

Annex E1

Background Information Document

English

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 $26^{\circ} 30' 23.97''S$ $28^{\circ} 03' 10.44''E$. 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.

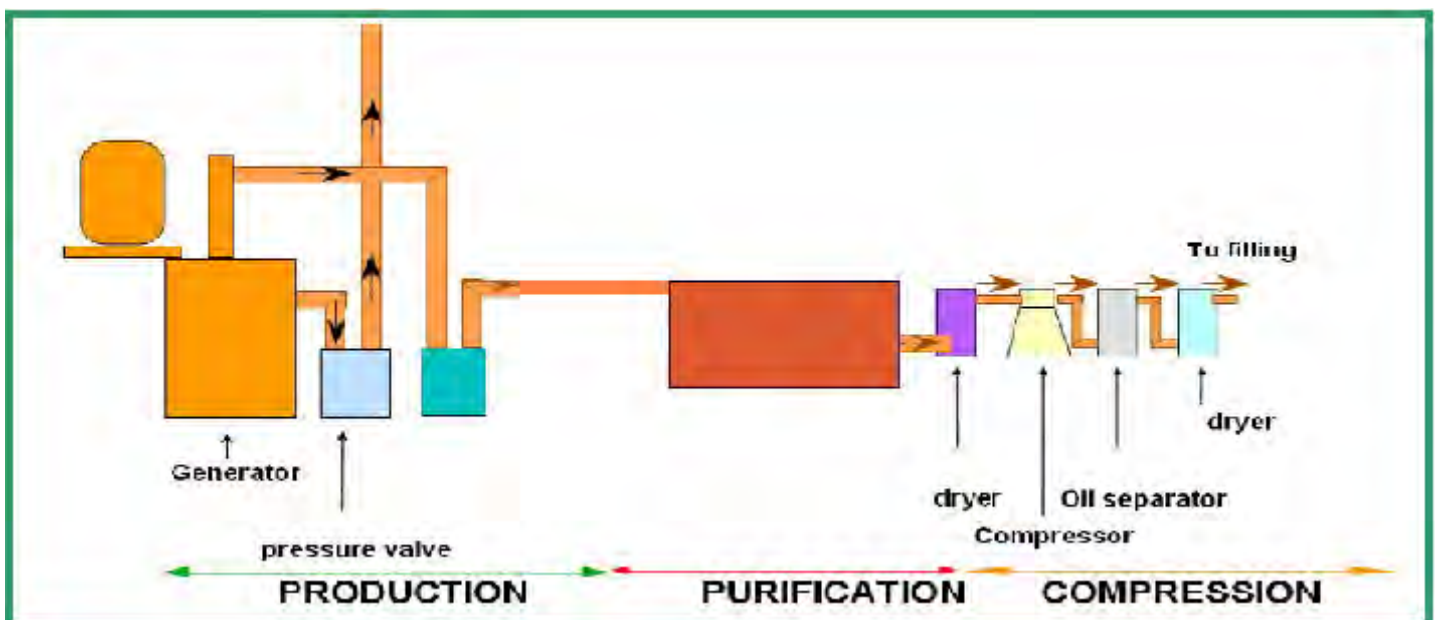


Figure 1: Typical Acetylene Gas Production Process

ENVIRONMENTAL IMPACT ASSESSMENT 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.

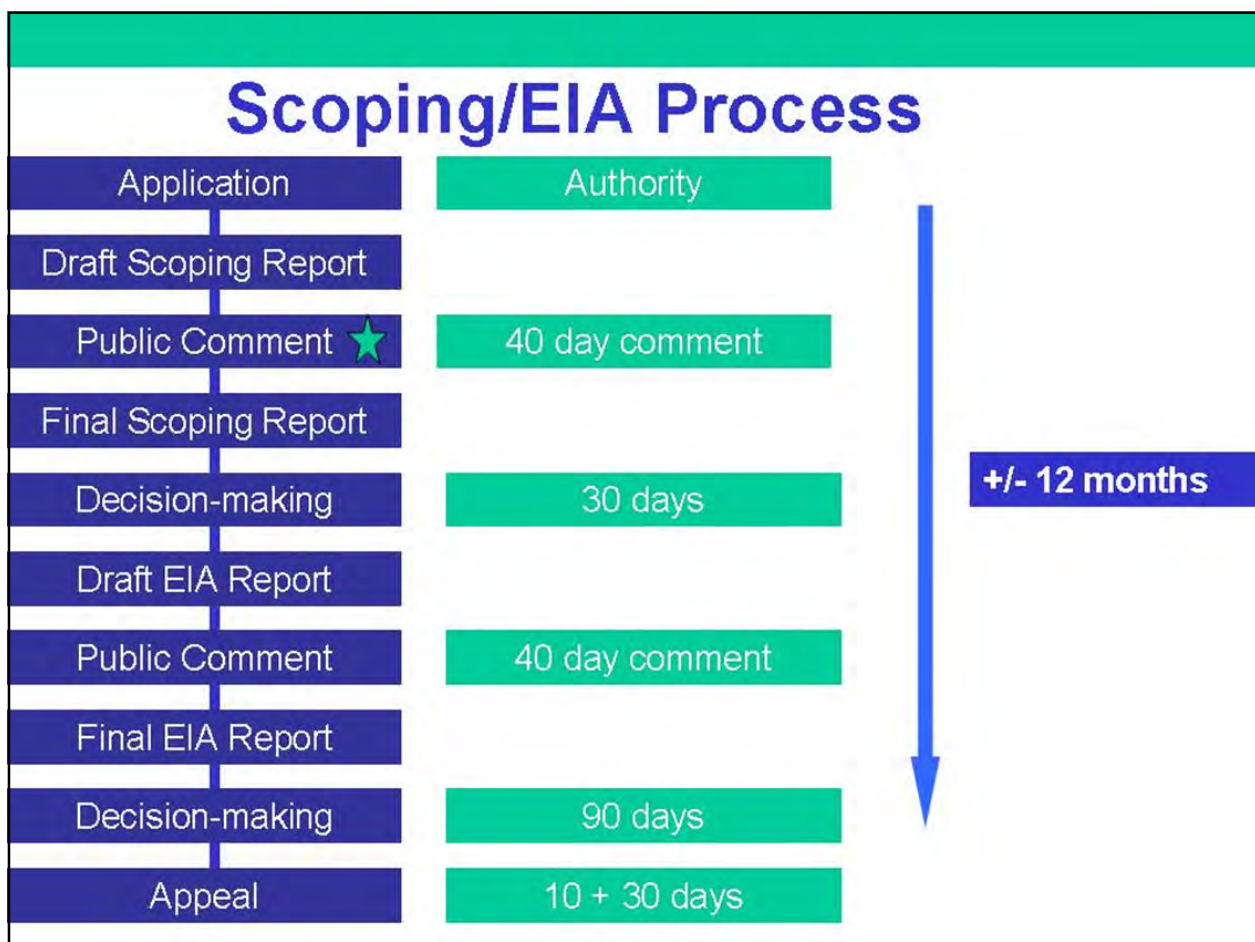



Figure 2: Process Diagram of the EIA Process

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**

CIENT: **AIR PRODUCTS**

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DRAWN: AT	APPROVED: SP	SCALE: 1:15 000

DRAWING: Ortho Locality Map of Air Products SA.mxd

REV: 0

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Projection: Transverse Mercator, CH 27 Datum: MGS 84 Source: NGI - Vector Source: Bing Maps Aerial - Bing Maps ©2010 Microsoft Corporation and its data suppliers. Reproduced under license with AGIS 10 - July 2012. Geosolve, NGA, Inetfr, ESRI Data

SIZE: **A3**



REGISTRATION AND COMMENT SHEET

Air Products Acetylene Gas Production Facility

As a stakeholder, you are invited to register as an Interested and Affected Party (I&AP) and raise concerns or queries that you may have about the Project. The project team will provide a response to your concerns and queries. All your concerns/queries as well as ERM's response will be captured in a Comments and Responses Report, which will be appended to the draft and final reports.

Should you have any queries, comments or suggestions regarding the proposed project, please note them below.

Return this comment sheet to Ms Janet Mkhabela of ERM:
 Tel: (011) 798 4300; Fax: 011 804 2289 or Email: airproductsEIA@erm.com
 Postal Address: Postnet Suite 624, Private Bag X29, Gallo Manor, 2052
www.erm.com/airproductsEIA

Please quote the ERM reference number on all correspondence. **ERM Ref.: 0220780**

Kindly provide your full name, telephone number and email/fax/postal address for further communication. Please also reference the GDARD Reference number on all future project correspondence.

Please formally register me as an I&AP and provide further information and notifications during the EIA process	Yes	No
I would like to receive my notifications by:	Email	Post
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Thank you for your participation!



Afrikaans

Agtergrond Inligtings- dokument en Uitnodiging vir Kommentaar



Omgewings-Invloed Bepaling vir die Voorgestelde Asetileen Gas Produksie Fasiliteit, Gauteng (GDARD Verw.: Gaut 002/13-14/E0239)



PROJEK OORSIG

Air Products South Africa (Pty) Ltd beplan die oprigting en in werking stel van 'n nuwe asetileen gas lewering fasiliteit wat geleë sal wees naby Witkopdorp, Daleside, suid van Johannesburg. 'n Omgewings-Invloed Bepaling, in ooreenstemming met die Nasionale Omgewing Bestuur Wet, 1998 (Wet Nr 107 van 1998) soos aangepas, moet onderneem word ten einde die nodige Omgewing toestemming van die verantwoordelike owerheid, die Gauteng Departement van Landbou en Landelike Ontwikkeling (GDLLO), te verkry.

Die OIB sal die potensiële impakte, wat met die oprigting en in werking stel van die voorgestelde fasiliteit verband hou bespreek, die waarskynlikheid en belangrikheid van hierdie impakte bepaal, asook toepaslike versagting metodes identifiseer wat moontlik geïmplementeer sal moet word sodat die potensiële impakte so laag as moontlik gehou kan word.

DOEL VAN HIERDIE DOKUMENT

Hierdie Agtergrond Inligting Dokument (AID) voorsien 'n kort agtergrond en kennismaking met die projek; die verloop van die OIB Proses; detail van die publieke konsultasie proses, sowel as 'n uitnodiging vir openbare betrokkenheid gedurende die OIB-fase. U, as belanghebbende, word aangemoedig om te registreer as 'n Belanghebbende en Ge-afekteerde Party (B&GP) sodat u op gereelde basis inligting kan ontvang re die projek. Verdere belanghebbende konsultasie sal onderneem word gedurende verskeie stadiums van die OIB.

Wie is Air Products?

Air Products verskaf gas en tegnologie aan talle verskillende maatskappye regoor Suid Afrika. Die produkte varieer vanaf cryogenic vloeistowwe wat gebruik word om produkte te vries in die voedsel industrie, tot by gasse en toerusting/gereedskap wat in 'n diverse verskeidenheid industrieë gebruik word, van staalmakers tot elektronika vervaardigers, chemiese aanlegte by hospitale, kommersiële diepsee-duikers tot lugballoon-gebruikers.

ERM SE ROL



Environmental Resources Management Southern Africa (Pty) Ltd (ERM), 'n onafhanklike omgewing konsultant is deur Air Products aangestel om die Omgewings- Invloed Bepaling (OIB) te onderneem, sowel as om die gepaardgaande Openbare Deelname Proses te fasiliteer.

U word uitgenooi om as B&GP te registreer en kommentaar te lewer op die Projek.

Voltooi asb die ingeslote registrasie/kommentaar blad en/of kontak:

Janet Mkhabela
Tel: 011 798 4300
Faks: 011 804 2289
E-pos airproductsEIA@erm.com

Pos Adres:
Postnet Suite 624,
Privaatsak X29,
Gallo Manor, 2052

PROJEK BEHOEFTE

Tans word twee bestaande asetileen produksie fasiliteite al vir meer as 40 jaar deur Air Products bedryf. As gevolg van die lang tydperk wat hierdie fasiliteite al in werking is, word daar deur industriële en residensiële ontwikkelings inbreuk gemaak op die fasiliteit. Air Products beplan dus om hierdie twee bestaande fasiliteite toe te maak en 'n nuwe fasiliteit hier op te rig en in werking te stel, waar bogenoemde inbreuk beperk sal word. Om dit te verseker en 'n voldoende buffer te skep vir die nuwe fasiliteit, word die oprigting van die nuwe fasiliteit beplan op die middelpunt van onderstaande standplase.

LIGGING VAN PROJEK

Die voorgestelde erwe waar die oprigting van hierdie fasiliteit beoog word, is Standplaas 88 en 89 van Valley Settlements Agricultural Holdings, geleë net af van Tillet Weg, naby Witkopdorp, Daleside, suid van Johannesburg (Sien Bl. 4). Die ko-ordinate van die voorgestelde ligging is $26^{\circ}30' 23.97''S$ $28^{\circ}03' 10.44''O$. Huidiglik is hierdie eiendom vir industriële gebruik gesoneer. Toegang tot die area word beplan via Tillet Weg, 'n bestaande (grond) pad.

GAS PRODUKSIE PROSES

Die voorgestelde fasiliteit sal asetileen gas vervaardig deur kalsium karbonaat en water te meng. Daar word verwag dat die voorgestelde fasiliteit 'n maksimum van $14\ 400\text{m}^3$ asetileen gas per dag sal produseer.

'n Roterende skroef dra-meganisme sal gebruik word om die kalsium karbonaat korrels na 'n reaksie kamer, wat met water gevul is, te voer.

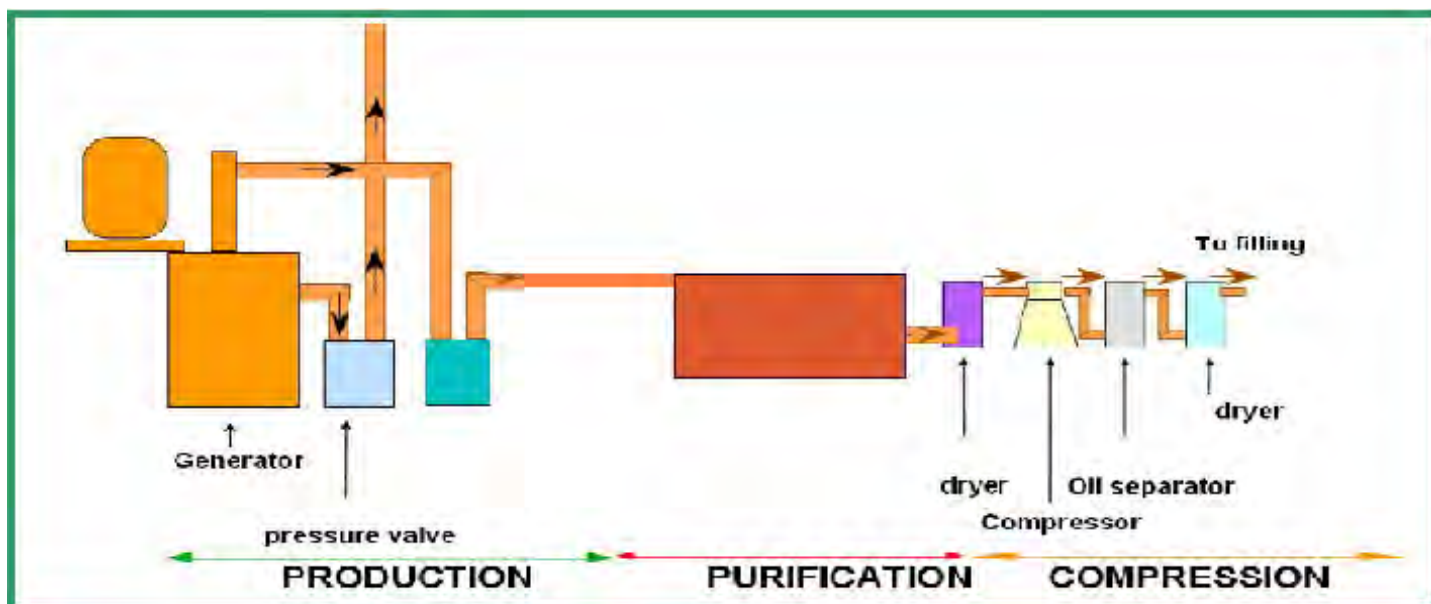
Die asetileen gas borrel na die oppervlak en word as gevolg van lae druk afgetrek. Dit word dan afgekoel wanneer dit deur 'n hitte-uitruiler beweeg waar verkoelde water as afkoel medium gebruik word.

Daarna beweeg die asetileen gas deur 'n lae druk droër waar vogtigheid verwyder word. Dan word die gas saamgepers voordat dit deur die hoë druk droërs beweeg, waar oortollige vogtigheid verwyder word. Silinders word dan met asetileen gas gevul en op die aanleg gestoor voordat dit versprei word. Sien *Figuur 1* hier onder.

KOMPONENTE VAN FASILITEIT

Die voorgestelde asetileen produksie fasiliteit sal uit die volgende komponente bestaan/insluit:

- Dromme wat kan draai, wat gebruik word om die kalsium karbonaat in te stoor en in die sisteem in te voer;
- Kragopwekker houer, waar die reaksie/omvorming van asetileen gas vervaardiging plaasvind;
- Hitte-uitruiler om die asetileen gas af te koel voordat dit deur die lae druk droër beweeg. Hier word verkoelde water as verkoelings medium gebruik;
- Lae druk droër om vogtigheid van die asetileen gas te verwyder;
- Kompressors wat gebruik word om die gas tot ongeveer 2400kPa saam te pers;
- Hoe druk droërs maak gebruik van silikon jel om ontslae te raak van oortollige vogtigheid in die gas, voordat silinders met die gas gevul word; en
- Berging houers vir stikstof en asetoon.



Figuur 1: Tipiese Asetileen Gas Produksie Proses

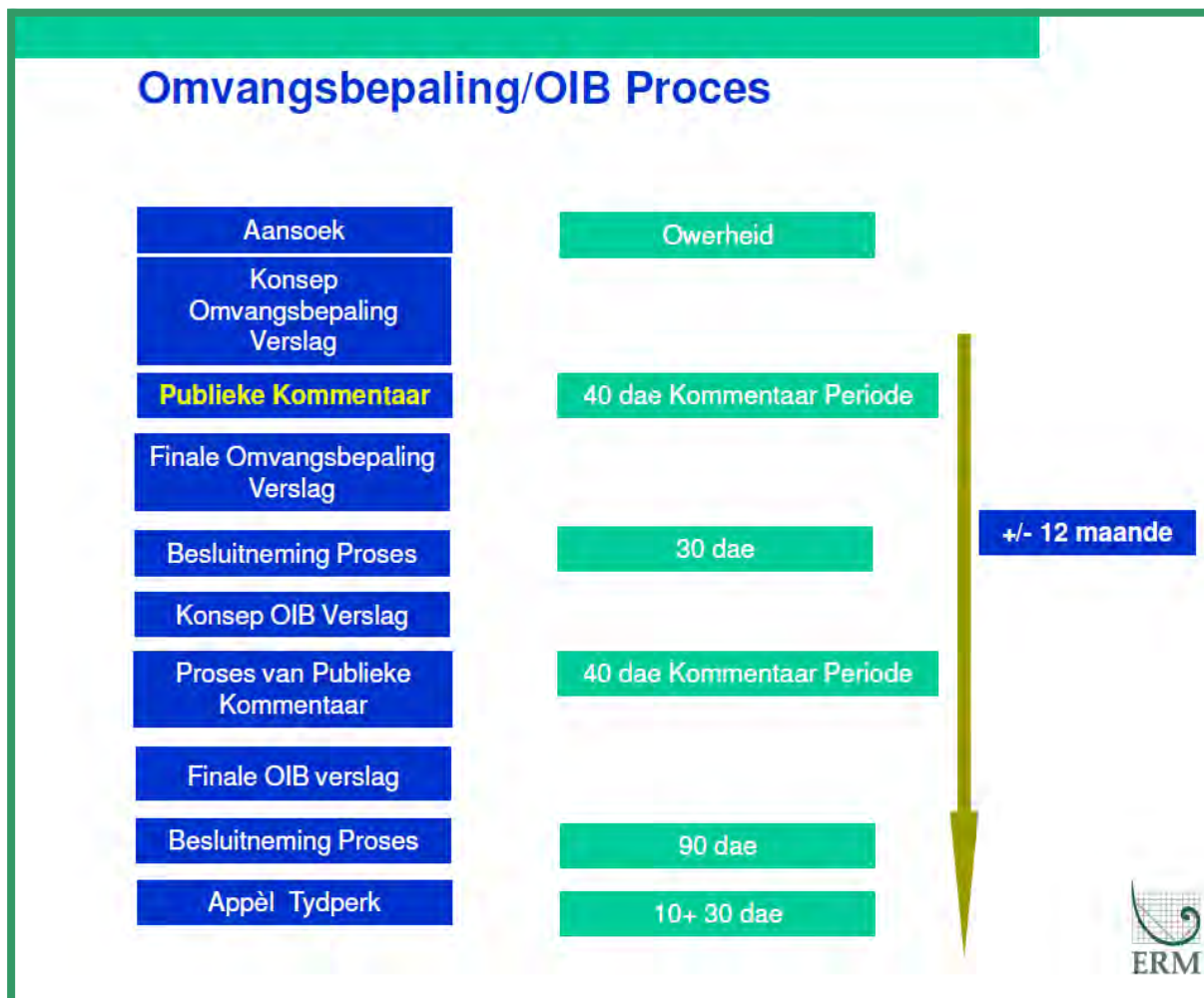
OMGEWINGS-INVLOED BEPALING PROSES

WETLIKE KONTEKS

Die Omgewings-Invloed Bepaling (OIB) vir die nuwe voorgestelde asetileen gas vervaardiging fasiliteit word uitgevoer kragtens die Nasionale Wet op Omgewingsbestuur, 1998, (Wet Nr. 107 van 1998), soos aangepas (NWOB). Beheer maatreëls sal kragtens die OIB Regulasies van 2010 (Staat Kennisgewing Regulasie 543) toegepas word, wat die wetlike raamwerk bied vir OIB aansoeke in Suid Afrika. Verskeie aktiwiteite, wat met die projek geassosieer word, is geïdentifiseer as gelyste aktiwiteite kragtens die OIB Regulasies SK.R544 and SK.R545.

Die voorgestelde OIB Prosesse word hieronder opgesom: (Sien *Figuur 2*):

Fase	Doelwit	Verslag
Fase van Omvangsbepaling	Om alternatiewe na te gaan, omgewing kwessies en moontlike impakte op die omgewing te identifiseer.	Fase van Omvangsbepaling Verslag en Plan van Studie vir OIB.
OIB	Om kwessies wat geïdentifiseer is in die Fase van Omvangsbepaling Verslag, aan te spreek, om die belangrikheid van alle geïdentifiseerde impakte te assesser en om versagting maatreëls te formuleer.	OIB Verslag en Omgewingsbestuur Program
Publieke Deelname	Om deursigtigheid te verbeter en om die kwessies van belanghebbendes te versamel en te evalueer.	Alle konsep en finale verslae sal aan die publiek beskikbaar gestel word vir insae.



Figuur 2: Proses Diagram van die OIB Proses



- 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

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 CHECKED: KM
 PROJECT: 0220780
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 APPROVED: SP

REV: 0
 DRAWING: Ortho Locality Map of Air Products SA.mxd

CLIENT: AIR PRODUCTS

TITLE: Locality Map of the Proposed Acetylene Gas Production Facility

SCALE: 0 200 400 600 Metres

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 NGL - Wetland Determination, CM 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
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REGISTRASIE EN KOMMENTAAR BLAD

Air Products Asetileen Gas Produksie Fasiliteit

As 'n belanghebbende, word u uitgenooi om te registreer as 'n Belanghebbende en Ge-afekteerde Party (B&GP) sodat enige kwessies en/of navrae rakende die projek ge-opper kan word. Die projekspan sal dan reageer op al u kwessies en vrae. Al u kwessies/vrae, sowel as ERM se kommentaar sal opgeneem word in 'n Kommentaar en Reaksies Verslag, wat aangeheg sal word by die konsep en finale verslae.

Indien u enige navrae, kommentaar of voorstelle rakende die voorgestelde projek sou he, teken dit asseblief hier onder aan.

Stuur hierdie kommentaar blad aan Me Janet Mkhabela van ERM:

Tel: (011) 798 4300; Faks: 011 804 2289 or E-pos: airproductsEIA@erm.com

Pos-adres: Postnet Suite 624, Privaatsak X29, Gallo Manor, 2052

www.erm.com/airproductsEIA

Die ERM verwysingsnommer moet asseblief alle korrespondensie vergesel: **ERM Verw.: 0220780**

Verskaf asseblief u volledige naam, telefoon nommer en e-pos/faks/pos adres vir verdere kommunikasie..

Verwys ook asb na die **GDARD** Verwysing nommer op alle korrespondensie in die toekoms.

Registreer my asseblief formeel as n B&GP en voorsien my van enige verdere inligting en kennisgewings gedurende die OIB proses	Ja	Nee
Ek verkies om kennisgewings op die volgende wyse te ontvang:	E-pos	Pos
	Faks	

Kommentaar:

Naam:				Vul asb u kontak besonderhede, vir die databasis van die projek, hier onder in.
Organisasie:				
Telefoon nommer:		Faks:		
Selfoon nommer:		E-Pos:		
Pos Adres:				