RESPONSES TO QUESTIONS SUBMITTED IN RELATION TO THE OFFICE OF UTILITIES REGULATION'S REQUEST FOR PROPOSALS FOR RENEWABLE ENERGY

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WASTE - TO - ENERGY

Question 1: Within Section 3.1.3 the verbiage indicates that the proposal can only be submitted after all site testing is done and the proposal is then based on hard data recovered, specifically regarding subsurface testing. This testing requires significant capital investment as personnel, equipment, hiring local drilling company, etc., some of which would have to be flown in as they are not available on the island. Although this is a cost we are willing to bear, we have always maintained that we would want assurances if we were to do so. The NSWMA operates four (4) major landfills and is seeking proposals to encompass each site, our cost would essentially rise exponentially. The question would then be this: Bearing in mind that the NSWMA has no tangible data, would the OUR consider and accept the proposal under the condition that we bear the cost of the investigational studies. However, should the data yield an insufficient volume of emissions, grant the right to withdraw from the process? The loss of the capital investment for the studies would simply be ours to bear.

Answer: The NSWMA operates eight (8) disposal sites, four (4) of which are being considered for waste to energy conversion developments. The information package prepared by the PCJ and NSWMA contains information taken from site tests and studies which were carried out by an independent consultant in the 1990's. Bid proposals should be prepared using the information provided. Additionally, if deemed necessary, site visits will be accommodated through the OUR. No subsurface testing is anticipated at this stage of the process. After the bids have been received and evaluated, the successful bidder will participate in setting the terms of reference for independent testing to be carried out by a mutually agreed third party. The results of these tests will be used to inform final negotiations and the preparation of contracts.

Question 2: Secondly, the basis for proposals surrounds the use of municipal waste in the process. The RFP states "on a Build, Own and Operate Basis," however, the Information Document on Jamaica's Waste to Energy Project Opportunities, refers to the proposal as "turnkey." On which basis would the OUR seek this proposal?

Answer: Jamaica is seeking a private investor to build, own and operate a municipal solid waste to energy plant, with options for equity stakes or partnership contracts for the NSWMA and the PCJ. The NSWMA currently has responsibility for:

- Lands used for disposal sites,
- Collections and disposal of waste,
- Waste streams and
- Recycling businesses which currently exist or may emerge from the waste available.

The PCJ currently has responsibility to ensure that:

- All relevant Renewable Energy Development Policies, Standards and Acts are achieved,
- Potential National Carbon Credit Emissions are measured, monitored and traded in keeping with established Protocols and Conventions and
- Joint venture partnerships with potential investors are explored and agreed to ensure the stability of energy supply delivery.
- National oil imports are forecast, monitored and managed for sustainable development.

3 Who is going to own the plant?

Ans. The Request for Proposal in on a Build, Own and Operate basis hence the Proponent will own and operate the Plant.

The Petroleum Corporation of Jamaica has the mandate to develop Renewable Energy opportunities in Jamaica and will have an interest in any successful proposal received.

The NSWMA, as the entity with the custody and the responsibility for Jamaica's municipal solid waste, will have an interest in any successful proposal received.

Bidders for Waste to Energy Proposals, must prepare their bids based on the forgoing as it will be necessary to partner with these Agencies for successful project implementation.

4 Where will it be located?

Ans: The Plant(s) may be sited at the NSWMA's primary disposal sites as outlined in the information document.

http://www.our.org.jm/pdf/Information_document_WTE.pdf

5 Is land available/ allocated for this project?

Ans: The Plant(s) may be sited at the NSWMA's primary disposal sites as outlined in the information document.

http://www.our.org.jm/pdf/Information_document_WTE.pdf

6 What is the daily MSW generated (in tons)?

Ans: This information is contained in the Information packet that is placed on the OUR website. Access to the document is as follows

http://www.our.org.jm/pdf/Information_document_WTE.pdf

7 What is the % composition of the MSW (food, plastic, metal, paper, trash?

Ans: This information is contained in the Information packet that is placed on the OUR website. Access to the document is as follows

http://www.our.org.jm/pdf/Information_document_WTE.pdf

8 What are you presently doing with the MSW ?

Ans This information is contained in the Information packet that is placed on the OUR website. Access to the document is as follows

http://www.our.org.jm/pdf/Information_document_WTE.pdf

9 Who is funding/financing this project ?

Ans: The Request for Proposal requires that funding be provided by the proponent.

Please see financing requirements outlined in the OUR'S RFP on their website www.our.org.jm

10. What is the time frame of the project?

Ans.: The closing date for proposals is posted on the OUR's website at

www.our.org.jm

The objective is to have the project implemented by 2010.

QUESTIONS AND ANSWERS for Riverton waste disposal site

11 When was waste first landfilled at the site?

Ans. *During the 1960's*

12 What is the amount of solid waste currently deposited on site?

Ans. *7.45 M m^3*

13 What is the current size of the area used for landfilling waste?

Ans*:* *32 ha*

14 What is the average depth of the landfill at the present moment?

Ans: *. Unknown*

15 What is the density of the waste in place to date? Alternatively, what is the compaction rate?

Ans: *.0.5 – 0.75 tonnes/m^3*

16 How much waste is deposited on a daily basis (or weekly or monthly)?

Ans: *1200 - 1400 tonnes daily*

17 How many Lorries per day are depositing waste at the landfill?

Ans: *Average 275*

18 What is the fraction of liquid in the total waste stream?

Ans: *Solid waste is predominantly what is accepted at the disposal site*

19 What is the predicted area of landfill after its completion?

Ans: *Unknown at this time*

20 What will be the predicted average depth of the landfill after its completion?

Ans: *Unknown at this time*

21 What will be the density of the waste at the site after the landfill is completed?

Ans: *Unknown*

22 Please describe the geometry of the landfill. Is it a landfill or land rise? If available, please attach a plan or map and/ or photographs of the site

Ans: *Land rise. No current Map s are available.*

23 What are the geological conditions of the site and the surrounding strata? Please indicate the type of soil and substrata (e.g. sand, gravel, clay, rocks) (See explanations)

Ans: *Thick alluvial clay and sand sequence (maximum 8.5m thick) which is underlain by a peat / clayey peat aquiclude (at least 12m thick)*

24 What is the groundwater table level in the site area? Please state the reference point (i.e. is it below ground level, at sea level or at the bottom of the landfill?)

Ans: *Less than 0.3m above mean sea level. Groundwater is moderately saline (4000mg/l)*

25 What is the annual rainfall in the area?

Ans: *62.1 mm/ yr*

26 Please indicate any specific climatic conditions (e.g. arid, tropical, mild)

Tropical

Ans: *Annual Mean Temperature 24 – 30.8 ^{o}C.*

Relative Humidity 64.4 – 77.3%.

Sunshine Hours – 8hrs

27 Please indicate the altitude (e.g. meters above sea level) of the project site

Ans: *Don't Know*

28 Is compacting equipment used on site? If so, please indicate what type of equipment is used (e.g. waste compactor, bulldozer)

Ans: *Yes. Waste Compactor and Bulldozer*

29 What is the sequence of filling of the landfill? For example, are individual cells filled in first, or is the entire site/ area filled in and then a subsequent platform is begun? If available, please attach documents describing the phasing plan

Ans; *Currently the entire area under water is being filled in. The planned sequence of filling is by all cells but this is not always achieved. The objective is to have the entire landfill covered, after which cells will be established, utilized and rotated until the planned height of the landfill is reached.*

30 Are filling procedures the same today as they have been in the past and will be in the future? If not please explain the differences in filling procedures

Ans: *In the recent past there were attempts to fill according to a sequencing plan but there were inconsistencies in the execution of the plan. Prior to that the procedures were ad hoc tipping of waste.*

31 Is the waste covered regularly? If so, how often is the waste covered? (e.g. daily, weekly, never)?

Ans: *No it is not covered regularly. The intention is to cover at least once every 2 – 3 months*

32 In the event that the waste is covered regularly, what is the waste covered with (e.g. clayish soil, plastic)? If clayish soil please indicate average amount/ depth of soil used.

Ans: *Soil of 6 – 8 inches in depth*

33 Is there a bottom liner at the site?

Ans: *Natural clay liner; no geo textile liner*

34 If so, does the liner cover the entire site or just part of it? In case the liner only covers part of the site, please indicate the approximate area or % of the site that has a bottom liner.

Ans: *Clay underlies entire site*

35 If so, what kind of liner is it?(e.g. plastic membrane, compacted clay soil?)

Ans: *Unknown if clay was compacted in the 1960s*

36 Does the site have liners on the sides?

Ans: *No*

37 If so, what kind of side liners are they (plastic membrane, compacted clay soil)?

Ans: *N/A*

38 Does each platform or cell have a cap on it?

Ans: *N/A*

39 If so, what kind of platform/ cell caps are installed (e.g. regular soil)?

Ans: *N/A*

40 Will the site be capped (at the top) upon completion?

Ans: *Yes*

41 If so, what kind of cap will this be? (e.g. plastic membrane, compacted clay soil)?

Ans: *Compacted clay soil*

42 Is there a leachate control system on site?

Ans: *No*

43 If so, when was the leachate control system installed?

Ans: *N/A*

44 What type of leachate control system is in place (e.g. basal drainage, pumped from wells)?

Ans: *N/A*

45 What is done with collected leachate (e.g. recirculated, treated on site, pumped or taken away)?

Ans.: *No action*

46 What is the height of the leachate measured from the bottom of the landfill?

Ans: *. Unknown*

47 Has any analysis of the leachate been done?

Ans.: *Results were identified for surface and groundwater analysis but not leachate.*

48 If so, please describe results of leachate analysis. If available please attach a copy of the analysis

Ans.: *N/A*

49 Is there a biogas control system on site? If available please attach the plan or map of the system; please provide maximum information available.

Ans.: *No*

50 If so, when was the biogas control system installed?

Ans.: *N/A*

51 What is the number of gas wells on site?

Ans.; *N/A*

52 Does the site flare or utilize the biogas at the moment?

Ans: *N/A*

53 Does the operator monitor the flow of biogas at the site?

Ans: *N/A*

54 If so, what is the flow rate of the biogas?

Ans: *N/A*

55 Has the biogas at the site ever been analyzed?

Ans: *Yes (part of a case study by engineering students of the University of Technology)*

56 If so, please describe the results of the biogas analysis. If available please attach a copy of the analysis

Ans: *The gas that was captured supported combustion (steady blue flame)*

57 Who is promoting the development of the project (e.g. landfill operator, municipality)?

Ans: *Municipality/ Government*

58 Who has the license (or right) to utilize the biogas (e.g. developer, operator, municipality)?

Ans: *Dependent on negotiated position whether the state or another entity will have the rights to the biogas*

59 Based on what authority does the entity with the rights to the biogas have these rights (e.g. letter, contract)? Who grants this authority?

Ans.: *Dependent on negotiated position above*

60 What are the minimum environmental requirements on site?

Ans.: *Holding area and special cell for selective hazardous and special waste, drainage plan, 30m buffer zone for the majority of the site, PPE for authorized staff, trucks transporting cover material are covered, periodic dust mitigation measures by sprinkling roads, emergency response plan for the site and natural clay liner that limits leachate into groundwater.*

61 Is there a history of environmental complaints – odour, fires, gas migration etc? If yes, please describe them

Ans:. *Yes.*

Respiratory ailments during periods of fires.

Complaints of mal-odour from homes adjacent to the site

62 Is there a legal requirement to utilize or burn biogas?

Ans: *No*

63 Is there a customer in the vicinity interested in electricity or heat purchase?

Ans: *Yes*

64 Are there any other parties interested in exploration of this site?

Ans:: *Yes*

65 Are there scavengers on site?

Ans.: *Yes*

Hydro Power

The following questions were raised on the rivers hereby indicated:

River:	MW
1) Rio Grande	3.6
2) Great River	8
3) Negro River	1
4) Yalahs River	2.6
5) Martha River	4.6

Question HP 1: What are the sand conditions of the rivers?

Ans. Feasibility and pre-Feasibility studies were done and documented for the rivers in question in the 1970's and 1980's. The information contained in those reports may not be relevant to the present sand conditions in the rivers. They are no recent surveys on the sand condition of the rivers.

The feasibility studies are in hard copy and stored in the Documentation center of the PCJ. Arrangements can be made with Ms. Francene Thelwell, Manager ICA (ica@pcj.com) to visit the Documentation Centre an view the documents.

Question HP 2 What transmission connections are available for each site, or the nearest connection point + KV of that transmission line?

Ans. The Transmission voltage for Interconnection for each Hydro Projects is 69 KV. The specific conditions would vary for each site.

Question HP 3 What are water flow rates required from Water Resources Authorities - 50%, 95%, 100%?

Ans. The data on flow rates for various rivers is best obtained from the Water Resources Authority.

Mr. Andreas Haiduk of the WRA can be contacted for specific information. Their telephone numbers are (876) 927 0077 or (876) 977 4194 Fax (876)977-0179. website – http://www.wra.gov.jm.

Question HP 4 **What are current challenges and constraints, if any, where known, of existing hydro plants that are operating nearby or on the same river / tributary?**

Ans. There are no other hydro power plants on the Rivers you have chosen.

Question HP 5 **What are current KWh rates ($$) charged to customers?**

Ans. The average Residential Tariff is between US $ 0.26 – 0.28 per kWh

Question HP 6 **Who are the contacts at the National Water Commission with whom we should initiate contact to proceed with water rights, and how do we formally reference those discussions to the bid?**

Ans. The Water Resources Authority (WRA) is the Agency to be contacted with respect to Water Rights. Mr. Basil Fernandez is the Managing Director of the WRA. Contact can be made through Mr. Andreas Haiduk. Their telephone numbers are (876) 927 0077 or (876) 977 4194 Fax (876)977-0179. website – http://www.wra.gov.jm.