

**Minutes of a Meeting of the Environmental Authority  
Held on Wednesday, 28 August 2019  
At the Department of Environment and Natural Resources, Botanical Gardens, Paget**

**PRESENT:** Mrs. Winnifred Fostine-DeSilva, Chair  
Mrs. Susan Armstrong, Member  
Dr. Nick Bates, Member, present via internet video call  
Mr. Eugene Saunders, Member  
Mr. Jonathan Starling, Member

**ADVISORS:** Dr. Geoff Smith, Environmental Engineer, DENR  
Mr. Tom Crossan, Chief Environmental Health Officer  
Mr. Kirk Outerbridge, Chief Engineer, Public Works  
Ms. Patricia Hollis, Environmental Officer, DENR, Recording Secretary

**IN ATTENDANCE:**

Ms. Zoey Roberts, Health, Safety & Environmental Officer, TBWEF, Public Works  
Mr. Nasir Wade, Acting Plant Manager, TBWEF, Public Works

**ABSENT:** Mrs. Sarah Haycock Tafur, Deputy Chair  
Ms. Lynesha Lightbourne, Member  
Mr. Armell Thomas, Senior Environmental Health Officer  
Mr. Tarik Christopher, Principal Engineer (Water & Sewage), Public Works  
Dr. Shaun Lavis, Hydrogeologist, DENR

**1. Confirmation of Minutes**

The minutes of the meeting held on 24 July 2019 were approved and signed by the Chair.

**2. Presentation on the Tynes Bay Waste to Energy Facility Annual Report**

Ms. Roberts reported on the operation of the Tynes Bay WTE Facility during 2018. The annual volume of incoming total waste was marginally greater than in the last four years. This was considered to be due to the increase in trade refuse and wood waste. It was noted that there was a continued year on year decrease in domestic waste that corresponded with the declining population. Ms. Roberts added that some horticultural waste is being mixed with the garbage to make space at Marsh Folly and to reduce hot spots in the windrows. Also, 632 tonnes of cooking oil were disposed of at the facility. It was noted, again from previous years, that the cooking oil produces a conductive residue that settles on the ESP insulators cones and causes them to crack. A maintenance programme of cleaning the cones has since been instituted in order to avoid the expense of replacing cracked cones.

The two incineration streams were operational for 83% and 73% of the year, most of the down time was for planned maintenance.

It was stated that 30,077 MWh of electricity were generated in 2018, and 19,213 MWh were exported to BELCO. Ms. Roberts said that the 2-year old turbine is performing well.

The chlorine residual and cooling water temperatures of the seawater cooling system were within the standards set in the Conditions.

The stack emissions testing showed that all parameters except dioxins and furans were within the limits, though some parameters were noticeably lower than normal and this is currently being investigated with the company that conducted the monitoring. The dioxins and furans were measured at 1.6 ng/m<sup>3</sup>, slightly higher than the limit set in the operating licence of 1 ng/m<sup>3</sup>.

It was reported that 6,784 tonnes of ash (excluding 1,506.5 tonnes of metals removed by the ash plant) was processed into 8,000 metre cube blocks for disposal at the Airport Facility. The average compressive strength of the blocks was 3.1 N/mm<sup>2</sup> (*i.e.* MPa), which is outside of the typical range of 6 to 12 N/mm<sup>2</sup> measured in previous years. It was noted that there have been some operational issues with the eddy current separator in the ash plant that removes

aluminium from the ash over the past year. It is understood that the aluminium particles within the ash react, thereby creating oxides that expand, causing the ash-concrete to crack and break up (*i.e.* spall) and reduce the block strength. Ms. Roberts agreed to send the Members a photo of a concrete block showing the cracking/spall.

Much discussion followed the presentation of the report.

**Disposal of raw ash at Airport:**

The Members were reminded that this year, due to a shortage of trucks and restrictions on overtime, Tynes Bay WTE Facility has been unable to process all of the ash with cement. Under the Operating Licence condition 4.3.4.h emergency situations permit the disposal of unconsolidated ash (*i.e.* without cement) at the Airport Waste Management Facility with a range of conditions designed to minimise the environmental impact. This process requires the ash to be capped with cement to prevent ingress of water and to minimise pollutants within the leachate. Members expressed the concern that a lack of funding and resources do not necessarily constitute an emergency, but instead reflect poor planning and management. Mr. Outerbridge stated that the provision of funding for the Tynes Bay WTE Facility is provided by the Ministry of Finance.

The Authority **AGREED:**

that a letter should be sent on their behalf to the Permanent Secretary, Ministry of Home Affairs suggesting that a Cabinet Paper be written to highlight to the Members of Parliament the consequences of inadequate funding of an essential service.

**Pallets:** It was commented that Bermuda receives many wooden pallets that do not have the pressure treatment stamp, thereby preventing their re-export to the United States. The MPW presenters were asked whether there was any value to stop the import of these pallets in preference for pressure-treated pallets that could have a potential export use. Tynes Bay personnel replied that they require a supply of dry wood to boost the calorific value for the incineration of wet domestic wastes. It was noted that the pre-treatment of the pallets requires them to be chopped in a mechanical shear, which is a critical step that can be prone to failure. However, Tynes Bay personnel considered that the benefits of incinerating pallets outweighed the issues stated.

**Effects of Recyclables on Plant Efficiency:** It was stated that the inclusion of tin, aluminium and glass in the waste stream reduces the efficiency of the plant and increases the need for maintenance. Mr. Outerbridge said that the Minister of Public Works is presently writing a White Paper on recycling. It is expected that the programme to sell wheelie bins for garbage and recyclables will increase the efficiency of collection and help to promote recycling in addition to helping to reduce the rat problems highlighted in the press.

**Lack of Funding for Maintenance:** There was a general discussion on the reduced level of funding available for essential maintenance of infrastructure items including TBWEF. With TBWEF being about 25 years old, it needs a major upgrade to both streams at an estimated cost of over \$100 million. It was noted that the personnel are having to re-prioritise maintenance and repairs as the situation requires. As an example, the refuse cranes were due to be replaced but this project had to be delayed because of an urgent need to replace the ash clinker crane.

Mr. Outerbridge then gave some more insight into a planned scheme to create a water/sewage/power utility that could ensure that adequate maintenance funding exists to operate this facility. There are two studies underway into the financial feasibility of this, and it is acknowledged that a robust legal framework is needed. It is expected that such an entity would provide an attractive investment opportunity for local investors. Mr. Outerbridge agreed to provide an update to the Authority in 12 months' time.

The Tynes Bay personnel were thanked for their presentation. Ms. Roberts and Mr. Wade left the meeting.

The Authority **APPROVED:**

the application for reissue of the Tynes Bay Waste to Energy Facility operating licence for one year, subject to standard conditions and with the addition of a definition of "emergency" to operating licence condition 4.3.4.h to reflect "force majeure" incidents.

### 3. Elbow Beach Waste Water Treatment Plant

The Authority **TOOK NOTE:**

that the Department of Environment and Natural Resources had received a copy of the waste water treatment assessment of Elbow Beach undertaken by Water Infrastructure Group (WIG) and that WIG had been engaged by Elbow Beach Hotels Ltd to complete the short-term improvements proposed in the report. It is expected that it will take about 10 weeks to implement these improvements, which are designed to stabilise the system and are not expected to fully meet the effluent quality requirements at this stage. The long term solution is being evaluated by WIG. The costed report is estimated to be delivered to Elbow Beach Hotels Ltd by mid-September. These remedial actions will take approximately six to nine months to complete and commission.

### 4. Applications for Construction Permits and Operating Licences (New)

#### 4.1 CP-636, OL-1022 Harkins, 9 Harvest Lane, Hamilton Parish (retroactive)

The Authority **APPROVED** the construction permit for a 20 kW propane generator at 9 Harvest Lane, Hamilton Parish subject to standard conditions and providing no objections are received during the advertising period.

The Authority **DEFERRED** the application for an operating licence pending implementation of additional sound attenuation measures and a further sound survey.

#### 4.2 CP-656, OL-1046 One Communications, 8 Wilderness Lane, Smith's

The Authority **APPROVED:**

the retroactive application for a construction permit and operating licence for a 20 kW diesel genset at 8 Wilderness Lane, Smith's subject to standard conditions and providing no objections are received during the advertised period.

#### 4.3 CP-645, OL-1039 One Communications, 10 Freeport Drive, Sandys

The Authority **APPROVED:**

the retroactive application for a construction permit and operating licence for a 20 kW diesel genset at 10 Freeport Drive, Sandys subject to standard conditions and providing no objections are received during the advertised period.

### 5. Applications for Operating Licences (Reissue)

#### 5.1 The Authority **APPROVED:**

the reissue of Operating Licences on the two-page printout, subject to standard conditions, with the exception of OL-142 Corporation of Hamilton WWTP.

#### 5.2 OL-142 Corporation of Hamilton WWTP

It was noted that the Corporation of Hamilton (CoH) had not sent in a report with the reissue application for OL-142 for the Front Street Waste Water Treatment Plant. The annual report was to confirm progress on the design of 2-stage primary screening process with disinfection following the bench scale and third party testing results of Salsnes screen and disinfection. It was noted that recent improvements and studies had included: the installation of finer coarse screens (*i.e.* changing from 6 mm 3 mm); amendments to the control philosophy to capture more solids; and the potential extension of the Seabright outfall. DENR understands that the Minister responsible for the Corporations has not approved, at this time, their expenditure plan to install a 2-stage primary treatment system with disinfection. Mr. Outerbridge added that Public Works advised the Minister that the CoH tender documents did not contain any performance specifications, so Public Works were unable to support the application.

The Authority **REQUESTED** that the CoH City Engineer be invited to the next meeting.

### 6. Applications for Water Rights (New)

#### 6.1 WR 5645 Cross Harbour Trust

The Authority **APPROVED:**

the application for a domestic water right submitted by Cross Harbour Trust for the disposal of treated sewage effluent at 58 Pitts Bay Road, Pembroke, subject to standard conditions and providing the borehole is sealed to 60 feet below sea level with the use of a flexible liner.

**6.2 WR 5646, Justin Kempe**

The Authority **APPROVED** the application for a domestic water right submitted by Justin Kempe for the disposal of treated sewage effluent at 8 Khyber Heights Road, Warwick, subject to standard conditions and providing the borehole is sealed to 40 feet below sea level.

**7. Applications for Water Rights (Reissue)**

The Authority **APPROVED:**

the issue of water rights as listed on the three-page printout with the exception of four indicated as withdrawn.

**8. Date of the Next Meeting**

The date of the next meeting was set for 8:30 am, Wednesday, 25 September 2019.

  
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CHAIRMAN

30/10/19  
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DATE