

**CUADRILLA RESOURCES
LIMITED**



**APPENDIX - H
SITE LIGHTING**

**Cuadrilla Resources Limited
February 2010**

Beaconsall Hydrocarbon Exploration Site
Planning Application [July 2010].
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Betriebsanleitung

Explosionsgeschützte Leuchten
Serie: eLLK 92, eLLM 92

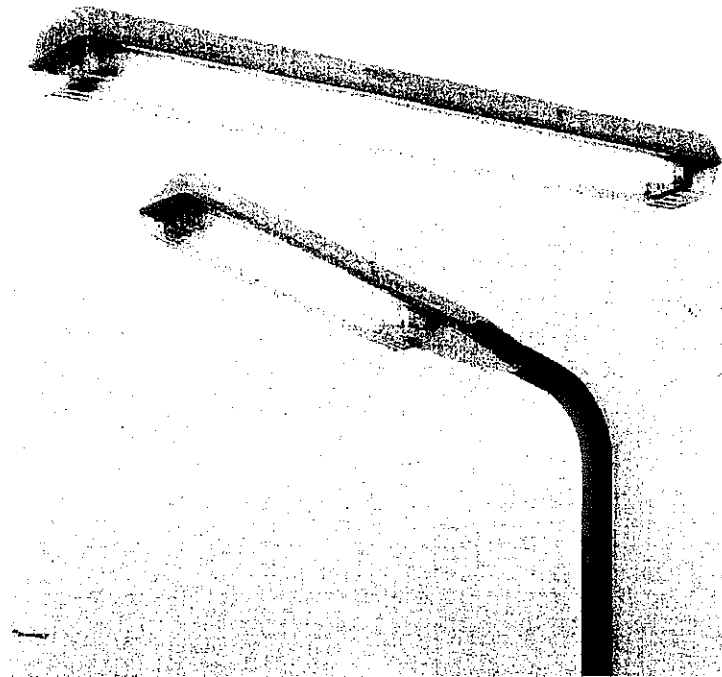
Operating instructions

Explosion protected light fittings
Series: eLLK 92, eLLM 92

Mode d'emploi

Luminaires pour atmosphères
explosives
Série: eLLK 92, eLLM 92

3 2216 000 165(E)



"En caso necesario podrá solicitar de su representante CEAG estas instrucciones de servicio en otro idioma de la Unión Europea"

"Se desiderate la traduzione del manuale operativo in un'altra lingua della Comunità Europea potete richiederla al vostro rappresentante CEAG"

"Montagevejledningen kan oversættes til andre EU-sprog og rekvireres hos Deres CEAG leverandør"

"Indien noodzakelijk kan de vertaling van deze gebruiksinstructie in een andere EU-taal worden opgevraagd bij Uw CEAG - vertegenwoordiging"

"En översättning av denna montage- och skötselinstruktion till annat EU - språk kan vid behov beställas från Er CEAG-representant"

"Se for necessária a tradução destas instruções de operação para outro idioma da União Europeia, pode solicita-la junto do seu representante CEAG"

"Tarvittaessa tämän käyttöohjeen käännös on saatavissa toisella EU:n kielellä Teidän CEAG - edustajaltanne"

"Εάν χρειασθεί, μεταφραση των οδηγιών χρήσεως σε άλλη γλώσσα της ΕΕ, μπορεί να ζητηθεί από τον Αντιπρόσωπο της CEAG"

1. Safety instructions

For skilled electricians and instructed personnel in accordance with national legislation, including the relevant standards and, where applicable, in acc. with IEC 79-17 on electrical apparatus for explosive atmospheres.

- ⌚ The light fitting must not be operated in zone 0 and 20 hazardous areas!
- ⌚ The light fitting must not be used while excessive deposit of dust (≥ 50 mm, accd. EN 50281-1-2) exist.
- ⌚ The technical data indicated on the light fitting are to be observed!
- ⌚ Changes of the design and modifications to the light fitting are not permitted!
- ⌚ The light fitting shall be operated as intended and only in undamaged and perfect condition!
- ⌚ Only genuine CEAG spare parts may be used for replacement!
- ⌚ Repairs that affect the explosion protection (see national standard), may only be carried out by CEAG or a qualified "electrician" and will subsequently have to be checked by an "expert".
- ⌚ Do not keep these operating instructions inside the light fitting during operation!
- ⌚ **The national safety rules and regulations for prevention of accidents and the following safety instructions which are marked with an (A) in these operating instruction, will have to be observed!**

2. Conformity with standards

This explosion protected light fitting meets the requirements of EN 50014, EN 50018, EN 50019 and EN 60598. It also complies with the EC directives for "Apparatus and protective systems for use according to the rules in hazardous areas" (94/9/EC) and "Electromagnetic compatibility" (89/336/EEC). It has been designed, manufactured and tested according to the state of the art and according to EN 2800 (ISO 9001).

The light fitting is suitable for use in zone 1, 21, 2 and 22 hazardous areas acc. to EN 60079-14 and IEC 79-10. Mounting the fitting within areas of considerable dirt or colour vapour a washable protection foil type "SLIME" of the manufacturer 3M may be used.

Attention! This must not be used in areas of hazardous dust (II 2 D).

The instructions of the manufacturer must be noticed

3. Technical data

EC type examination

certificate: PTB 96 ATEX 2144
Category of application: II 2 G EEx eq IIC T4
II 2 D T 80 °C

Approval of the production
quality assurance: PTB 96 ATEX Q001-2

Insulation class
to EN 60 598: I
storage temperature in original
packing: -40 °C to +60 °C

Supply terminal clamping capacity
2 x per terminal: single-wire multi-wire
min. 1.5 mm² 2.5 mm²
max. 6.0 mm² 4.0 mm²
Conductor cross-section with
through-wiring: 2.5 mm² for max. 16 A
EEx-e cable entry
standard version: M25x1.5 for cable
Ø (8 to 17 mm)
M20x1.5

metal thread: M25x1.5
Test torque for M 25 x 1.5 EEx-e
cable entry: 5.0 Nm

Test torque for pressure
screw: 3.5 Nm
(for sealing off the cable or the blanking plug)
and for mounting: see fig. 1

Intensive sun radiation in areas of high ambient temperatures may cause inadmissible temperature rise inside of the luminaire. This may result a decrease in lifetime of the electronic ballast (EVG). Therefore those luminaires should be switched off during daytime by a photocell control.

4. Installation

Attention! The respective national regulations as well as the general rules of engineering which apply to the installation and operation of explosion protected apparatus will have to be observed!
Transport and storage of the luminaire is permitted in original packing and specified position only!

Opening and closing the light fitting

- ⌚ Turn the central locking device with a box spanner (opening of the spanner SW 13) through 90° to its lock-in position and fold down the protective bowl, see fig. 3.
- ⌚ Fit in and remove the protective bowl acc. to fig. 5 and 7.
- ⌚ The protective bowl can, at option, be hinged on either side.
- ⌚ To close the light fitting, press the protective bowl lightly onto the luminaire housing and turn the central locking device through 90°.

Mounting dimensions: see fig. 1

When fixing the mounting accessories onto the light fitting, observe the **max. depth of thread of 12 mm!**
Do not use too long screws!

Accessories for mounting: See CEAG catalogue.

Mains connection

To open the connection box, turn the green handle to its stop in the direction of arrow, then pull it and fold down the flap, see fig. 4 and 5.

- ⌚ Introduce the cable through the EEx cable entry, see fig. 5. Use both sealing inserts for cables from 8 to 12 mm, and the outer sealing insert only for cables from 12 to 17 mm. Pay attention to the proper fit of the remaining sealing insert in the cable gland.
- ⌚ Connect the conductors to the terminals PE, N, L1, (L2, L3) in accordance with the terminal marking (see wiring diagram, page 2). With single connection of the terminal no bending (loop) of the conductor required! Also tighten vacant terminals!

Attention

Attention! In case of unused cable entries, remove their protective cover and close the entries with a blanking plug (torque of 3.5 Nm). When closing the gland with a blanking plug, always use both sealing inserts! When metal cable entries are used, the protective caps of the unused entries are to be removed and the entries to be closed with certified EEx blanking plugs!

Installation of the eLLM 92...

The pole mounted light fitting is mounted and installed in the following order:

- ⌚ Unscrew the three recessed head screws in the cover of the pole connecting compartment, see fig. 2, item 1.
- ⌚ Open the connecting compartment by folding down the cover, see fig. 2, item 2.
- ⌚ Pull the stay shackle of the cable entry socket up to its stop and take off the cover plate, see fig. 2, item 3.
- ⌚ Remove the cable entry sockets from the guiding grooves in the connecting compartment.
- ⌚ Then the pole mounting tube or the tube of the wall socket of 42 mm Ø each (fig. 2, item 4) is pushed home into the opening of the light fitting, see fig. 2, item 4a.
- ⌚ Adjust the light fitting and screw down the preassembled M 6 special screws, applying a torque of 3.0 Nm, see fig. 2, item 5.
- ⌚ Introduce the cable through the tube and strip the insulation to the required length.
- ⌚ Introduce the cable through the EEx cable entry (KLE) and tighten it down with the pressure screw of the cable entry (3.5 Nm torque).
- ⌚ The complete support (with the cable being introduced) is put into the guiding grooves of the pole mounted light fitting, see fig. 2, item 6.
- ⌚ Lock the support with the stay shackle, see fig. 2, item 3.
- ⌚ Insert the cable into the pull-relief and tighten it down, see fig. 2, item 7.
- ⌚ Then connect the cable in accordance with the terminal marking.

Fitting the lamps

Attention! Only use such lamps that have been certified for these light fittings, see Technical data and type label!

Single-pin lamp (Fa6)

First insert one side of the lamp into the lampholder. Then pull the opposite lampholder slightly outwards and insert the lamp, see fig. 8.1 and 9.1.

BI-pin lamp (G13)

The lamp is to be inserted to its stop into both holders, see fig. 8, so that both pins on either side of the lamp engage in the holder.

Then turn the lamp through 90° to its lock-in position, see fig. 9, the green surface in the holder getting visible.

Now the lamp is secured against falling out.

5. Taking into operation

Prior to operation, check the light fitting for its proper functioning and installation in compliance with these operating instructions and other applicable regulations!

Only carry out insulation measurements between PE and the external conductor L1 (L2, L3) as well as between PE and N.

- measuring voltage: max. 1 kV AC/DC
- measuring current: max. 10 mA

Then the luminaire will have to be closed. The terminal compartment of the pole mounted light fitting (eLLM92...) is again to be covered with the cover plate that was previously removed. To that effect, pull up the stay shackle of the cable entry socket (fig. 2, item 3) and clamp down the cover plate and the cable entry socket with the stay shackle. Again screw down the cover of the terminal compartment with the three recessed head screws.

6. Maintenance

Attention! Observe the national regulations applicable to the maintenance, servicing and test of apparatus for explosive atmospheres e.g. IEC 60079-17 as well as the general rules of engineering!

Servicing

When servicing, in particular those components that affect the explosion protection, will have to be checked, e. g.:

- ⌚ Housing and protective bowl for any cracks or damages.
- ⌚ Gaskets for their perfect condition.
- ⌚ Terminals and blanking plugs for their firm fit.
- ⌚ Because of the risk of an electrostatic charge, the light fitting shall only be cleaned with a damp, non-fibrous cloth or sponge!
Only use customary household washing-up liquid diluted in water as specified! The water temperature may be max. 50 °C.
After that, rinse with clear water to prevent the risk of tension cracks in the protective bowl!
- ⌚ Lamp replacement: Keep replacement intervals as specified by the lamp manufacturer!

Repair

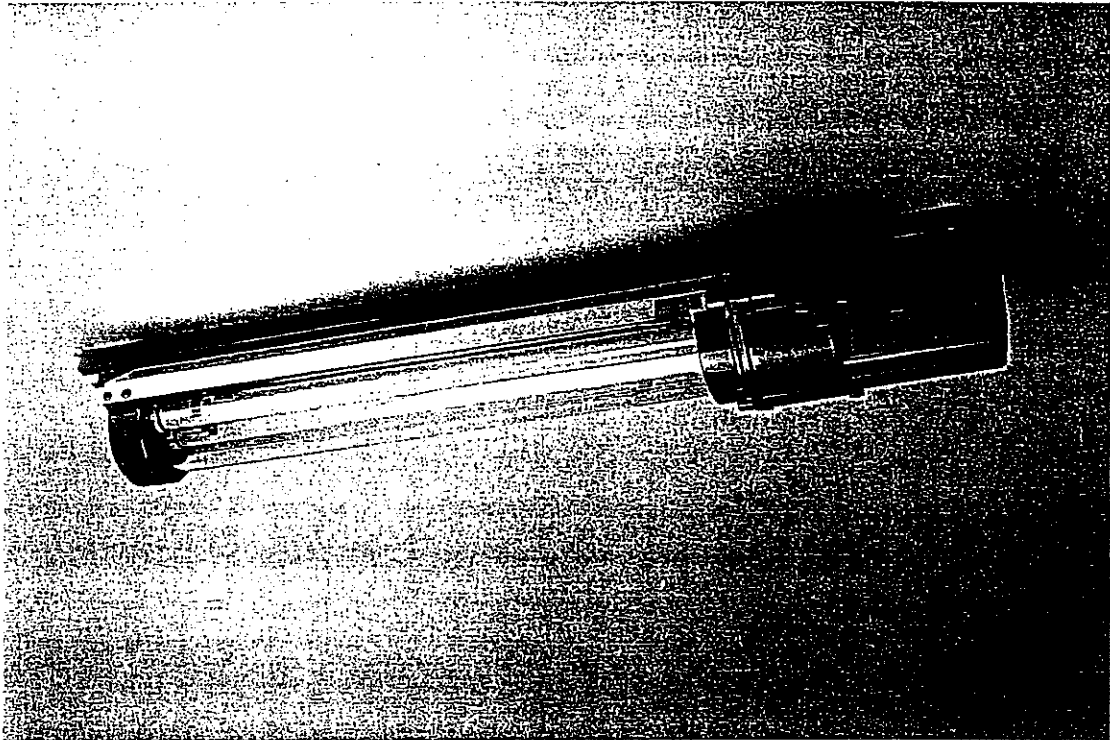
Attention! Prior to replacing or removing any components, observe the following:

Cut the apparatus off the voltage before opening it or carrying out repairs! Only use certified genuine CEAG spare parts! (See CEAG spare parts list).

Subject to alteration or supplement of this product series.

Regarding waste disposal, observe the relevant national regulations! The plastic materials are marked with material identifications.

Viscount VL57



FLAMEPROOF TYPE 'd' ELECTRONIC FLUORESCENT LUMINAIRE

APPLICATIONS

- ▼ Zone 1 hazardous areas
- ▼ General purpose lighting
- ▼ Chemical and pharmaceutical industries
- ▼ Spray paint booths

CERTIFICATION AND APPROVAL

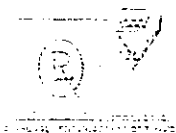
BASEEFA Certificate number Ex 95C1089
EEx d IIB T5 (to 65°C)
EEx d IIB T6 (to 55°C)

Ambient temperature range:
-15°C to +65°C

Ingress protection to IP66 and IP67

FEATURES AND BENEFITS

- ▼ Single and twin in same housing for site standardisation
- ▼ Quick lamp start, flicker free
- ▼ High frequency electronic control gear reduces running cost by 30%
- ▼ Cool running improves T-rating
- ▼ Suitable for high ambient areas
- ▼ Lightweight and slimline construction



Victor

Leading Industrial Lighting

LIGHTING PLAN

Red strobe light 113' 7"

CEAG 2' Twin 107' 1"

CEAG 2' Twin 101'

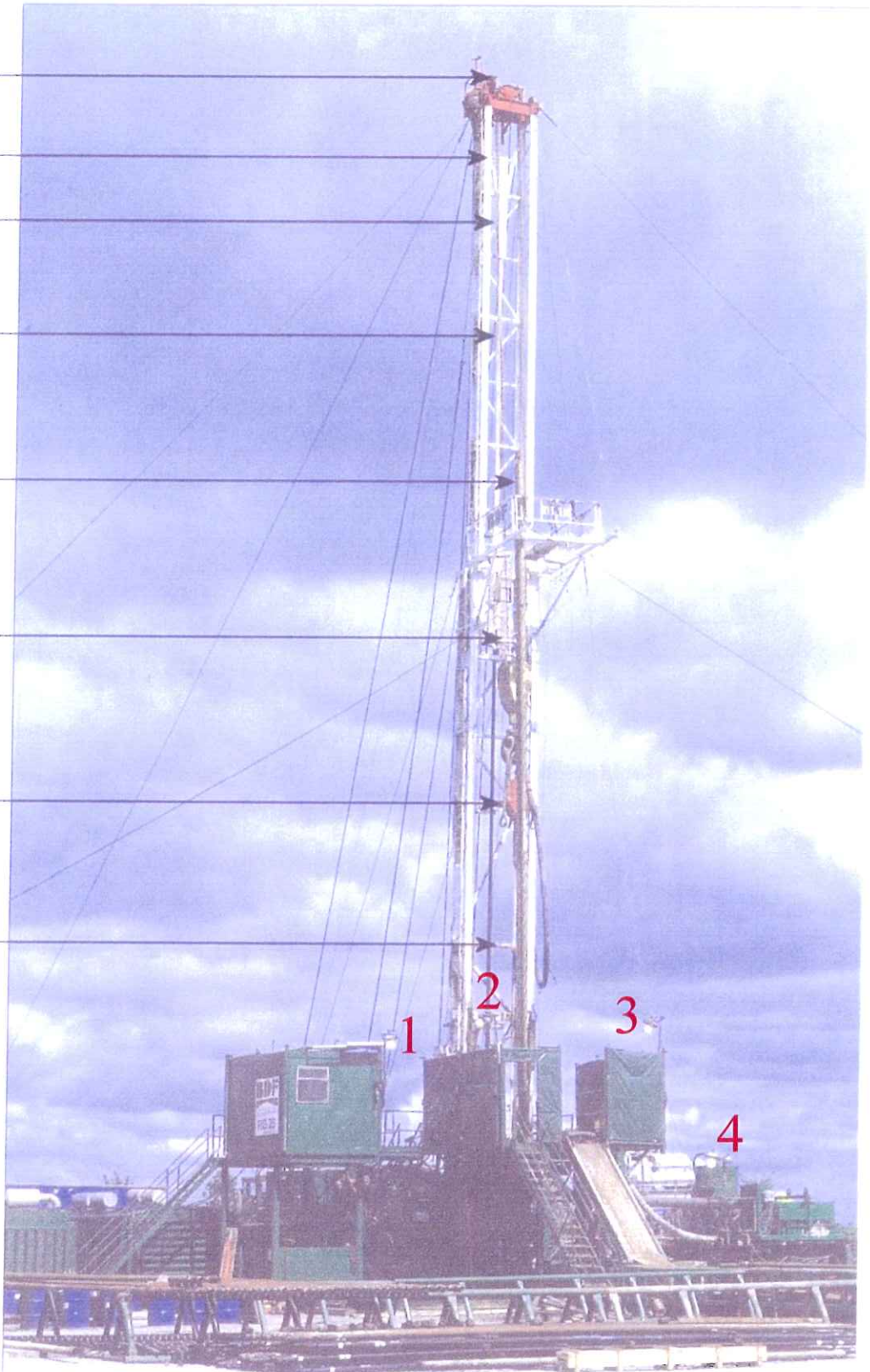
CEAG 4' Twin 85' 9"

2 x CEAG 4' Twins
1 x each side 72' 9"

Victor 2' Single 59' 9"

Victor 5' Single 43' 7"

CEAG 4' Twin 24' 4"



Lights listed in Red are Vertical

Lights listed in Blue are Horizontal
in the centre of the mast

All measurements are to the
bottom of the lights

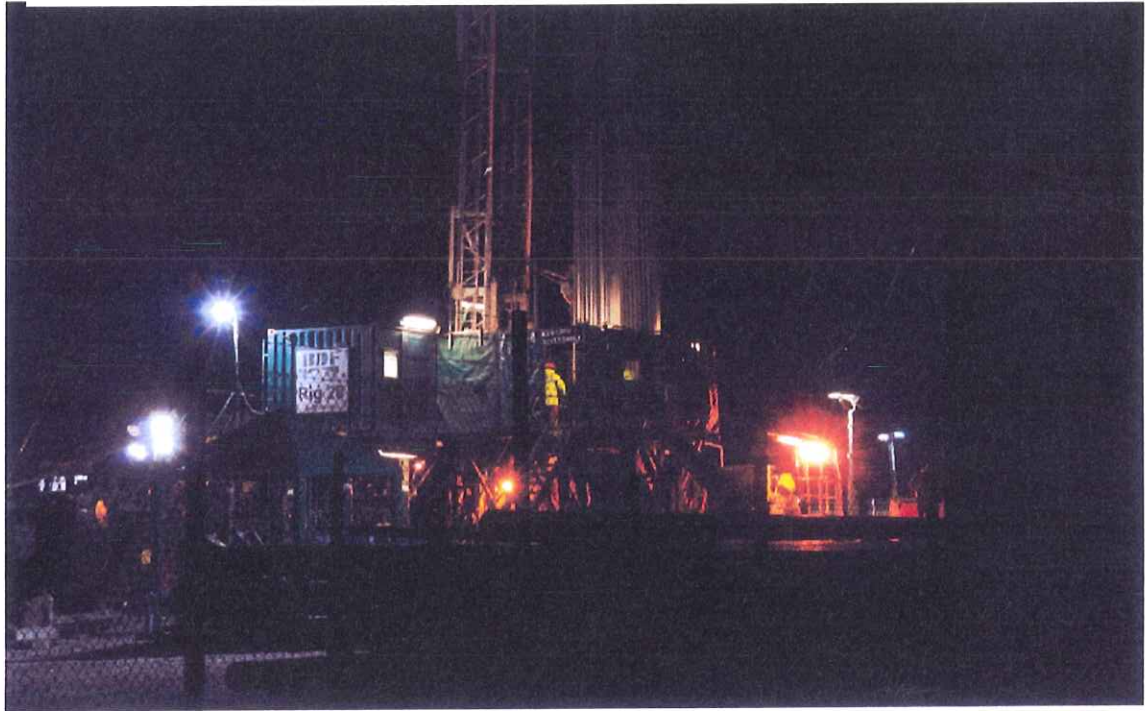
Note: All other lighting such as 1 - 4 indicated are ground and rig floor working lights and are all facing downwards and in the case of the Lingfield site are all below the surrounding tree level. The height of these working lights range between 12 and 20feet.

FIGURE (H01)

DATE: 01.07.10

NOT TO SCALE

DRILLING RIG LIGHTING



LOWER RIG LIGHTING



UPPER RIG LIGHTING

FIGURE (H02)

DATE: 01.07.10

RIG 28 LIGHTS

1/300

OCT 2005

-  400 WATT SONR
-  116 WATT STRIP LIGHTS
-  125 WATT MBFU
-  500 OR 1000 WATT T.H. LAMPS
-  100 WATT BULKHEAD LAMPS

