

**Minutes of a Meeting of the Environmental Authority
Held on Wednesday 30 September 2020
At the Department of Environment and Natural Resources, Botanical Gardens, Paget
and Remotely using Zoom Teleconference**

PRESENT: Ms. Tinee Furbert, Chair
Mrs. Susan Armstrong, Member, remote access
Mr. Andrew Barnes, Member, remote access
Mr. Willie Ferguson, Member
Mr. Eugene Saunders, Member
Mr. Jonathan Starling, Member, remote access

ADVISORS: Dr. Geoff Smith, Environmental Engineer, DENR
Dr. Shaun Lavis, Hydrogeologist, DENR
Mr. Tom Crossan, Chief Environmental Health Officer, remote access
Mr. Kirk Outerbridge, Chief Engineer, Public Works, remote access
Mr. Paul McDonald, Acting Senior Planner, Dept of Planning, remote access
Ms. Patricia Hollis, Environmental Officer, DENR, Recording Secretary

IN ATTENDANCE:

Ms. Taylor Hines, Student Intern, DENR
BELCO Representatives:
Mr. Gabriel Cabrall, Acting OHSE Manager
Mr. Matt Thompson, Env. Engineer, iEPC
Mr. Andrew Rothwell, OHSE Coordinator
Mr. Blair Smith, Project Manager, North Power Station

ABSENT:

Mr. James Morrison, Member
Mr. Armell Thomas, Senior Environmental Health Officer
Mr. Tarik Christopher, Principal Engineer (Water & Sewage), Public Works,

1. Confirmation of Minutes

The minutes of the meeting held on 26 August 2020 were approved by Jonathan Starling, seconded by Eugene Saunders, and signed by the Chair.

2. BELCO Presentation of 2019 Annual Report

Mr. Andrew Rothwell gave an overview of the operation of BELCO's controlled plant during 2019. It was noted that BELCO's power generation is in a transition period. Four new North Power Station engines have recently been commissioned and eight diesel engines will be removed from service in 2021. The maximum generation capacity will decrease from 158.3 MW in 2019 to 125.5 MW in 2021.

The environmental management programme comprises:

- a) Smoke stack opacity monitoring (6 continuous in-stack monitors and certified visual and camera-based observers);
- b) ambient air quality monitoring stations (two) and one meteorological station;
- c) an oily waste water treatment plant that recovered 199,400 US gallons of waste oil recovered from plant operations in 2019 and shipped to the USA for reuse/recycling,
- d) a subsurface hydrocarbon recovery programme to address the oil plume from past spills below the old power station (three waste oil recovery centres and 145 wells);
- e) environmental complaints management
- f) roof painting programmes;
- g) ambient vibration monitoring programmes,
- h) spill prevention and response programmes.
- i) BELCO conforms to the requirements of ISO 14001, an internationally recognized environmental management standard.

BELCO recorded three incidents of non-compliance with the Operating Licence:

- (1) One exceedance of the smoke stack opacity standard in 2019 outside of the permitted 30 minute startup-shutdown sequences.
- (2) Ambient Air Quality Monitoring Quality Assurance Plan requires revision to include new instrumentation;
- (3) Four of the 17 reportable oil spills in 2019 were not reported to DENR within the stipulated timeframe. Three were from transformers that failed during hurricane Humberto; one was a spill from a truck hydraulic line where the initial field estimate of spilled oil was less than the reportable amount.

With regard to (1) above, it was shown that the number of opacity exceedances had decreased annually from about 28 in 2015 to one in 2019.

With regard to (2), Mr. Rothwell presented graphs that demonstrated trends in the maximum values for NO_x, SO_x, PM₁₀, and Total Suspended Particles (TSP) during the period 2015 to 2019:

- i. for 1-hour NO_x, there was a slight upward trend at the Bermuda One monitoring station and a slight downward trend at Bermuda Two.
- ii. For 1-hour and 24-hour SO_x, there was a slight downward trend at Bermuda One, yet a slight upward trend at Bermuda Two.
- iii. For 24-hour PM₁₀, there was a slight upward trend at Bermuda One and a slight downward trend at Bermuda Two.
- iv. For TSP, there was a downward trend at Bermuda One, and a slight upward trend at Bermuda Two.

The levels of NO_x, SO_x, PM₁₀, and TSP were all below the air quality standard in 2019. The reasons for the trends, however, are not fully understood. The increased use of heavy fuel oil with 2% sulphur and the reduced use of light fuel oil with a sulphur content limit of 0.5% may have contributed to the upward trend of SO_x at monitoring station BDA#2.

With regard to (3), Mr Rothwell confirmed that the spills were responded to and described how contaminated soil is remediated after a spill from transformers.

Mr. Rothwell reported that sound and vibration measurements had been undertaken. Ambient noise measurements were taken before and after the North Power Station construction works. The measurements confirmed that the sound levels complied with BELCO's operating licence conditions. Ambient vibration measurements are underway at locations specified by DENR.

Mr. Rothwell confirmed that environmental training for staff is undertaken continuously, ensuring personnel are familiar with over 45 standard operating procedures, handling hazardous materials, spill response, and emergency response using the Incident Command System. This is in compliance with BELCO's operating licence conditions.

BELCO continues to inspect their tanks and pipelines in compliance with API standards to reduce spills. 18 spills were reported in 2019, of which 16, approx. 362 gallons total, were from failed pole mounted transformers. One spill, estimated at 21 gallons, was in the central plant; one, estimated at 10 gallons, was from a ruptured hydraulic line on a truck.

BELCO's Major Environmental Emergency Contingency Plan/Major Environmental Pollution Plan was successfully tested on 26 November 2019 as a field exercise.

The subsurface hydrocarbon recovery program has recovered 330 m³ of waste oil from the ground since 2001. Calculations of the volume recovered indicate that most of the subsurface hydrocarbons have been removed; with there now being less hydrocarbon in the ground, it is more challenging to recover. About 1 m³ was recovered in 2019, leaving an estimated 37 m³ of recoverable product in the ground. There were no indications of any new sources of oil leaking into the ground. This will be confirmed next year when age testing is scheduled to be performed.

With the anticipated demolition of the Old Power Station in 2021, BELCO will be seeking permission to stop oil recovery efforts via the recovery centres.

Stack emission modelling and air dispersion modelling were not required in 2019.

3. BELCO—Update on Action to Address Recent Soot and Odour Complaints

Mr Matt Thompson and Mr Blair Smith gave an update on the progress BELCO is making to address the recent complaints of soot and fumes:

Stack Emission (Soot) Complaints

BELCO has commissioned opacity meters in the North Power Station; has undertaken daily visual emissions tests since 31 March 2020; has engaged TRC to undertake more refined air dispersion modelling; and has modified start-up procedures for the North Power Station and East Power Station engines to minimise odours at start-up.

DENR and BIOS have yet to review the TRC modelling results in detail.

BELCO has yet to fully compare the North Power Station stack testing results to the modelled inputs. The mobile ambient air monitoring station at Ocean Lane is expected to be deployed in early October 2020.

Exhaust Emission (Odour) Complaints

In line with the requirements of the Authority, BELCO has provided monthly updates which DNER has shared with impacted residents. DENR has contracted BIOS to oversee the BELCO operations of their mobile ambient air monitoring station. This station will determine whether the air quality at Ocean Lane is compliant to the Clean Air Regulations and will also help to determine the source of the fumes (East Power Station or North Power Station) and the conditions that appear to cause the greatest impact (i.e. meteorological conditions and number of engines operating). BELCO has contracted BIOS to collect and manage water and sediment samples from water tanks at properties around Ocean Lane and residents closer to BELCO that has been impacted by the above Soot Issue. The samples were exported to accredited laboratories for analysis of a full suite of contaminants. Water quality results are expected in October and both DENR and Dept of Health will present the results to the public.

BELCO will be hosting a town hall meeting with local residents to provide updates and explanations once the studies are complete.

Mr. Blair Smith added that discussions with the NPS manufacturer, MAN, have been held to determine the causes of the soot and potential corrective measures. He said that there was a problem at startup with one engine which was caused by a frayed wire. That has been repaired. Additionally, light fuel oil is being used rather than heavy fuel oil to fuel the engines at start-up and shutdown. The burning of the cleaner fuel at start-up and shutdown has resulted in an estimated reduction in the production of soot.

Mr Blair Smith also described how modifications to the engine pistons to increase the compression ratio should improve fuel combustion and significantly reduce the amount of soot produced.

The Chair thanked the Belco representatives for their presentation and recommended that they keep the public informed of progress to resolve the air quality complaints.

The Authority will consider their application for reissue of their operating licences at a later meeting.

4. Medical Waste Incinerator/Pet Crematorium Construction Permit Application

The Environmental Engineer reported that two of the Authority's questions had been answered by the applicant:

1. What is the largest size animal that can be cremated:
A: Goats, large dogs, sheep may be accommodated.
2. Will there be a smell near the incinerator/crematorium?
A: No. Untreated waste will be refrigerated. There is no smell from the incineration process.

After considering the draft conditions, the Authority **APPROVED:**
the draft Construction Permit conditions as circulated.

5. Applications for Construction Permits and Operating Licences (New)

**5.1 CP-608, OL-981 Stanfield Smith Application for a 45 kW propane generator at
7 Long Bay Lane, Sandys**

The Members were presented with a summary of the history of this application, which was first submitted to the Authority on 14 February 2019; the application was deferred during this meeting because it was not compliant with the Authority's policy on noise. Several options to minimise the noise were provided to the Applicant to consider. The application was later declined on request by the applicant that a decision be made and ahead of an appeal to the Minister. On 9 December 2019, the Minister of Home Affairs received the appeal and approved the issuance of the construction permit but stated that the issuance of the operating licence is conditional on the sound from the generator being compliant with Environmental Authority Policy #9.

The Applicant has since received signed statements from his nearest neighbours stating they are aware of the proposed generator and have no objection to its noise. The noise for each neighbour was specific to what was predicted from the model. The Applicant has not taken any additional noise abatement steps, such as relocating the generator, constructing sound attenuating walls, or installing noise absorbing blankets.

The Authority **DECLINED:**
the application for an operating licence, stating that the noise from the generator is projected to be significantly above their policy guidelines, and there are options for the applicant to explore to reduce the noise.

All other applications were deferred due to time constraints.

6. Applications for Operating Licences (Reissue)

6.1 The Authority **APPROVED:**

the reissue of operating licences on the three-page printout, subject to standard conditions, with the exception of six applications:

OL-142 Corporation of Hamilton Front Street waste water treatment plant. This was deferred due to time constraints.

OL-521 WEDCO waste water treatment plant. This was deferred due to time constraints.

OL-819 Sinky Bay waste water treatment plant. This was deferred due to time constraints.

OL-887 Sardis waste water treatment plant. This was deferred due to time constraints.

OL-992 Graybar Holdings waste water treatment plant. This was deferred pending submission of the annual report.

OL-813 F & C Scrap Metal facility. This was deferred due to time constraints.

7. Applications for Water Rights (New)

The Authority **APPROVED** the application listed below:

7.1 WR 5674 Mallory, domestic sewage disposal borehole at 108 South Road, Paget, Sandys, subject to standard conditions and providing the borehole is sealed 40 feet below sea level. [Subsequently withdrawn and amended - to be re-considered at next meeting].

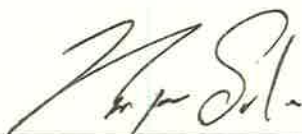
8. Applications for Water Rights (Reissue)

The Authority **APPROVED:**

the issue of water rights as listed on the eight-page printout, subject to standard conditions, with the exception of nine indicated as withdrawn.

9. Date of the Next Meeting

The date of the next meeting was set for 8:30 am, Wednesday, 7th October 2020.



CHAIRMAN

4 Nov. 2020

DATE