



THE ENVIRONMENTAL AUTHORITY

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Mr Dennis Pimentel, President
Bermuda Electric Light Company Limited,
27 Serpentine Road,
Pembroke HM 07

26th May 2020

RE: Exhaust Emissions Complaints – February 2020 to May 2020

Dear Mr Pimentel,

Further to the letter sent to Belco OHSE by the Department of Environment & Natural Resources (DENR) on 13th March 2020, the Environmental Authority understands that the air quality complaints made by residents located to north/north-east of Belco have continued. These complaints have been investigated by Belco/iEPC and the Pollution Control Section of DENR.

More specifically, the Environmental Authority understands from DENR the following points:

- i. The air quality of the residences located on Ocean Lane, Pembroke and other roads on the north-facing side of Langton Hill (i.e. facing away from Belco) is being impacted by strong engine exhaust odours as a result of apparent downdrafting of the emissions from the Belco stacks.
- ii. The complaints occur consistently when the wind is from the SSW at wind speeds of over 17 knots with occasional complaints at lower wind speeds. DENR understands that the SSW wind direction provisionally suggests that the source of these emissions is the older East Power Station (EPS) engines (i.e. E5-E8). However, the influence of the hilly topography in this area coupled with various meteorological conditions may cause a change to the apparent wind direction.
- iii. The reason why these complaints have occurred relatively recently from the start of the commissioning of the new North Power Station engines may be coincidental, as the initial complaints received by DENR originated from relatively new tenants to the area. It is also noted that the supporting EPS engines were being operated at relatively low loads in support of the NPS commissioning protocols, resulting in inefficient and less complete combustion and consequently more odourous exhaust gases. However, definitive proof of this suggested EPS source has yet to be provided.
- iv. The Belco-operated ambient air monitoring station located at the top of Langton Hill (i.e. BDA#2) is approximately 160m away from the impacted residences on Ocean Lane and can detect emissions from the EPS when the wind is from the SW. Detection of Belco emissions at this monitoring station is apparent with a SW wind, though the sensors have measured the pollutant concentrations to be well within the limits provided in the Clean Air Regulations 1993.
- v. Furthermore, the opacity data from sensors located within the stacks of the various engines, in addition to visual emission testing with third-party camera verification of the exhaust plumes, suggest that the engines are operating within the opacity limits stipulated in the operating licence OL-114 (OL-114 Condition #5.3.2.).
- vi. To help alleviate these periods of poor air quality the Authority understands from DENR that Belco is not performing engine testing after periods of maintenance when the wind is from the SSW in addition to ensuring that engines do not operate at less than 80% load in order to prevent inefficient operation where smokier, higher opacity exhaust may occur. It is noted, however, that the normal start-up and

shutdown of any engine will naturally incur a period of smokier exhaust, which is allowed for in the 30-minute period to achieve compliance within the operating licence conditions (condition #5.3.2.).

Despite these operational changes made by Belco in point #vi above, coupled with the other points listed, it is apparent that these residences are still being impacted by a strong smell of Belco emissions when certain wind conditions persist. DENR has informed the Authority that re-running of the air dispersion model with the recent meteorological conditions recorded has highlighted that topography-related downdrafting is occurring which may be concentrating the Belco emissions down the back of Langton Hill. These odours have been witnessed and corroborated by both DENR and Belco personnel.

Under operating licence OL-114 of the Clean Air Act 1991 Belco is permitted to discharge exhaust gases containing air contaminants providing that they are within the regulatory limits stipulated in the Clean Air Regulations 1993 at grade level (i.e. Bermuda's Ambient Air Quality Standards) (OL-114 Conditions 1.2, 1.3).

Based on the above information the Environmental Authority requires Belco to investigate the following to the satisfaction of the Pollution Control Section of DENR:

1. Does the poor air quality experienced by the residents of Ocean Lane and an adjacent site comply with Bermuda's Ambient Air Quality Standards? Appropriate monitoring equipment shall be deployed to the satisfaction of DENR and the property owners. Data shall be collected at each site over a period of many months in order to ensure that all typical meteorological and other conditions, leading to the apparent poor air quality, have been accounted for. The monitoring shall be started within a period of 3 months from the date of this letter.
2. The air quality monitoring equipment shall be able to remotely indicate when elevated pollutant concentrations are being detected in order for personnel from DENR and Belco to be alerted to attend the site at these times.
3. Is the source of the fumes at Ocean Lane coming from the stack of the East Power Station or from the North Power Station stack? Once suitable monitoring equipment is established trials involving the shutting down and starting up certain engines shall be performed in order to understand which stack is causing these periods of apparent poor air quality.
4. DENR will collect samples from water tank(s) of Ocean Lane and other properties in the vicinity to determine the concentrations of various pollutants in the water and in the sediment in order to compare to other Island-wide data. Belco shall assist DENR in this task and cover all reasonable expenses.
5. Belco shall consider what additional mitigation measures can be taken in order to address the strong odours of exhaust emissions at these residential locations.
6. To provide monthly reports to DENR on the progress of the above requirements.

The Environmental Authority anticipates that Belco will continue to operate, as it has done, by taking its environmental responsibilities very seriously, and to take the appropriate steps to address the above requirements to the satisfaction of DENR. Based on progress reports, to be presented to the Authority by DENR going forward, the Authority will consider whether it is necessary to also capture these requirements as new conditions within operating licence OL-114, as permitted under section 9(2) of the Clean Air Act 1991.

Yours sincerely,



Mrs Tinee Furbert, MP
Chair of the Environmental Authority

Copied:

Minister of Home Affairs, the Hon. Walter Roban JP, MP.

Director, Department of Environment & Natural Resources, Mr Drew Pettit.

Acting Manager, Occupational Health, Safety & Environment, Belco, Ms Jan Locke.