

Background Information Document and Invitation to Comment



Environmental Impact Assessment for a Proposed Acetylene Gas Production Facility, Gauteng (GDARD Ref: Gaut: 002/13-14/E0239)



PROJECT OVERVIEW

Air Products South Africa (Pty) Ltd is planning to construct and operate a new acetylene gas production facility located near Witkopdorp, Daleside, south of Johannesburg. In order to obtain the necessary environmental authorisation from the competent authority, the Gauteng Department of Agriculture and Rural Development (GDARD), an Environmental Impact Assessment (EIA) must be undertaken in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

The EIA will discuss the potential impacts associated with the construction and operation of the proposed facility, assess the likelihood and significance of the potential impacts, as well as identify appropriate mitigation measures that should be implemented in order to minimise the potential impacts.

PURPOSE OF THIS DOCUMENT

This Background Information Document (BID) provides a brief background and introduction to the project; the approach to the EIA process; details of the public consultation process; and an invitation for public involvement throughout the EIA. You, as a stakeholder are encouraged to register as an Interested and Affected Party (I&AP) so that you can be kept informed about the project throughout the EIA process. Further stakeholder consultation will be undertaken at various stages during the EIA.

Who is Air Products?

Air Products supplies gases and technology to many different industrial companies across South Africa. The products range from cryogenic liquids used to freeze produce in the food industry, to gases and equipment used in a diverse range of industries from steel makers to electronics manufacturers, chemical plants to hospitals, commercial deep sea divers to balloonists.



ERM's ROLE



Environmental Resources Management Southern Africa (Pty) Ltd (ERM), an independent environmental consultancy has been appointed by Air Products to undertake the Environmental Impact Assessment (EIA) and associated Public Participation Process.

You are invited to register as an I&AP and comment on this Project.

Please complete the enclosed registration/comment sheet and/or contact:

Janet Mkhabela
Tel: 011 798 4300
Fax: 011 804 2289
Email: airproductsEIA@erm.com

Postal Address:
Postnet Suite 624,
Private Bag X29,
Gallo Manor, 2052

PROJECT DESCRIPTION

PROJECT NEED

At present, Air Products are operating two acetylene gas production facilities. These existing facilities have been operational for more than 40 years and, as a result, encroachment has occurred by other industrial and residential development. Air Products therefore intend to close down the two existing acetylene production facilities and construct and develop a new facility, where encroachment would be restricted. To ensure this, the new facility is proposed to be constructed at the mid-point of the two properties listed below therefore adequately buffering the new facility.

PROJECT LOCATION

The proposed sites on which the facility is to be constructed is Stand 88 and 89 of Valley Settlements Agricultural Holdings, located just off Tillet Road, near Witkopdorp, Daleside, south of Johannesburg (See Pg 4). The coordinates for the proposed location of the facility is $26^{\circ} 30' 23.97''\text{S}$ $28^{\circ} 03' 10.44''\text{E}$. The current zoning for the properties is industrial use. Access to the site is planned via Tillet Road, an existing (dirt) road.

GAS PRODUCTION PROCESS

The facility will produce acetylene gas from mixing calcium carbide with water. It is expected that the facility will produce a maximum of 14 400m³ of acetylene gas per day.

A rotating screw conveyor will be used to feed calcium carbide granules into a reaction chamber, which is filled with water.

The acetylene gas bubbles to the surface and is drawn off under low pressure, it is then cooled by passing through a heat exchanger, where chilled water is used as the cooling medium. The acetylene gas then passes through a low pressure dryer where moisture is removed. The gas is then compressed before passing through the high pressure dryers for excess moisture removal. The acetylene gas is then filled into cylinders, which are stored on site prior to distribution. See *Figure 1* below.

FACILITY COMPONENTS

The proposed acetylene production facility will comprise the following components:

- Turn bins, used to store and feed the calcium carbide into the system;
- Generator vessel, where the reaction takes place to produce the acetylene gas;
- Heat exchanger, to cool down the acetylene gas before passing through the low pressure dryer. Chilled water is used as the cooling medium;
- Low pressure dryer, to remove moisture from the acetylene gas;
- Compressors, used to compress the gas to approximately 2400kPa;
- High pressure dryers, makes use of silica gel to remove excess moisture in the gas, before the gas is filled into cylinders; and
- Storage vessels for nitrogen and acetone.

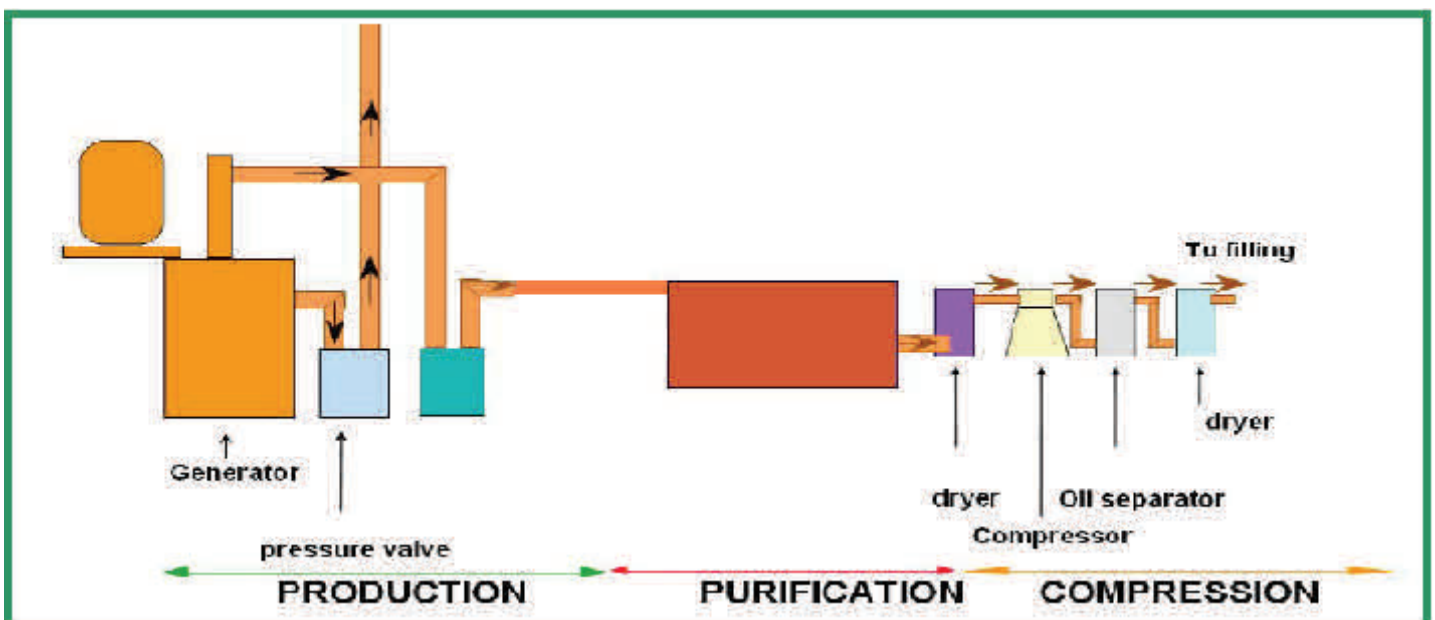


Figure 1: Typical Acetylene Gas Production Process

LEGISLATIVE CONTEXT

The Environmental Impact Assessment (EIA) for the new proposed acetylene gas manufacturing facility is being conducted in terms of the National Environmental Management Act, 1998, (Act No. 107 of 1998), as amended (NEMA). The EIA process will take into consideration the regulatory requirements as per the EIA Regulations of 2010 (Government Notice Regulation 543) which provides the legislative framework for EIA applications in South Africa. Several activities associated with the project have been identified as listed activities in terms of the EIA Regulations GN.R544 and GN.R545.

An Air Emissions Licence (AEL) will also be applied for as part of the EIA process. The application will be made in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004).

The proposed EIA Processes is outlined below: (see *Figure 2*):

Phase	Objective	Report
Scoping	To review alternatives, identify environmental issues and potential environmental impacts.	Scoping Report and Plan of Study for EIA
EIA	To address the issues that have been identified in the scoping report, to assess the significance of all identified impacts and to formulate mitigation measures.	EIA Report and Environmental Management Programme
Public Participation	To improve transparency, and to gather and gauge stakeholder concerns.	All draft and final reports will be made available to the public for review.

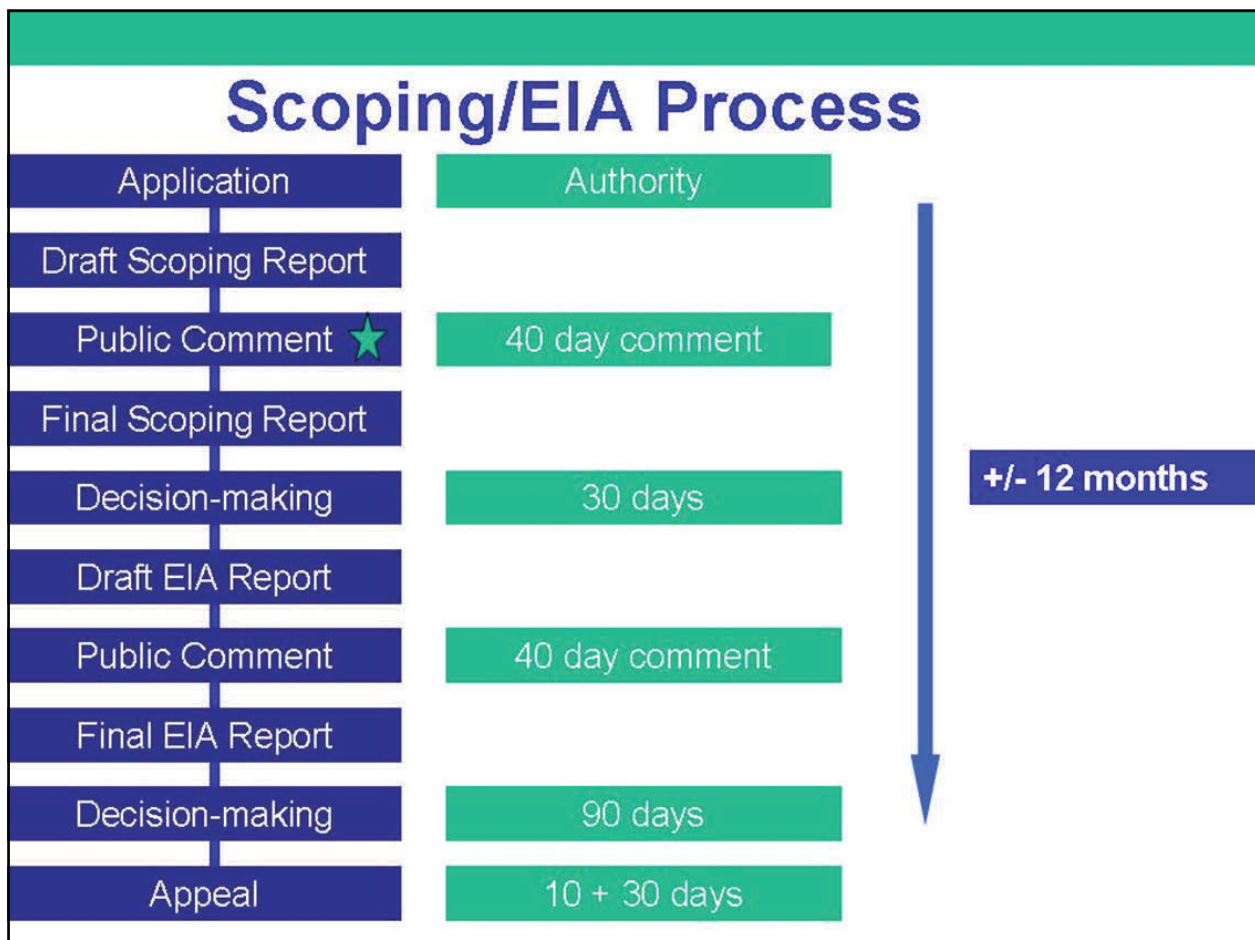
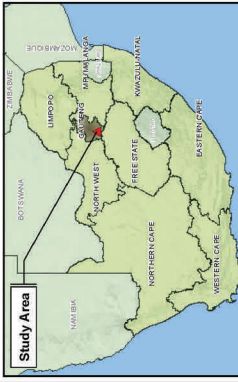


Figure 2: Process Diagram of the EIA Process

Legend

- ▲ Facility Location
- Arterial Route
- Secondary Road
- Other Roads
- Track and Hiking Trail
- Railway line
- Perennial River
- Non - Perennial River
- Site Boundary
- Wetlands
- Water Bodies
- Residential Areas
- Portions and Holdings



SCALE: 0 200 400 600 Metres

TITLE: **Locality Map of the Proposed Acetylene Gas Production Facility**

CLIENT: **AIR PRODUCTS**

DATE: Nov 2013	CHECKED: KM	PROJECT: 0220780
DRAWN: AT	APPROVED: SP	SCALE: 1:15 000
DRAWING: Ortho Locality Map of Air Products SA.mxd		REV: 0

ERM
 Building 32,
 The Woodlands,
 Woodlands Drive,
 Johannesburg, South Africa
 Tel: +27 11 804 2289
 Fax: +27 11 804 2288

Projection: Transverse Mercator, GCS 27 datum: MGS 84 Source: NGI - Vector Source: Bing Maps - Bing Maps ©2010 Microsoft Corporation and its data suppliers. Reproduced under license with AGIS 10 - July 2012. Creator: NGA. Inset: ESRI Data

SIZE: **A3**



