

FINAL REPORT ON INCIDENCE OF ILLNESS AT RED BAY PRIMARY SCHOOL, SHAMROCK ROAD on 2nd SEPTEMBER 2015

At approximately 1.30pm on 2nd September 2015 a call was received by Mr. Mark Robson (MR), Environmental Health Officer, Department of Environmental Health from Mise en Place Professional Catering (MEP) requesting assistance regarding an allegation of a number of cases of vomiting with children at Red Bay Primary School (RBPS), Shamrock Road. The illnesses had occurred after the lunch time food service at the school provided by MEP. MR visited the kitchen at Red Bay Primary and spoke with Sean Collins (Owner) and Claire Collins (Manager) of MEP.

Mr. Collins stated he had been informed by the school that 107 children and staff had reported symptoms of vomiting and/or abdominal pain after eating lunch at Red Bay Primary. Lunch was served between 11.30am – 12.30pm. Mr. Collins, Ms. Collins and Wade Spencer (Chef) were interviewed regarding the food provided. The Acting Medical Officer of Health and the Director, Environmental Health were both notified of the situation.

The following information was given on all the foods served to children that day including snacks and lunch. There were two options for lunch.

Meal 1 - Chicken Tenders/French Fries/Coleslaw and Ketchup

- Chicken tenders were cooked from frozen. This was fried in the fryer, and the tenders were cooked in batches. Cooking started at around 8.30am and finished at 10.30am. Hot food was kept in the hot cabinet set at 160F.
- Frozen fries were heated in the oven to defrost and then fried.
- Coleslaw is made on site with mayonnaise, green peppers, carrots, cabbage, and sugar. The coleslaw made by MEP staff, Mona Green and Dilcia Ebanks and was prepared on the morning of 2nd September between 8.30am and 10.00am.
- The ketchup is Heinz and comes in large catering packs.

Samples of the cooked chicken left over from lunch, coleslaw, and the frozen chicken tender pieces were taken for analysis at the DEH Laboratory.

Meal 2 – Fried Swai fish, French Fries, Coleslaw, and ketchup

- Swai was dusted with flour and deep fried. This was also done in batches and stored in the hot cabinets which were set at 160F.
- Fries, coleslaw and ketchup as in Meal 1.

A sample of cooked Swai left over from the lunch service was taken for analysis by the DEH Laboratory.

Snack - Chicken sandwich/bag of fruit

- The chicken sandwich was made by slicing chicken breasts and baked in oven, then mixed with mayo, green pepper, onion and tomato. These veggies were prepped in the morning of 2nd September. In total, 30 sandwiches were made. No sandwiches were available for sampling.
- Fruit, namely grapes, cantaloupe and honeydew melon were also provided at snack time. These were cut and sliced and provided in a zip-lock bag. 10-15 bags were made. A sample of the fruit in a ziplock bag was taken for analysis by the DEH Laboratory.

Water was provided to children at snack and lunch time.

Foods prepared by MEP at this kitchen were also served at the Lighthouse School (which shares the kitchen facilities with RBPS) and George Town Primary School.

No MEP staff reported symptoms of vomiting and/or diarrhea. Only one person had travelled abroad recently to Jamaica. She returned on 28th August 2015 but had not had any symptoms of diarrhea and vomiting.

In addition to the investigation of the food production it was reported by MEP staff that there was an incident with the ice machine. It had not been working properly and a technician from Island Supply had been called the previous day. On 2nd September 2015 the technician (Mr. Pamfilo Escamar) arrived on site at 9.30am. He checked the ice machine and found that it had no refrigerant gas in the system. He found a leak. He “re-processed” the system and charged it with 4lbs of R-404A, a refrigerant substance manufactured by Du Pont. A copy of his Service Order is attached as Appendix 1.

MEP staff reported that at some time between 11.30am -12.00pm there was a loud bang from the ice machine and a vapour cloud filled the kitchen. Food was being served for lunch at this time. A worker, Karen Grant stated she felt dizzy. She asked the technician to open the door. She breathed it in and thought she was going to vomit. Another worker, Emanuel Valencia, stated he had a sharp pain in the nose and Wade Spencer said it made him cough. It was observed that the double door between the ice machine and the food server area does not routinely close properly (see Photo 1). The steam table from which food is served is approximately 10' from the ice machine (see Photo 2). A general view of the kitchen is given in Photo 3.

The health effects of this chemical are mainly from inhalation and symptoms include dizziness, headache, confusion, incoordination and loss of consciousness. In some cases vomiting can be a symptom. See attached Material Safety Data Sheet (MSDS) for reference.

MEP management was instructed to carry out a thorough disinfection of the kitchen, food preparation and service areas. They were instructed to remove the ice from the machine and to quarantine it pending further investigation.

Also present on site was Mr. Roger Morris, Senior Schools Improvement Officer (DoEd). MR informed him and via telephone, Mr. Mark Ray, Manager of Business Services (Education) and Ms. Lyneth

Monteith, Acting Chief Education Officer of the details of the investigation thus far. It was agreed that the kitchen would be closed until further notice.

MR also spoke to Ms. Vickie Fredericks (Principal, Red Bay Primary). She stated that 107 persons (102 children/ 5 adults) had become ill with symptoms of vomiting and/or abdominal pain. Some experienced dizziness and nausea. Ms. Fredericks was informed that if parents were concerned about the health of their children they should report to George Town Hospital and seek medical guidance. Ms. Fredericks was asked to provide a breakdown of the foods that were eaten by those persons at the school. MR also contacted Tim McLaughlin-Munroe (Public Health Surveillance Officer) via telephone to inform him of the incident.

On 3rd September 2015 Mr. McLaughlin-Munroe reported that 23 persons from Red Bay Primary School had sought medical assistance on 2nd September and presented at the hospital with symptoms including nausea, abdominal cramps, vomiting, and diarrhea. The breakdown of the food consumption was received from RBPS and forwarded to Tim McLaughlin-Munroe for analysis. The information gathered from those children affected showed that 177 children exhibited some symptoms including one or more of vomiting, abdominal pain, headache, body pain, and, in a few cases, diarrhea. The vast majority were vomiting and abdominal pain. There was no class that was unaffected to some extent although some had significantly larger numbers than others. Some children ate food but exhibited no symptoms.

Following discussion with DoEd representatives a contractor from Polar Bear Air Conditioning was commissioned to examine the ice machine and he found that the compressor was damaged at the base through rusting and had a significant leak which could possibly explain the loud bang and the emission of the vapour cloud. His report is provided as Appendix 2.

MEP employed Ropers Cleaning Services to undertake a thorough cleaning and disinfection of the kitchen and food service areas. This began on 3th September and was concluded on 4th September 2015.

On 4th September 2015 a meeting was held at the offices of the Department of Public Health to evaluate the investigation and to determine further action needed to ensure the outbreak did not recur. Present were Dr. S. Williams (Medical Officer of Health), Mr. R. Carter (Director of EH), Dr. P. Rodrigues (Assistant Director EH), Mr. McLaughlin-Munroe (PHSO), Ms. C. Bailey (Schools Nurse Coordinator) and Mr. Robson (EHO). Dr. Williams had spoken to Communicable Disease consultants at the Pan-American Health Organisation (PAHO) and they had commended the investigative work done to date.

On 4th September 2015 MR took nine (9) environmental swabs from the kitchen and servery area and nine (9) environmental swabs from the school. A sample of the frozen French Fries was also taken at this point for analysis by the DEH laboratory. In addition, three (3) water samples were taken from the School, one from the kitchen and two from communal water coolers in the school grounds.

The Public Health Department requested that all staff members from MEP who had worked in the kitchen submit to GT Hospital for medical screening. All seven staff attended the hospital on 4th September 2015. All of the test results were negative.

On 7th September 2015 a visit to the school kitchen was made by Dr. S. Williams (MOH), Mr. R. Carter (Dir.EH), Dr. Rodrigues (ADEH), Mr. McLaughlin-Munroe (PHSO) and Ms. C. Bailey (SNC) and Mr. Robson (EHO) to review the layout of the kitchen and to meet Ms. Fredericks (School Principal) to discuss the outbreak.

Further investigation was made into the holding temperatures of the two hot cabinets on site to determine if they were working correctly. Each hot cabinet is divided into two sections. Both cabinets were set at 160F. Hot Cabinet #1 was operating at 190F, and Hot Cabinet #2 was operating at 200F in the top section and 140F in the bottom section. Holding food at these temperatures would inhibit the rapid growth of food poisoning bacteria. Mr. S. Collins of MEP was instructed that this equipment must be serviced to ensure the calibration of the thermostats is accurate.

The dishwasher was also checked and this reached a hot water temperature of 160-169F in the wash cycle and 97-100F in the rinse cycle. The chemicals used in the machine are Solid Power XL and Solid Brilliance.

On 8th September 2015 Mr. Pamfilo Escamar (technician from Island Supply) was interviewed concerning the servicing of the ice machine on 2nd September. He insisted that there was no loud bang whilst he was on site and that he left the machine in good working order at 12.20pm. He stated there was a small emission of refrigerant gas when a hose was unplugged but this was normal when servicing this type of machine as the system is under pressure. However, staff did ask him to open the side door for ventilation.

A further meeting was held on 8th September 2015 between Public Health representatives and DEH representatives. Given the environmental swabs of the kitchen were satisfactory and that the ice machine was not in current service, it was agreed the kitchen facilities posed no further risk of food poisoning infection. This information was conveyed to representatives from the Department of Education. However, due to the concerns of the Department of Education officials a meeting was arranged for the 9th September 2015. The kitchen remained closed.

At the meeting attended by representatives from DoEd, Public Health, DEH and Red Bay Primary School it was agreed that kitchen remain closed until the final food sample result had been received.

On 10th September 2015 samples of the used cooking oil and fresh cooking oil from the same batch were taken. At present there are no relevant tests available on island for chemical contamination of oils. The oil, Golden Chef Clear Fry Oil is imported by Progressive Distributors and was sold to Mise en Place. However, further investigation shows that Progressive Distributors sells approximately 200 cases of this oil per week and there have been no other cases or complaints relating to this product.

On 11th September 2015, the DEH Laboratory confirmed that the final food sample of uncooked French Fries was satisfactory.

Conclusion

Given the type and timing of the symptoms of the outbreak of illness at the school, the options considered to be the possible cause were:

1. Toxic food poisoning e.g. possible *Staphylococcus aureus* infection of the foods.

This infection is linked to infected food handlers. The toxin is produced by the bacteria as they grow on food. It is heat stable therefore even if food is thoroughly cooked the toxin will remain active even though the bacteria have been destroyed.

- The results of the food samples show that *S. aureus* bacteria were not present in the foods. However, it must be noted that whilst the DEH laboratory can test for the presence of *S. aureus* bacteria it does not have the capacity to test for the presence of toxin. This test is not available on island. All food samples were clear of food poisoning bacteria parameters routinely checked for.
- The results for the screening of MEP staff for the presence of *S. aureus* also came back negative.
- The oil was recently purchased and it was the first time it had been used. The fryer had been left empty over the summer and kept in a clean condition. There have been no other reports of illness linked to the oil which is in wide circulation in Grand Cayman.
- The water sample taken from the kitchen tap was found to be satisfactory.
- It should also be noted that food prepared by MEP in the RBPS kitchen was also served in the Lighthouse School which is part of the same building as RBPS, and also at George Town Primary School. There have been no reports of similar illnesses at either of these schools.

2. Chemical poisoning either through inhalation of refrigerant gas or chemical food poisoning by contamination of the foods from refrigerant.

Investigations show that there was damage to the compressor of the ice machine that would cause a leak. However, it is inconclusive whether a leak of this type would affect persons in the servery over the time frame that lunch was served. The timing of the leak and alleged vapor cloud could not be accurately determined other than approximately between 11.30am and 12.00pm. The ice machine is out-of-use and in its current state it poses no risk to health.

3. Some other environmental contaminant within Red Bay Primary school.

This was considered, however, the environmental swabs were satisfactory other than a water fountain outside the Principals Office and a water fountain in the rear field by the Infants Block. It was reported by Ms. Fredericks that these are not in widespread usage for children. This

information was given to Ms. Fredericks with instruction to ensure these are fully cleaned and disinfected. The water sample results taken of the main water coolers used at RBPS were found to be satisfactory.

It is not uncommon that investigations into the cause of an outbreak of illness such as this cannot always determine the exact cause of an outbreak. According to the Public Health Agency in Canada approximately 60% of all foodborne investigations are of unspecified agents/etiology. The distribution of micro-organisms in an environment is not uniform, detection is not always possible and a definitive conclusion cannot always be drawn. Whilst the presence of *S. aureus* was not found, there is currently not the capacity to test for the presence of the toxin which causes the illness. Therefore, even given the negative results it cannot be completely discounted.

It is deemed more likely that the cause of the illness was linked to the chemical contamination from the ice machine. This was the main differing factor between the food served and food service at RBPS and the food served at the Lighthouse School and George Town Primary School.

Also, there is insufficient evidence to conclude that the cause was a general outbreak of infectious disease given the type and timing of the symptoms.

MOVING FORWARD

It is the opinion of the Medical Officer of Health and DEH representatives that the kitchen can be re-opened without an increased risk of further outbreak.

In addition, the following works must be undertaken at the RBPS kitchen:

- There will be an increased food sampling surveillance of the food produced at RBPS for a period of thirty days after the kitchen is re-opened.
- The ice machine must be repaired and thoroughly cleaned and disinfected or replaced as necessary. It must remain out-of-use until this is done. All repairs to the unit must be completed outside the kitchen operational hours. If the unit is to be replaced, an environmentally friendly unit should be acquired.
- Consideration should be given to reorientation of the hot food serving area in the kitchen.
- The door between the kitchen and the server must be repaired such that it closes properly.
- The hot holding cabinets must be repaired such that the holding temperature is accurate to the temperature setting.

Consideration should also be made with regard the future ability to test food samples for the presence of *S. aureus* toxin in food. If testing is not viable on island a protocol should be made with regard the sending of samples overseas for analysis.

RED BAY PRIMARY SCHOOL ILLNESS INVESTIGATION – SEPTEMBER 2015

PHOTO 1 – ICE MACHINE IN KITCHEN at Red Bay Primary School

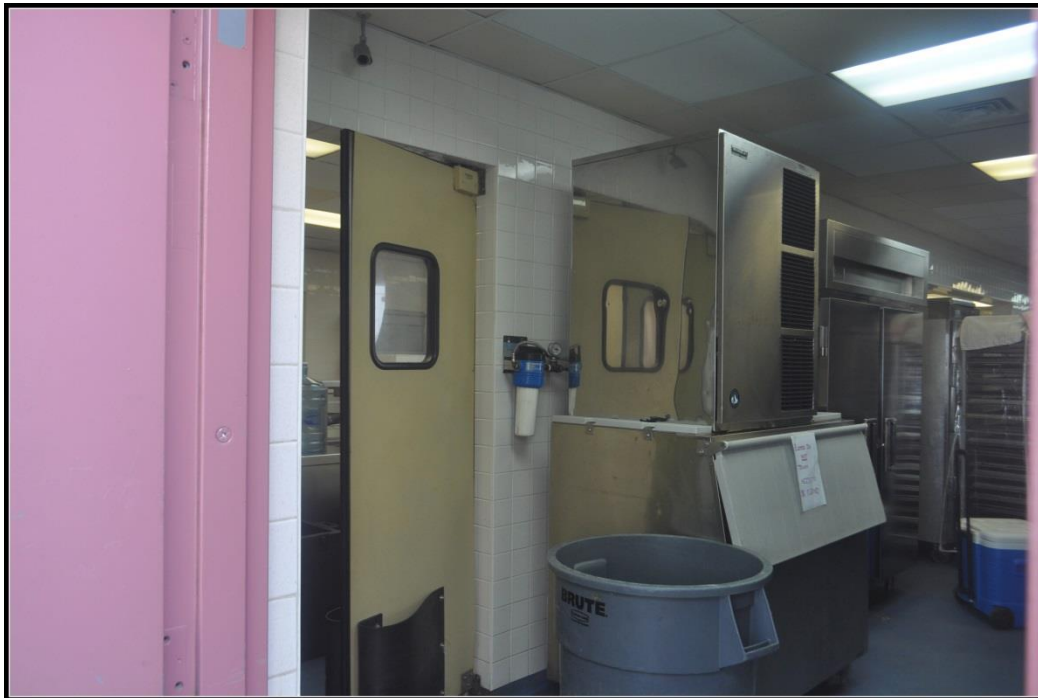


PHOTO 2 – SERVERY AREA at Red Bay Primary School Canteen



PHOTO 3 - GENERAL KITCHEN VIEW



APPENDIX 1 – Service Order No. from Island Supply re: Ice machine at Red Bay Primary School



PH: 516.7913

SERVICE ORDER

No **2574**

CUSTOMER: <u>Red Bay Primary</u>		DATE: <u>02 SEPT 2015</u>	
CONTACT: <u>BOUNYAN WHITTAKER</u>		EQUIPMENT TYPE: <u>DISHWASHER / ICE MAKER</u>	
PHONE:		MANUFACTURER: <u>HOSHIZAKI</u>	
TECH: <u>PAM FLO</u>		MODEL NO.: <u>AM147 / KM-1300MKT</u>	
NOTES:		SERIAL NO.:	
<u>4 LBS R-404 A.</u>		VOLTAGE / PHASE:	
		WARRANTY YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> CHECK <input type="checkbox"/>	
NOTE:		CONDITION GOOD <input type="checkbox"/> FAIR <input checked="" type="checkbox"/> POOR <input type="checkbox"/>	
<u>NO CHEMICAL @ SINK AND</u>		DESCRIPTION OF WORK: <u>CHECK HD (DOOR) ASSEMBLY</u>	
<u>FINAL W/NGE FOR BUSH MACHINE</u>		<u>OPENING DOWN FRONT DOOR.</u>	
<u>SOON EMPTY.</u>		<u>OBSERVED WORKING CONDITION</u>	
		<u>— CHECK ICE MAKER & FOUND</u>	
		<u>OUT NO FREON AT SYSTEM.</u>	
		<u>TEST FOR GAS LEAK AND</u>	
		<u>FOUND LEAK. RE-PROCESSED</u>	
SERVICE REQUEST:		MATERIAL / PARTS REQUIRED: <u>SYSTEM & CHARGED</u>	
		<u>4 LBS OF R-404 A.</u>	
TIME ARRIVED	<u>9:30</u>	REGULAR	
TIME FINISHED	<u>12:10</u>	AFTER HOURS	
TECH SIGNATURE	<u>[Signature]</u>	DATE	<u>2 / SEPT 15</u>
PLEASE PRINT NAME	<u>PAM FLO</u>	CUSTOMER SIGNATURE	<u>[Signature]</u>
	<u>BOUNYAN WHITTAKER</u>	PLEASE PRINT NAME	<u>DESMOND E WELLS</u>

APPENDIX 2 – REPORT FROM POLAR BEAR CONDITIONING ON ICE MACHINE AT RED BAY PRIMARY SCHOOL



POLAR BEAR AIR CONDITIONING

P.O. Box 31198
Grand Cayman KY1-1205
CAYMAN ISLANDS
Tel: (345) 949-2526/5665
Fax: (345) 949-0359
Email: info@polarbear-ac.com
www.polarbearac.com

September 8, 2015

To: Mark Robson

Re: Red Bay Primary School Ice Machine

Dear Mr. Robson

During a recent service call to Red Bay Primary School our technician was asked to investigate whether or not the school's ice machine caused any illness to the students and staff.

Our technician noted that the ice machine was in poor condition and observed that it had a small refrigerant leak at the bottom of the compressor. The technician also observed that the machine was not clean. Specifically the bin and water system needed cleaning.

Based on the technician's findings it is highly unlikely that the ice machine caused any illness due to a refrigerant leak. Illness from refrigerant would not likely occur unless there was a high concentration for a sustained period. These conditions did not appear to exist.

It is difficult to say whether or not the illness was related to the cleanliness of the ice machine, however ice machines need to be kept clean and sanitary in order to ensure that the ice is clean. Contaminated or unsanitary ice can cause illness but it is impossible for us to determine as HVAC professionals whether or not the ice had anything to do with the reported illnesses. As a precautionary measure we would suggest that the ice machine be emptied and thoroughly cleaned. We also suggest regular maintenance on the machine to keep it clean. Furthermore, the refrigerant leak while unlikely to have caused any illness should be corrected either by repair or replacement of the machine. We would be happy to quote this service for you at your request.

If you have any questions, please contact me at your convenience.

Sincerely,

Mark Veilleux

Service Manager

325-8205

mark@polarbear.ky