NOTICE OF CONVERSION OF AIR POLLUTION PREVENTION ACT (APPA), 1965 (ACT 45 OF 1965) CERTIFICATE TO ATMOSPHERIC EMISSIONS LICENCE IN TERMS OF NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT (NEMAQA), 2004 (ACT 39 OF 2004)

All Interested and Affected Parties are hereby notified that an application, in terms of the National Environmental Management Air Quality Act (NEMAQA), 2004 (Act 39 of 2004) has been submitted to the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET) to convert the existing APPA certificate for Thos Begbie and Company (Pty) Ltd to an Atmospheric Emissions Licence in terms of the latest legislation.

Application: Conversion of Thos Begbie and Company's APPA certificate to an Atmospheric Emissions Licence in terms of NEMAQA.

Reference: Ms Maria Tshikwatamba and Mr Joe Mabuza at MDEDET office in Witbank (Pavillion building in Botha street) is handling the application. Telephone number: 013 690 1269

Applicant: Thos Begbie and Company (Pty) Ltd

Locality: The site is located on portion 347 (a portion of portion 281) of the farm Middelburg Town & Townlands 287 JS on the corner of Mandela Drive and Hendrina Road (N11), Middelburg Industrial, Mpumalanga Province.

Nature: It is important to note that no changes are currently planned and the conversion is done in order to comply with the latest legislation. The application relates to Category 4.10: Foundries and Category 4.19: Production and casting of bronze and brass, and casting copper (more than 10 tons/day in aggregate).

To register as an Interested and Affected Party or to obtain further information or to object to the conversion, contact HydroScience on or before the 3rd **of October 2012** (40 days from publication of this notice) at:

HydroScience

Person:	Paulette Jacobs
Tel:	082 850 5482
Fax:	086 692 8820
E-mail:	paulette@hydroscience.co.za
Postal Address:	P.O. Box 1322, Ruimsig, 1732

Please submit any issues of concern or interest in the matter, in writing, on or before 3 **October 2012** by fax or email or post to the contact person listed above.

Background and history:

Thos Begbie & Company (Proprietary) Limited (Thos Begbie) is a specialist foundry and engineering company that produces water cooled Copper and Copper alloy components for the pyrometallurgical industry.

The business traces its history to 1887 when Mr Thomas Begbie started his foundry in Johannesburg. The business was relocated to Middelburg in 1906. The business has therefore been serving the mining and smelting-related industries for more than 120 years. The foundry was originally situated in the middle of town next to the Middelburg railway station. The foundry was then moved to the heavy industrial centre of Middelburg in 1969. Thos Begbie has produced Copper and Copper alloy components and provided engineering services to the South African and Global Pyrometallurgical industry since the 1950s.

Operation and process:

Thos Begbie operates within the arrangements of the Steel and Engineering Industry Federation of South Africa (SEIFSA). Some of the areas of the plant operate on a multi shift basis, overtime and other special arrangements are made from time to time as the work on hand dictates. The integrated operation includes all foundry disciplines from pattern making, moulding, casting, fettling, machining and the final testing of the component produced.

Existing infrastructure on the Thos Begbie site include:

- A metallurgical laboratory;
- Office buildings and carports;
- Petrol and Diesel tanks;
- Canteen;
- Ablution facilities (change rooms and toilets);
- Workshops (maintenance);
- Training centre;
- X-ray bay;
- Stores (pattern and other);
- 4 crucible (SASOL) gas fired furnaces;
- 400kW Induction melting furnace (3 induction coils);
- Machine and Engineering workshop;
- Pattern shop; and
- Sub-station.

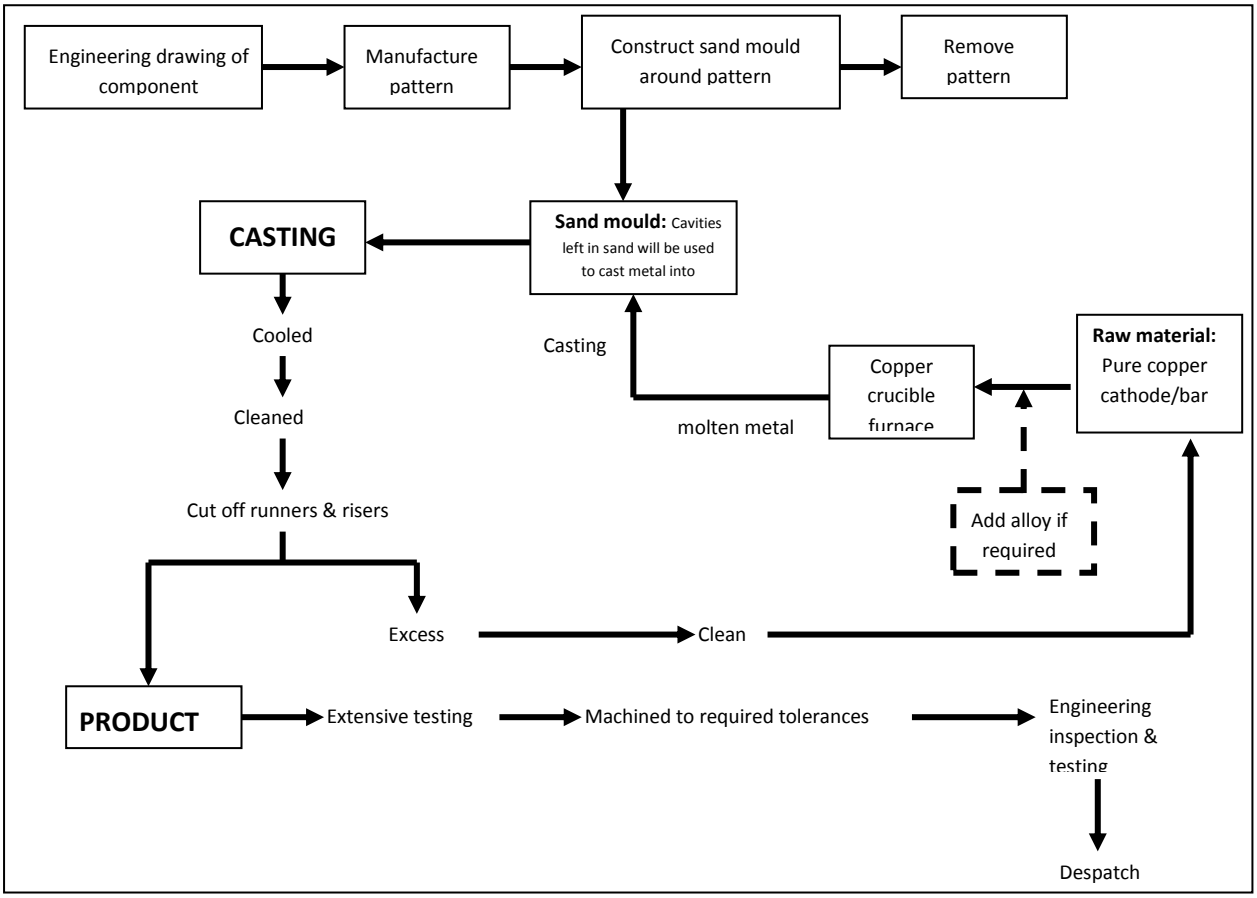
Thos Begbie operates the following furnaces:

- A 400KW Induction melting furnace. The furnace is equipped with three crucibles, the largest crucible has the capacity of 1 000kg. The furnace operates at 3 000 Hz to ensure that the raw material melted is not subject to stirring and a minimum of agitation is encountered.
- 4 Crucible furnaces which use SASOL gas as the heat source. The outside of the crucible is heated with the heat transferred through the crucible into the raw material which slowly melts. The gas does not come into contact with the metal at all. Each furnace is able to melt approximately 1 750kg of metal. The technology used can only melt lower temperature non-ferrous metals.

The Thos Begbie process includes the following steps:

- The company receives an engineering drawing of the component required by its customer.
- A pattern is manufactured to the requirements of the engineering drawing in either wood or other materials.

- A sand mould is constructed around the pattern, when after removal of the pattern, the shapes left in the sand form the cavities into which the molten metal will be cast.
- Because Copper is a difficult metal to work with and the quality requirements for water cooled Copper furnace components are extremely stringent, only pure Copper cathode or pure Copper bar is used as input raw material. On rare occasions certified scrap is used when making a Copper Alloy.
- Generally Copper raw material is purchased directly from primary producers. Should any alloying be required, the necessary alloying elements are added to the Copper.
- Because of the low melting point of Copper (1 083ºC) and the high purity of the raw material, the melting is done in a Copper Crucible Furnace. The furnaces use radiant heat to melt the material slowly.
- There is no stirring or activation of the metal during the melt down, so very little oxidation takes place. This ensures an exceptionally high yield and very low elemental losses due to oxidation of the expensive raw material.
- The molten metal is cast into the sand mould.
- The casting once cooled, is cleaned, the excess metal is cut off (runners and risers). This metal is cleaned and is re-used as raw material.
- After extensive non-destructive testing, the casting is machined to the required tolerances.
- Prior to completion and dispatch, the component is again subject to an engineering inspection and further non-destructive testing.



Energy and Water:

The Sasol gas, which is combusted, is an extremely clean gas and is supplied by pipeline from Secunda. Electricity (6MW) is further supplied by the Steve Tshwete Municipality.

Water is supplied by the Steve Tshwete Municipality. 3 300 Kl of water per month is supplied mainly for worker's use. Only 0.5 litre/month is used for cooling in the process.

Waste and by-products:

Unwashed sand occurring in the Middelburg-Witbank area is used as foundry sand. After use the sand is screened to recover any metal, it is termed "reclaim sand" and is discarded at the Steve Tshwete municipal landfill site where it is used as fill material.

Sewage discharge links with municipal sewer system.

Waste stream:	Quantity generated (per annum):	Destination:
Oil & Water	12.3 kl	Enviroserv remove to Holfontein
Oil & Rags	9 m^3	Enviroserv remove to Holfontein
Grinding Discs	27 m^3	Enviroserv remove to Holfontein
Unclean Copper shavings and Dross	120 ton	Sorted on site. Sold to scrap metal dealers and recycling institutions.
Clean Copper shavings	180 ton	Placed back into foundry stores for reuse or sold to scrap metal dealers.
Fluorescent Tubes	3 x 210 litre drums	Enviroserv remove to Holfontein
PCM Moulding sand	6 000 ton	Middelburg Waste Disposal Facility
Domestic waste	96 m^3	Middelburg Waste Disposal Facility

Relevant legislation and legal requirements:

The Atmospheric Pollution Prevention Act (APPA), 1965 (Act 45 of 1965) and more specifically, the scheduled processes identified in the Second Schedule to the APPA has been repealed. Thos Begbie currently has an APPA certificate, certificate 1162/1 issued on 29 August 2005.

The effect of the commencement of the remaining provisions of the National Environmental Management: Air Quality Act (NEM:AQA), 2004 (Act 39 of 2004) and the publication of the listed activities in Government Notice Regulation (GNR) 248 (31 March 2010) is that now, inter alia, in terms of section 22[2] of the NEM:AQA, a provisional Atmospheric Emissions Licence (AEL) or an AEL is required for the conducting of listed activities.

Thos Begbie has based on its discussions with Mpumalanga Department of Economic Development, Environment & Tourism (MDEDET) decided to convert its existing APPA certificate (1162/1) to an AEL in order to allow it the possibility to in future exceed the 8 tons of copper per day as well as produce stainless steel, which is currently included in its existing APPA.

Thos Begbie is therefore in the process of applying for the conversion of their existing APPA to an AEL for:
Category 4.10: Foundry
Category 4.19: Production and casting of bronze and brass, and casting copper