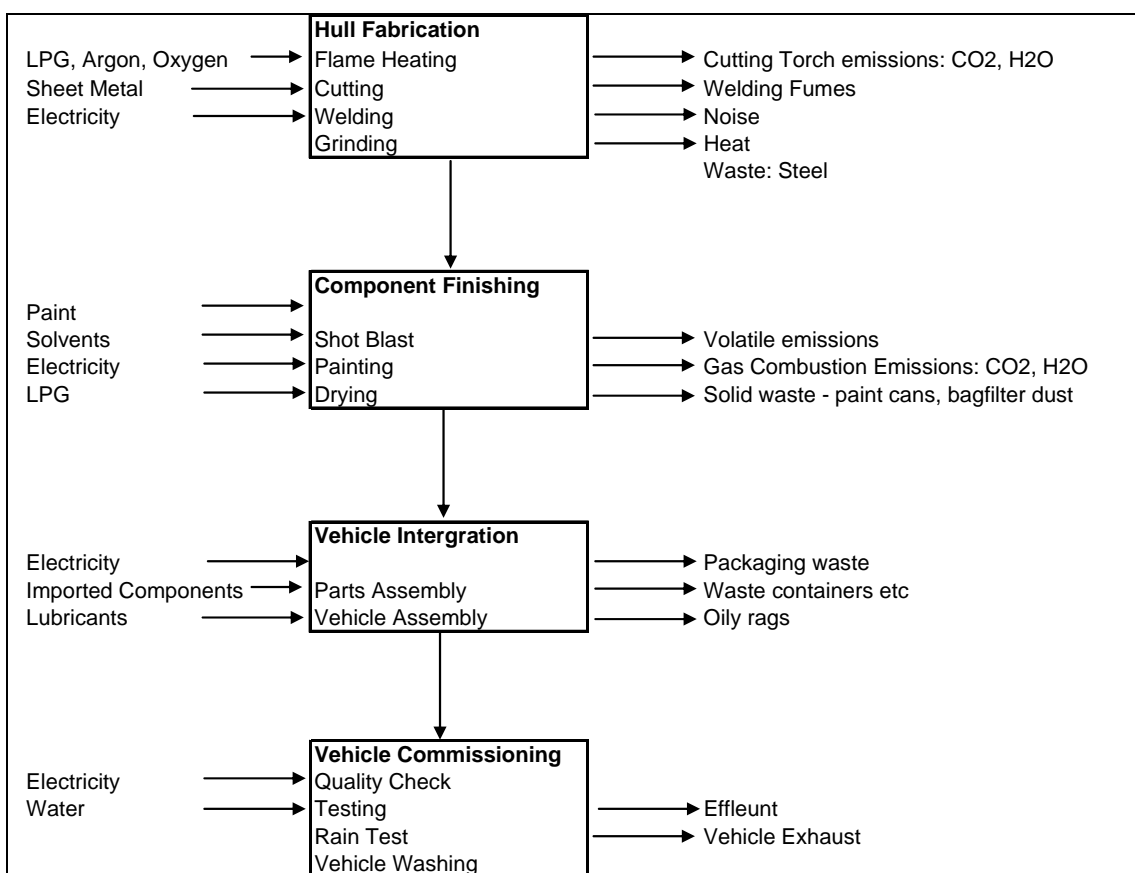


Figure 2: Process Flow Vehicle Production

3.1 Generation of Waste

The plant generates small amounts of waste mostly from packaging. Other waste streams are:

- Empty pain containers
- Empty Solvent containers
- Scrap Metal
- Used PPE (e.g. gloves, spray painting masks, overalls etc)
- Used parts from vehicle maintenance
- Medical waste from the clinic onsite
- General office waste (paper and Plastic)
- Used Oil
- Oily Rags
- Used Oil Filters
- Used Dust Filters
- Used Paint Booth Filters
- Brake Fluid
- Batteries (dry cell)
- Thinners/Solvents
- Used Paint Tins
- Used Antifreeze Bottles
- Used Locktight Containers
- Used Silicon Tubes
- Fluorescent Tubes/Bulbs
- Wash Bay Effluent
- Anti-Freeze
- Medical Waste

(BAE 2007)

3.2 Discharge of Effluent

The process does not generate effluent in significant quantities. Effluent is generated from the washing of vehicles brought in for maintenance. The wash from these vehicles is passed through a settling tank before discharge to the sewer. The grease and oil trapped in the tank are removed by

3.3 Emissions to Air

Emissions to air primarily emanate from the following process:

- Preheating of components before welding
- Spray Painting
- Drying of painted parts
- Welding

Parts are preheated using the combustion flame of LPG and Oxygen gas. LPG is a hydrocarbon gas mix including both propane (60%) and butane (40%). Propylene and butylenes are usually also present in small concentration. While LPG is completely odourless in its natural form, a pungent smelling compound, called ethyl mercaptan, is added to the gas in order to make leaks obvious to detect. Gaseous emissions from heating are thus primarily water and carbon dioxide, and some oxides of nitrogen. A negligibly small amount of Sulphur dioxide may emanate from combustion of the Ethyl mercaptan. Ethyl mercaptan, also known as Ethanethiol, is an organic compound with the formula $\text{CH}_3\text{CH}_2\text{SH}$, thus contains a small amount of sulphur.

Various components are painted in spray painting booths using water or oil based paints depending on customer specification. The paint drying process is subsequently accelerated in an LPG fired drying oven. Oil based paints and solvents may contain volatile organic compounds. The off gases from the ovens are passed through cardboard media filters before emission to atmosphere. Measurement of VOCs will be undertaken to determine the emission rates.

Metal inert gas welding technology (to be confirmed) is used to produce welds of superior strength. Emissions from the welding process include small quantities of:

- Carbon monoxide and carbon dioxide
- Nitrogen monoxide and nitrogen dioxide
- Ozone

The quantities of these gases emitted are not expected to present a significant environmental impact, but rather an occupational health and safety concern. Exposure is monitored in the occupational health and safety monitoring schedule.

3.4 Impact on Soil and Groundwater

The entire manufacturing operation is undertaken within the factory building. Most of the yard is tarred or concreted. There are underground diesel and petrol tanks on site. No significant impact on groundwater is anticipated provided that periodic integrity tests are carried out on the underground diesel and petrol tanks, to identify potential for leakage.

4. Property Particulars

4.1 Name of Property

12 Barnsley Road,
Benoni,
1501
Gauteng,

Refer to Figure 2: Site Location.

4.2 Local Authority

The subject property is located within the jurisdiction of the Ekurhuleni Metropolitan Municipality.

4.3 Present Land Use

The land is presently zoned for Industrial use. The nearest residential area is Actonville, approximately adjacent to the Southern Boundary of the site. The areas bordering the North, West, and Eastern sides of the site consists of industrial premises. A set of municipal hostels lies on the southern boundary of the site.

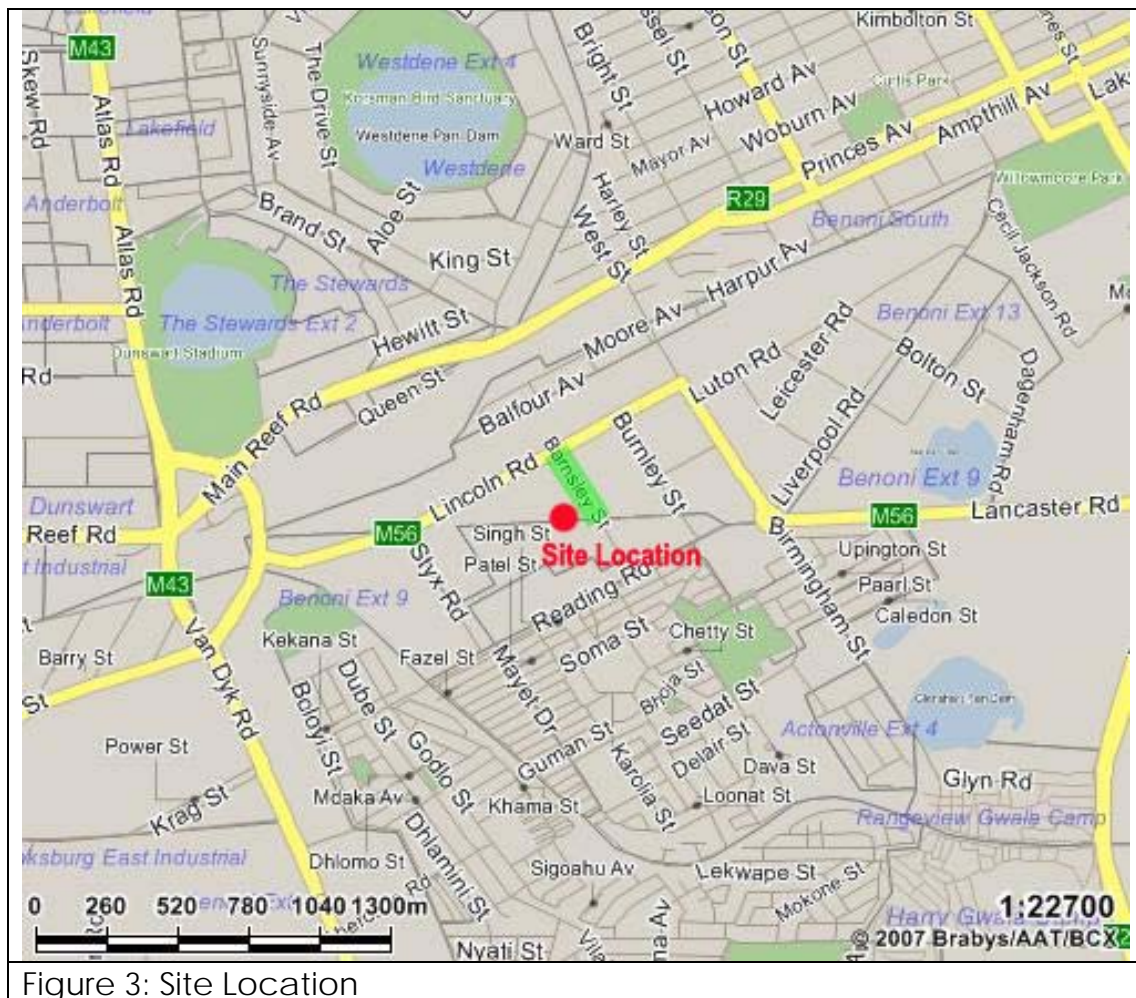


Figure 3: Site Location



Figure 4: Site Location

5. Invitation to register as an Interested or Affected Party

Notice of the proposed development was published in the legal section of the 'The Star' and placed on site in an A2 format, as shown in Figure 5: Environmental Impact Assessment Notice. Any interested or affected parties are invited to register and take part in the public participation process. Contact details are indicated in Figure 5: Environmental Impact Assessment Notice. A registration form is attached as appendix 2 to this document.

Appendix 1: Site Notice

NOTIFICATION OF BASIC ASSESSMENT FOR A PROPOSED PROCESS UPGRADE BY BAE SYSTEMS: BENONI PLANT.

NOTICE is given in terms of Regulation 56 of the regulations gazetted in Government Notice No. R385 promulgated under section 24(5) of the National Environmental Management Act 1998 (Act No 107 of 1998) to all interested and affected parties (I&APs) that BAE Systems proposes to process capacity at the BAE Systems Benoni Plant.

BAE Systems is South Africa's primary military vehicle manufacturer, covering all disciplines of the military vehicle spectrum from conceptualisation through design and development, manufacture and production and in-service support.

The proposed project is to increase the small parts painting production rate and pre-assembly component heating process capacity.

The proposed project will entail the following:

- Installation of additional above ground Liquid Petroleum Gas (LPG), Oxygen and Argon storage facilities, with estimated capacities of 22kL, 10kL, and 6.5kL respectively.
- Modification of an existing drying oven to improve drying time and throughput

Note that the capacities stated are estimates and detailed engineering design information will determine the final capacities required.

In terms of Section 24(5) of the National Environmental Management Act: 1998, and the regulations promulgated there under, a Basic Assessment (BA) process is required to undertake the proposed storage of LPG, Oxygen, and Argon in excess of 30 kilo-litres.

Name of proponent: BAE Systems

Physical Address of the Site: 12 Barnsley Road, Benoni, Gauteng, 1501

Environmental Assessment Practitioner: Environmental Science Associates

To ensure that you are identified as an interested and/or affected party, please submit your name, contact information and interest in the project to the contact person given below on or before Friday 07 September 2007. Notice Erected on Friday 24 August 2007. Should you have any queries with respect to this Basic Assessment please contact the person below.

Contact: Abdul Ebrahim
PO Box 73420, Lynwood Ridge, Pretoria 0040
Tel: 072 268 1119
Fax: 086 610 6703
E-mail: abdul@escience.co.za

Figure 5: Environmental Impact Assessment Notice

Appendix 2: INTERESTED & AFFECTED PARTY REGISTRATION & COMMENT SHEET

Name:	
Designation:	
Organisation:	
Tel:	
E-Mail:	
Fax:	
Postal Address:	
Physical Address:	
Interest in the Development	