



NOTIFICATION OF INTENT TO DEVELOP

DEA Pending

Reference:

Digby Wells ERM2556

Reference:

NOTIFICATION OF INTENT TO DEVELOP FOR THE PROPOSED ACETYLENE GAS PRODUCTION FACILITY, LOCATED NEAR WITKOPDORP, DALESIDE, SOUTH OF JOHANNESBURG

1 INTRODUCTION

Air Products South Africa (Pty) Ltd (Air Products) has commissioned Environmental Resources Management Southern Africa (Pty) Ltd (ERM) to conduct an Environmental Impact Assessment (EIA) and associated studies for the proposed acetylene gas production facility in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The proposed operation is referred to here as the project.

ERM has subsequently appointed Digby Wells Environmental (Digby Wells) to complete the heritage component of the EIA in terms of Section 24(c) of the NEMA and Section 38 (8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

1.1 Project Location

Name of property	Valley Settlements Agricultural Holdings
Erf or farm numbers	Stand 88 and 89
Coordinates of approximate centre of project area	-26.506757
	28.053026
Nearest Town	Daleside, Gauteng
Magisterial district	Midvaal Magisterial District
District municipality	Sedibeng District Municipality
Local municipality	Midvaal Local Municipality
Extent of property	3.96 ha

Digby Wells & Associates (Pty) Ltd. Co. Reg. No. 1999/05985/07. Fern Isle, Section 10, 359 Pretoria Ave Randburg
Private Bag X10046, Randburg, 2125, South Africa
Tel: +27 11 789 9495, Fax: +27 11 789 9498, info@digbywells.com, www.digbywells.com

Directors: AR Wilke, LF Koeslag, PD Tanner (British)*, AJ Reynolds (Chairman) (British)*, J Leaver*, GE Trusler (C.E.O)
*Non-Executive



Maximum extent of proposed development	3.96 ha
Current use	Residential and vacant land
Predominant land use/s of surrounding properties	Residential use and industrial use

1.2 Registered Owner of Affected Properties

Table 1-1: Registered Owner

ITEM	CONTACT DETAILS
Title Deed Owner	Air Products South Africa (Pty) Ltd
Contact person	Tom MacLean
Tel no	011 798 4300
Cell no	082 290 1440
Postal address	4 Spencer Road, Spartan Extension 1, Kempton Park, Johannesburg

2 PROJECT/DEVELOPMENT DETAILS

Air Products manufactures supplies and distributes a wide variety of industrial and speciality gas products and chemicals to the southern African region. In particular, Air Products are currently operating two acetylene gas production facilities. The development of the industrial area over time resulted in the encroachment on the existing facilities.

Air Products therefore intends to close down these existing acetylene production facilities and construct a new facility on a site that is positioned to have a reduced off-site risk to surrounding land-users.

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

A rotating screw conveyor will be used to feed calcium carbide granules (25 mm – 50 mm) into a reaction chamber which is filled with water. The feed rate of calcium carbide is determined by the withdraw rate of gas flow. 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 excess moisture is removed. The gas is then compressed to a pressure of 2 300 kPa before being filled into the cylinders which are stored on site prior to distribution.

A by-product of the production process is a slurry of calcium hydroxide (i.e. lime). This slurry is drained from the chamber and pumped into holding ponds where the calcium hydroxide settles out. Air Products intention is to sell this by-product for use in various markets (i.e. agriculture).



The proposed acetylene production facility will compromise the following components:

- Turn bins, used to store and feed the calcium carbide into the system;
- Generator tank where the reaction takes place to produce the acetylene gas;
- Ammonia scrubber to remove any particles of ammonia from the acetylene gas. This has been included in the facility design for quality control purposes;
- Chilled recycled water is used throughout the process of acetylene gas production;
- Dryer, use of silica gel to remove moisture from the gas process; and
- Compressor, used to compress the gas to an adequate pressure for filling into acetylene gas cylinders.

The reaction between calcium carbide and water produces an exothermic reaction and recycled water controls the gas temperature. Approximately 223 m³ of water will be consumed in a 24 hour shift, this is recycled process water. Water will be supplied via the Midvaal Local Municipality for domestic usage and as back up to the plant operation. The facility operation is designed to recycle 80% to 90% of water thus there is no water disposed of into stormwater drains. Furthermore, rainwater will also be harvested from surface water run-off and all roof drainage. This water will be stored and used as process or fire water.

It has been confirmed with Air Products that there will be no boilers or burners as part of the proposed facility. The proposed facility will also comprise storage vessels for the proposed site, which may be used as office space.

Access to the site is planned via Tillet Road which is an existing (dirt) road that will be re-surfaced with the appropriate aggregate for heavy duty vehicles that are expected to access and exit the proposed site. Furthermore, a ring road is also proposed around the facility to allow for effective movement of traffic around the facility (i.e. supplier and customer vehicles). The existing house and associated outbuildings located on Stand 89 will be kept intact and refurbished to serve as offices for the plant.

2.1 NHRA Section 38 Triggers

The following activities may require a HIA in terms of Section 38 of the NHRA.

		NHRA Section 38 (1) Activities / Triggers	Summary description (E.g. 500 m conveyor belt, open cast pit, etc.)
<input type="checkbox"/>	a	Any linear development or barrier >300 m	
<input type="checkbox"/>	b	Any bridge or similar structure >50 m	
<input type="checkbox"/>	c	Any development or activity that will change the character of a site:	



NHRA Section 38 (1) Activities / Triggers			Summary description (E.g. 500 m conveyor belt, open cast pit, etc.)
<input checked="" type="checkbox"/>	i	≥5 000m ² in extent	Construction of a plant 3.96ha in size
<input type="checkbox"/>	ii	Involving ≥3 existing erven/ subdivisions	
<input type="checkbox"/>	iii	Involving ≥3 or more erven/ divisions consolidated within past 5 years.	
<input type="checkbox"/>	d	Rezoning of a site ≥10 000m ² in extent.	
<input checked="" type="checkbox"/>	e	Other triggers, e.g.: in terms of other legislation, (i.e.: National Environment Management Act, etc.)	Environmental authorisation as part of a NEMA application

2.2 Activities

The following Listed Activities will require a HIA in terms of Section 38(1) of the NHRA.

Government Notice (GN)	NEMA Activity No.	NHRA Trigger	Description	Expected duration/phase
R544	23	38 (1) c (i)	Any development or other activity which will change the character of a site (i) exceeding 5 000 m ² in extent	Construction phase
R545	4	N/A	N/A	N/A
R545	5	N/A	N/A	N/A

2.3 Additional Impact Assessment Process

The following impact assessment processes are currently being undertaken for the proposed project.

Legislation, i.e. NEMA, MPRDA, etc.	NEMA
Consenting Authority that has/will receive information	DEA



Present phase of process at Authority, e.g. Draft Scoping Report	Draft Scoping Report/ Basic Assessment Report
--	---

3 IDENTIFIED/KNOWN HERITAGE RESOURCES AND POTENTIAL IMPACTS

The following categories of heritage resources as defined in Section 3 of the NHRA are known to occur within the proposed project area.

<input type="checkbox"/>	3(2)(a)	Places, buildings, structures and equipment of cultural significance
		<i>Description of resource:</i>
		<i>Potential impact:</i>
<input type="checkbox"/>	3(2)(b)	Places to which oral traditions are attached or which are associated with living heritage
		<i>Description of resource:</i>
		<i>Potential impact:</i>
<input type="checkbox"/>	3(2)(c)	Historical settlements and townscapes
		<i>Description of resource:</i>
		<i>Potential impact:</i>
<input type="checkbox"/>	3(2)(d)	Landscapes and natural features of cultural significance
		<i>Description of resource:</i>
		<i>Potential impact:</i>
<input type="checkbox"/>	3(2)(e)	Geological resources of scientific or cultural importance
		<i>Description of resource:</i>
		<i>Potential impact:</i>
<input type="checkbox"/>	3(2)(f)	Archaeology and/or palaeontology (Including archaeological sites and material, fossils, rock art, battlefields & wrecks)
		<i>Description of resource:</i>
		<i>Potential impact:</i>



<input type="checkbox"/>	3(2)(g)	Graves and burial grounds (e.g.: ancestral graves, graves of victims of conflict, historical graves & cemeteries)
		<i>Description of resource:</i>
		<i>Potential impact:</i>
<input type="checkbox"/>	3(2)(a)	Other human remains
		<i>Description of resource:</i>
		<i>Potential impact:</i>
<input type="checkbox"/>	3(2)(h)	Sites of significance relating to the history of slavery in South Africa
		<i>Description of resource:</i>
		<i>Potential impact:</i>
<input type="checkbox"/>	3(2)(i)	Movable objects
		<i>Description of resource:</i>
		<i>Potential impact:</i>

3.1 Illustrative Material

For site maps, please refer to the attached Heritage Statement.

4 RECOMMENDATION

Is a Heritage Impact Assessment required?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<p>If NO, provide motivation: The project area has undergone substantial transformations and development. Chance Finds Procedures should be put in place if any heritage resources are identified during construction. Digby Wells thus proposes that a Letter for Exemption of further heritage studies/assessments with regards to the Proposed Acetylene Gas Production Facility be granted from SAHRA and the PHRA-G.</p>			
<p>If YES, provide suggested components that may be required or undertaken during HIA.</p>			
<input type="checkbox"/>	Archaeology	<input type="checkbox"/>	Architecture
<input type="checkbox"/>	Built Environment	<input type="checkbox"/>	Burial Grounds and Graves
<input type="checkbox"/>	Palaeontology	<input type="checkbox"/>	Public Participation

Notice of Intent to Develop for the Proposed Acetylene Gas Production Facility, located near

Witkopdorp, Daleside, south of Johannesburg

ERM2556



DIGBY WELLS
ENVIRONMENTAL

<input type="checkbox"/>	Townscapes	<input type="checkbox"/>	Visual Impact
<input type="checkbox"/>	Other:		
Recommendation made by: Digby Wells Environmental			
Name: Natasha Higgitt and Johan Nel			
Capacity: Assistant Archaeology Consultant and HRM Unit Manager			