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13 **IN THE PUBLIC UTILITIES COMMISSION**
14 **FOR THE**
15 **COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS**

16
17 **In the Matter of the** 33) **RATE CASE No. 09-02**
18 **Commonwealth Utilities Corporation** 34)
19 **Applicant,** 35)
20 36)
21 37) **Att A to 090603 Stipulation: CUC's**
22 38) **Report on Large Commercial Waste-**
23 39) **water Use & Billing**
24 40) **Bruce Megarr, Deputy Director,**
25 41)
26 42)
27 43) **Subject: Commercial WW Custs:**
28 44) **Billings, metered and unmetered;**
29 45 **Rate Case;**
30 46
31 47 **Filing date: June 6, 2009**

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49 **Report on Commercial Customer WW Use & Billing of**
50 **Bruce Megarr, Deputy Director**

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53 **Introduction and Summary**

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55 The Commission declined at its April 2, 2009, meeting to adopt new wastewater ("WW")
56 rates until CUC had determined the extent to which commercial customers (non-
57 residential customers) were, or were not, paying fairly for their use of the sewer/WW
58 system. CUC has undertaken a thorough study of the matter, tasking senior staff to
59 determine the extent of non- or under-billing and to correct the situation
60

1 In summary, we have determined:
2

3 1. Ten hotels were paying flat fees for sewer service, ranging from \$25 per month to
4 almost \$1,500 per month. One was reporting actual, metered sewage. The total is
5 about \$7,300 per month. There was no technical or historical reason evident for such
6 fees.
7

8 2. These 10 are the largest such customers. We will have usage data for all of them.
9 We intend to bill all based upon usage or carefully estimated usage no later than June
10 30, 2009.
11

12 3. CUC regulations are adequate to support proper billing.
13
14
15

16 **Report**

17

18 This report is offered as Attachment A to the parties' June 03, 2009, stipulation in this
19 Case No. 0902. It addresses three issues, in the following numbered sections.
20
21

22 **Section 1. A summary of the number of "substantial" commercial wastewater** 23 **customers who have unmetered service and the actions CUC has taken to meter** 24 **or estimate their usage**

25

26 CUC water and wastewater staff identified the likely largest, or "substantial", sewer
27 users (as discussed below). We verified with our EDP department if and/or how these
28 users are billed.
29
30

31 **- The identification and assessment of substantial commercial users**

32

33 The following table summarizes our findings for the 10 'substantial' commercial
34 accounts on our sewer system and the fixed charges assessed to each. We initially
35 feared that they were receiving sewer services without any compensation to CUC. But
36 we were wrong. They are billed; but not on a volumetric or experienced usage basis.
37 Rather, they pay flat fees – a fixed monthly charge. These are the largest wastewater
38 customers discharging into our system who are unmetered.
39
40

Att A: Report on Commercial Customer WW Use & Billing

Name	Present Monthly Flat Fee Payment Amount
Mariana Resort & Spa	\$ 559.
Palms Resort	\$1,681.
Aqua Resort	\$ 273.
Hyatt	\$1,430
Fiesta	\$ 776.
Hafadai	\$ 417
World Resort	\$ 988
Grand Hotel	\$ 400
Pacific Island Club	\$ 765
Coral Ocean Point	\$ 25
Totals	\$7,314

The table shows what each of these hotels has been paying monthly – a fixed charge. We believe that these flat fees have been in place for years, if not decades. The total is \$7,314 per month, or approximately \$88,000 per year.

CUC water and wastewater staff identified these users in April, visited their on-site water production facilities and met with senior operations staff. CUC staff (Ken Esplin, PE, and Julie Camacho, Trades Supervisor, and Bruce Megarr, Deputy Director) discussed the need to assess sewer charges based on flow as a matter of equity among customers and as a way to minimize sewer discharges. The customers agreed to use reverse osmosis (“RO”) production as the cornerstone measure for water entering the sewer system.

RO systems must use a portion of their “permeate” (filtered water) to clean or ‘backwash’ the filter. This backwash is disposed of in a deep injection well(s) at each of the facilities as per DEQ regulation and is NOT disposed of in our sewers. To compensate for this water that is metered, but not discharged to CUC sewers, we will initially use a multiplier of .90 of total RO production to account for this loss and other losses (see below). As can be expected, each substantial user is unique and each operates with a varying degree of efficiency.

1
2 Meanwhile, we are moving on. We are taking steps to secure usage volumes for other
3 large customers. We intend to keep the Commission informed of our progress through
4 communications with Georgetown.

5
6
7 **- Our research**
8

9 In researching the history of the monthly flat fees for the hotels, we have been unable to
10 identify any quantitative rationale for the amounts presently paid by any of the above
11 customers. We discussed the history of these charges with each of these customers.
12 They did not, and in many cases obviously could not, provide us with any particular
13 reasons for their respective charge levels. No one at CUC remembers why these
14 accounts were set up as flat fee accounts. We cannot find any documents or computer
15 files on the matter.

16
17 **- Measuring actual usage**
18

19 We looked at a number of ways to measure flow into our sewer system right away. One
20 which we think most accurately captures likely discharge levels is to use the flow
21 through the hotels' reverse osmosis (RO) unit/s. Each of the above customers has its
22 own RO unit/s. And each unit has at least one flow meter on it, with the exception of
23 Coral Ocean Point. As discussed, each of the above customers has shown a
24 willingness to use water production from their RO unit/s as a basis for sewer charges.

25
26 We have already taken two reads on each of these meters and provided adjusted
27 monthly usage for the April – May 2009 period. After final review with the customer, we
28 will begin to use flow as a basis for sewer charges. We have already sent letters to
29 each of the hotels explaining our efforts. A typical example is an excerpt from the letter
30 we sent to the Hyatt:

31
32 This letter is to follow up on a visit made by CUC staff to your facility on April 14, 2009.

33
34 The CUC has requested that the Public Utilities Commission (PUC) allow us to increase
35 the wastewater rates. The PUC indicated that prior to adjusting the rates the CUC
36 needed to ensure that we were billing everyone appropriately. The rates were last
37 adjusted in 1989 to a rate of \$0.50 per 1,000 gallons.

38
39 There are 3 different methods for calculating the volume of wastewater being sent into

Att A: Report on Commercial Customer WW Use & Billing

1 the sewer system. (See attached Code §50-20-415).

2
3 Option 1 – Is to install a sewer meter in a manhole, at the customer's expense. While it is
4 probably the most accurate method, it is also the most expensive.

5
6 Option 2 – Is to take readings on the existing water meters on your Reverse Osmosis
7 (RO) unit. It is our understanding that the backwash from the RO units go into injection
8 wells and not into the sewer. Therefore we should measure the product water coming
9 from the RO unit. Essentially all the product water will eventually be sent into the CUC
10 sewerage system.

11
12 Option 3 – Is to make an estimate using a method that is approved by the Chief
13 Engineer. This is probably the most inaccurate method since it doesn't follow occupancy
14 rates.

15
16 From our site visit, you indicated that you would prefer option 2. There are two meters on
17 the RO units. Our staff would need to read each one. I also understand that there is an
18 intertie between the Hyatt and the Fiesta hotel. I am not sure the extent of how frequently
19 the intertie is used.

20
21 Our intent is to read the meters of both RO units and bill according to the water produced.
22 Charges for water that flows between the Hyatt and the Fiesta hotels and subsequently
23 enters into the CUC sewer should be included as part of your intertie agreement. Our
24 operators will need to read only the combined meter monthly at the hotel to get an
25 accurate number.

26
27 At the Hyatt staff housing, in Chinatown, the meters were read. There are 2 meters, one
28 for potable water and one for the non potable water. Both meters would need to be read
29 and summed to determine the wastewater flows.

30
31

Meter Number	Reading	Units	Date
RO #1	087477000	Gallons	4/14/09
RO #2	081217000	Gallons	4/14/09
Staff Housing, potable water	00740100	Gallons	4/14/09
Staff Housing, Non-potable water	00138200	Gallons	4/14/09

32
33 While not required, it is very helpful to have a meter number on the meter we
34 read. If you would label the meter it would help ensure that the meter reader was
35 reading the correct meter. For example, you could etch your account number onto
36 the meter 4476-1, 4476-2, etc.

1
2 As stated above, our current wastewater rate is \$0.50/1,000 gallons of
3 wastewater. For example if we measured 150,000 gallons between usages the
4 cost would be $[150,000/1,000]*\$0.50=\75.00
5

6 While on site we also verified that there were 5 grease traps on the premises. The
7 staff indicated that they cleaned daily. The traps appeared to be in good working
8 condition and well maintained.

- 9
1. Employees Cafeteria, 2 ft x 3 ft, clean.
 - 10 2. Stewart dishwasher area, 3 ft x 4 ft, clean.
 - 11 3. Main Kitchen, 2 ft x 3 ft, clean.
 - 12 4. Maiko Kitchen, 1 ft x 1 ft, clean
 - 13 5. Chinese Kitchen, 3 ft x 10 ft, needed cleaning
- 14

15 If you have any questions, feel free to contact me at my office.
16

17 The letter demonstrates the challenges involved when determining sewer usage
18 indirectly, through the customer's RO system. Other challenges, only implicit in
19 the letter, include insuring accurate calibration and getting access to these
20 customer-owned meters at a time convenient to our meter readers.
21

22 One of the above customers, PIC, already has a flow meter measuring the
23 company's sewer effluent. We will use the data recovered from that meter to
24 assess sewer charges for that firm. This direct measurement is a more accurate
25 measure of sewer flow. Since data security (meter tampering) is often an issue in
26 our business, we will have the device's control panel secured to prevent changes
27 to the flow measuring numbers, or the parameters, whether that would be
28 intentional or accidental.
29

30 The next section further describes how we "found" these customers, and briefly
31 describes the various ways we considered for measuring their outflows to our
32 sewer system. We then summarize our reasons for choosing the RO metering
33 method for an additional 9 out of 10 of these users.
34
35
36
37

1
2 **Section 2. A discussion of how these customers were identified and the**
3 **estimate of their usages developed**
4

5 The WW staff identified customers according to name, likely high system use,
6 geographic location (e.g. Beach Road, Shore areas), type of business (e.g.,
7 hotels), and geographic footprint (i.e., size of the installation). We also
8 interviewed CUC staff in order to benefit from institutional knowledge.
9

10 These 10 hotels are the largest unmetered WW customers on our system. We
11 “found” them through a deductive, iterative process. First, my senior staff and I
12 discussed the characteristics of likely large users. We then visited the likely
13 facilities, observing -and discussing water use and discharge with the customers.
14 We were able to compare that information with industry-published data on hotel
15 water use. Then we roughly estimated likely usage.
16

17 None of these hotels, except PIC, directly measures its sewage outflow. We
18 interviewed operations managers from every hotel. The conversations shed no
19 additional light on existing billing methodology. We, therefore, have rejected
20 these fixed billing levels.
21

22 There are two ways to meter and bill sewage flow – directly, by metering it, and
23 indirectly, by metering water consumption. We intend to use both methods to
24 calculate proper bills for each of these significant commercial accounts.
25

26 PIC directly meters its sewage flow. It provides an exception to the situation at
27 the other 9 hotels because it actually meters the hotel’s flows into the sewer
28 system. PIC uses a “magnetic flow meter”, or “magflow meter”. This is a state-of-
29 the art device that measures the sewage flow past the metering site by changes in
30 the magnetic field. There are, thus, no moving parts to fail. This is an expensive
31 meter, costing about \$10,000, installed. No other hotel has invested in such a
32 meter. Unless these customers opt to install such meters, we do not propose to
33 require them to do so.
34

35 Therefore, we will use the indirect method to make “engineering estimates” of the
36 likely future usage, and, therefore, revenues of the other 9 hotels. We would
37 prefer to use the actual sewage discharge as the basis for billing. But we do not
38 have the equipment in place to do this right now; and we do not judge it fair to

1 require each hotel to invest \$10,000 in a magflow meter.

2
3 In the wastewater treatment industry it is technically acceptable to base
4 wastewater billing on water usage – the indirect measure. Using this method is
5 standard operating procedure for virtually all publicly-owned collection systems.
6 The methods by which data are adjusted for equipment type, age and
7 maintenance are also standard operating procedure.

8
9 If the hotels took their domestic water – drinking, laundry, sinks, showers, etc. –
10 directly from our water system, the proxy for sewage discharge would be their
11 metered water intake. That is how we indirectly determine residential customer
12 sewer system usage.

13
14 But these hotels make their own water, sometimes by using tanker-truck-delivered
15 water, and sometimes through pulling water from their own wells. What they all
16 have in common is that they process the water for use through their respective
17 RO systems. Thus, we begin our indirect use calculation by using the metered
18 permeate (filtered water) that passes through the meters that all but one of them
19 have on their RO production equipment. Coral Ocean Point, mentioned above,
20 will have a meter installed by June 22nd, 2009.

21
22 We adjust these numbers, however, to recognize the technical realities of the RO
23 systems. Most important is their routine cleaning, in which they backwash the
24 filters by blowing water back through the systems. We estimate and subtract for
25 the “proper” backwash quantities.

26
27 The use of the term “proper” in the preceding paragraph is deliberate, because it
28 is not fair to simply take from each user’s RO equipment’s operating manual the
29 estimate of backwash water quantities, then subtract from monthly use. This is
30 because as the filters age, the backwashing efficiency drops – more water is
31 required to do the same amount of cleaning. Our method would pick a fair
32 number, one representing proper maintenance levels at an appropriate point in
33 the age of the system and the filters.

34
35 Our method also will fix that number permanently. We do not propose to adjust it
36 periodically. That would become administratively burdensome, as each facility,
37 with its own competencies and efficiencies continually sought “better” numbers for
38 billing purposes.

1
2 We are negotiating now with the technical staff of each hotel to determine a fair
3 backflow number. In addition to providing a clear metric, this fixed number offers
4 a benefit. It gives the hotel an incentive to maintain its filters and backwashing
5 efficiently. This is because as the RO filter elements (or membranes) age, the
6 hotel will not be given a larger offset to compensate for lost RO permeate
7 production. The more water going through the RO meters, the more they will pay
8 for sewer system use.

9
10 We estimate that a properly run RO system will use between 3 to 5 percent of its
11 permeate for cleaning purposes and we propose to not exceed 5 percent for any
12 of the facilities. In addition, there is water pulled from the waste stream for
13 maintaining the water level in pools, landscaping and other uses, and water
14 evaporates. It is unlikely we will be able to measure this water directly. CUC will
15 work with each of the substantial users to quantify, then set, a fixed percentage of
16 permeate not entering the waste stream.

17
18 There are three other advantages to the indirect method. Applied competently,
19 the method provides equity among users – everyone knows the rules and
20 everyone is treated consistently. It also provides an excellent incentive for
21 conservation of water, because the less water used, the lower the sewer fees.
22 Finally, because RO production is very energy intensive, it provides another
23 incentive to conserve energy.

24
25 We would like to settle on a fixed rate for each hotel. In the meantime we plan to
26 use a 90% factor.

27
28
29 **Section 3. A discussion of applicable service rules and whether these rules**
30 **are adequate to meter or estimate the usage and bill the substantial**
31 **commercial customers**

32
33 Presently, we believe that we have in place the regulations needed to properly bill
34 these 10 substantial commercial customers.

1
2 **Conclusion and recommendations**

3
4 As a result of an internal CUC investigation undertaken in response to the
5 CPUC's Order, CUC determined that there were approximately 10 substantial
6 commercial wastewater customers which were neither metered nor billed for
7 wastewater service based upon their actual wastewater system usage.

8
9 Further, CUC has developed a methodology acceptable to both it and GCG for
10 appropriately billing these significant commercial customers. No later than June
11 30, 2009, CUC expects to bill these customers either based upon metered usage
12 or estimated usage which reasonably reflects the actual usage.

13
14 Respectfully submitted,

15
16 /s

17
18 Bruce Megarr, Deputy Director,
19 Commonwealth Utilities Corporation

20
21
22 **CERTIFICATE OF SERVICE**

23
24 The undersigned, Assistant Attorney General, being a member of the CNMI bar, hereby certifies
25 that he served the following person(s) with the following paper(s) by the following method(s) (Com.
26 R. Civ. Pro. 5(d)):

27
28 Document served: The foregoing: Att A:Report ...of Bruce Megarr, Deputy Director

29
30
31 Persons served:
32 Counsel for Staff, Robert T. Torres, Esq.
33 Staff: JK Madan; R Anderson; L Gawlik
34 ALJ Boertzel
35

Att A: Report on Commercial Customer WW Use & Billing

1 | Method and date: by causing electronic service of a copy to the above counsel by emailing to the
2 | above persons at their email addresses on June 6, 2009.

3 |
4 |
5 | _____ /s/

6 | Alan J. Barak, Assistant Attorney General (# F0350)
7 |
8 |

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11 | Report on large commercial sewer users 090525 CUC Case 0902.wpd
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