

**Whitaker, Ligia**

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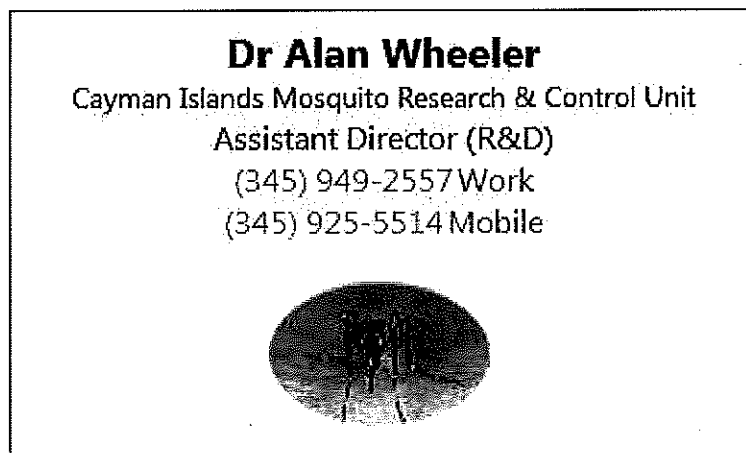
**From:** Wheeler, Alan  
**Sent:** Tuesday, April 04, 2017 1:18 PM  
**To:** Allen, Fraser; Petrie, William  
**Cc:** Ahearn, Jennifer  
**Subject:** RE: Steering Committee  
**Attachments:** Dr Alan Wheeler.vcf

Fraser,

I think it would be very beneficial to have Chief Officer Ahearn attend the meeting as ultimately it is her name on the contract and she needs to be fully aware of the opinions of all members of the MRCU steering Committee before making a decision. It is apparent to me that we need to change the way we are doing things in relation to Oxitec. Full communication between all MRCU staff members is essential and we should all be 100% aware of what is going on. We all need to be looking at the data that is being collected ; we cannot just take Oxitec's word that it is working.

Regards

Alan



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**From:** Allen, Fraser  
**Sent:** 04 April 2017 13:06  
**To:** Petrie, William; Wheeler, Alan  
**Subject:** RE: Steering Committee

Hi Bill,

I think we should initially step back, discuss and be 'on board' as an MRCU team. For example, I don't know what is being agreed upon by Cabinet and what was put forward to them. I'm throwing up caution flags for discussion prior to a big commitment. I haven't looked over Alan's report as yet but he also seems to have concerns relating to the validity of results. Perhaps this can be addressed amongst ourselves and if we find credence then brought up at the Steering Committee for further discussion with Oxitec? I think it would be unwise to proceed to Jennifer immediately when we need to firstly clearly define our position as a group. I think what we also have to remember is that Oxitec is a 'contractor' essentially providing a service. They view us as business clients and we should view them similarly.

Cheers,

Fraser

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**From:** Petrie, William  
**Sent:** Tuesday, April 04, 2017 12:24 PM  
**To:** Allen, Fraser; Wheeler, Alan  
**Subject:** Re: Steering Committee

I will request a meeting with the Chief Officer so that both of your concerns can be raised.

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Dr. William D. Petrie  
Director, MRCU

Sent from my iPhone

On 4 Apr 2017, at 11:50 AM, Wheeler, Alan <[Alan.Wheeler@gov.ky](mailto:Alan.Wheeler@gov.ky)> wrote:

Please see attached report highlighting my concerns over the current contract proposal and Press releases.

Alan

<Steering Committee.docx>

**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Wednesday, April 05, 2017 5:52 AM  
**To:** Ahearn, Jennifer  
**Cc:** Petrie, William; Allen, Fraser  
**Subject:** Oxitec contract proposal  
**Attachments:** Dr Alan Wheeler.vcf  
  
**Importance:** High

Good morning Jennifer,

I am writing to request that all members of MRCU staff on the Oxitec steering committee are provided with a copy of the proposed Oxitec contract so we may review and comment on it before it is submitted to Cabinet. I believe we all have different skills and need to work together as a team to ensure that the best possible terms are given to the Cayman Islands in the negotiation of this contract.

Thanks

Alan Wheeler

**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit  
Assistant Director (R&D)  
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## Whitaker, Ligia

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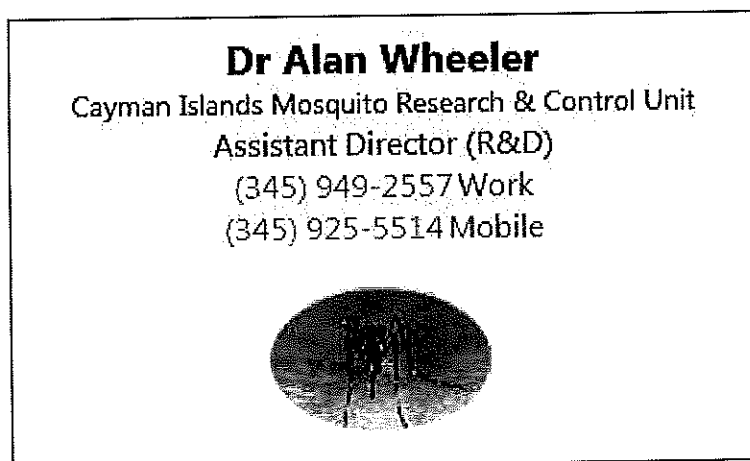
**From:** Wheeler, Alan  
**Sent:** Wednesday, April 05, 2017 6:49 AM  
**To:** Petrie, William  
**Cc:** Ahearn, Jennifer; Allen, Fraser  
**Subject:** RE: Oxitec contract proposal  
**Attachments:** Dr Alan Wheeler2.vcf

Dear Dr. Petrie,

I the concerns raised by myself and Fraser should first be discussed by MRCU before involving Oxitec. The first step should be for both Fraser and myself to be provided with a copy of the proposed contract so that we may review and make further comments.

Regards

Alan



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**From:** Petrie, William  
**Sent:** 05 April 2017 06:19  
**To:** Wheeler, Alan  
**Cc:** Ahearn, Jennifer; Allen, Fraser  
**Subject:** Re: Oxitec contract proposal

Good morning all,

I have no problem with all MRCU members of the Steering Group being supplied with a copy of the Oxitec proposal and contract. I have not seen the final document prepared for Cabinet, which I should point out is not an unusual circumstance.

Naturally the Oxitec members of the Steering Group will need to be made aware of the various concerns raised yesterday, and be afforded the opportunity to respond.

Best regards,

---

Dr. William D. Petrie  
Director, MRCU

Sent from my iPhone

On 5 Apr 2017, at 5:52 AM, Wheeler, Alan <[Alan.Wheeler@gov.ky](mailto:Alan.Wheeler@gov.ky)> wrote:

Good morning Jennifer,

I am writing to request that all members of MRCU staff on the Oxitec steering committee are provided with a copy of the proposed Oxitec contract so we may review and comment on it before it is submitted to Cabinet. I believe we all have different skills and need to work together as a team to ensure that the best possible terms are given to the Cayman Islands in the negotiation of this contract.

Thanks

Alan Wheeler

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<Dr Alan Wheeler.vcf>

## Whitaker, Ligia

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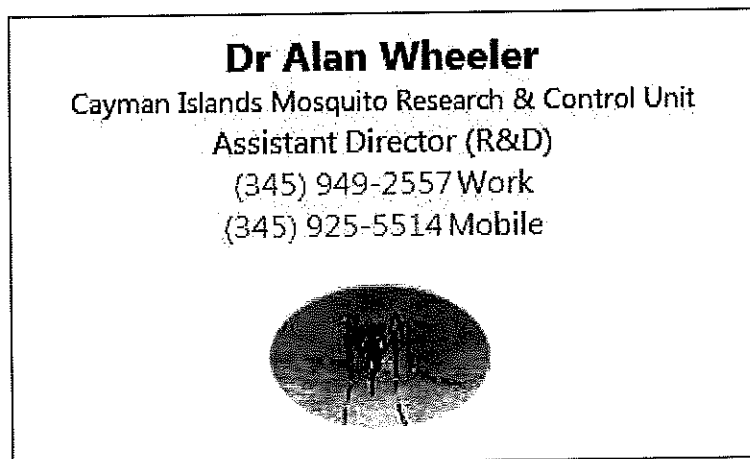
**From:** Wheeler, Alan  
**Sent:** Wednesday, April 05, 2017 7:05 AM  
**To:** Petrie, William  
**Cc:** Ahearn, Jennifer; Allen, Fraser  
**Subject:** RE: Oxitec contract proposal  
**Attachments:** Dr Alan Wheeler3.vcf

Dr Petrie,

I agree. I think we should arrange a meeting to discuss the data. Once we have had chance to review the data ourselves we can then present any remaining concerns to Oxitec. I think that both Fraser and yourself need to get access to the raw data so you can review it. Unfortunately it is only available in Dropbox and I am the only MRCU employee with current access. I will work today to get the data into a format that you and Fraser can access.

Regards

Alan



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**From:** Petrie, William  
**Sent:** 05 April 2017 07:01  
**To:** Wheeler, Alan  
**Cc:** Ahearn, Jennifer; Allen, Fraser  
**Subject:** Re: Oxitec contract proposal

Good morning again all,

I do not disagree with that all, and you will note I did not say so. I merely point out that the Oxitec members of the Steering Group will need to be made aware of the these concerns, and afforded the opportunity to respond.

Best regards,

---

Dr. William. D. Petrie  
Director, MRCU

Sent from my iPhone

On 5 Apr 2017, at 6:48 AM, Wheeler, Alan <[Alan.Wheeler@gov.ky](mailto:Alan.Wheeler@gov.ky)> wrote:

Dear Dr. Petrie,

I the concerns raised by myself and Fraser should first be discussed by MRCU before involving Oxitec. The first step should be for both Fraser and myself to be provided with a copy of the proposed contract so that we may review and make further comments.

Regards

Alan

<image001.jpg>

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**From:** Petrie, William  
**Sent:** 05 April 2017 06:19  
**To:** Wheeler, Alan  
**Cc:** Ahearn, Jennifer; Allen, Fraser  
**Subject:** Re: Oxitec contract proposal

Good morning all,

I have no problem with all MRCU members of the Steering Group being supplied with a copy of the Oxitec proposal and contract. I have not seen the final document prepared for Cabinet, which I should point out is not an unusual circumstance.

Naturally the Oxitec members of the Steering Group will need to be made aware of the various concerns raised yesterday, and be afforded the opportunity to respond.

Best regards,

---

Dr. William D. Petrie  
Director, MRCU

Sent from my iPhone

On 5 Apr 2017, at 5:52 AM, Wheeler, Alan <[Alan.Wheeler@gov.ky](mailto:Alan.Wheeler@gov.ky)> wrote:

Good morning Jennifer,

I am writing to request that all members of MRCU staff on the Oxitec steering committee are provided with a copy of the proposed Oxitec contract so we may review and comment on it before it is submitted to Cabinet. I believe we all have different skills



and need to work together as a team to ensure that the best possible terms are given to the Cayman Islands in the negotiation of this contract.

Thanks

Alan Wheeler

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<Dr Alan Wheeler.vcf>

<Dr Alan Wheeler2.vcf>



**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Friday, April 07, 2017 11:32 AM  
**To:** Petrie, William; Ahearn, Jennifer; Allen, Fraser  
**Subject:** Comments on proposed contract with Oxitec  
**Attachments:** Dr Alan Wheeler.vcf; Comments on the proposed contract for the island wide release of Oxitec.docx

Deal All,

I have reviewed and made some comments on the proposed island wide roll out of the Oxitec mosquito. Please find comments attached.

Regards

Alan

**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

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## Whitaker, Ligia

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**From:** Wheeler, Alan  
**Sent:** Tuesday, April 04, 2017 11:45 AM  
**To:** Allen, Fraser; Petrie, William  
**Cc:** Ahearn, Jennifer  
**Subject:** FW: Thoughts on Oxitec project  
**Attachments:** Dr Alan Wheeler.vcf  
  
**Importance:** High

Hi Fraser,

I am completely in agreement with your comments and your request for an 'urgent meeting' to discuss the project and the contract proposal that has been submitted. I feel it would be advantageous to have the Chief Officer attend as ultimately it will be Jennifer's signature on any new contract.

Regards

Alan

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**From:** Allen, Fraser  
**Sent:** 04 April 2017 10:42  
**To:** Wheeler, Alan; Petrie, William  
**Subject:** Thoughts on Oxitec project  
**Importance:** High

Good morning all,

At this point of the Oxitec project where we are approaching the 'commitment' phase I thought I'd input some points for discussion.

Renaud indicated that the proposal to Cabinet was for an \$8M commitment over the next three years to roll out the Oxitec releases island-wide. Apparently this also includes us renting up to 10,000 sq ft of warehouse space to increase production. I understand that there is a certain urgency to get this contract signed so that the facilities will be available for full output at the beginning of the season next year.

I have a few concerns :

- 1) The original plan was for one module to roll out releases for the whole of West Bay. A second module may have been needed to increase release capacity for George Town. The only plan that had been provided (and that I have seen) for this was a five year implementation and costings a couple of years ago.
- 2) Last year there was a late start in releases and the project was behind the curve due to varying circumstances. Logistics were optimized and by the end of the season the rearing and release capacity was increased considerably. We then moved in to the dryer season. We also assisted the situation in the season with quite a bit of targeted spraying to bring the local population of *Aedes aegypti* vs. released down. Whilst we do expect good results, in point of fact we have not seen a complete season with operational suppression as yet.

- 3) I have not been privy to the business case that has been put forward to the Cabinet which outlines the plans, costings and expectations in to the future. This has been external to the steering committee. I think we should step back for a second and discuss this amongst ourselves (Bill, Alan and myself) and understand where we are heading, what the plan is, what the costings are and what the future expectations are post-project.
- 4) If Government agrees to the 3 year financing I believe that we are then restricting ourselves to a one solution one technology approach. Surely at this point (of no return) we should also be asking ourselves what other options or combinations are available? For example ..... we can probably combine WDG for an initial high percentage suppression, alongside low levels of releases (not requiring a huge rearing facility) and perhaps more employees (MRCU absorbing Oxitec staff) at a much lower cost. There may be other thoughts and ideas on this .....open for discussion. Another question might be ..... do we really need a complete island-wide roll-out rather than focusing on potential disease transmission hot-spots such as West Bay and George Town?
- 5) Oxitec (Intrexon) are entrenched in the Cayman Islands at this point in time and really need us for a reference contract. We are in a powerful position to negotiate terms going forward and should not be intimidated by suggestions of them pulling out if this particular deal is not struck. Perhaps we could examine another years' contract (paid) where their target is to operationally show that one rearing module can suppress *Aedes aegypti* in the whole of West Bay throughout a complete season? Then we approach via the original plan ..... expansion to two rearing modules to encompass George Town. Again, open for discussion!

**I suggest that we (MRCU) meet fairly urgently to discuss prior to this major commitment which we are supposedly 'rubber stamping' so that we have clarity and agreement in our team as to where we are heading and reasoning behind those decisions.**

Any feedback is most welcome!

Cheers,

Fraser

## Whitaker, Ligia

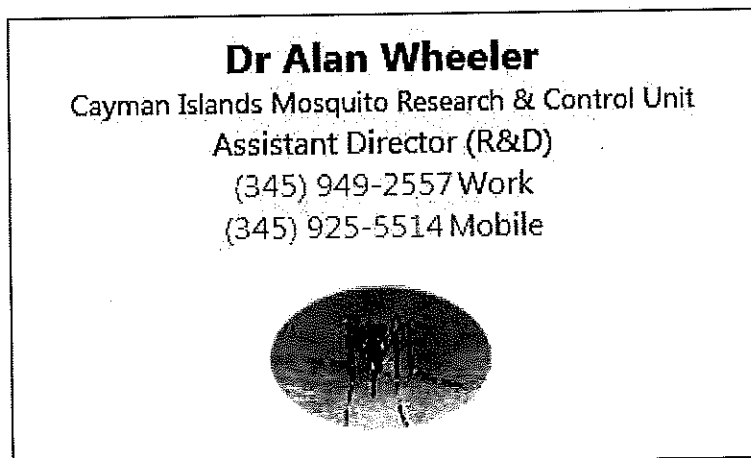
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**From:** Wheeler, Alan  
**Sent:** Friday, April 21, 2017 8:14 AM  
**To:** Allen, Fraser; Petrie, William  
**Subject:** RE: Oxitec  
**Attachments:** Dr Alan Wheeler.vcf

Thanks Frase,

I am available to discuss the targets and measures we wish to use to assess the Oxitec project results. Please let me know a date and time that suits yourself and Dr Petrie.

Alan



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**From:** Allen, Fraser  
**Sent:** 21 April 2017 07:37  
**To:** Wheeler, Alan; Petrie, William  
**Subject:** Oxitec  
**Importance:** High

Morning Bill and Alan,

Just making sure we were on track with the tasks that were issued by Jennifer in the last meeting. They were :

- 1) NCC permit/additional egg shipment. I have sent John Bothwell several e-mails on this and hope to chat to him today to expedite.
- 2) Targets .....discuss between us and determine our accepted sampling methods and thresholds for contractual purposes to hold Oxitec accountable. Bill, Alan, Fraser to discuss.
- 3) Costing breakdown ..... Richard to provide contract costing detail. Bill to request this.
- 4) Oxitec presentation (Richard/Renaud) ..... including Ministry to give (a)overview of results (b)contract detail/expectations (c)costing detail and (d)relationship with Oxitec post-contract. Bill to organize with Richard

Thought the above would be useful as a reference.

Cheers,

Fraser



## Whitaker, Ligia

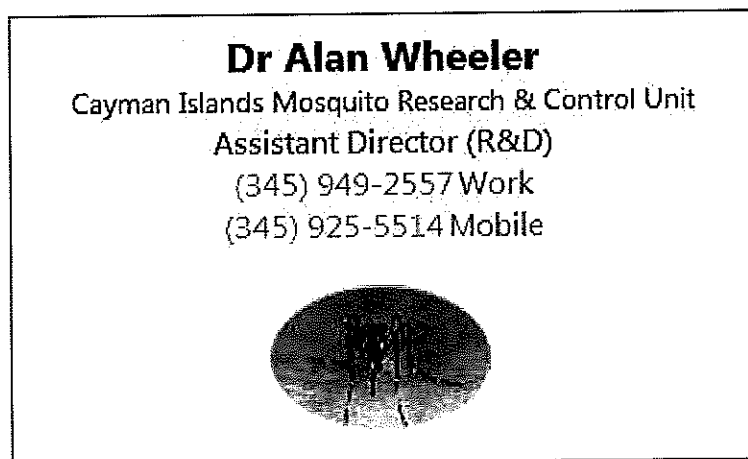
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**From:** Wheeler, Alan  
**Sent:** Friday, April 21, 2017 11:36 AM  
**To:** Allen, Fraser; Petrie, William  
**Subject:** RE: Oxitec  
**Attachments:** Dr Alan Wheeler.vcf

I think it should be MRCU that sets targets and measures. Once we have decided what we want we put them forward to Oxitec for their comments. First step is for MRCU to decide what it wants.

Regards

Alan



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**From:** Allen, Fraser  
**Sent:** 21 April 2017 11:07  
**To:** Petrie, William  
**Cc:** Wheeler, Alan  
**Subject:** RE: Oxitec

Hi Bill,

Thanks for that.

I guess the main thing is that there is clarity and a distinction between the 'extension of current contract' until the end of the year and the larger wide-scale roll-out next year. I'm assuming MRCU/Oxitec are on the same page and agree that there shouldn't be a charge for the extension as discussed in the meeting? The money for the roll-out post-extension has been approved pending those results on our behalf and Oxitec proceeding (with faith in their technology) ahead with a larger facility on their behalf defines the term 'shared risk factor'. I think it would be a good idea to pay for the cabin as a gesture of our commitment. Just my thoughts.

I had understood from the meeting that it was up to us (MRCU) to determine what we are comfortable with as achievable targets and then discuss with Oxitec as part of the contract?

The NCC angle is a bit confusing. I just chatted to John and we will have to submit another application. I'll work on that and can bounce it back and forth between John and us until it fits!

Cheers,

Fraser

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**From:** Petrie, William  
**Sent:** Friday, April 21, 2017 9:26 AM  
**To:** Allen, Fraser  
**Cc:** Wheeler, Alan  
**Subject:** RE: Oxitec

Morning Fraser,

Thanks for the update on the NCC. Just to follow up our conversation, I have requested of Richard that he give us a breakdown of the costing in the proposed contract, and he says he's happy to do so. He also wants to talk to Jennifer about shared risk contracts and the legal side. He has suggested coming here next week, possibly Wednesday, but certainly Thursday and Friday, and has asked Jennifer if she is available those dates and is awaiting a reply.

I have suggested that we hear from Renaud at the same time as to measurements and targets, and Renaud is due to be back next week.

Would be good to hear back from John Bothwell too, for next week.

Best,

Bill

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**From:** Allen, Fraser  
**Sent:** Friday, April 21, 2017 7:37 AM  
**To:** Wheeler, Alan; Petrie, William  
**Subject:** Oxitec  
**Importance:** High

Morning Bill and Alan,

Just making sure we were on track with the tasks that were issued by Jennifer in the last meeting. They were :

- 1) NCC permit/additional egg shipment. I have sent John Bothwell several e-mails on this and hope to chat to him today to expedite.
- 2) Targets .....discuss between us and determine our accepted sampling methods and thresholds for contractual purposes to hold Oxitec accountable. Bill, Alan, Fraser to discuss.
- 3) Costing breakdown ..... Richard to provide contract costing detail. Bill to request this.
- 4) Oxitec presentation (Richard/Renaud) ..... including Ministry to give (a)overview of results (b)contract detail/expectations (c)costing detail and (d)relationship with Oxitec post-contract. Bill to organize with Richard

**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Friday, May 12, 2017 2:53 PM  
**To:** Petrie, William; Allen, Fraser  
**Cc:** Ahearn, Jennifer  
**Subject:** MRCU data on Oxitec releases  
**Attachments:** Dr Alan Wheeler.vcf

Dear Dr Petrie,

I have previously raised concerns about the significant increase in female *Aedes aegypti* in the West Bay release area during the first few months of release. As a Quality Assurance measure I have looked at the percentage of female mosquitoes in two pots of 1000 mosquitoes.

In the first pot there were 28 female mosquitoes and in the second pot there were 9. With the target release rate of 500,000 per week this means we could be releasing between 4,500 to 14,000 female mosquitoes per week. I believe that this needs to be addressed as soon as possible. I am also rather disappointed that MRCU has signed a \$400,000 extension of the project as I am firmly of the opinion that the Oxitec program is still in the development stage and MRCU should not be paying for an as yet unproven technique. \$400,000 could have expanded our traditional control program by 13 staff for 1 year which would have allowed us to treat all problem yards across the island on a once weekly basis. This would significantly reduce the abundance of *Aedes aegypti* across Grand Cayman. Whilst I remain in favor of the Oxitec project I believe we should be paying closer attention to ensure that it is proceeding according to MRCU's needs.

Sincerely

Dr. Alan Wheeler



## Whitaker, Ligia

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**From:** Wheeler, Alan  
**Sent:** Wednesday, May 17, 2017 10:40 AM  
**To:** Allen, Fraser; Petrie, William  
**Cc:** Ahearn, Jennifer  
**Subject:** RE: WDG/Oxitec  
**Attachments:** Dr Alan Wheeler.vcf

Whilst I am favor of the integrated use of Bti WDG I see it as a tool to assist in our main ground control operations. Ground control by yard to yard survey is the only long term approach that has been proven effective. Currently we are so short staffed that we cannot effectively control *Aedes aegypti* in all parts of the island. I need enough staff to target known problem yards on a weekly basis across the island and I need field supervisors to monitor and coordinate ground crews. The Senior DPO position was advertised many months ago and as yet interviews have not been organized. The reason I have been given for the failure to advertise the positions is that Marcus Grizzel has applied for one of the positions. In my opinion Marcus is as entitled as any other employee to apply and this should not hold back the interview process. Our established and proven control methods are being neglected and it appears that we have put all our eggs in one basket and see Oxitec as the only solution.

Alan



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**From:** Allen, Fraser  
**Sent:** 17 May 2017 10:17  
**To:** Wheeler, Alan; Petrie, William  
**Subject:** WDG/Oxitec

Good morning all,

As we progress to a large scale island-wide roll out of the Oxitec project it is still my opinion that both technologies should be examined in conjunction with each other.

- WDG is effective at rapidly reducing a major portion of the larval population over a four week period (x5 treatments)..... to give at least 80% control or more.
- Oxitec's technology I believe is most effective at seeking out a lower percentage of survivors and ..... that would account for the remaining 20%.

Each technology has its niche and that is where it would be the most cost effective. Surely a combination of the two is the best way to go? By combining the technologies we would be using 75% less WDG than in a repetitive regime and we would not need a huge facility to control the remaining 20% using the Oxitec releases. In fact that would equate to 1-2 cabins as they have suggested (at the end of the island-wide roll out) and a much lower maintenance number of releases. I haven't really figured out the costings but at a glance it should balance everything out with lower dollar impact.

Looking over the extension contract, essentially Oxitec are suggesting that they can control up to 75% of the population. Perhaps that figure is higher, but if you see my point above, I wonder why we are using this technology to do the major part of the suppression over several years rather than the other way around with much quicker results in West Bay and George Town.

Just some thoughts and any feedback is welcome!

Cheers,

Fraser

## Whitaker, Ligia

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**From:** Wheeler, Alan  
**Sent:** Thursday, August 03, 2017 7:15 AM  
**To:** Barnard, Nancy  
**Subject:** RE: Oxitec meeting  
**Attachments:** Dr Alan Wheeler.vcf

No problem Nancy, I will be there.

Regards

Alan

-----Original Message-----

From: Barnard, Nancy  
Sent: 03 August 2017 07:14  
To: Wheeler, Alan  
Cc: Petrie, William  
Subject: Oxitec meeting

Good morning Dr Wheeler

Please can you attend a meeting this morning (with apologies for the short notice) re Oxitec work 9am room 2028 Government administration building.

Many thanks.

Kind regards

Nancy Barnard  
Deputy Chief Officer  
Ministry of Health and Culture  
Cayman Islands Government  
345 244-2342 Office  
345 916-7917 Mobile  
[nancy.barnard@gov.ky](mailto:nancy.barnard@gov.ky)

Via mobile device





## Whitaker, Ligia

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**From:** Wheeler, Alan  
**Sent:** Friday, August 04, 2017 11:20 AM  
**To:** Ahearn, Jennifer; Barnard, Nancy  
**Subject:** RE: Request to share Oxitec data with WHO  
**Attachments:** Dr Alan Wheeler2.vcf

Good morning Jennifer,

I would like both WHO VCAG and CARPHA to review the data collected during the trial and to make recommendations on how we should proceed. In the past CARPHA personnel have stated to me that one of the reasons they do not promote the Oxitec technique is that they have not seen the raw data from previous trials. Currently the WHO VCAG does not recommend full scale deployment of this technique and only promotes the techniques that have been traditionally used in Cayman for *Aedes aegypti* control. Allowing VCAG and CARPHA should have benefits for both Oxitec and MRCU. If VCAG review the data and decide it is sufficient to proceed with a full scale trial then Oxitec will have their first confirmation from VCAG that they believe it is ready for operational deployment and they will also have CARPHA promoting the technique. Conversely if the data is found to be lacking in any areas then they can advise what further steps need to be taken to make the technique ready for full scale operational releases.

For MRCU to proceed without the recommendation from this WHO advisory group is (in my opinion) very unwise. Not only could it divert much needed resources from our own control efforts but it could lead to other countries following our example and investing their own vector control resources in an unproven technique. This could have severe negative consequences for Public Health in the region as a whole.

I see requesting approval from VCAG as an important and necessary step before proceeding with the planned island wide operational deployment. I see no reason why Oxitec should object to sharing their data with experts in the field of vector control other than the level of control achieved has not been what they are claiming. As I stated in yesterday's meeting I do have serious concerns about the levels of suppression being claimed by Oxitec during this trial. I am in the process of writing a full report which I hope to have completed by the end of next week. I am requesting that no contract is signed that will commit Cayman Islands Government to expanding the current trial of the technique until you, Nancy and Dr. Williams have had chance to review the report.

Kind Regards

Alan

**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

(345) 949-2557 Work

(345) 925-5514 Mobile



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**From:** Ahearn, Jennifer

**Sent:** 04 August 2017 10:49

**To:** Wheeler, Alan; Barnard, Nancy

**Subject:** RE: Request to share Oxitec data with WHO

Good morning Alan

I believe that it would be Oxitec, and not MRCU, who would have "ownership" of the data from the work in West Bay, so any sharing of the data would need to be done by (or agreed to by) Oxitec. Is this something that you want us to raise with Richard Adey? If so, perhaps Nancy can ask that this be included on the agenda for the next steering committee meeting?

Also, what would you be asking WHO VCAG / CARPHA to advise on? Are you looking for an independent statistical evaluation of the data?

I look forward to hearing from you.

Kind regards

Jennifer

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**From:** Wheeler, Alan

**Sent:** Friday, August 04, 2017 7:41 AM

**To:** Barnard, Nancy

**Cc:** Ahearn, Jennifer

**Subject:** Request to share Oxitec data with WHO

Good morning Nancy,

I would like to request permission to share the Oxitec data that has been collected during the West Bay trial with the WHO Vector Control Advisory group and CARPHA. I would like to have a clause in any new contract agreement that makes the full scale operational rollout dependent upon the approval of these two expert organizations after they have been given the opportunity to review the data.

Thanks

Alan

**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Friday, August 11, 2017 3:12 PM  
**To:** Allen, Fraser  
**Subject:** FW: Friendly Aedes aegypti target metrics .docx  
**Attachments:** Friendly Aedes aegypti target metrics .docx; Dr Alan Wheeler.vcf

Hey Frase here are my comments,

I want all three metrics to be reached. Two of the metrics are essentially the same monitoring method. Disease is transmitted by adult mosquitoes so I want to see an effect on the adult mosquito population. We do not know how egg counts relates to adult population.

I would like target levels to be calculated as I have discussed with Renaud; i.e. Not use of an average of an average which is mathematically incorrect.

Target metrics are low but they are what we agreed to in the meeting.

From the onset of the trial the size of the program was known and in all their previous trials the impact of immigration of wild *Aedes aegypti* from adjacent areas has been reported and used to justify reducing the treatment area. This effect should have been known about and factored into the design of the trial from the beginning. I am not in favor of reducing the trial area at this late stage of the trial as I think it would invalidate results collected so far. A better option would be for MRCU to conduct intensive control activities in the area around the treatment area to remove this immigration effect.

I don't think PCR analysis of females is now required as the issue with high female release rates has now been resolved. I have no objection to Oxitec doing this if they wish to do so to remove them from adult trap calculations.

Regards

Alan

**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

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(345) 925-5514 Mobile





## Whitaker, Ligia

---

**From:** Barnard, Nancy  
**Sent:** Wednesday, August 23, 2017 10:00 AM  
**To:** Allen, Fraser; Wheeler, Alan  
**Subject:** RE: Oxitec update

Hi Fraser

I really appreciate your input into this - should have a response for Richard for you to review today.

Kind regards

Nancy Barnard  
Director (Acting)  
Mosquito Research & Control Unit (MRCU)  
99 | Red Gate Rd. | P.O. Box 486 | Grand Cayman KY1-1106 | CAYMAN ISLANDS  
Office: 1 (345) 949-2557 | Direct: 1 (345) 244-4118 | Mobile: 1 (345) 916-7917 Fax: 1 (345) 949-8912 MRCU Website:  
[www.mrcu.ky](http://www.mrcu.ky)

-----Original Message-----

**From:** Allen, Fraser  
**Sent:** Tuesday, August 22, 2017 3:58 PM  
**To:** Barnard, Nancy; Wheeler, Alan  
**Subject:** RE: Oxitec update

Hi Nancy,

Looking over Richard's document it appears that we are 'between a rock and a hard place'! Just thought I'd put in some comments if that's ok, and apologies if this is somewhat repetitive.

From Oxitec's point of view commitments were given by Bill for the island-wide rollout several days prior to his departure. The interim contract was not put in to place for reasons unknown. Their timeline is also understandable and points taken with regard to the facility and economics of delaying the process.

However, even if we had put the interim contract in place with the conditional targets, we would be in the same position as we are now ..... which is still wanting to see consistent results and particularly through the main part of the season (September/October). As it stands we are putting forward a compromise to get Oxitec back on track, to a point where they would have been if production issues had not been a problem. With this assistance in place we will be able to see if Oxitec can indeed maintain required suppression levels of *Aedes aegypti* through to the end of the season. Oxitec should be confident of being able to do that (with the assistance of Bti treatments). We should also have the confidence in their results prior to this big commitment. It is my opinion that this has not been established as yet.

I believe what we have now put forward was to make the full island roll-out conditional (which is no different to that which was agreed before). Given that we will be assisting with Bti treatments it is also fair that we want a high standard of retaining 3 quality markers consistently during the 8 week period. Also, retaining the same area as per initial agreement. I believe the phrase was used 'shared risk' contract. If Oxitec has the confidence in their technology our timeline should work for them and not impede the progress. I think the 400K was to be paid which was for the extension

period and then the other payment of 1M or so towards the end of the year. If Oxitec has the confidence in their technology then it would seem reasonable that any investments required prior to the end of the season and outside our payment schedule should be shouldered by them. We are of course hoping that the technology works and Oxitec are also aware that Cabinet has approved the money for continuation. It is imagined that we will have a good idea of where we stand at the end of October which would be (timeline wise) between the first 400K (2 x 200K for West Bay extension) payment and the 1M or so continuation payment. This seems to fit our objectives whilst providing a period of due diligence on our behalf.

I'm not sure if this assists at all as we have covered most of the above but of course the 'devil is in the detail' as far as contracts are concerned. Perhaps we should also have a review of their (Oxitec) timeline and plan over the 3-5 years and also chat about post-contractual expectations where staffing, egg costs etc. are some of the aspects which will be shouldered by us.

Communication is key of course and I'm sure we're establishing a much better dialogue which helps a lot.

Best regards,

Fraser Allen  
Research Manager, MRCU

-----Original Message-----

From: Barnard, Nancy  
Sent: Tuesday, August 22, 2017 9:16 AM  
To: Wheeler, Alan; Allen, Fraser  
Subject: Oxitec update

Hi Alan and Fraser

Welcome back Alan - I hope vacation was lovely.

Richard emailed me with his concerns re the extension - I split up his email into bullet points so that I can address each point/concern. I placed a copy of this on your respective chairs.

I will draft the response and on Wednesday ask that you both review and see that it is in keeping with the department's viewpoint and accuracy is there.

Many thanks.

Kind regards

Nancy Barnard  
Director (Acting)  
Mosquito Research and Control Unit (MRCU)  
99 Red Gate Road  
P. O. Box 486, Grand Cayman, KY1-1106

## Whitaker, Ligia

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**From:** Barnard, Nancy  
**Sent:** Wednesday, August 23, 2017 4:12 PM  
**To:** Allen, Fraser  
**Subject:** RE: Summary and next steps (Oxitec)

Many thanks, Fraser.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**From:** Allen, Fraser  
**Sent:** Wednesday, August 23, 2017 3:38 PM  
**To:** Barnard, Nancy  
**Subject:** RE: Summary and next steps (Oxitec)

Hi Nancy,

This looks good. Well put! I did some minor changes below. Genera and species are either in italics or underlined ....

It is interesting also that this will only demonstrate to us that suppression can be maintained at a certain release rate once reduced that far (20% of original population?). If this is still to be a 'stand-alone' technology we then have to believe that the releases can be also utilized at higher levels to initially reduce the higher populations that may exist, prior to a maintenance level. We are going on the May/June figures for this aspect which is the lowest part of the season. This is the part they keep on plugging as being very successful and demonstrating its stand-alone operational capability. To me that's still a bit shaky! Also, if there are production 'issues' we apparently return to ground zero, although this has obviously been a learning curve and processes will be optimized.

Best regards,

Fraser Allen  
Research Manager, MRCU

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**From:** Barnard, Nancy  
**Sent:** Wednesday, August 23, 2017 1:22 PM





## Whitaker, Ligia

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**From:** Barnard, Nancy  
**Sent:** Thursday, August 24, 2017 10:05 AM  
**To:** Allen, Fraser; Wheeler, Alan  
**Subject:** FW: Summary and next steps (Oxitec)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Dear Fraser, Alan

Let's discuss early next week and then organise a call with Richard.

Kind regards

Nancy Barnard  
Director (Acting)

**Mosquito Research & Control Unit (MRCU)**

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## Whitaker, Ligia

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**From:** Barnard, Nancy  
**Sent:** Tuesday, August 29, 2017 12:36 PM  
**To:** Wheeler, Alan  
**Subject:** RE: Summary and next steps (Oxitec)

Thank you!

Kind regards

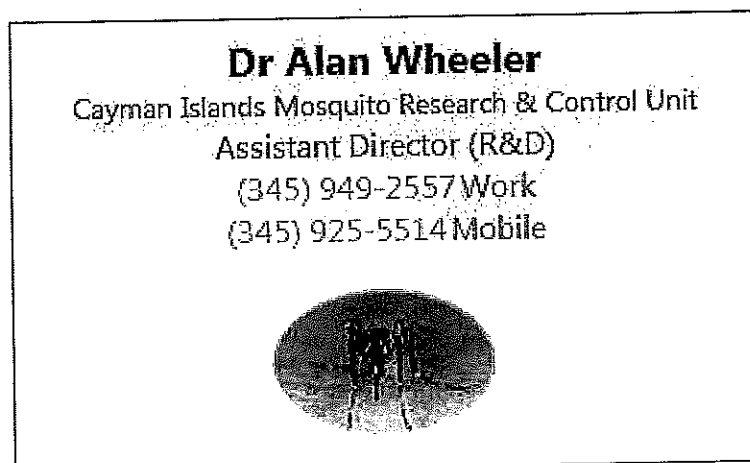
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**From:** Wheeler, Alan  
**Sent:** Monday, August 28, 2017 3:05 PM  
**To:** Barnard, Nancy  
**Subject:** RE: Summary and next steps (Oxitec)

Very nicely said!



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**From:** Barnard, Nancy  
**Sent:** 23 August 2017 16:18  
**To:** Wheeler, Alan; Allen, Fraser  
**Subject:** FW: Summary and next steps (Oxitec)

FYI, with thanks to Fraser for guidance on content today.



**Whitaker, Ligia**

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**From:** Allen, Fraser  
**Sent:** Thursday, August 31, 2017 2:15 PM  
**To:** Wheeler, Alan; Barnard, Nancy  
**Subject:** RE: Summary and next steps (Oxitec)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Alan,

I agree with your points below.

To simplify :

- 1) Up to December Oxitec can utilize the time to optimize their production efficiency so everything is running smoothly for 2018. Terms and conditions to be discussed.
- 2) 2018 –full contract in West Bay with markers/quantified objectives in place. Releases start in February/March. Essentially show us their technique works as a stand-alone method as would have been the case this year. Other synergistic projects could be initiated and examined.
- 3) 2019 expansion of operational roll-out?

Perhaps this is the best way to go? I think Alan and myself are more comfortable with this approach.....

Best regards,

Fraser Allen  
Research Manager, MRCU

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**From:** Wheeler, Alan  
**Sent:** Thursday, August 31, 2017 1:57 PM  
**To:** Allen, Fraser; Barnard, Nancy  
**Subject:** RE: Summary and next steps (Oxitec)

Hi Guys;

Here's my view on this!

The original contract with Oxitec made on the 18<sup>th</sup> April 2016 does not indicate in anyway what MRCU would achieve from the release of the OX513A mosquitoes in West Bay. Page 1 (B) simply states that "the Government wishes to implement the Project with a view to achieving and sustaining the suppression of the wild population of *Aedes aegypti* mosquitoes within a specified area of Grand Cayman". Despite having a comprehensive list of clearly defined terms in the contract as outlined in section 1.1 there is no mention of what actually constitutes "suppression". Likewise the term "sustained" is not defined. At the time of contract signing this major omission from the contract was not critical as the final decision as to the effectiveness of the technique was left to the discretion of the MRCU scientific staff. The only financial obligations placed on MRCU by the contract were :

- Prepare suitable grounds for the Mass Rearing Module (MRM)
- Pay duties related to the importation of the MRM
- Pay for utilities for the MRM during the duration of the trial.

MRCU has fulfilled all these obligations.

The proposed First Amendment to the Implementation Agreement introduces significant costs to MRCU for the project to be extended; specifically; The Government shall pay Oxitec 336,000 by the 31<sup>st</sup> December 2017.

Whilst I am not opposed in principle to the payment I am of the opinion that we need to know what we are getting for this money as we have to be able to justify it to the public and internal audit. I not think it is valid to simply say the payment is for the extension of the project without clearly defining what we are paying Oxitec to do. As the contract and amendment stand at the moment, Oxitec are not actually obliged to do anything for the money. At a minimum we need to know what they are going to be doing in terms of number of mosquitoes they will be releasing, the frequency of releases and the area the releases will cover. We also need to know what the outcome of these releases will be in terms of suppression level target and how this suppression will be measured.

Based on my analysis of the data collected to date and the short time remaining on the proposed project extension I doubt Oxitec will be able to reach any targets that we request. Rather than setting unobtainable targets I think we should go forward by proposing a repeat of the initial trial for 1 complete year in order to collect sufficient data to convince MRCU staff that the technique works. This would allow the following :

- The timing of the releases could be optimized so that releases start at the correct time of year.
- Agreed monitoring methods could be established
- The trial area could be re-defined so as to include a "buffer area" so as to eliminate the effect of immigration of mosquitoes into the release area.
- Techniques for analyzing the data could be agreed on in advance so there is no disagreement on the interpretation of the results.
- The planned future "roll-out" of the project could be discussed and agreed by the Steering Committee.

Between now and the first release date of any new deployment of the OX513A mosquitoes Oxitec could use the time to sort out production problems and put required QA measures in place. Specifically:

- Eliminate production mortality issues that have resulted in Oxitec only releasing between 25% to 50% of the number of males required for suppression to be feasible.
- Eliminate the issue of mold growth in the production areas.
- Increase the number of traps required for the effective monitoring of adult mosquitoes.
- Ensure staff have been trained to correctly identify fluorescent larvae in heterozygous field collected larvae.
- Eliminate any other production issues they may be aware of.

I do not think it is of benefit to the Cayman Islands nor Oxitec to push ahead with a project until it has been firmly shown that they can meet agreed targets and maintain required production levels.

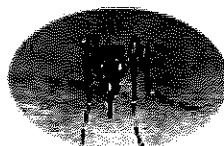
**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

(345) 949-2557 Work

(345) 925-5514 Mobile



**From:** Allen, Fraser  
**Sent:** 31 August 2017 12:18  
**To:** Barnard, Nancy; Wheeler, Alan  
**Subject:** RE: Summary and next steps (Oxitec)  
**Importance:** High

Good morning Nancy,

A couple of things have been 'bugging' me having listened to Richard in the last meeting :

- 1) The original Steering Committee (up to the point where Glen Slade left and was replaced by Richard Adey) was very aware and involved in all long-term aspects of the project (not just a portion). Evidenced by previous Steering Committee meeting notes, the original plan had been to have a staged roll-out across the island. In fact the primary focus would be West Bay and George Town. The initial module would be able to handle the pilot operational phase releases in West Bay (current area) and then a roll-out to the whole of West Bay (10,000 residents) and subsequently George Town with an addition of modules 2 and 3. Indeed I had spent much time with PWD and architects looking at alignment of the additional modules, one could be stacked on the current module if necessary and there was an area penciled in for module #2 perpendicular to that as well. There was also the possibility that we could utilize the MRCU met station site in West Bay for locating a module.
- 2) We are now making a leap from that plan to an island-wide roll-out for some reason including a huge facility to take care of that commitment. Much of this negotiation was done outside of the Steering Committee and it was only when Alan and I heard of these huge dollar amounts being banded around and questioned why architects were in and out that the facts surfaced. Obviously we then voiced our concerns with regards to continuing the project cautiously and with conditional markers.
- 3) I am personally in favor of delaying by a year and establishing a contract for next year which sees control of a specified area (perhaps larger?) in West Bay as per expectations this year. The greatest challenges exist around September/October and I think it would be best to see if that can be achieved using their technology as a stand-along technique throughout the whole season. During that time period we will have plenty of time to consider a fuller roll-out and facility for 2019 .....or not. Oxitec could utilize the rest of this year (for which we pay them) to sort out operational and production issues which have hampered progress.
- 4) A full island roll-out I think is unnecessary. We need to focus on West Bay and George Town and then residential areas up to Newlands. It seems unnecessary to tackle areas heading out east and Northside which have sparse populations and can be dealt with by conventional techniques quite easily. Similarly, between West Bay and George Town, the hotel areas, Governors Harbor etc are very clean and upscale and require little effort to survey and control by ground crews.
- 5) By not committing to the island-wide roll-out just yet, not only can we stage it in a controlled manner but we can also look at combining other technologies such as the WDG Bti aerial applications which may synergize well with Oxitec and may prove more cost effective and sustainable in the long run. I have had many chats with Renaud about this (off record over a few beers) and he is actually quite keen on the idea. I think it might be a bad idea to put all your bets on one horse!
- 6) I don't see any issues with the targets. We are only suggesting 65% suppression in most of them. I was always led to believe Oxitec's rhetoric that they would 'eliminate' *Aedes aegypti*. I wonder why that has been diminished within the contracts?
- 7) I think we still need to talk about post-contractual relationships if we do go ahead with the rapid expansion. Verbally they may suggest that they are not looking to make any money (only on start-up projects?) but

personally I don't buy that having worked in a corporate environment. We need to chat about egg prices, staffing etc etc.....

That's probably enough from me ..... these really are my points to make based on the historical and current situation. I guess we will see the detail of Richard's proposal shortly and can chat further this afternoon.

Thanks for listening!

Best regards,

Fraser Allen  
Research Manager, MRCU

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**From:** Barnard, Nancy  
**Sent:** Thursday, August 31, 2017 10:14 AM  
**To:** Wheeler, Alan; Allen, Fraser  
**Subject:** FW: Summary and next steps (Oxitec)

Alan, Fraser – grateful for your review of below/attached and we can aim to meet this afternoon – thanks.

Kind regards

Nancy Barnard  
Director (Acting)  
Mosquito Research & Control Unit (MRCU)  
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**From:** Richard Adey [<mailto:Richard.Adey@oxitec.com>]  
**Sent:** Wednesday, August 30, 2017 6:18 AM  
**To:** Barnard, Nancy  
**Subject:** RE: Summary and next steps (Oxitec)

Dear Nancy

Thanks for the constructive discussion yesterday. Reverting on your e mail below...

The signed agreement which we have for West Bay is entitled **Implementation Agreement** – see attached *Cayman Oxitec signed contract*. That effectively expired at the end of April 2017 so we have been continuing in West Bay since then without being covered with an agreement, which we have been a little uncomfortable with.



What has been loosely called the extension to the West Bay Agreement is entitled **First Amendment to Implementation Agreement** - this is the attachment *Cayman Islands Government-Oxitec etc.* as also sent on 22<sup>nd</sup> August. This is not signed although we have been reassured on separate occasions by Jennifer that the CI\$336k will be paid to us this year. Pending signature, I had asked during the meeting August 3<sup>rd</sup> if we could receive written assurance on the intent to pay us. This First Amendment is trivial in that it just extends the time period of the original Implementation Agreement from end April to end December 2017 for the agreed payment. As there will be no targets to be achieved within that extended timeframe, I would suggest that this could now be signed as is without changes..

The only other agreement drafted was the **Contingency Agreement**, which is not attached here (but I can send it if you like). That agreement was not signed and I trust you will agree there is no point now in pursuing that further. The draft Addendum you sent me, which defined targets, was previously discussed as forming a part of that Contingency Agreement, although no agreement was reached on those targets. The purpose of the Contingency Agreement was to cover Oxitec's outgoing costs incurred in preparing for Grand Cayman, pending a decision to proceed from MOH/MRCU.

As discussed, the results from West Bay have not in the past been formally linked to a commitment to proceed in Grand Cayman. I understand your wish now to specifically link Grand Cayman rollout to target achievement, and suggest that this can be done best within the future definitive agreement for Grand Cayman. I intend to amend our offer for Grand Cayman to incorporate targets to be achieved within the envisaged timeframe February to end July, and send this to you very shortly. If agreed, those targets would then be for incorporation into the future contract. Oxitec's firm opinion is that reaching all three targets is an unreasonably high demand, whereas there is readiness in principle to sign up to achieving two from three.

I did have a thorough discussion with top management since we spoke yesterday and will revert on that more fully in a separate e mail, and send our revised offer accordingly.

I hope this is useful in the meantime, and will be in touch again very shortly, with a view to discussing again on Thursday.

Kind regards,

Richard

**From:** Barnard, Nancy [<mailto:Nancy.Barnard@gov.ky>]  
**Sent:** 29 August 2017 15:53  
**To:** Richard Adey <[Richard.Adey@oxitec.com](mailto:Richard.Adey@oxitec.com)>  
**Subject:** RE: Summary and next steps (Oxitec)

Dear Richard

Can you please send me the signed version (presumably that was signed by MRCU/Dr Petrie and Oxitec/you or Renaud?) of the "extension to the West Bay agreement" dated 16<sup>th</sup> April 2017.

I will also need the MRCU and Oxitec co-signed version of the "First amendment to implementation agreement" effective 30<sup>th</sup> April 2017. I have not seen a signed version of either document, and nor can I locate one on the MRCU computer drive. I will need these to get the invoice 2017/006 CI\$168,000 processed.

Many thanks.

Kind regards

Nancy Barnard  
Director (Acting)

**Mosquito Research & Control Unit (MRCU)**

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**From:** Richard Adey [<mailto:Richard.Adey@oxitec.com>]

**Sent:** Tuesday, August 22, 2017 5:58 AM

**To:** Barnard, Nancy

**Subject:** FW: Summary and next steps (Oxitec)

Dear Nancy

As indicated, please find attached the following documents, updated to be in CI\$.

- The invoice for the first instalment of West Bay.
- The extension to the West Bay agreement (Implementation Agreement Amendment). In this I have also inserted your name as the Steering Committee member replacing Bill Petrie.
- Our Grand Cayman offer as updated and sent earlier this month

Kind regards,

Richard

**From:** Richard Adey

**Sent:** 21 August 2017 02:19

**To:** 'Barnard, Nancy' <[Nancy.Barnard@gov.ky](mailto:Nancy.Barnard@gov.ky)>

**Cc:** Ahearn, Jennifer <[Jennifer.Ahearn@gov.ky](mailto:Jennifer.Ahearn@gov.ky)>; Pouchie, Nellie <[Nellie.Pouchie@gov.ky](mailto:Nellie.Pouchie@gov.ky)>

**Subject:** RE: Summary and next steps (Oxitec)

Dear Nancy,

Thank you for your e mail and please accept my apologies for the delay in responding due to my vacation last week.

I would like to raise the point about the Grand Cayman rollout being contingent upon attainment of targets in West Bay this year, as this differs from my understanding from the MOH/MRCU/Oxitec meeting in Cayman of August 3rd.

My understanding was that there was mutual agreement that a firm decision on Grand Cayman rollout in 2018/19 needed to be taken at that stage, due to the significantly changed situation. The changed situation is partly connected to the setback in West Bay, which was acknowledged to be unrelated to the effectiveness of our technique. Other good reasons were considered by MOH as I recall, including wanting to demonstrate its intent to the public now, which is starting to be questioned in social media. The changes at MRCU may have also been relevant. I understood that the firm decision was taken at the meeting to proceed, based on the already demonstrated positive trend of suppression in the rainy season as noted in the MRCU report to MOH of late June, plus the additional recommendation of Dr. Petrie, which was then formalized in his memo. Specifically this decision was, according to my understanding, not linked to suppression targets in West Bay, as it is unrealistic to anticipate that these will be achieved and sustained within the

timeframe that all the future preparation work for Grand Cayman needs to be concluded. If a definitive decision on Grand Cayman is still in doubt pending further field data, then Oxitec cannot realistically resume its ongoing urgent preparations for 2018 rollout.

Oxitec has certainly not been averse to targets – actually it was us who originally suggested the principle of targets as a creative mechanism to keep options open at that time for MOH/MRCU. That idea was put forward to enable Oxitec to continue spending on the preparations for Grand Cayman, at the same time giving MOH more time to decide whether to proceed in Grand Cayman or otherwise. Oxitec put forward a draft *Contingency Agreement* covering this, for consideration. MOH/MRCU was under no obligation to proceed with Grand Cayman as a result of any targets being achieved. Formal agreement on targets and the signing of the Contingency Agreement was not pursued, and from our perspective, the usefulness of the Contingency Agreement approach which we suggested has now been fully overtaken by events, and by the need for a firm decision at this stage.

There is high urgency to resume the extensive Grand Cayman preparations. Grand Cayman requires just over US\$2m to be spent before year end, as the factory needs to be operationally ready in November/December with associated permits to be obtained. Additional Oxitec staff need to be locally recruited and trained, extensive field monitoring needs to be set-up, community engagement and Govt communications need to be in place, and so on. Our best people remain on standby to implement all this, but timing is now critically squeezed and we will be unable to make-up for any additional lost time. Due to the seasonality of the mosquito, a one year delay would almost certainly be the outcome if we do not resume our preparations at this stage, as we need to be on-track to start the large-scale mosquito releases early next year. One year delay would involve a break in continuity with significant financial and operational consequences for a later re-start. We would almost certainly need to terminate the current lease on the factory premises (losing several months premises-specific engineering work), and would need to lay-off our experienced Oxitec Cayman staff who are earmarked for training and supervising new recruits. Also, the availability of Renaud Lacroix as Project Manager could not be guaranteed for 2019/20, although of course I would strive for that!

According to my understanding, Dr. Petrie's memo plus the amended Oxitec offer were the two documents that were requested by Jennifer Ahearn for an imminent approach to the Central Tendering Committee. The Grand Cayman preparations require commitments to our contractors of US\$400k-500k per month going forwards, and so we urgently need and request that CTC process to be concluded soonest to keep timing on track. A firm agreement on the West Bay payments in the meantime would help bridge that gap as indicated. I had understood that the CTC process might take around one month, but if CTC requires additional time then I would need to seek further assurances within the next month to cover ongoing Grand Cayman expenditure, which obviously I would like to avoid.

\*\*\*\*\*

Regarding the other points raised in your e mail...

Thanks for clarity that everything should be in CI\$. I will re-send the West Bay first invoice, and the Grand Cayman offer by separate e mail.

You also raised the point about the increase from US\$7.5m to US\$8m. This was flagged in e mails and also discussed with Jennifer Ahearn and Bill Petrie together. I will find and forward the relevant e mails in the next day or two. Basically, our original lower offer was based on Govt supplying to Oxitec free-of-charge a large parcel of suitably-prepared land including connection to utilities. On this land we had originally planned to site a large number of production cabins (similar to that which is located at MRCU). For various reasons, including the probable unavailability of a suitable site, we revised this production strategy to a single fixed facility. The costs of leasing a warehouse (for conversion to our production premises) in 2017, 2018, 2019 is just over US\$500k which was not contained in our original calculations/offer. We did signal this adjustment in good time although I believe from discussions with Dr Petrie that this was overseen and therefore omitted in his preparation of the business case.

I am of course ready to discuss any aspect, and in any case would welcome the chance for a call with you this week if you can fit that in?

With kind regards,

Richard



Richard Adey  
Regional Manager Caribbean  
+ 43 699 10284232

**From:** Barnard, Nancy [<mailto:Nancy.Barnard@gov.ky>]  
**Sent:** 14 August 2017 19:23  
**To:** Richard Adey <[Richard.Adey@oxitec.com](mailto:Richard.Adey@oxitec.com)>  
**Cc:** Ahearn, Jennifer <[Jennifer.Ahearn@gov.ky](mailto:Jennifer.Ahearn@gov.ky)>; Pouchie, Nellie <[Nellie.Pouchie@gov.ky](mailto:Nellie.Pouchie@gov.ky)>  
**Subject:** RE: Summary and next steps (Oxitec)

Dear Richard

Thanks for your e-mail.

I will address each of the points which you noted from our meeting of August 3<sup>rd</sup>. I have included CO Ahearn, and CFO Pouchie of the Ministry.

1. Correct – through until the end of December 2017 – and this will include key performance indicators from a near date to be agreed, through to end of December 2017, as are to be agreed upon by MRCU and Oxitec.  
(In meetings with Alan Wheeler, Fraser Allan and Renaud Lacroix this week, I understand that these performance indicators were previously discussed at a steering committee meeting. I gather that subsequent to that steering committee meeting, a proposal for the indicators was put forth by Oxitec in the form of a contract addendum. At that time - in around April 2017 - this would have been for the remainder of the West Bay project. I understand that MRCU was happy with the indicators and addendum set forth by Oxitec. Unfortunately, the addendum was never signed off on. Renaud is to discuss this with you and revert to MRCU as regards finalising this addendum).
2. Correct - we will proceed with the roll-out for 2018 and 2019 budget years, concurrent with developing the addendum for the West Bay project for the remainder of this year. As you are aware, we have duly submitted for the funding for the Grand Cayman roll-out; the budget allocations will be debated and finalised by November this year. The Grand Cayman roll-out will be contingent upon the remainder of the West Bay project meeting the performance indicators in the addendum noted in point 1.
3. Thank you - the updated offer/proposal for Grand Cayman which now includes the get-out clause and the amended total US\$8m was safely received on 8<sup>th</sup> August.

4. Correct - Dr Petrie prepared this memo giving his recommendation for Grand Cayman rollout in 2018/19, which I have shared with the management team at MRCU. I have asked for the team's full support and that we go forward as a department with clarity of this approach, notwithstanding remaining MRCU scientists' concern with some of the aspects of the West Bay operational roll-out to do with data and performance indicators. I am confident that these will be eradicated, or at least assuaged once the West Bay KPIs are fulfilled as in point 1.
5. Correct – re the US\$1.5m already being allocated in total for 2017.
6. I need to review the invoice with MRCU Finance against the original West Bay contract, along with the Ministry's CFO – I have not had the opportunity to do so yet. I am prioritising that early this week, so that we can move ahead with West Bay.

Regarding your points 7 and 8 – as discussed in our meeting on 3<sup>rd</sup> August, the Cabinet was made to understand that the roll-out of the Oxitec programme island-wide on Grand Cayman would cost US\$7.5m. While the Ministry reflected the higher amounts (to meet the US\$8m) in its Strategic Policy Statement towards those years' budgets, we will need to review the explanation/justification for the increase from the US\$7.5 to the US\$8m - I realise you may have sent it through before to Dr Petrie or others but I haven't seen it.

For ease of budgeting purposes on this end both at MRCU and at the Ministry and Cabinet – can you please use CI\$ from now on – the CFO of the Ministry has advised this should be at an exchange rate of .84. Grateful if you can resend the contract draft accordingly.

I've set up a weekly more informal catch-up meeting for the scientists at MRCU, and me, with Renaud, to keep open the communication, and I too look forward to intensifying this work with Oxitec to fulfil our mission.

Kind regards

Nancy Barnard  
Director (Acting)

**Mosquito Research & Control Unit (MRCU)**

99 | Red Gate Rd. | P.O. Box 486 | Grand Cayman KY1-1106 | CAYMAN ISLANDS

Office: | (345) 949-2557 | Direct: | (345) 244-4118 | Mobile: | (345) 916-7917 Fax: | (345) 949-8912

MRCU Website: [www.mrcu.ky](http://www.mrcu.ky)



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**From:** Richard Adey [<mailto:Richard.Adey@oxitec.com>]

**Sent:** Monday, August 07, 2017 5:31 AM

**To:** Barnard, Nancy

**Cc:** Ahearn, Jennifer

**Subject:** Summary and next steps

Dear Nancy,

Thanks very much to all for the meeting of August 3<sup>rd</sup>.

I would just like to briefly recap the main conclusions/decisions of the meeting as I understand them. Please let me know if I have misinterpreted or missed anything.

1. We should continue the West Bay project throughout 2017.
2. The Grand Cayman project will be rolled-out in 2018/19.
3. I will supply you soon with an updated offer/proposal for Grand Cayman to include the get-out clause as discussed, and to amend the total to US\$8m.
4. I understand that Dr Petrie has prepared a memo to you giving his recommendation for Grand Cayman rollout in 2018/19 to support your approach to CTC for awarding of the Grand Cayman contract.
5. US\$1.5m is already allocated in total for 2017.
6. US\$400k of this will be paid in 2017 for West Bay extension. I will re-send the invoice for \$200k addressed to MRCU for payment at this stage. The remaining \$200k will be invoiced for payment at year's end.
7. US\$1.1m will be invoiced in due course for year-end payment towards Grand Cayman rollout.
8. \$6.9m (the balance of the US\$8m for Grand Cayman) has been put into your 2018/19 budget. This is anticipated to be invoiced \$3.65m in 2018. \$3.25m in 2019. Payment schedule within those years for later agreement.

If you could kindly send me an e mail confirming that we can anticipate these 2018 West Bay payments (or if possible a signature on the West Bay contract extension would be appreciated). I can then arrange for us to immediately re-start our preparations for Grand Cayman rollout (factory readiness).

Needless to say we are delighted to be intensifying our work with MRCU, and you have our fullest assurance regarding the commitment and priority that will be given.

Kind regards,

Richard



**OXITEC**

Richard Adey  
Regional Manager Caribbean  
+ 43 699 10284232

## Whitaker, Ligia

---

**From:** Barnard, Nancy  
**Sent:** Tuesday, September 05, 2017 3:43 PM  
**To:** Allen, Fraser; Barnard, Nancy; Clough, Richard; Grizzel, Marcus; Marshall, Jeffrey; Rodriguez, Leonardo; Ryan, Danielle; Smith, John; Wheeler, Alan; Whitaker, Ligia  
**Subject:** FW: Response to Mr Silva  
**Attachments:** Response to Ken Silva - MRCU and Oxitec.docx

FYI

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
99|Red Gate Rd.|P.O. Box 486|Grand Cayman KY1-1106|CAYMAN ISLANDS  
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---

**From:** Barnard, Nancy  
**Sent:** Tuesday, September 05, 2017 1:28 PM  
**To:** MacGillivray, Catherine  
**Cc:** Pouchie, Nellie; Powell, Natasha (Lyn)  
**Subject:** Response to Mr Silva  
**Importance:** High

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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Response to Ken Silva, Reporter, Cayman Compass from Nancy Barnard, Acting Director, MRCU:

MRCU and Oxitec are engaged in ongoing discussions regarding the expansion of the “Friendly *Aedes aegypti* Programme.” MRCU has followed due process to comply with all regulatory requirements. The programme is a public health initiative to combat the *Aedes aegypti* mosquito which is an invasive species in the Cayman Islands and the primary vector of viruses including Zika, dengue, chikungunya and yellow fever.

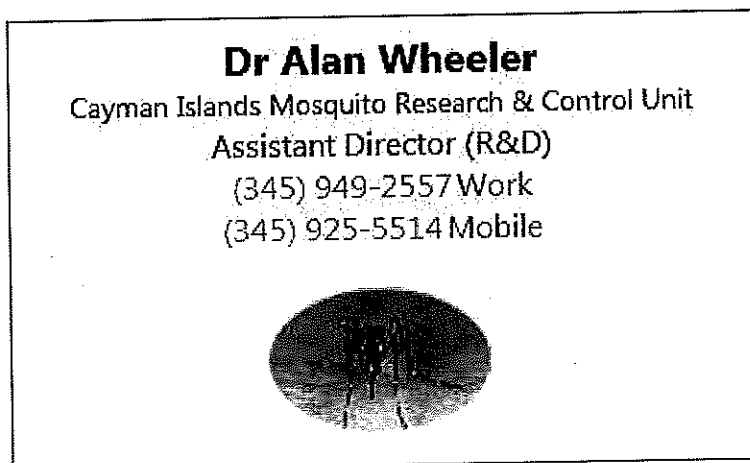


**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Wednesday, September 06, 2017 7:27 AM  
**To:** Barnard, Nancy  
**Subject:** RE: Official statement  
**Attachments:** Dr Alan Wheeler2.vcf

No problem



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**From:** Barnard, Nancy  
**Sent:** 05 September 2017 15:48  
**To:** Wheeler, Alan; Allen, Fraser  
**Subject:** RE: Official statement

Hi Alan

I've now sent the response we prepared (MRCU/Oxitec) for the reporter at Compass. Apologies for not including you when Renaud, Catherine and I had our heads together.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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---

**From:** Wheeler, Alan  
**Sent:** Tuesday, September 05, 2017 3:25 PM

**To:** Barnard, Nancy; Allen, Fraser  
**Subject:** Official statement

Hey guys do you think we should sit down for 10 minutes to come up with an official statement for tomorrow regarding the Genewatch story? It would be good to provide Donna with a standardized response to any queries.

Alan

**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

(345) 949-2557 Work

(345) 925-5514 Mobile



## Whitaker, Ligia

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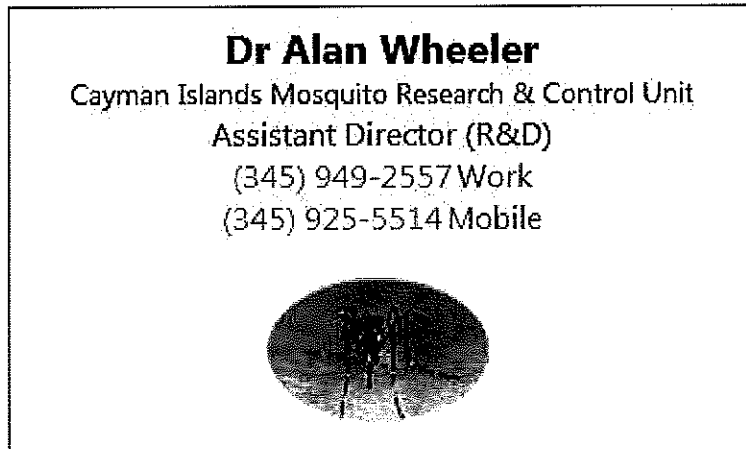
**From:** Wheeler, Alan  
**Sent:** Wednesday, September 06, 2017 7:36 AM  
**To:** Barnard, Nancy; Allen, Fraser  
**Subject:** RE: Response to Wendy Ledger - MRCU and Oxitec  
**Attachments:** Dr Alan Wheeler.vcf

Good morning Nancy,

I have spent a lot of time analyzing the Oxitec data and remain firmly of the opinion that the data does not support a claim of 62% suppression. I do not think MRCU should be making this type of claim as our long term credibility could be at risk. I think we should state that we currently have insufficient data to allow us to reach any firm conclusions on the effectiveness of the technique and further data collection is required.

Regards

Alan



---

**From:** Barnard, Nancy  
**Sent:** 05 September 2017 16:46  
**To:** Richard Adey; Wheeler, Alan; Allen, Fraser  
**Cc:** Renaud Lacroix; MacGillivray, Catherine  
**Subject:** RE: Response to Wendy Ledger - MRCU and Oxitec

Dear Richard, thanks for the amendments – reflected in the draft attached; **Alan, Fraser** – grateful for your feedback on the attached. Please note Wendy sent through her queries a couple weeks ago, prior to the NCC/Gene Watch news item.

Kind regards

Nancy Barnard  
Director (Acting)  
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## Whitaker, Ligia

---

**From:** Allen, Fraser  
**Sent:** Friday, September 08, 2017 9:33 AM  
**To:** Barnard, Nancy; Wheeler, Alan  
**Subject:** RE: 2018 v 2019 rollout (Oxitec)

Thanks for the forward Nancy.....

I don't think we are ready to make the big leap in 2018. I think we (MRCU) are perhaps in agreement with that also. By deferring for a year we can also examine other combined control methods and outline a more structured approach on our terms and within our comfort levels. The future dollar figures they suggest may also become invalid if we look at other pathways, whilst incorporating Oxitec where we see fit.

Best regards,

Fraser Allen  
Research Manager, MRCU

---

**From:** Barnard, Nancy  
**Sent:** Friday, September 08, 2017 9:21 AM  
**To:** Wheeler, Alan; Allen, Fraser  
**Subject:** FW: 2018 v 2019 rollout (Oxitec)  
**Importance:** High

FYI

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)



---

**From:** Richard Adey [<mailto:Richard.Adey@oxitec.com>]  
**Sent:** Monday, September 04, 2017 7:03 AM  
**To:** Barnard, Nancy  
**Cc:** Ahearn, Jennifer  
**Subject:** 2018 v 2019 rollout  
**Importance:** High

Dear Nancy,

The weekly data for 2017 is below. Percentages are a measure of the reduction in the aegypti population in the treated area compared to the untreated area (eggs per trap is the basis – Oxitec’s standard for *all* its projects).

In the dry season we had reduced the populations by an average of 51%. In the more critical wet season this had increased to 61% and was on a positive trend as reported by Dr. Petrie. The setback then occurred in July which is acknowledged as due to logistical/operational reasons unrelated to the effectiveness of the technique.

Any alternative interpretation of these basic facts is, we suggest, quite misleading.

13.01	59%	Average suppression achieved in 2017 dry season January to April <b>51%</b>	21.04	58%	Average suppression achieved in 2017 wet season April to mid July 2017 <b>61%</b>
20.01	61%		27.04	55%	
27.01	78%		5.05	68%	
3.02	65%		12.05	78%	
10.02	50%		19.05	60%	
17.02	28%		26.05	60%	
24.02	39%		2.06	53%	
3.03	47%		9.06	46%	
10.03	39%		16.06	57%	
17.03	50%		23.06	62%	
24.03	44%		30.06	69%	
31.03	47%		7.07	69%	
7.04	57%		14.07	58%	

To help MRCU with perceived risk, we have last week offered to accept suppression targets in parallel with 2018 operational rollout. This gives MRCU the option to stop the rollout after the first 6 months of releases in 2018 and pay less than CI\$2m if the data is disappointing. The alternative is to defer the decision pending further data, with rollout earliest 2019. This later rollout would incur additional costs up to CI\$1m. Therefore the incremental ‘financial risk’ in going with 2018 rather than 2019 is broadly around CI\$1m. This is a financial risk only - there is no technical risk. This technique will not add to the mosquito population, only reduce it. The data clearly suggests that you can anticipate promising results. The rationale for going with 2018 is that protection is implemented one year early.

A possible regional outbreak of dengue in 2018 has been flagged by Cayman’s Acting Medical Officer of Health.  
<https://cayman27.ky/2017/08/caribbean-braces-for-2018-dengue-outbreak/>

Oxitec’s technique can be integrated with other tools as MRCU sees fit, which is the basis of Integrated Vector Management. The Aedes aegypti levels encountered in West Bay have, frankly, been extraordinarily high, and we would like to suggest that we can have a considerable impact on that in 2018.

Best regards,  
  
Richard





## Whitaker, Ligia

---

**From:** Barnard, Nancy  
**Sent:** Tuesday, September 12, 2017 4:28 PM  
**To:** Allen, Fraser; Wheeler, Alan  
**Subject:** RE: genewatch report comments

Many thanks Alan, and Fraser.

Kind regards

Nancy Barnard  
Director (Acting)

**Mosquito Research & Control Unit (MRCU)**

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---

**From:** Allen, Fraser  
**Sent:** Tuesday, September 12, 2017 3:43 PM  
**To:** Wheeler, Alan; Barnard, Nancy  
**Subject:** RE: genewatch report comments

Hi Alan and Nancy,

Just read through the article and feedback from Alan ..... I'm in agreement with his comments.

I am also wondering why we are looking to pay for a pilot operational scheme when we are already contributing a certain value (a location and resources/personnel plus regulatory permissions). Once it moves to an operational roll-out beyond the pilot, and by whichever definition (possibly Bti and Oxitec), then there will be associated costs incurred for Oxitec to provide a 'service contract' alongside any facility costs. Much with the development of any other mosquito control product, we naturally move from an operational testing/evaluation phase to either purchasing a product or paying for a service to retain control. I don't think our approach with Oxitec should be any different.

Thanks .....

Best regards,

Fraser Allen  
Research Manager, MRCU

---

**From:** Wheeler, Alan  
**Sent:** Tuesday, September 12, 2017 1:58 PM

**To:** Barnard, Nancy; Allen, Fraser  
**Subject:** genewatch report comments

**Hi Nancy. I have made my comments on the Genewatch report below. I do agree with a number of the points they raised.**

**Regards**

**Alan**

Page 2 "The new documents confirm poor efficacy of Oxitec's technology" Paragraph 2

They claim 79% population suppression (based on egg traps) but as with earlier experiments, there is no clear baseline or measurement of adult female numbers (discussed further below). I have not seen this claim from Oxitec; if it did exist it would be misleading.

Page 3 paragraph 2 line 4

For the first time, female adult mosquito numbers collected from traps are included in the published data (rather than just egg traps) (Figure 1B). These show, as discussed in the text (page 6), that no adult mosquito suppression was observed until February (week 7) in 2017, and that the egg traps therefore provide a poor measure of success in suppressing the number of adult female mosquitoes (which bite and transmit disease): a concern that has previously been raised in the scientific literature, and which may invalidate claims of success elsewhere, which are all based on data from egg traps. 19 Further, the graph shows significant increases (spikes) in adult female mosquito numbers (green line) in the release area 5 to 7 weeks after the releases begin, and again 7 to 8 weeks after the releases are increased. These spikes in the adult female population exceed 150% of the comparator population, but their true extent is not shown as the peaks are cut off on the graph. There is no discussion of these spikes in the text, and no consideration of the implications of the increased numbers of adult female mosquitoes for the risk to health of the local population. No explanation for the spikes is given and the absolute number of females is not given, nor whether they are GM or non-GM females. One possible cause could be that the spikes are caused by the inadvertent release of GM females (see further below). I agree with all comments made here it is something that I myself have raised concerns about.

Page 3 paragraph 3

In addition, the graph reveals that the experiments did not continue long enough to see if the suppression shown in the tail of the graph continues into the wet season. This is critical to establish whether suppression is continued in the longer term, or whether increased releases, with likely further spikes in the adult female population, will be needed in the future. The work is ongoing and the release period expanded (though be it without contract) so as to allow more data to be collected. Genewatch are correct that it is critical to establish if suppression can be achieved over a longer period; particularly in the rainy season when *Aedes aegypti* numbers peak. I am not expecting further peaks in female population as I believe measures are now in place to prevent this.

Page 4 paragraph 3 line 6

In addition, the annual report on the project by the MRCU, covering results up to June 25th 2017, reports a problem with sorting the male and female GM mosquitoes, which led to increased releases of GM females (which bite and can transmit disease). The report reveals that a sorting criterion of 2 or fewer females per batch of 1,000 pupae had been set, but checks by MRCU on one production batch on May 12th 2017 revealed 9 females in one release pot (of 500), nine times the agreed level. The report claims that additional measures have now been put in place to ensure that no more than 2 females are released per 1,000 mosquitoes. At the peak release rate in phase 1 of 500,000 mosquitoes per week, this nevertheless means that 1,000 biting females a week could have been released even if the sorting criterion was met, with up to 9,000 GM females released a week if the problem later revealed by the MRCU check was occurring during the peak releases. This is a serious problem, which does not seem to have been discussed or addressed during the NCC's June meeting, when the annual report was not available. The information in the report to NCC omitted to mention that a second sample taken by MRCU found 29 out of 750 females in the release pot examined. It is a serious problem and could explain the large increases in female mosquitoes seen in the release area. The issue of high female release rates was not discovered until ?date. The accidental release figure quoted by genewatch is likely to be an underestimate.

Page 6 Is Oxitec's technology effective? Paragraph 1

Oxitec has made repeated claims in public materials and press releases that its releases of GM mosquitoes can suppress wild *Aedes aegypti* mosquito populations by 90% or more. For example, the Oxitec and MRCU public leaflet used in the Cayman Islands states "Each area [where GM mosquitoes have been released] achieved a reduction in mosquitoes of more than 90%" and shows a map with the Cayman Islands (96%), Panama (93%) and three trials in Brazil (Itaberaba, 93%, Mandacaru 99%, Pedra Branca 92%). However, there are a number of serious problems with these claims, which are discussed further below. MRCU was expecting the technique to provide above 90% suppression as this had been the figure quoted in all previous releases. After reviewing the publications I also have concerns about the monitoring methods used and the statistical analysis of the data.

Page 7 1<sup>st</sup> Paragraph

The results of these trials and the company's previous experiments need to be examined critically, before any decision is made to scale-up and roll out the releases across Grand Cayman. I agree and have requested data from the current West Bay release be sent for review by an independent third party particularly to look at the validity of monitoring methods and analysis of data.

Page 7 section 1.1.1 1<sup>st</sup> paragraph

During all its experiments, Oxitec has used traps which catch adult males (called BG traps) and egg traps (ovitrap) to try to measure the effects of its releases on the wild population of mosquitoes. However, there are problems with how Oxitec interprets its data and there is no direct evidence of a fall in the population of biting female mosquitos, which transmit disease. Whilst I agree there are issues with interpretation of the data it is incorrect to claim BG traps only collect males as they are primarily designed to collect females (host odor baited traps). It is also impossible with such a small release area to measure an effect on disease transmission (especially if there is no endemic disease present in the first place).

"To verify those numbers we talked to Danilo Carvalho at the University of São Paulo in Brazil, who helped analyse the data. He tells us the numbers are more like 60 to 70% reduction, not 90, and actually called into question Oxitec's methods and said their analysis was below scientific standards." Phil Torres [journalist], TechKnow, Al Jazeera 29th November 2016 (at 12:54). 30

Given my own concerns about data analysis it is good to see another scientist with similar concerns)

Page 9 paragraph 3

Oxitec has claimed that the World Health Organisation (WHO)'s Vector Control Advisory Group (VCAG) has "issued a positive recommendation in support of Oxitec's self-limiting mosquito (OX513A)".<sup>47</sup> However, the relevant VGAC statement in fact says: "Full-scale programmatic deployment is not currently recommended for any of the five new potential tools reviewed by VCAG. However, the VCAG recommended the carefully planned pilot deployment under operational conditions of two tools (Wolbachia-based biocontrol and OX513A transgenic mosquitoes) accompanied by rigorous independent monitoring and evaluation". This is correct; WHO currently does not recommend full scale operational deployment

Page 11 paragraph 2

There is an important distinction to be made between Oxitec's proposed commercial service and alternative approaches to vector control, which are normally developed and conducted on a non-commercial basis. I have never come across a commercial company expecting customers to contribute financially towards its Research & Development costs. The fact that the mosquito is still at the R&D phase is that Oxitec are seeking a shared risk component to the upcoming island wide deployment which could see MRCU expected to pay up to \$2million if the deployment does not result in the required level of suppression.

Page 14 first new paragraph

The World Health Organisation's Strategic Response Plan for Zika includes an objective to prevent adverse health outcomes associated with Zika virus infection through integrated vector management, risk communication and community engagement.<sup>95</sup> The approach includes: • implementing integrated vector management (IVM) to efficiently and judiciously use resources, defined as "a rational decision-making process for the optimal use of resources for vector control"; I do not consider the planned island wide rollout to be an efficient or judicious use of resources. Until the GM mosquito has achieved satisfactory control in small scale pilot releases money should not be invested by MRCU. Any money available for vector control should be used to strengthen the severely underfunded and short staffed Container breeding mosquito control program.

Page 21 paragraph 1

Before any further open releases of GM mosquitoes are considered: • Decision-makers in the Cayman Islands must thoroughly consider whether releases of Oxitec's GM mosquitoes are effective; how much they cost and whether they are cost-effective; and the existence of alternatives. The relevant information, including the results of Oxitec's 2016 trials and estimates of future pricing, should be made publicly available. I am in full agreement with this statement.

**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

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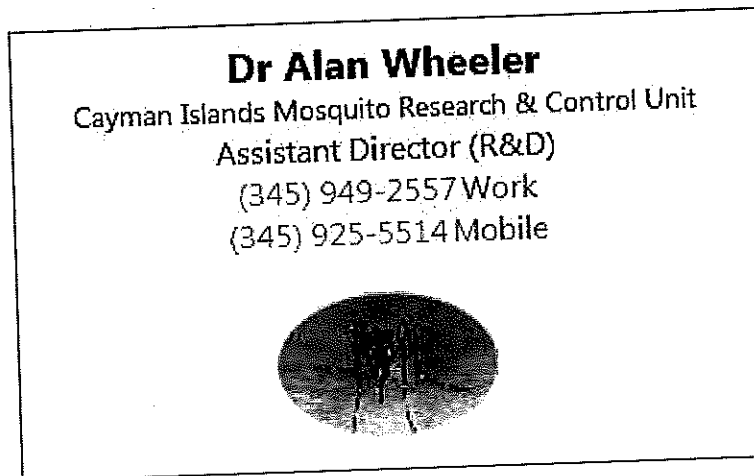


**Whitaker, Ligia**

---

**From:** Wheeler, Alan  
**Sent:** Wednesday, September 13, 2017 6:18 AM  
**To:** Barnard, Nancy; Allen, Fraser  
**Subject:** RE: genewatch report comments  
**Attachments:** Dr Alan Wheeler2.vcf

Sorry about some of the unconventional spelling; in my defense it was a rush job!



---

**From:** Barnard, Nancy  
**Sent:** 12 September 2017 16:28  
**To:** Allen, Fraser; Wheeler, Alan  
**Subject:** RE: genewatch report comments

Many thanks Alan, and Fraser.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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Thanks .....

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Fraser Allen  
Research Manager, MRCU

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**Subject:** genewatch report comments

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In addition, the annual report on the project by the MRCU, covering results up to June 25th 2017, reports a problem with sorting the male and female GM mosquitoes, which led to increased releases of GM females (which bite and can transmit disease). The report reveals that a sorting criterion of 2 or fewer females per batch of 1,000 pupae had been set, but checks by MRCU on one production batch on May 12th 2017 revealed 9 females in one release pot (of 500), nine times the agreed level. The report claims that additional measures have now been put in place to ensure that no more than 2 females are released per 1,000 mosquitoes. At the peak release rate in phase 1 of 500,000 mosquitoes per week, this nevertheless means that 1,000 biting females a week could have been released even if the sorting criterion was met, with up to 9,000 GM females released a week if the problem later revealed by the MRCU check was occurring during the peak releases. This is a serious problem, which does not seem to have been discussed or addressed during the NCC's June meeting, when the annual report was not available. The information in the report to NCC omitted to mention that a second sample taken by MRCU found 29 out of 750 females in the release pot examined. It is a serious problem and could explain the large increases in female mosquitoes seen in the release area. The issue of high female release rates was not discovered until ?date. The accidental release figure quoted by genewatch is likely to be an underestimate.

#### Page 6 Is Oxitec's technology effective? Paragraph 1

Oxitec has made repeated claims in public materials and press releases that its releases of GM mosquitoes can suppress wild *Aedes aegypti* mosquito populations by 90% or more. For example, the Oxitec and MRCU public leaflet used in the Cayman Islands states "Each area [where GM mosquitoes have been released] achieved a reduction in mosquitoes of more than 90%" and shows a map with the Cayman Islands (96%), Panama (93%) and three trials in Brazil (Itaberaba, 93%, Mandacaru 99%, Pedra Branca 92%). However, there are a number of serious problems with these claims, which are discussed further below. MRCU was expecting the technique to provide above 90% suppression as this had been the figure quoted in all previous releases. After reviewing the publications I also have concerns about the monitoring methods used and the statistical analysis of the data.

#### Page 7 1<sup>st</sup> Paragraph

The results of these trials and the company's previous experiments need to be examined critically, before any decision is made to scale-up and roll out the releases across Grand Cayman. I agree and have requested data from the current West Bay release be sent for review by an independent third party particularly to look at the validity of monitoring methods and analysis of data.

#### Page 7 section 1.1.1 1<sup>st</sup> paragraph

During all its experiments, Oxitec has used traps which catch adult males (called BG traps) and egg traps (ovitrap) to try to measure the effects of its releases on the wild population of mosquitoes. However, there are problems with how Oxitec interprets its data and there is no direct evidence of a fall in the population of biting female mosquitoes, which transmit disease. Whilst I agree there are issues with interpretation of the data it is incorrect to claim BG traps only collect males as they are primarily designed to collect females (host odor baited traps). It is also impossible with such a small release area to measure an effect on disease transmission (especially if there is no endemic disease present in the first place).

"To verify those numbers we talked to Danilo Carvalho at the University of São Paulo in Brazil, who helped analyse the data. He tells us the numbers are more like 60 to 70% reduction, not 90, and actually called into question Oxitec's methods and said their analysis was below scientific standards." Phil Torres [journalist], TechKnow, Al Jazeera 29th November 2016 (at 12:54). 30

Given my own concerns about data analysis it is good to see another scientist with similar concerns)

#### Page 9 paragraph 3

Oxitec has claimed that the World Health Organisation (WHO)'s Vector Control Advisory Group (VCAG) has "issued a positive recommendation in support of Oxitec's self-limiting mosquito (OX513A)".<sup>47</sup> However, the relevant VGAC statement in fact says: "Full-scale programmatic deployment is not currently recommended for any of the five new potential tools reviewed by VCAG. However, the VCAG recommended the carefully planned pilot deployment under operational conditions of two tools (Wolbachia-based biocontrol and OX513A transgenic mosquitoes) accompanied by rigorous independent monitoring and evaluation". This is correct; WHO currently does not recommend full scale operational deployment

Page 11 paragraph 2

There is an important distinction to be made between Oxitec's proposed commercial service and alternative approaches to vector control, which are normally developed and conducted on a non-commercial basis. I have never come across a commercial company expecting customers to contribute financially towards its Research & Development costs. The fact that the mosquito is still at the R&D phase is that Oxitec are seeking a shared risk component to the upcoming island wide deployment which could see MRCU expected to pay up to \$2million if the deployment does not result in the required level of suppression.

Page 14 first new paragraph

The World Health Organisation's Strategic Response Plan for Zika includes an objective to prevent adverse health outcomes associated with Zika virus infection through integrated vector management, risk communication and community engagement.<sup>95</sup> The approach includes: • implementing integrated vector management (IVM) to efficiently and judiciously use resources, defined as "a rational decision-making process for the optimal use of resources for vector control"; I do not consider the planned island wide rollout to be an efficient or judicious use of resources. Until the GM mosquito has achieved satisfactory control in small scale pilot releases money should not be invested by MRCU. Any money available for vector control should be used to strengthen the severely underfunded and short staffed Container breeding mosquito control program.

Page 21 paragraph 1

Before any further open releases of GM mosquitoes are considered: • Decision-makers in the Cayman Islands must thoroughly consider whether releases of Oxitec's GM mosquitoes are effective; how much they cost and whether they are cost-effective; and the existence of alternatives. The relevant information, including the results of Oxitec's 2016 trials and estimates of future pricing, should be made publicly available. I am in full agreement with this statement.

**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

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**Whitaker, Ligia**

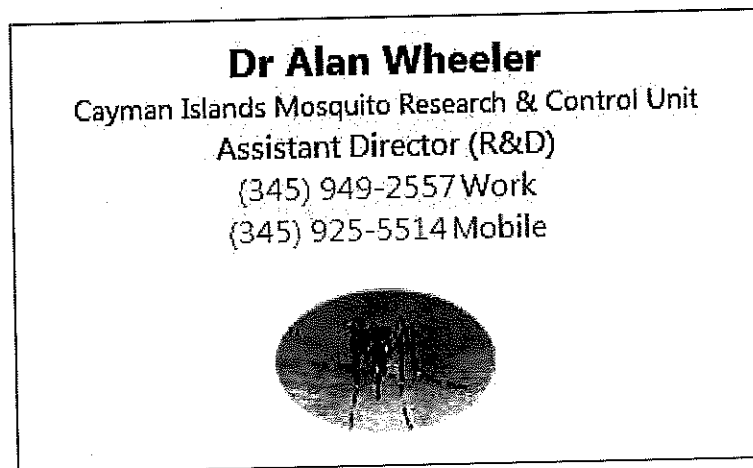
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**From:** Wheeler, Alan  
**Sent:** Friday, September 15, 2017 9:10 AM  
**To:** Allen, Fraser  
**Subject:** RE: Oxitec/Aedes aegypti  
**Attachments:** Dr Alan Wheeler.vcf

Hi Frase,

I agree with all except purchasing WDG Bti. I want to use all available money to strengthen our capacity in terms of boots on the ground. I think further work in 2018 using Bti is a good idea but our initial priority right now should be strengthen ground control activities against larval stages.

Alan



---

**From:** Allen, Fraser  
**Sent:** 15 September 2017 08:57  
**To:** Wheeler, Alan  
**Subject:** Oxitec/Aedes aegypti

Alan,

Take a look at the following; I think we need some bullet points for Nancy .....

#### 2017

- Allow Oxitec to utilize the rest of the year to optimize their production process.
- Purchase Oxitec cabin.
- Boost MRCU DPO staff to full complement with available money. Number to be determined. Expand numbers of ground treatments and surveys.
- Purchase additional WDG Bti for rapid suppression of *Aedes aegypti* as contingency in George Town and West Bay

#### 2018

- Oxitec : complete full pilot project to MRCU's satisfaction demonstrating methodology as a stand-alone control technique. This should be a 'no strings' project to be completed before dynamics of a roll-out is considered. This should demonstrate suppression and maintenance of suppression throughout the rainy season(s) of May to October (inclusive) with primary releases prior to the season. Original area in West Bay with buffer to remain outside that area. No cost. MRCU provides location, facilities, staff (not including Oxitec staff) and approvals etc.....already in place
- MRCU : assist with survey and clearing buffer area in pilot project to eliminate migration of *Aedes aegypti*
- MRCU : bring on additional seasonal staff to assist with ground treatments and surveys
- Further examine Bti applications (aerial or ground) and their potential for integrating with Oxitec release technology
- Examine efficacy of adulticides in *Aedes aegypti* control (new SRO applications) and possibilities for rapid suppression
- Examine any other technology or combination that may be useful in *Aedes aegypti* control.

Most likely, prior to the end of 2018 we will be in a position to formulate an integrated methodology (increased staffing, insecticides and Oxitec) to bring effective control of *Aedes aegypti* in to populated areas (particularly West Bay and George Town) thereafter whilst still having contingency planning for outbreaks or epidemics.

Any thoughts? We can send to Nancy before meeting to digest ...

Fraser

Options available

Continue with full island wide rollout.

Repeat of Original West Bay trial.

Small scale field trial of GM mosquito + WDG

Small scale field trial of GM plus ground survey and treatment.

Staged rollout

Expanded fully integrated West Bay trial

**Continue with full island wide rollout.**

Pros	Cons
If the technique is successful then control of Aedes aegypti and protection of the public from the arboviruses it transmits will be achieved at a faster rate than if small scale	Results to date are inconclusive. Any reduction so far seen is well below the 80-90% recorded by Oxitec in other release areas and required by MRCU.
Oxitec have stated that the cost of a full island-wide deployment will be much cheaper if it can be initiated next year. All other options will result in increased costs if the island wide rollout is eventually undertaken.	Production issues have not yet been fully resolved; release of high % of females, high adult and larval mortality, mold in rearing unit etc. Before advancing further these production issues need to be eliminated.
It shows the Public and critics that the initial releases were successful and both MRCU and Oxitec are happy with the results. For Oxitec this has the effect of showing other countries who may be interested in the technique that the release in Cayman was a success.	The combination of Dr Petrie's non-committal memo (stating he believed the technique could be made to work rather than that it worked), and the Genewatch report claiming issues with the results obtained mean that it is very unlikely that funding will be approved by CTC.
	If the results required are not achieved then the project will have been very damaging for both Oxitec and MRCU. It will be very difficult to implement modifications such as integration with other techniques at this stage. MRCU will face questions from the Public as to why it invested in the technique.

Recommendations

### Repeat of Original West Bay trial.

Pros	Cons
Would allow the release to be repeated under more clearly defined aims and objectives. Could incorporate clearly defined targets and measures which were absent from initial release contract. Any new contract could have these targets and measures stated to avoid possible criticism from the public.	Will delay the expansion of the project into other areas for at least 1 year.
Experimental design issues could be addressed such as the incorporation of a buffer zone to reduce immigration of <i>Aedes aegypti</i> into the release area.	Could be seen as MRCU being unsatisfied with the results from the original release in 2016.
Production issues which affected the original release should have been addressed and should not negatively impact planned release rates. Quality Control measures would be incorporated to ensure the releases meet agreed quality measures.	Will result in the eventual island wide roll-out being more expensive.
MRCU would not be investing heavily in the technique until its suitability for use in Cayman has been clearly demonstrated.	MRCU may have to contribute financially to repeat the release.
If targets are not met there would still be room for further modification of the technique such as its integration with other control methods.	
If targets are met it would demonstrate that the technique works as a stand-alone technique suitable for implementation in a variety of circumstances.	
If targets are met MRCU will have strong justification to expand the project in 2019.	
MRCU's position would be far more justifiable to the public than had we proceeded with an island-wide rollout based on the results of the data gathered in the original 2016 trial. MRCU would be showing it still believed in the technique but was not confident enough that the technique was ready for island wide deployment.	
Would indicate that both MRCU and Oxitec still saw that the GM mosquito still had potential to work as a stand-alone control technique.	

### Small scale field trial of GM + WDG

Pros	Cons
Could result in required control levels being	Same as for repeat of original West Bay trial +

achieved at mosquito densities that the GM mosquito is unable to deal with as a stand alone method.	
Could result in required reductions being achieved at a faster rate.	A failure to either expand the project or repeat the original trial could be seen as a failure of the original technique and abandonment of it as a stand-alone control method.
Could reduce the number of mosquitoes required for release to achieve required control targets.	Considerable increase in expense due to the incorporation of WDG into the control strategy. Even if successful the combination strategy is unlikely to be viable for an island wide deployment across Cayman.
	The terms and conditions of any new contract will be considerably more complicated.
	Increases the complexity of the trial design and data analysis. Additional trial area will need to be incorporated so we can evaluate the effect of both treatments individually as well as in combination.
	Aerial application of WDG is extremely wasteful with only a tiny percentage of the chemical likely to reach its target. Even the chemical that reaches its target will only kill larvae at the right developmental stage. Eggs and adults will not be impacted and there will be no residual affect. This means treatments will have to be repeated frequently to have an impact on the population of <i>Aedes aegypti</i> .
	A demonstration of success of the combined technique is of limited value to Oxitec. Most countries would not have the aerial application capacity or the funds for repeated large scale WDG applications.
	Aerial WDG applications against <i>Aedes aegypti</i> require further research. The data we have to show its potential relates to a very small experiment covering a small area for a short time period. Its control effectiveness and cost effectiveness compared to traditional ground control methods has yet to be evaluated.

Small scale field trial of GM plus ground survey and treatment.

Pros	Cons
Could result in required control levels being achieved at mosquito densities that the GM mosquito is unable to deal with as a stand-alone method.	Same as for repeat of original West Bay trial +

Could result in required reductions being achieved at a faster rate.	A failure to either expand the project or repeat the original trial could be seen as a failure of the original technique and abandonment of it as a stand-alone control method.
Could reduce the number of mosquitoes required for release to achieve required control targets.	Considerable increase in expense due to the incorporation of WDG into the control strategy. Even if successful the combination strategy is unlikely to be viable for an island wide deployment across Cayman.
Even if the GM mosquito is found to be ineffective the incorporation of ground control efforts into the release areas would provide a reduction in <i>Aedes aegypti</i> abundance and reduction in the likelihood of vector borne disease.	The terms and conditions of any new contract will be considerably more complicated.
Oxitec employees carrying out traditional control operations in the West Bay release area, control area and a buffer area surrounding the release area would enable the limited resources of MRCU to be deployed into other areas such as George Town resulting in an overall decrease in abundance of <i>Aedes aegypti</i> in George Town as well as the West Bay release area.	Increases the complexity of the trial design and data analysis. Additional trial area will need to be incorporated so we can evaluate the effect of both treatments individually as well as in combination.
Ground control operations would not need to be limited to the West Bay release area. Expanding ground control to cover all of West Bay with ground crews employed by Oxitec would greatly reduce mosquito numbers in advance of any expansion of the project. The effect of this would be to both reduce the immediate threat of <i>Aedes aegypti</i> and to clear the way for future releases with the need for lower GM release densities.	

**Whitaker, Ligia**

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**From:** Allen, Fraser  
**Sent:** Tuesday, September 19, 2017 11:02 AM  
**To:** Wheeler, Alan; Barnard, Nancy  
**Subject:** RE: Oxitec module .....

Hi Alan,

No worries. Just putting my thoughts forward. If you decide on this alternative so be it ..... Just thought we needed a unified message for Jennifer in this instance.

Fraser

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**From:** Wheeler, Alan  
**Sent:** Tuesday, September 19, 2017 8:33 AM  
**To:** Allen, Fraser; Barnard, Nancy  
**Subject:** RE: Oxitec module .....

Hi Fraze,

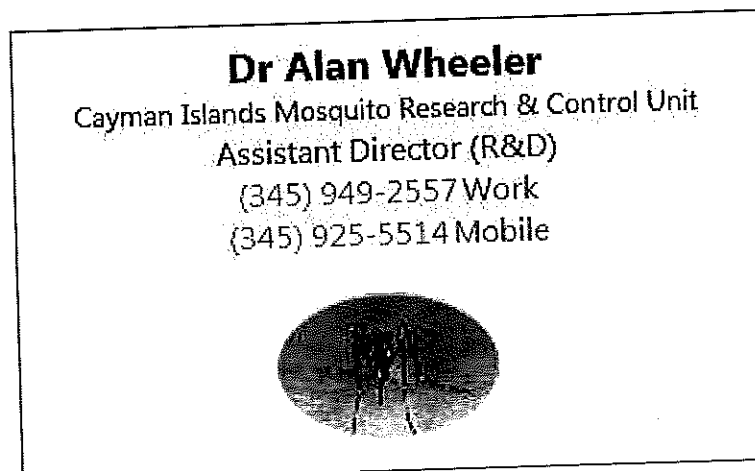
Whilst I agree that it would be good to have additional insectary space there are much cheaper alternatives. Take a look at the insectary in a box produced by USAID. It's the same concept with 3 separate areas; adult rearing, larval rearing and mini lab. If no agreement can be reached with Oxitec the current MRM only provides larval rearing space. The insectary in a box would cost in the region of US\$20,000

<http://www.africaairs.net/2012/12/mali-pilots-insectary-in-a-box/>

I think it is of more use to MRCU long term than the current MRM.

Regards

Alan



---

**From:** Allen, Fraser  
**Sent:** 19 September 2017 08:03  
**To:** Barnard, Nancy; Wheeler, Alan

**Subject:** Oxitec module .....

**Importance:** High

Hi Nancy and Alan,

Just thought I'd throw in a few points in favor of purchasing and keeping the Oxitec module :

- MRCU and the CI Government have already invested a lot of time and money in installing the module, making it secure for a hurricane (strapping) and rust proofing. The module is plumbed in to power, water and septic and has approvals from the statutory authorities for use as a laboratory. Much time was spent with PWD and the Planning Department in preparing the module import and locating it on site. Additional was spent on the decking and ramp access way.
- I believe that the module will be useful to MRCU in some way or other (if not being used by Oxitec) in the future. If it were to be removed and then MRCU wanted to expand its facility it would cost Government a lot more than 80K to repeat the process of architecture, planning and approvals and building of a ancillary laboratory/ rearing facility. The current insectary is quite small and given the expansion of the science section and proposed field trials/research it would seem logical to retain the expanded capability of that module. It is well outfitted (stainless steel fittings plus climate control).
- In purchasing the module we can say that the Oxitec project is truly collaborative. MRCU are providing a location, facilities ('our' module, laboratory and office space), staff (alongside their employees) and approvals for the project. Thus, no additional costs should be incurred nor MRCU billed for the pilot project.
- In purchasing the module we (MRCU) would be showing good faith on our behalf from a business point of view. It was always agreed that the module would be purchased by MRCU or removed by Oxitec if the project discontinued.

Hope that assists!

Best regards,

Fraser Allen  
Research Manager, MRCU



## Whitaker, Ligia

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**From:** Barnard, Nancy  
**Sent:** Tuesday, October 10, 2017 9:52 AM  
**To:** Wheeler, Alan  
**Cc:** Allen, Fraser  
**Subject:** RE: CIG tentative budgeted amounts 2018 and 2019 for Oxitec

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Thanks Alan; yes it does seem that he is saying that if the carry over funds is not an option, neither will the 2018 WB be...but why would we be paying that amount for 2018 same area. We'll have to address all of this with CFO.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)



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**From:** Wheeler, Alan  
**Sent:** Tuesday, October 10, 2017 9:49 AM  
**To:** Barnard, Nancy  
**Cc:** Allen, Fraser  
**Subject:** RE: CIG tentative budgeted amounts 2018 and 2019 for Oxitec

Hi Nancy,

I made some comments in red to Richards email.

## Dr Alan Wheeler

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

(345) 949-2557 Work

(345) 925-5514 Mobile



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**From:** Barnard, Nancy  
**Sent:** 10 October 2017 09:37  
**To:** Wheeler, Alan; Allen, Fraser  
**Subject:** FW: CIG tentative budgeted amounts 2018 and 2019 for Oxitec

FYI

Kind regards

Nancy Barnard  
Director (Acting)

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**From:** Richard Adey [<mailto:Richard.Adey@oxitec.com>]  
**Sent:** Monday, October 09, 2017 3:05 PM  
**To:** Barnard, Nancy  
**Subject:** RE: CIG tentative budgeted amounts 2018 and 2019 for Oxitec

Dear Nancy,

Yes Thursday will be fine for our call. Please let me know what timing would suit.

I am hoping we can find a way forward to enable a moderate expansion of our technique in 2019, tailored to your budget availability, and contingent on a successful re-run of West Bay in 2018. Further expansion could follow stepwise after 2019.

If you are interested in this approach, please note that the 2017 budget allocation would need to be available additional to the amounts indicated for 2018 and 2019. We need to clarify if this can be done in tomorrow's meeting with Nellie. I cannot see any mechanism that would allow the 2017 allocation to be rolled-over into 2018

If this is not available, the sums budgeted in 2018 and 2019 seem unfortunately just too low for any operational expansion within that budget timeframe. This would not be an attractive horizon for us to re-start West Bay 2018. Unclear what is being said here; I am understanding it as if we cannot utilize the 2017 allocation then Oxitec would not be interested in re-starting the West Bay repeat release.

I look forward to exploring this with you on Thursday. It will be helpful for me to understand whether there are practical constraints preventing signing an agreement on this, and the timing for such an agreement. I think there are practical constraints and we need Nellie's help to see if there is any possibility to overcome them. It appears the key factor here will be finding some way of rolling-over the money from 2017.

Kind regards,

Richard



Richard Adey  
Regional Manager Caribbean  
+ 43 699 10284232

**From:** Barnard, Nancy [<mailto:Nancy.Barnard@gov.ky>]  
**Sent:** 08 October 2017 00:56  
**To:** Richard Adey <[Richard.Adey@oxitec.com](mailto:Richard.Adey@oxitec.com)>  
**Subject:** RE: CIG tentative budgeted amounts 2018 and 2019 for Oxitec

Dear Richard

Do you have availability to discuss by telephone on Thursday 12<sup>th</sup> October? Some of the content of our dialogue will be reliant upon the budget component, and I am discussing this further with the Ministry's CFO on Wednesday. It is also at that meeting with her that I will find out more to be able to accurately respond to your query re the 2017 allocated amount.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)



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**From:** Richard Adey [<mailto:Richard.Adey@oxitec.com>]  
**Sent:** Thursday, October 05, 2017 12:44 PM  
**To:** Barnard, Nancy  
**Cc:** Ahearn, Jennifer; Pouchie, Nellie; Powell, Natasha (Lyn)  
**Subject:** RE: CIG tentative budgeted amounts 2018 and 2019 for Oxitec

Dear Nancy,

Thank you for this information as well as your other e mail of today's date.

I am unable to call later today, so would be pleased if we could set-up a call for as early as possible next week?

We will be examining how we can best respond to your budget availability which is still uncertain at this time. In the meantime could I ask you to clarify whether the 2017 allocated amount of CI\$1.26m is additional to the figures below, and available for West Bay 2017/18 as discussed?

The lead-time, construction costs and fixed costs associated with a production facility are significant and I hope you can appreciate why there is a need for us to formulate a clear plan going forward – even if that is contingent at this stage on West Bay 2018.

Looking forward to speaking on Monday if that would suit?

Thanks and best regards

Richard



Richard Adey  
Regional Manager Caribbean  
+ 43 699 10284232

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**From:** Barnard, Nancy [<mailto:Nancy.Barnard@gov.ky>]  
**Sent:** 05 October 2017 16:24  
**To:** Richard Adey <[Richard.Adey@oxitec.com](mailto:Richard.Adey@oxitec.com)>  
**Cc:** Ahearn, Jennifer <[Jennifer.Ahearn@gov.ky](mailto:Jennifer.Ahearn@gov.ky)>; Pouchie, Nellie <[Nellie.Pouchie@gov.ky](mailto:Nellie.Pouchie@gov.ky)>; Powell, Natasha (Lyn) <[Natasha.Powell@gov.ky](mailto:Natasha.Powell@gov.ky)>  
**Subject:** CIG tentative budgeted amounts 2018 and 2019 for Oxitec  
**Importance:** High

Dear Richard

When we met in September, I had advised you of the reduction in the budget for the 2018 and 2019 fiscal years for the Oxitec programme. I mentioned at that time that the budgeting exercise is still very active, and further changes may be forthcoming.

Further to that, I have received notification that the latest budget figures allocated to the further deployment of GM mosquitoes are now tentatively as follows:

2018: \$ .940m

2019: \$ .730m

These figures are subject to change, up until mid-November, when the final budget will be debated and accepted by the Legislative Assembly.

I am available after midday Cayman-time to discuss further if you would like today, and not available Friday. Alternatively we can schedule a call for early next week.

Kind regards

Nancy Barnard  
Director (Acting)

**Mosquito Research & Control Unit (MRCU)**

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**Whitaker, Ligia**

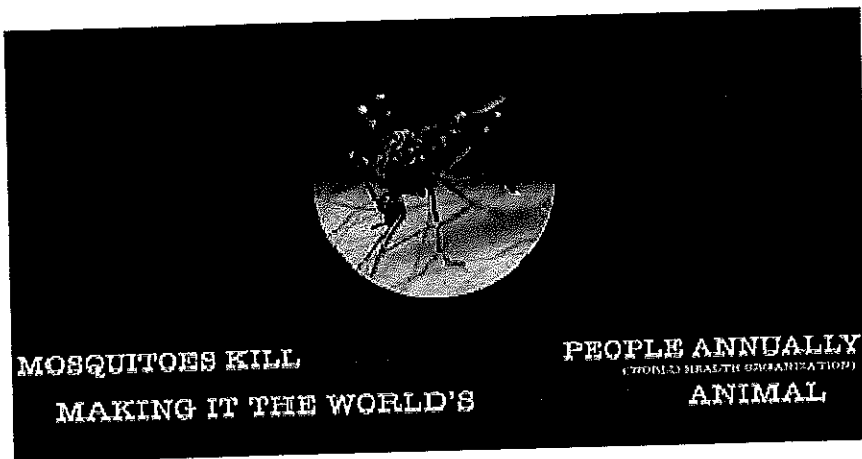
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**From:** Barnard, Nancy  
**Sent:** Tuesday, October 24, 2017 1:17 PM  
**To:** Wheeler, Alan; Allen, Fraser  
**Subject:** FW: Telecon today (Oxitec funding clarification)

FYI

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)



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**From:** Barnard, Nancy  
**Sent:** Tuesday, October 24, 2017 1:17 PM  
**To:** Pouchie, Nellie; Daley-Miller, Donna-Marie  
**Subject:** FW: Telecon today (Oxitec funding clarification)

FYI

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Wednesday, October 25, 2017 1:18 PM  
**To:** Barnard, Nancy; Allen, Fraser  
**Subject:** Oxitec Compass article  
**Attachments:** Document11.docx

Hi Nancy,

I have reviewed the article in the Compass today and I find myself forced to respond. The information given is incorrect and goes against our current logic for requesting a repeat of the release. According to this article targets were met and it looks like MRCU was happy with the results of the GM deployment. I do not think Oxitec should be communicating directly with Catherine on these press statements as GIS is meant to be representing the views of Government (i.e. MRCU) and not Oxitec. I have made comments on the attached article.

Regards

Alan



**Whitaker, Ligia**

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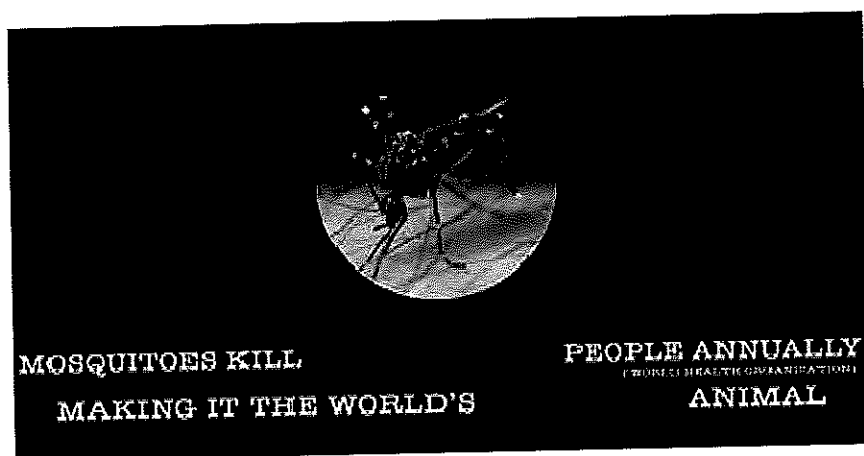
**From:** Barnard, Nancy  
**Sent:** Friday, October 27, 2017 8:53 AM  
**To:** Wheeler, Alan; MacGillivray, Catherine  
**Cc:** Powell, Natasha (Lyn); Allen, Fraser  
**Subject:** RE: Cayman Compass article

Hi Alan

Thanks for bringing this to Catherine's attention. There is one caveat here: while apparently Oxitec contributed in large part to the MRCU Report referenced, at the end of the day it is an MRCU Report so we cannot tell the public that Oxitec authored it.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)



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**From:** MacGillivray, Catherine  
**Sent:** Wednesday, October 25, 2017 2:52 PM  
**To:** Wheeler, Alan  
**Cc:** Powell, Natasha (Lyn); Barnard, Nancy; Allen, Fraser  
**Subject:** RE: Cayman Compass article

Thanks, Alan. Duly noted.

Kind regards,  
**Catherine MacGillivray**  
Information Officer

Government Administration Building  
133 Elgin Avenue | Grand Cayman KY1-9000 | Cayman Islands  
Email: [Catherine.MacGillivray@gov.ky](mailto:Catherine.MacGillivray@gov.ky)  
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## GIS MARKETING & COMMUNICATIONS

CAYMAN ISLANDS GOVERNMENT

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**From:** Wheeler, Alan  
**Sent:** Wednesday, October 25, 2017 2:49 PM  
**To:** MacGillivray, Catherine  
**Cc:** Powell, Natasha (Lyn); Barnard, Nancy; Allen, Fraser  
**Subject:** RE: Cayman Compass article

Thanks Catherine,

The MRCU Annual Report was actually written by Oxitec and we remain divided upon the level of suppression achieved. It is unfortunate that it has been used for this newspaper story.

Thanks

Alan

**Dr Alan Wheeler**

Cayman Islands Mosquito Research & Control Unit

Assistant Director (R&D)

(345) 949-2557 Work

(345) 925-5514 Mobile



---

**From:** MacGillivray, Catherine  
**Sent:** 25 October 2017 14:32  
**To:** Wheeler, Alan  
**Cc:** Powell, Natasha (Lyn); Barnard, Nancy; Allen, Fraser  
**Subject:** RE: Cayman Compass article

Hi Alan, thanks for your email. The Compass wrote this article with the information from the MRCU annual report which came before the National Conservation Council last week.

We are in the process of creating the messaging for future arrangements with Oxitec. Until such times as that messaging is ready, you are quite correct that our current position is:

"The deployment of the "Friendly *Aedes Aegypti* Programme" in West Bay has been completed. MRCU is now in the process of reviewing this deployment, and is in negotiations with Oxitec to agree the way forward."

Best,  
Catherine

Kind regards,  
**Catherine MacGillivray**  
Information Officer

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**GIS MARKETING &  
COMMUNICATIONS**  
CAYMAN ISLANDS GOVERNMENT

---

**From:** Wheeler, Alan  
**Sent:** Wednesday, October 25, 2017 2:24 PM  
**To:** MacGillivray, Catherine  
**Cc:** Powell, Natasha (Lyn); Barnard, Nancy; Allen, Fraser  
**Subject:** Cayman Compass article

Good Afternoon Catherine,

I am writing regarding today's article regarding the GM mosquito release. I consider the article does not accurately reflect the views of MRCU as to the effectiveness of the release. Targets were not set for the release and therefore no targets were achieved. MRCU was expecting to see a reduction in the region of 90%+ as had been reported in all other

Oxitec releases. This was not achieved and the figure of 62% reduction is also not accepted by MRCU. I was of the understanding that the official response to Press questions regarding the GM release was:

The deployment of the “Friendly *Aedes Aegypti* Programme” in West Bay has been completed. MRCU is now in the process of reviewing this deployment, and is in negotiations with Oxitec to agree the way forward.

The article claiming success now puts MRCU in a difficult position as it goes against our current logic for requesting a repeat of the 2016/17 release next year. We want the project to be repeated in order to verify it can achieve the target suppression levels that we require. I understand the article was written by a Compass journalist but I believe we need to clarify to the Press our current position i.e. we require further data collection in order to determine the level of suppression that can be achieved using the Oxitec mosquito.

Regards

Alan

**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Thursday, November 30, 2017 11:29 AM  
**To:** Barnard, Nancy  
**Subject:** FW: Integrated pilot study in 2018  
**Attachments:** Dr Alan Wheeler2.vcf

Hi Nancy,

Apologies for not copying you on this discussion with Renaud. At the time of the discussion I did not realize he would be preparing an amended proposal. This might be a good thing though as it would save us some work if they re-write for us to consider.

Regards

Alan









**Whitaker, Ligia**

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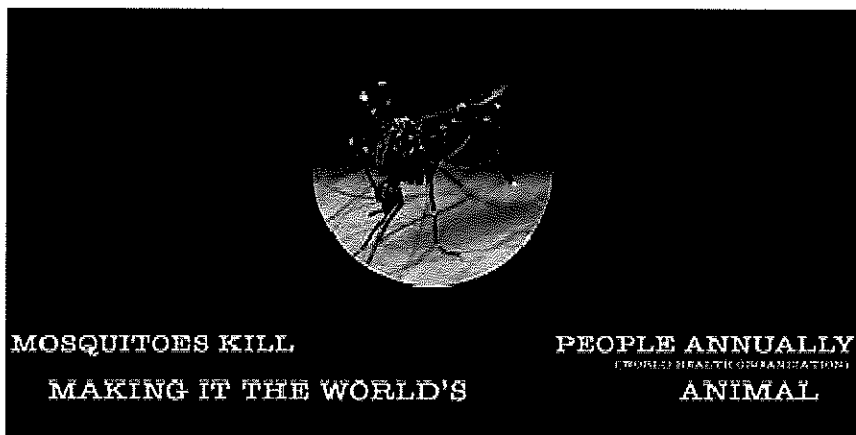
**From:** Barnard, Nancy  
**Sent:** Thursday, December 07, 2017 12:17 PM  
**To:** 'Fraser Allen'  
**Subject:** RE: Latest version of draft 2018 Oxitec Agreement - urgent

Hi Fraser

Many thanks; this is very useful.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
99| Red Gate Rd. | P.O. Box 486 | Grand Cayman KY1-1106 | CAYMAN ISLANDS  
Office: | (345) 949-2557 | Direct: | (345) 244-4118 | Mobile: | (345) 916-7917 Fax: | (345) 949-8912  
MRCU Website: [www.mrcu.ky](http://www.mrcu.ky)



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**From:** Fraser Allen [ ]  
**Sent:** Thursday, December 07, 2017 12:09 PM  
**To:** Barnard, Nancy  
**Subject:** Re: Latest version of draft 2018 Oxitec Agreement - urgent

Hi Nancy,

This is quite tricky. I can see both sides in a way.

If the money is available under that allocation for both employment of additional field staff and some sort of part-payment for Oxitec's services that would possibly be the best way to go considering the idealised integrated approach on the table. Our field staff need to be boosted and this is an indirect way of establishing that for the long term also. If Oxitec doesn't work out then there is the basis to consider other integrated techniques which I think is the way forward. I wouldn't abandon the idea, having come along this far.

I doubt whether Oxitec would accept no payment for this contract. I don't think KPI's are essential although Government may not view it that way. We are paying them (for a service) at this point to release and work alongside with their technology with an open mind on the final results and dynamic between the two. Decisions are then made as to how to proceed forward in 2019 given a clear view on the degree of integration and necessity of their personnel and determination of volume of releases required for suppression. A specific dollar value can then be assigned by way of contract for continuation, alongside expectations/KPI's.

I hope I haven't been too general in this reply. It may or may not assist. If you need to chat further in any detail let me know.

Off for lunch then a dive!

Have a nice afternoon .....

Fraser

Sent from Outlook

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**From:** Barnard, Nancy <Nancy.Barnard@gov.ky>  
**Sent:** Thursday, December 7, 2017 6:15 AM  
**To:** Fraser Allen  
**Subject:** FW: Latest version of draft 2018 Oxitec Agreement - urgent

Hi Fraser

Please see below and attached – I would be extremely grateful for your thoughts on this matter.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
99|Red Gate Rd. |P.O. Box 486|Grand Cayman KY1-1106|CAYMAN ISLANDS  
**Office:** | (345) 949-2557 | **Direct:** | (345) 244-4118 | **Mobile:** | (345) 916-7917 **Fax:** | (345) 949-8912  
**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)

**From:** Alan Wheeler  
**Sent:** Wednesday, December 06, 2017 4:58 PM  
**To:** Barnard, Nancy  
**Subject:** Re: Latest version of draft 2018 Oxitec Agreement - urgent

Hi Nancy,

I realize this but without KPI's in the contract I do not see how Government can sign a contract along these lines. I am at the point where I think we should abandon the idea. There are equally viable (in my opinion more viable) options such as the use of radiation sterilized male release which is a similar idea but the International Atomic Research Agency are actually funding this research.

Regards

Alan

On Wed, Dec 6, 2017 at 3:46 PM, Barnard, Nancy <[Nancy.Barnard@gov.ky](mailto:Nancy.Barnard@gov.ky)> wrote:  
Hi Alan

That is a deal breaker for them. If we are able to use their line item in our budget for our own boots on the ground, this may be the only way to get there. We need to look at everything on balance and this has now been a very, very long protracted negotiation over the past several months and we are not moving any where.

Kind regards

Nancy Barnard  
Director (Acting)  
Mosquito Research and Control Unit (MRCU)  
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P. O. Box 486, Grand Cayman, KY1-1106  
[345 949-2557](tel:3459492557) Main ext 4118  
[345 916-7917](tel:3459167917) Mobile  
[nancy.barnard@gov.ky](mailto:nancy.barnard@gov.ky)

Via mobile device

On 6 Dec 2017, at 4:43 PM, Alan Wheeler <[alan.wheeler67@gmail.com](mailto:alan.wheeler67@gmail.com)> wrote:

Hi Nancy,

Whilst I am in favor of the integrated approach using combined Oxitec+ traditional control methods I do not think we can pay Oxitec \$588K as there is no justifiable reason to do this. In my opinion we can pay for the field workers required but not in addition to the \$588K.

Regards

Alan

On Wed, Dec 6, 2017 at 12:21 PM, Barnard, Nancy <[Nancy.Barnard@gov.ky](mailto:Nancy.Barnard@gov.ky)> wrote:  
Dear CO and CFO

Please note the attached latest iteration of the draft agreement for West Bay 2018.

As you will have seen in the earlier communication from Richard and from my subsequent dialogue with Renaud yesterday and today, the 588k is a “deal breaker”. It does appear as though Oxitec is viewing the 2018 Cayman venture as a commercial enterprise more so than a collaborative research one, although Richard did not respond in such black and white terms.

MRCU and Oxitec scientists (Alan and Renaud respectively) are happy with this greater integrated approach and more “boots on the ground” and use of Bti to support Oxitec’s technology. However, in order to do that, the MRCU would have to contract a handful (possibly 6-8) fixed-term field staff for a few months, using the line item for Oxitec/Ae control in the 2018 budget. I have made that clear to Richard. Renaud thinks that is sensible, as does Alan, but I need to discuss parameters around the HR aspect of such temporary workers and also whether we can use the Oxitec line item for the remuneration.

I look forward to hearing from you Alan (in Trinidad at a vector workshop) and speaking with Ministry team later today.

Kind regards

Nancy Barnard  
Director (Acting)

**Mosquito Research & Control Unit (MRCU)**

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<image001.png>

## Whitaker, Ligia

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**From:** Barnard, Nancy  
**Sent:** Thursday, December 07, 2017 12:19 PM  
**To:** 'Fraser Allen'  
**Subject:** RE: FW: 2017 Invoices (Invoice #2 from Oxitec - information)

Hi Fraser

Yes – we are settling the payment for the first invoice as deployment took place, it is this second one now which we are reviewing.

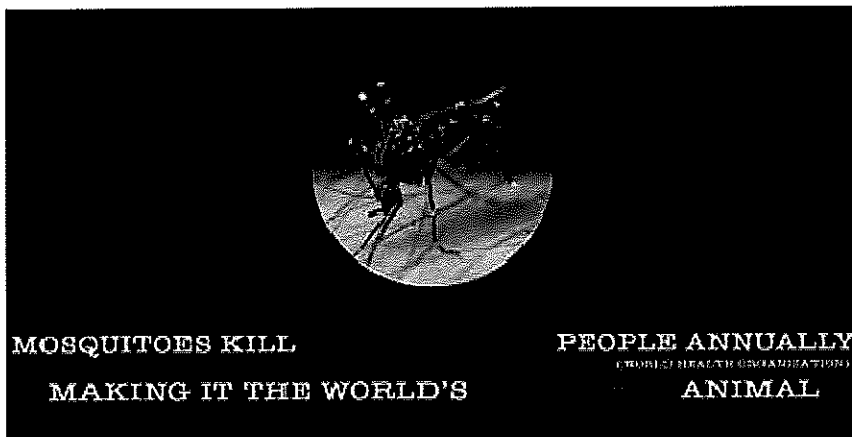
I will make a recommendation to Ministry CFO according to our joint concerns on this second invoice.

Once again, I really appreciate the time you took with this.

Enjoy your afternoon! See you at Sunset House restaurant for the Christmas lunch Friday 15<sup>th</sup> Dec 12 Noon ☺

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)



---

**From:** Fraser Allen |  
**Sent:** Thursday, December 07, 2017 11:12 AM  
**To:** Barnard, Nancy  
**Subject:** Re: FW: 2017 Invoices (Invoice #2 from Oxitec - information)

Hi Nancy,

I think Oxitec's claims for the second invoice are a bit flimsy to say the least! I agree with Alan on the last 4 points in particular. 2017 has allowed Oxitec to optimize their techniques which is of a benefit to them and needed to happen for us to continue with confidence. Planning, QA, communications etc..... are part of a

collaborative effort and shouldn't be billed. Various reasons including production issues and mould (!) plus our concerns regarding readiness of the project to advance, led to a shut-down of releases for the rest of the year.

I think they should be happy that we are moving ahead with a fresh start in 2018 and that they receive payment for the first invoice.

Hope that helps!

Fraser

Sent from Outlook

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**From:** Barnard, Nancy <Nancy.Barnard@gov.ky>  
**Sent:** Thursday, December 7, 2017 6:09 AM  
**To:** Fraser Allen  
**Subject:** FW: FW: 2017 Invoices (Invoice #2 from Oxitec - information)

Good morning Fraser

I hope this finds you very well!

I would be extremely grateful if you can please look at the below and see if you think the second 168K CI invoice is reasonable from Oxitec, or whether you have concerns, as Alan has noted.

Many thanks.

Kind regards

Nancy Barnard  
Director (Acting)

**Mosquito Research & Control Unit (MRCU)**

99| Red Gate Rd. | P.O. Box 486 | Grand Cayman KY1-1106 | CAYMAN ISLANDS

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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)

**From:** Alan Wheeler  
**Sent:** Wednesday, December 06, 2017 4:53 PM  
**To:** Barnard, Nancy  
**Subject:** Re: FW: 2017 Invoices (Invoice #2 from Oxitec - information)

Hi Nancy,

This one has really made me angry! I am amazed at what they have written.

- Monitoring of mosquito populations in Comparator and Treatment areas in West Bay, including ovitrapping and fluorescence screening (field and lab activities).

**AW:** MRCU did not request this. MRCU does not have access to this data. Data is of no value to MRCU unless extension is agreed. Does initial contract not state Oxitec will be doing this for free in the post deployment phase?

- Continual improvement of rearing efficiency to enable increased release rates.

**AW:** How can we be expected to pay for Oxitec to optimize their rearing techniques. This improvement is clearly something that Oxitec as the service provider is responsible for.

- Review and upgrade of QA systems including updating SOPs relating to production, cleaning, data recording, egg shipment, etc.

**AW:** As above; how can MRCU be expected to pay for improvement of Oxitec's own internal procedures.

- Communication/media inputs with GIS.

**AW:** Can we not just as easily be charging Oxitec for MRCU's media inputs?

- Planning West Bay 2018.

**AW:** As above; Oxitec seem to be missing the point that this is a collaboration.

I really think we have reached the end of the line with Oxitec and should not be wasting anymore time on this.

Now I need a cigarette!

See you Friday

Alan

On Wed, Dec 6, 2017 at 12:38 PM, Barnard, Nancy <[Nancy.Barnard@gov.ky](mailto:Nancy.Barnard@gov.ky)> wrote:  
Dear CFO

Please see below.

Alan and I will review same and advise whether this is accurate from the Unit's perspective. Let me know if you need anything further from Richard in the meantime.

Kind regards

Nancy Barnard  
Director (Acting)

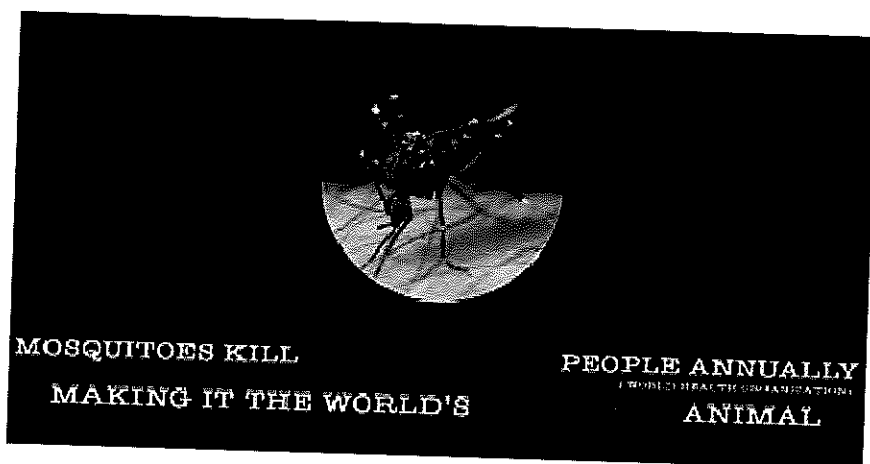
**Mosquito Research & Control Unit (MRCU)**

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MRCU Website: [www.mrcu.ky](http://www.mrcu.ky)





**From:** Richard Adey [mailto:[Richard.Adey@oxitec.com](mailto:Richard.Adey@oxitec.com)]  
**Sent:** Wednesday, December 06, 2017 1:35 PM  
**To:** Barnard, Nancy  
**Subject:** 2017 Invoices

Dear Nancy,

2017 second invoice

The following activities are relevant and undertaken for the period September 1<sup>st</sup> to December 31st.

- Monitoring of mosquito populations in Comparator and Treatment areas in West Bay, including ovitrapping and fluorescence screening (field and lab activities)
- Continual improvement of rearing efficiency to enable increased release rates.
- Review and upgrade of QA systems including updating SOPs relating to production, cleaning, data recording, egg shipment, etc
- Communication/media inputs with GIS
- Planning West Bay 2018

Originally, mosquito releases were also foreseen within the period. Releases did not take place due to some issues from both Oxitec and from Government. Government did not sign a contract extension covering this period and so we did not feel comfortable with continuing releases. We nevertheless have felt compelled to keep the local team in place at full cost in order to enable the continuation of the collaboration into 2018.

I look forward to hearing from you regarding payment of this invoice.

Best regards

Richard



Richard Adey  
Regional Manager Caribbean  
+ 43 699 10284232

**From:** Barnard, Nancy [<mailto:Nancy.Barnard@gov.ky>]  
**Sent:** 06 December 2017 00:13  
**To:** Richard Adey <[Richard.Adey@oxitec.com](mailto:Richard.Adey@oxitec.com)>  
**Subject:** RE: Draft agreement West Bay 2018

Dear Richard

I have discussed with CO and CFO today.

The payment for the first invoice covering May to August 2017 shall be in process shortly. Although there was no signed contract, we understood Oxitec to have acted in good faith, and that Oxitec mosquitoes' deployment did take place from May to August 2017. I believe your finance team contacted ours with payment instructions a while ago – if our finance team requires more information to make the payment process safely, they will be in touch.

Can you please provide some more information on the second invoice covering September to December 2017. I understood from Dr Wheeler and Fraser that the invoice was labelled "deployment extension" but that Oxitec mosquitoes were/are not actually released during this period. There were of course, other matters to take into consideration such as the attempt at finalising agreement extensions and then forming new agreements and so on. What would be helpful for the second invoice is a breakdown as to what the Unit is being invoiced for during that period.

Many thanks.

Kind regards

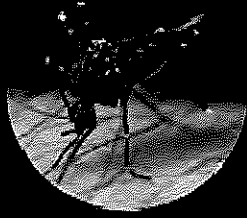
Nancy Barnard  
Director (Acting)

**Mosquito Research & Control Unit (MRCU)**

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MOSQUITOES KILL  
MAKING IT THE WORLD'S

PEOPLE ANNUALLY  
WORLD HEALTH ORGANIZATION  
ANIMAL

**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Monday, January 08, 2018 11:00 AM  
**To:** Barnard, Nancy  
**Subject:** 2018 01 02 Oxitec\_Cayman Implementation FINAL DRAFT FOR LEGAL REVIEW  
**Attachments:** 2018 01 02 Oxitec\_Cayman Implementation FINAL DRAFT FOR LEGAL REVIEW.docx

Hi Nancy,

I have had a look at the contract and remain concerned about a number of points. I am still unclear as to what we are actually getting for our money. The contract does not state exactly what Oxitec will be doing. An extreme example would be that Oxitec could release a single pot of mosquitoes at the start of the project and then do nothing else for the remainder of the project and still be within the bounds of the contract. As it stands we are paying a defined amount of money for an undefined service. I would be very wary of signing such a contract.

Regards

Alan



**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Friday, January 12, 2018 12:39 PM  
**To:** Barnard, Nancy  
**Subject:** 2018 01 12 Oxitec\_Cayman Implementation DRAFT FOR REVIEW  
**Attachments:** 2018 01 12 Oxitec\_Cayman Implementation DRAFT FOR REVIEW.docx

Hi Nancy,

Please see my comments and amend as necessary. By having this as a research project my concerns about key performance indicators have been removed. We are now assessing a technology to determine if it adds anything to our traditional control techniques and spending on such a research project is justifiable. I do think it is important that MRCU is free to publish its findings/interpretation of the results freely without being bound by contractual restraints so that this is a true independent evaluation of the technology.

Regards

Alan



**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Wednesday, January 24, 2018 10:13 AM  
**To:** Barnard, Nancy  
**Subject:** FW: 2018 01 12 Oxitec\_Cayman Implementation DRAFT FOR REVIEW  
**Attachments:** 2018 01 12 Oxitec\_Cayman Implementation DRAFT FOR REVIEW.docx; Dr Alan Wheeler.vcf; Dr Alan Wheeler2.vcf

Hi Nancy,

This document contains the latest comments that I made and sent to Oxitec on 15<sup>th</sup> Jan. I think the document you had in the meeting was a previous version.

Regards

Alan



"Great things in business are never done by one person; they're done by a team of people."  
– Steve Jobs

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**Whitaker, Ligia**

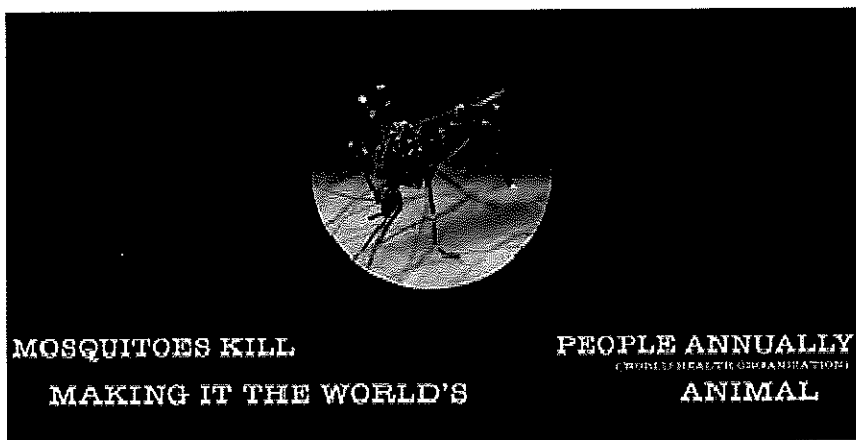
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**From:** Barnard, Nancy  
**Sent:** Friday, January 26, 2018 4:37 PM  
**To:** Wheeler, Alan  
**Subject:** RE: 2017 publication

Thanks Alan – interesting.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
99| Red Gate Rd. | P.O. Box 486 | Grand Cayman KY1-1106 | CAYMAN ISLANDS  
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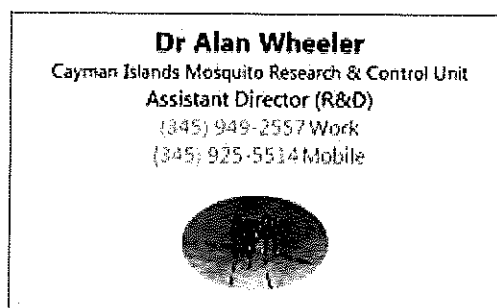
**From:** Wheeler, Alan  
**Sent:** Friday, January 26, 2018 3:28 PM  
**To:** Barnard, Nancy  
**Subject:** RE: 2017 publication

Thanks Nancy,

At first read this appears to be very competent work and I am not sure why Oxitec see it as negative. The only reason I can see is that they report suppression rate at 70% and not the 90% we have been told.

Regards

Alan



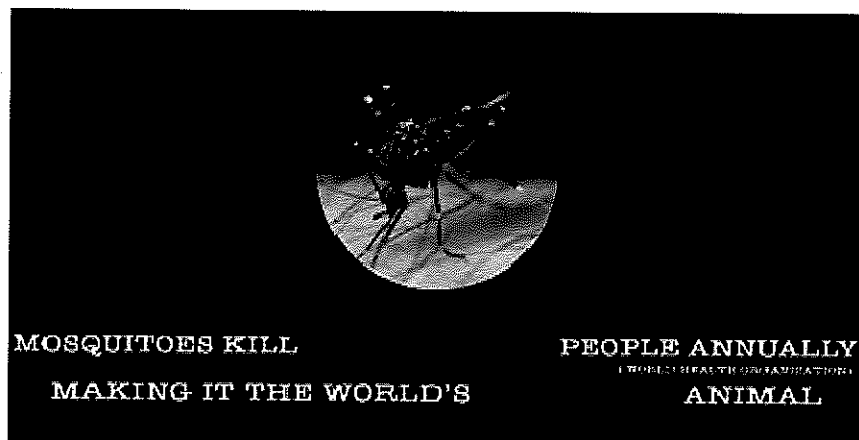
"Great things in business are never done by one person; they're done by a team of people."  
– Steve Jobs

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**From:** Barnard, Nancy  
**Sent:** 26 January 2018 15:18  
**To:** Wheeler, Alan  
**Subject:** FW: 2017 publication

Kind regards

Nancy Barnard  
Director (Acting)  
Mosquito Research & Control Unit (MRCU)  
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MRCU Website: [www.mrcu.ky](http://www.mrcu.ky)



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**From:** Renaud Lacroix [<mailto:Renaud.Lacroix@oxitec.com>]  
**Sent:** Friday, January 26, 2018 11:29 AM  
**To:** Barnard, Nancy  
**Cc:** Wheeler, Alan  
**Subject:** RE: 2017 publication

Hi Nancy,

Here is the paper mentioned yesterday.

Kind regards,  
Renaud

=====  
Dr. Renaud Lacroix  
Project Manager  
Oxitec Cayman Limited

Work: +1 345 949 2557  
Mobile: +1 345 326 9200  
=====

**From:** Barnard, Nancy [<mailto:Nancy.Barnard@gov.ky>]  
**Sent:** 26 January 2018 09:58  
**To:** Renaud Lacroix <[Renaud.Lacroix@oxitec.com](mailto:Renaud.Lacroix@oxitec.com)>  
**Cc:** Wheeler, Alan <[Alan.Wheeler@gov.ky](mailto:Alan.Wheeler@gov.ky)>  
**Subject:** 2017 publication

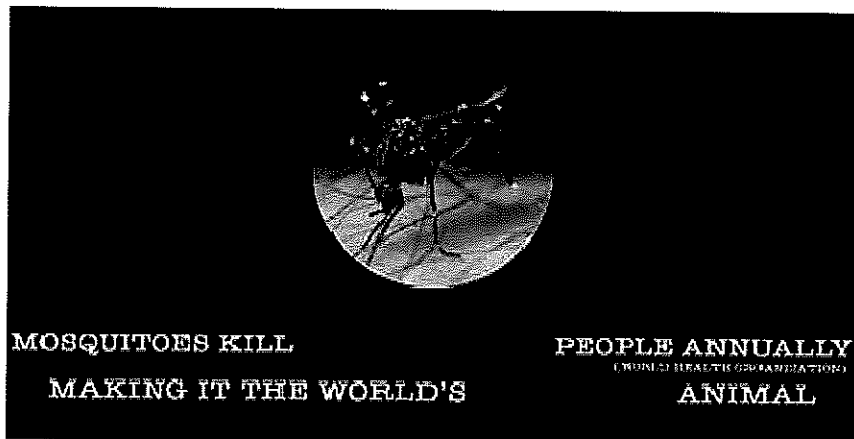
Hi Renaud

Please can you email me the publication that Kevin mentioned on our most recent telecom – a Brazil study I believe that was negatively reported on?

Many thanks.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)





**Whitaker, Ligia**

---

**From:** Wheeler, Alan  
**Sent:** Wednesday, January 31, 2018 11:06 AM  
**To:** Barnard, Nancy  
**Subject:** Operations Plan - IVM West bay 2018  
**Attachments:** Operations Plan - IVM West bay 2018.docx

Hi Nancy,

Please see my comments on the proposed protocol for the data collection and analysis. Oxitec want an undefined period for data analysis but in my opinion this is very unscientific as it allows them to select a time period where control is at it highest. This is very unscientific. I also want PCR analysis on larvae from the field as I do not believe the fluorescence data that was collected in the previous trial. Fluorescence measures the level of success of mating of the Oxitec mosquito with the wild mosquitoes. In my opinion it is not accurate and consistently reported extremely high levels of mating success which were not supported by trap data. It is a very subjective measure and very difficult to determine. It is measured using a fluorescence microscope; mosquito larvae that have resulted from an Oxitec/wild mosquito mating will glow green under the microscope. Unfortunately if the larvae has fed it will also glow green. In addition to this the staff have only been trained to see the fluorescence in a pure (homozygous) Oxitec larvae. They are not familiar with looking for the fluorescence in a cross mated larvae (heterozygous). For these reasons I believe the technique to be inaccurate. A much better method of evaluating mating success would be PCR analysis of field collected material. This is extremely accurate and simple to perform. I propose MRCU extracts the DNA and sends samples to Oxitec for PCR.

And that's all I have to say about this!

Regards

Alan



**Whitaker, Ligia**

---

**From:** Wheeler, Alan  
**Sent:** Thursday, February 01, 2018 11:30 AM  
**To:** Barnard, Nancy; Grey Frandsen (greyfrandsen@gmail.com); Kevin Gorman  
<Kevin.Gorman@oxitec.com> (Kevin.Gorman@oxitec.com); Renaud Lacroix  
(Renaud.Lacroix@oxitec.com)  
**Subject:** Operations Plan - IVM West bay 2018 (3) (2)  
**Attachments:** Operations Plan - IVM West bay 2018 (3) (2).docx

Good day everyone,

Please find the comments and suggestions I have made to the proposed operations plan.

Regards

Alan



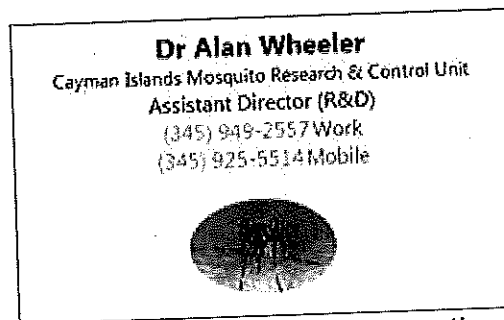


**Whitaker, Ligia**

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**From:** Wheeler, Alan  
**Sent:** Friday, February 02, 2018 3:21 PM  
**To:** Barnard, Nancy  
**Subject:** RE: 2018 02 02 Operations Plan - IVM West bay 2018 AW+KG\_  
**Attachments:** Dr Alan Wheeler.vcf

Thanks Nancy!



"Great things in business are never done by one person; they're done by a team of people."  
– Steve Jobs

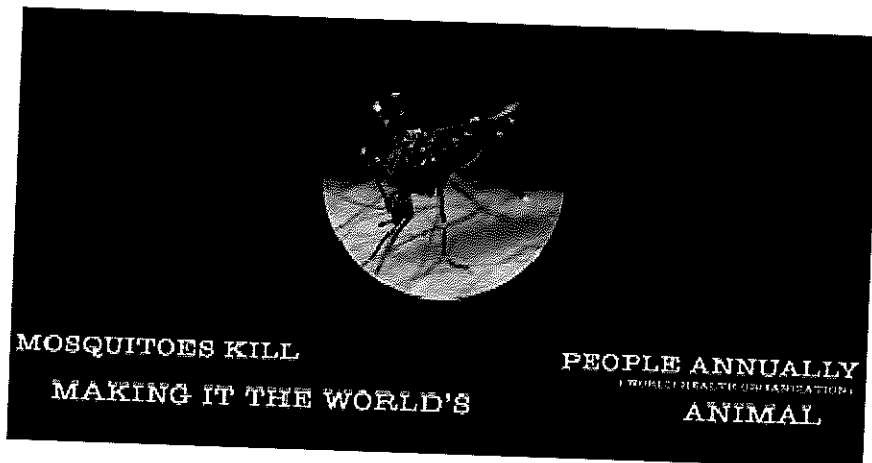
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**From:** Barnard, Nancy  
**Sent:** 02 February 2018 15:21  
**To:** Wheeler, Alan; Kevin Gorman <[Kevin.Gorman@oxitec.com](mailto:Kevin.Gorman@oxitec.com)> ([Kevin.Gorman@oxitec.com](mailto:Kevin.Gorman@oxitec.com)); Grey Frandsen ([greyfrandsen@gmail.com](mailto:greyfrandsen@gmail.com))  
**Cc:** Renaud Lacroix ([Renaud.Lacroix@oxitec.com](mailto:Renaud.Lacroix@oxitec.com))  
**Subject:** RE: 2018 02 02 Operations Plan - IVM West bay 2018 AW+KG\_  
**Importance:** High

Dear all – I support Dr Wheeler's feedback/concerns on this point. I look forward to being able to discuss with the group on Monday – please let us know when you (Kevin, Renaud and Grey) are available to dialogue with Alan and me on this matter.

Kind regards

Nancy Barnard  
Director (Acting)  
**Mosquito Research & Control Unit (MRCU)**  
99 | Red Gate Rd. | P.O. Box 486 | Grand Cayman KY1-1106 | CAYMAN ISLANDS  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)



**From:** Wheeler, Alan

**Sent:** Friday, February 02, 2018 1:59 PM

**To:** Kevin Gorman <[Kevin.Gorman@oxitec.com](mailto:Kevin.Gorman@oxitec.com)> ([Kevin.Gorman@oxitec.com](mailto:Kevin.Gorman@oxitec.com)); Barnard, Nancy; Grey Frandsen ([greyfrandsen@gmail.com](mailto:greyfrandsen@gmail.com))

**Cc:** Renaud Lacroix ([Renaud.Lacroix@oxitec.com](mailto:Renaud.Lacroix@oxitec.com))

**Subject:** 2018 02 02 Operations Plan - IVM West bay 2018 AW+KG\_

Hi Kevin,

Please see my comments in attached file. I think we remain in disagreement on the use of the Henderson- Tilton formula and the data that should be input into the formula. The following link shows how the formula is used; only 4 values are required with no rolling average utilized. This is how I would like the results to be analyzed. We just need to agree in advance of the time period to be utilized for the "after treatment" values.

<http://www.ehabsoft.com/ldpline/onlinecontrol.htm#HendersonTilton>

Regards

Alan

**Whitaker, Ligia**

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**From:** Barnard, Nancy  
**Sent:** Thursday, February 15, 2018 9:23 AM  
**To:** Alan Wheeler  
**Subject:** RE: FW: Oxitec Aedes GM Project at Cayman Islands (Rede Brasil Atual)

Hi Alan – thanks for the below – the only problem is this is already in public domain – I simply took it from our own MRCU report of June 2017. That 62% was in the report. What are your suggestions – maybe it is easier for you to call me?

Kind regards

Nancy Barnard  
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**MRCU Website:** [www.mrcu.ky](http://www.mrcu.ky)

**From:** Alan Wheeler [mailto:alan.wheeler67@gmail.com]  
**Sent:** Thursday, February 15, 2018 9:21 AM  
**To:** Barnard, Nancy  
**Subject:** Re: FW: Oxitec Aedes GM Project at Cayman Islands (Rede Brasil Atual)

Goodmorning Nancy,

I do not agree with the responses we are giving this journalist. I do not agree with 62% reduction claimed. None of the scientists at MRCU would have said that the project was a success. Even Dr. Petrie picked his words carefully when he stated he believed the technique could be made to work. We are in the process of negotiating a contract that will integrate the technique with traditional methods rather than going ahead with a full scale roll-out. The reason for this is that the technique did not have the impact we expected or claimed by Oxitec for all other releases. I believe I have made my concerns about the Oxitec releases very clear and have notified both yourself and the Chief Officer (both verbally and in writing) of these concerns.

Regards

Alan

On Tue, Feb 13, 2018 at 1:25 PM, Barnard, Nancy <[Nancy.Barnard@gov.ky](mailto:Nancy.Barnard@gov.ky)> wrote:

Hi Renaud

Before I send this up to Ministry for final approval please can you advise if this is OK by Oxitec – Alan grateful for your input also).

---

Hi Natasha

Please ask CO if she is happy with us responding with the below. (Note – the answer to Q1 I have taken from the June 2017 MRCU report in the public domain, while Q2 response is similar to the local response to Cayman Compass queries this week.

**What are the results that you have been obtained? Are they good?**

The outcome is within expectations according to previous field suppression observed in the Cayman Islands, Brazil and Panama with substantial (62%) suppression observed within 4 to 6 months following the start of releases at an adequate rate.

**Is the Cayman government planning to continue the project? Why?**

The 2016-17 project has now been concluded. MRCU is currently in the final stages of talks with Oxitec regarding the “Friendly *Aedes aegypti* Programme” for 2018. The 2018 programme will give MRCU scientists time to assess a new integrated vector management (IVM) approach with Oxitec in the same area of West Bay in 2018 with a view to the potential future use of Oxitec within an integrated control strategy for the management of *Aedes aegypti* in the Cayman Islands.

Many thanks.

Kind regards

Nancy Barnard

Director (Acting)

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**From:** Barnard, Nancy [mailto:[Nancy.Barnard@gov.ky](mailto:Nancy.Barnard@gov.ky)]  
**Sent:** Friday, February 09, 2018 5:10 PM  
**To:** Cida Oliveira  
**Cc:** Ahearn, Jennifer; Powell, Natasha (Lyn)  
**Subject:** Re: Oxitec Aedes GM Project at Cayman Islands

Dear Ms Oliveira

Thank you for your email - I will revert early next week to you.

Kind regards

Nancy Barnard

Director (Acting)

Mosquito Research and Control Unit (MRCU)

99 Red Gate Road

P. O. Box 486, Grand Cayman, KY1-1106

345 949-2557 Main ext 4118

345 916-7917 Mobile

[nancy.barnard@gov.ky](mailto:nancy.barnard@gov.ky)

Via mobile device

On 9 Feb 2018, at 4:03 PM, Cida Oliveira <[cidadeoliveira21@gmail.com](mailto:cidadeoliveira21@gmail.com)> wrote:

Dears,

I am a brazilian journalist and work at Rede Brasil Atual ([www.redebrasilatual.com.br](http://www.redebrasilatual.com.br)).

Here, we have been reported news about Oxitec Aedes GM. The company have been testing their mosquitoes in cities like Piracicaba, in São Paulo state and Juiz de Fora, in Minas Gerais.

And will do tests in Indaiatuba next april.

I want know very much what is the situation about Oxitec Aedes GM Project at Cayman.

What are the results that you have been obtained? Are they good?

Is the Cayman goverment planning to continue the project? Why?

Thank you very much,

Cida de Oliveira  
Rede Brasil Atual

[www.redebrasilatual.com.br](http://www.redebrasilatual.com.br)

5511-3295-2802

**Whitaker, Ligia**

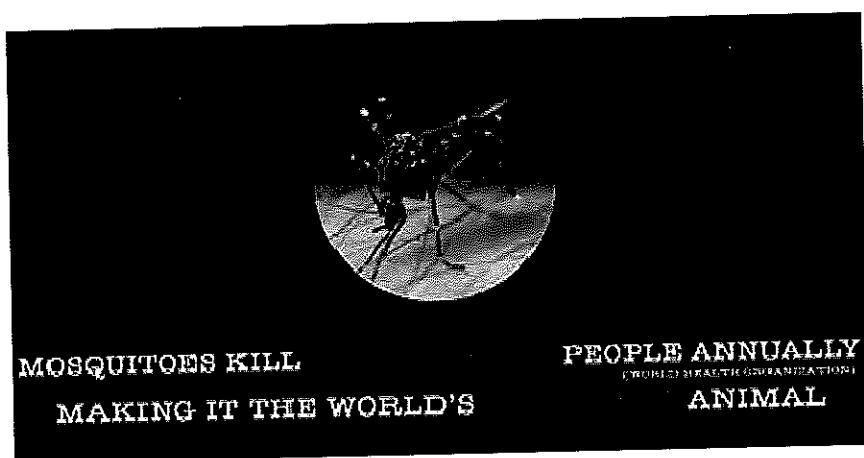
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**From:** Barnard, Nancy  
**Sent:** Tuesday, February 20, 2018 3:09 PM  
**To:** Wheeler, Alan  
**Subject:** RE: protocol

Thanks Alan; I will address the expenditure comparison concern separately.

Kind regards

Nancy Barnard  
Director (Acting)  
Mosquito Research & Control Unit (MRCU)  
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**From:** Wheeler, Alan  
**Sent:** Tuesday, February 20, 2018 3:01 PM  
**To:** Barnard, Nancy  
**Subject:** RE: protocol

Hi Nancy,

Looks ok to me. My main concern now is value for money; \$0.42 /head/month in Brazil compared to \$39/head/month in Cayman.

Regards

Alan





"Great things in business are never done by one person; they're done by a team of people."  
– Steve Jobs

---

**From:** Barnard, Nancy  
**Sent:** 20 February 2018 13:55  
**To:** Wheeler, Alan  
**Subject:** FW: protocol  
**Importance:** High

Hi Alan

Grateful of you can please revert on the below/attached – many thanks.

Kind regards

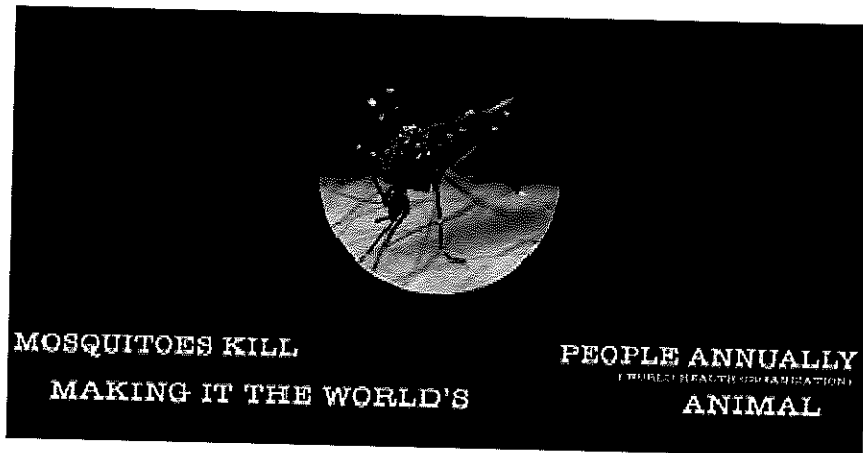
Nancy Barnard  
Director (Acting)

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**From:** Kevin Gorman [<mailto:Kevin.Gorman@oxitec.com>]  
**Sent:** Monday, February 19, 2018 12:28 PM  
**To:** Wheeler, Alan  
**Cc:** Barnard, Nancy; Grey Frandsen; Renaud Lacroix  
**Subject:** protocol

Hi Alan,

Just following up for feedback on the revised protocol I sent across last week (also attached).  
Many thanks in advance,

**Whitaker, Ligia**

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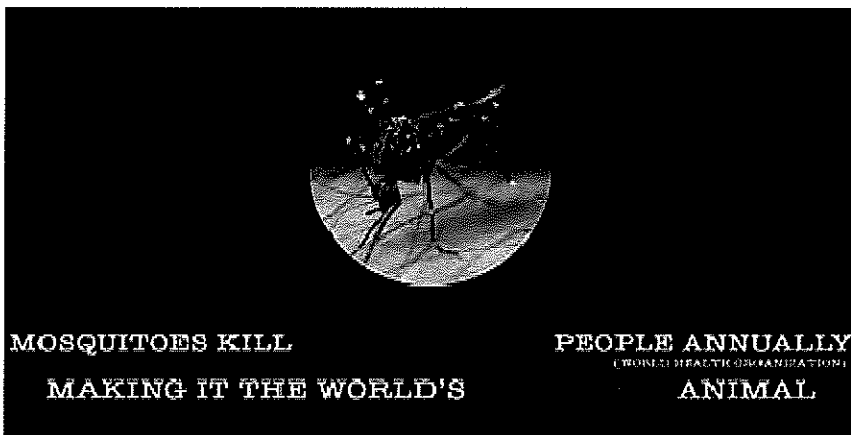
**From:** Barnard, Nancy  
**Sent:** Friday, February 23, 2018 12:19 PM  
**To:** Wheeler, Alan  
**Subject:** RE: Oxitec Aedes GM Project at Cayman Islands (Rede Brasil Atual)

Hi Alan

I suggest you raise this with Grey in our Monday meeting.

Kind regards

Nancy Barnard  
Director (Acting)  
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**From:** Alan Wheeler [mailto:[alan.wheeler67@gmail.com](mailto:alan.wheeler67@gmail.com)]  
**Sent:** Friday, February 16, 2018 10:40 AM  
**To:** Barnard, Nancy  
**Subject:** Re: Oxitec Aedes GM Project at Cayman Islands (Rede Brasil Atual)

Hi Nancy,

My thoughts on this are as follows; sooner or later we will have to release the results of the West Bay trial to the public. The questions about the effectiveness of the release are not just going to go away. Judging by Kevin's last response to my proposal for the data analysis we appear to have reached an agreement on how we will report the results for the upcoming trial. Why don't we apply the same method of interpreting the results to the previous results and release the data to the public? We should also request that Oxitec apply the same method of analysis to all previous trial data (Brazil, Panama, Cayman etc) so we can see exactly what results have been achieved using the agreed method of analysis

Regards

Alan

On Thu, Feb 15, 2018 at 8:56 AM, Barnard, Nancy <[Nancy.Barnard@gov.ky](mailto:Nancy.Barnard@gov.ky)> wrote:

Dear Jennifer, Natasha:

Many thanks. I have discussed with Alan and Catherine and we would like to revert with the response as approved for the second query and steer clear of the first query. The reason is because although the 62% rate was quoted in the MRCU report mid-2017, that wasn't for the overall end of contract suppression rate (the scientists at MRCU/Oxitec are still having dialogue on the latter). Accordingly, it may be better to focus on the second response only.

Kind regards

Nancy Barnard

Director (Acting)

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**From:** Ahearn, Jennifer

**Sent:** Thursday, February 15, 2018 9:19 AM

**To:** Powell, Natasha (Lyn)

**Cc:** Barnard, Nancy; Roberts, Sharon; MacGillivray, Catherine

**Subject:** Re: Oxitec Aedes GM Project at Cayman Islands (Rede Brasil Atual)

Good morning

Thanks for this.

This is fine to go out, given it is based on info already in the public domain.

Kind regards

Jennifer

Sent from my iPhone

On Feb 15, 2018, at 9:16 AM, Powell, Natasha (Lyn) <[Natasha.Powell@gov.ky](mailto:Natasha.Powell@gov.ky)> wrote:

CO is in meetings and it appears as if she has a full day.

I am including her in this reply and will print a copy for the mail folder in case she misses it.

*Natasha L Powell*

Policy Advisor (Culture & Environmental Health)

Desk extension: [345-244-2369](tel:345-244-2369) | Mobile: [345-936-2369](tel:345-936-2369) |

<image003.jpg>

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**From:** Barnard, Nancy  
**Sent:** Thursday, February 15, 2018 9:14 AM  
**To:** Powell, Natasha (Lyn)  
**Subject:** Oxitec Aedes GM Project at Cayman Islands (Rede Brasil Atual)  
**Importance:** High

Hi Natasha

Please ask CO if she is happy with us responding with the below. (Note – the answer to Q1 I have taken from the June 2017 MRCU report in the public domain, while Q2 response is similar to the local response to Cayman Compass queries this week. Oxitec has signed off on the below.

**What are the results that you have been obtained? Are they good?**

The outcome is within expectations according to previous field suppression observed in the Cayman Islands, Brazil and Panama with substantial (62%) suppression observed within 4 to 6 months following the start of releases at an adequate rate.

**Is the Cayman government planning to continue the project? Why?**

The 2016-17 project has now been concluded. MRCU is currently in the final stages of talks with Oxitec regarding the "Friendly *Aedes aegypti* Programme" for 2018. The 2018 programme will give MRCU scientists time to assess a new integrated vector management (IVM) approach with Oxitec in the same area of West Bay in 2018 with a view to the potential future use of Oxitec within an integrated control strategy for the management of *Aedes aegypti* in the Cayman Islands.

Many thanks.

Kind regards

Nancy Barnard

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---

**From:** Barnard, Nancy [<mailto:Nancy.Barnard@gov.ky>]

**Sent:** Friday, February 09, 2018 5:10 PM

**To:** Cida Oliveira

**Cc:** Ahearn, Jennifer; Powell, Natasha (Lyn)

**Subject:** Re: Oxitec Aedes GM Project at Cayman Islands

Dear Ms Oliveira

Thank you for your email - I will revert early next week to you.

Kind regards

Nancy Barnard

Director (Acting)

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Via mobile device

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