

## Exhibits Presented During Public Comment Period

Exhibit	Date	Exhibit Name
39	Mar 15, 2012	NO EXHIBIT
40	Apr 10, 2012	Sign in sheet public hearing
41	Apr 10, 2012	Rehoboth Beach Public Hearing Transcript (April 10, 2012)
42	Apr 10, 2012	Judy Adams letter to Mayor Cooper
43	Mar 7, 2012	John Kleitz email 030712
44	Mar 21, 2012	Christina Wirtz, Div of Waste and Hazardous Substance email and attachment 032112
45	Mar 22, 2012	Andy Lorenz, Delaware State Housing Authority email 032212
46	Mar 28, 2012	Stewart Lovell, Water Supply Section email 032812
47	Apr 9, 2012	Mark and Karen Mikatavage email 040912
48	Apr 9, 2012	Diane Shields NRCS email and attachments 040912
49	Apr 11, 2012	Mario Rocha email 041112
50	Apr 12, 2012	Peter Havens, Sound and Sea Technology email 041212
51	Apr 15, 2012	Rich Baccino, P.E. email 041512
52	Apr 16, 2012	Nettie Green email 041612
53	Apr 19, 2012	Samie Dozor emails 1 and 2 041912
54	Apr 20, 2012	Cherie Clark, Cultural Heritage 042012
55	Apr 20, 2012	William Paton email 042212
56	Apr 23, 2012	Jere Stephano email 042312
57	Apr 25, 2012	John Thaeuder Artesian Water Company email and attachment 042512
58	Apr 25, 2012	Adam Gould Artesian Water Company email and attachment 042512
59	Apr 26, 2012	Emily Van Alyne email 042612
60	Apr 28, 2012	kcburgwin email 042812
61	Apr 28, 2012	Elisabeth Stoner email 042812
62	May 2, 2012	Melissa Dombrowski, Delaware Surfriders email and attachment 050212
63	May 2, 2012	Gregg Rosner email and attachment 050212
64	May 3, 2012	Stanley and Betser Heuisler email 050312
65	May 3, 2012	Howard Meneker email 050312
66	May 5, 2012	Richard Byrne, Park Place on the Canal HOA email and attachment 050512
67	May 7, 2012	Cindy and Paul Lovett email and attachment 050712
68	May 8, 2012	Bill and Melonie Ettinger email and attachment 050812
69	May 8, 2012	Carol Murphy, Tidewater Utilities, email and attachment 050812
70	May 9, 2012	Laura Herr, Wetlands and Subaqueous Lands Section email 050912
71	May 9, 2012	Suzanne Thurman, MERR emails 1 and 2 and attachments 050912
72	May 9, 2012	Dr. Mark Mikatavage email and attachment 050912
73	May 10, 2012	Jennifer Duncan email and attachment 051012
74	May 10, 2012	Richard Byrne, Park Place on the Canal HOA email and attachment 051012
75	May 10, 2012	Jennifer Luoma, DNREC email 051012

Exhibit	Date	Exhibit Name
76	May 10, 2012	Edna Stetzar , National Heritage and Endangered Species program email 051012
77	May 10, 2012	Edna Stetzar , National Heritage and Endangered Species program attachment (secured) 051012
78	May 10, 2012	Kendall Sommers DNREC Parks and Recreation email 051012
79	May 10, 2012	Rodney Wyatt, Artesian Water Company email and attachment 051012
80	May 10, 2012	Mike Izzo, Sussex County Engineer, email and attachment 051012
81	May 10, 2012	Confirmation of email receipt Gpope 051012
82	May 10, 2012	Gerald Esposito letter received 051012
83	Apr 25, 2012	Barbara Rudnick, EPA region 3 letter received 042512
84	May 4, 2012	John Thader Artesian Water Company letter 042512
85	May 7, 2012	Mark Mikatavage letter received 050712
86	May 4, 2012	Guy Martin letter received 050412
87	May 4, 2012	Gregg Rosner letter received 050412
88	Apr 23, 2012	Mable Granke letter received 042312
89	Apr 10, 2012	John Thader Artesian Water Company letter and comments and map received at public hearing 041012

NAME	ADDRESS	REPRESENTING	SPEAK	
			YES	NO
GREGG RASNER	SELBY VILLE, DE		X	
RICHARD BYRNE	125 CANAL ST. Rehoboth Beach 19971	PARK PLACE HOA CONDO		X
Melinda Duryea	33715 Foxfire Dr. Frankford 19945	Citizen		X
Bill Sargent	10 Pennsylvania Ave, RB, 19971	Commissioner		X
Lauri Jakhan	Newark, DE 19702	Artemian Water Co.		X
Stan Mills	38 Maryland Ave RB 19971	Rehoboth Commissioner		✓
Ryan Maubly	17585 Nessel Commons Blvd Lewis	Cck 6724		X
Andrew Koch		WGND-FM		X
SUZANNE THURMOND	801 FLOTTOWN RD., LEWIS, DE	MSAR	X	
Rob Underwood	89 Kings Highway SWDS	DNREC		✓
RON PATERSON	320 MUNSON ST. - Rehoboth Beach, DE	Citizen		✓
John DeFriece	89 Kings Hwy, Dover, DE 19903	DNREC		✓
Joe Farrell	UD, 700 N. FLOTTOWN RD. LEWIS 19958	UD Sea Grant		✓

























I-N-D-E-X

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5 GREG ROSSINER ..... 36

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1 THE HEARING OFFICER: Good afternoon,  
2 ladies and gentlemen. My name is Timothy Bureau, I'm  
3 an independent environmental consultant from Michigan.  
4 I have been appointed hearing officer today by the  
5 City of Rehoboth Beach for the draft Environmental  
6 Impact Statement for the proposed ocean outfall.

7 A brief description of my background:  
8 I have degrees in chemistry and biology, and a  
9 Master's degree in geography for environmental  
10 analysis and management.

11 I worked for the Michigan Department of  
12 Natural Resources for many years, where my job was to  
13 evaluate projects involving water resources. I'm a  
14 wetlands scientist, and I have conducted many, many,  
15 many public hearings.

16 Some of you may recall, I was hearing  
17 officer for the State of Delaware on the two  
18 applications by the Army Corps of Engineers to deepen  
19 the main shipping channel from Philadelphia to open  
20 sea.

21 My task is to conduct the hearing here  
22 this afternoon, review the record as developed by the  
23 hearing, both the transcript of today's proceedings  
24 and any submitted documents which also may include  
25 agency comments. I will then prepare a report for the

1 City of Rehoboth Beach which will summarize the  
2 process and the record created.

3 Now, in the report, I'm going to focus  
4 on topics of concern, whether within the written  
5 comments or voiced here this afternoon, and I'll  
6 provide a discussion of each topic with findings and  
7 recommendations for the City. These findings will  
8 include whether the City has adequately and completely  
9 addressed the issues or whether further examination  
10 and discussion of a topic is warranted.

11 This public hearing constitutes the  
12 record from which my conclusions and recommendations  
13 will be made. Therefore, it is important that any  
14 comments, concerns, or support each of you may have be  
15 entered into the record. The record will remain open  
16 for 30 days or until May 10th.

17 And in a moment, Greg Pope from DNREC  
18 will instruct you how to make further written  
19 comments. For your information, the record is being  
20 kept by DNREC, not the City, and DNREC is solely  
21 responsible for compiling the record.

22 Now, I ask that each of you conduct  
23 yourselves in a professional, courteous, and  
24 respectful manner this afternoon. There are usually  
25 diverse opinions present, and all of which are

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1 important, and all of which deserve to be heard.

2 Let's all be good listeners. And if anyone's  
3 disruptive, I really need to ask you to leave.

4 So to assure that everyone has the  
5 opportunity to speak, and to help me focus on your  
6 concern, please be as concise and succinct as you can.

7 I would prefer that you not read  
8 lengthy letters into the record, but rather summarize  
9 those comments and submit your letters in writing. It  
10 does not look like we have that many people who have  
11 indicated their wish to speak today, so I'm not going  
12 to limit the time for the presentations. If something  
13 tends to be running over and we're repeating  
14 ourselves, I may ask you to wrap it up, but I'm not  
15 going to put a time limit on anybody's comments today.

16 So when I call on you to speak, please  
17 state your name and address, state whether or not you  
18 are representing a group or an entity.

19 And with that bit of introduction, I'm  
20 going to introduce Greg Pope from DNREC, and he's  
21 going to go over the process and keeping of the  
22 record.

23 Mr. Pope?

24 MR. POPE: Hold on a second, I'm going  
25 to pull up a power point presentation that I've

1 prepared.

2 Good afternoon, I'm Greg Pope with the  
3 Financial Assistance Branch of DNREC. I'm going to  
4 explain the process and why we are conducting the  
5 public hearing today.

6 Why he we here? The City of Rehoboth  
7 Beach has applied for a loan from Delaware's Water  
8 Pollution Control Revolving Fund for the amount of 25  
9 million for a term of 20 years for the proposed ocean  
10 outfall project.

11 To comply with Delaware Code Title 29,  
12 Chapter 80, Subchapter 1, Title 40, Code of Federal  
13 Regulations, Part 35.3140 and the Environmental Review  
14 Procedures of the State Water Pollution Control  
15 Revolving Fund. What does that mean? Delaware Code  
16 created the fund, and under the fund we have to  
17 conduct an environmental review of the projects that  
18 are submitted for funding.

19 Title 40, Code of Federal Regulations  
20 basically says that the funds shall use a process that  
21 is similar to the Federal NEPA process, the process  
22 must be NEPA-like and approved by EPA. And that  
23 process is the Environmental Review Procedures of the  
24 State's Water Pollution Control Revolving Fund, which  
25 we have followed for this environmental review and the

1 public participation.

2           Also, we want to provide the City of  
3 Rehoboth Beach an opportunity to present the draft EIS  
4 in a public forum, and also to allow the general  
5 public and other interested organizations an  
6 opportunity review the draft Environmental Impact  
7 Statement and comment on the document.

8           Okay, I'll move forward. This is a  
9 proposed project. The consultant for Rehoboth, Rip  
10 Copithorn, will go into details about the actual  
11 proposed project, but this is the project that was  
12 applied for to the fund:

13           A pump station to pump treated effluent  
14 to the outfall, a force main to convey treated  
15 effluent from the pump station to the outfall, and an  
16 outfall to be constructed near Henlopen Avenue to a  
17 diffuser 6,000 -- approximately 6,000 feet off the  
18 shore. So that is the project that was applied for.

19           Okay, as far as the Environmental  
20 Review Process, the review projects are submitted and  
21 see whether they fall under certain categories. The  
22 projects can be categorical exclusion, a finding of no  
23 significant impact, or an Environmental Impact  
24 Statement.

25           The nature of this project has required

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1 an Environmental Impact Statement because the project  
2 may directly or through induced development have an  
3 impact on air quality, noise levels, surface to ground  
4 water quality or quantity, water supply, fish,  
5 shellfish, wildlife, and their natural habitats. And  
6 also, the project is controversial in nature. So both  
7 of those bullets have required the program to proceed  
8 to an Environmental Impact Statement.

9 Okay, this is an excerpt of the overall  
10 process, and I'm going to cover the bullets and  
11 responsibilities of DNREC and the City of Rehoboth  
12 Beach. The first thing DNREC will do when it is  
13 determined that an Environmental Impact Statement is  
14 required is prepare a Notice of Intent. This is a  
15 Notice of Intent to prepare an Environmental Impact  
16 Statement, this was published on August 8, 2010.

17 Okay, also publish and send a project  
18 overview to the Federal, State, and local agencies,  
19 looking for their input on the scope of the  
20 Environmental Impact Statement, and that was sent on  
21 August 10th as well.

22 Also, independently evaluate the scope  
23 and contents of the Environmental Impact Statement  
24 prior to its approval. A public scoping meeting was  
25 held September 21st of 2010. At that meeting, we

1 received comment from the public, comment from State,  
2 local and Federal regulators, and prepared a scope  
3 based on that.

4 Also issued public notices of  
5 community-wide circulation, and it was published in  
6 the Cape Gazette, Wilmington News Journal, and  
7 Delaware State News, August 8th and 10th, 2010.

8 Now, the City of Rehoboth Beach has  
9 their responsibilities in the process now, it's to  
10 prepare a draft Environmental Impact Statement which  
11 will address the criteria and standards as provided in  
12 the state environmental review procedures.

13 The content is spelled out in 40 CFR,  
14 Part 6, Subpart B, Content of EIS's. Also that was  
15 amended to add additional items that were brought up  
16 in the scope, in the scoping process in the scoping  
17 meeting.

18 The scoped format was sent by the City  
19 to DNREC -- excuse me, was provided to the City by  
20 DNREC on November 24, 2010. We received the draft EIS  
21 December 2011, and the draft report was approved to go  
22 to public hearing on January 20, 2012.

23 We also provided copies of the draft  
24 Environmental Impact Statement to Federal, State, and  
25 local agencies, and others with interest in the

1 project, and this was distributed on March 9, 2012.

2 Also, the draft Environmental Impact  
3 Statement was made available to the public, this was  
4 done through the City's website and DNREC's website,  
5 and was advertised in the following papers:  
6 Wilmington News Journal, Delaware State News, Cape  
7 Gazette, and Coast Press on the dates on the screen,  
8 March 7th and 14th, March 8th and 15th, March 2nd and  
9 9th, March 7th and 14th.

10 The City of Rehoboth Beach continued.  
11 This is -- let me go back one here. This is kind of  
12 where we are today. Going forward, the City's  
13 required to take all the comments from the public  
14 process from today's public hearing and all public  
15 comments received, and respond to those in the final  
16 EIS. And also they are responsible for abiding by any  
17 mitigating measures required in the Record of  
18 Decision.

19 DNREC is now responsible for, after a  
20 final EIS has been prepared and accepted, DNREC will  
21 issue a Record of Decision prior to, or in conjunction  
22 with, the facility plan. The Record of Decision may  
23 spell out mitigation derived from the EIS process,  
24 including loan conditions necessary to minimize the  
25 adverse impacts of the project.

1           What does that mean? The Record of  
2 Decision may spell out certain periods where the City  
3 cannot do construction to affect any type of aquatic  
4 mammals or any type of fishes; those are the kind of  
5 things that will be spelled out. Spell out  
6 construction techniques and methods, those are a  
7 couple things that could be spelled out in a Record of  
8 Decision.

9           The next paragraph is kind of a  
10 re-summation. Just prior to facility plan approval,  
11 the Department will ensure that mitigation measures  
12 identified in the Record of Decision will be  
13 implemented by the borrower. And this is also by  
14 revising the facility plan, and also conditions in the  
15 loan agreement.

16           Finally, once the Record of Decision  
17 has been conducted, a loan may be made without further  
18 environmental review unless anything changes. It's a  
19 five-year period: After five years, it would have to  
20 be -- the process would have to be started again.

21           Now, I just want to clarify, the Record  
22 of Decision is an approve or disapprove. It is either  
23 going to be -- the Record of Decision is to be  
24 written, but it will be written approving the process,  
25 approving the project as stated, or rejecting the

1 project.

2           Okay, this is the time line, kind of  
3 summarize what's happened up to this date and what's  
4 anticipated going forward. The Notice of Intent was  
5 submitted August 10, the public scoping meeting was  
6 September 2010, the draft report was submitted to  
7 DNREC December 2011, the public hearing on the draft  
8 EIS is today, April in 2012, there is a 60-day comment  
9 period, final EIS submittal is anticipated in  
10 June 2012, and the Record of Decision is anticipated  
11 in July or August of 2012. As I said before, the  
12 final EIS will address all comments received during  
13 the public process.

14           And finally, as Mr. Bureau mentioned,  
15 that I'll reiterate how you can comment. If you sign  
16 up to comment today, you may comment today. If you  
17 wish to send in written comments, they can be sent to  
18 me by my address shown, or you can send by fax or by  
19 Email. Electronic submission is preferred.

20           And if you need to review the  
21 documents, the documents are available on the City of  
22 Rehoboth Beach website and DNREC's website, and also  
23 the City of Rehoboth Beach public library.

24           THE HEARING OFFICER: Thanks, Mr. Pope.

25           Are there any questions about the

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1 process that we're involved in?

2 (No response.)

3 THE HEARING OFFICER: Okay, good. All  
4 right, our first speaker then this afternoon is going  
5 to be Rip Copithorn who is representing the consulting  
6 firm working for the City on the project. He will  
7 summarize the project and the efforts made to date by  
8 the City of Rehoboth Beach.

9 Mr. Copithorn?

10 MR. COPITHORN: Thank you, Tim.

11 THE HEARING OFFICER: While we're  
12 waiting for him to get that up, has everybody signed  
13 in on the sheet for us, especially if you want to say  
14 anything? Okay.

15 MR. COPITHORN: Okay, good afternoon.  
16 Thank you for being here. Again, my name is Rip  
17 Copithorn, I'll give a brief overview of the  
18 Environmental Impact Statement and the project that is  
19 proposed. It's brief because there is an extensive  
20 amount of information available and, again, I invite  
21 you to look into the full document, and if you have  
22 time to do that, as Mr. Tim Bureau explained.

23 So I'd like to first acknowledge my  
24 associates working on this project: Marie Winfield  
25 who cannot be here today, but Jeff Reiling also.



1           The existing plant provides a very high  
2 quality of treatment, it's an advanced tertiary  
3 treatment process, and actually surpasses in terms of  
4 performance the requirements of its DNREC permit.

5           The type of improvements that are being  
6 considered now in a separate report include effluent  
7 filtration. The plant has effluent filters, but we're  
8 now looking at new state-of-the-art more reliable  
9 types of filters. Looking at upgrading the bio-solids  
10 process for different reasons. The electrical  
11 distribution and MCC controls in the plant and back-up  
12 power, all related to just improving the reliability  
13 of the plant.

14           Now, why is this project needed? As  
15 Tim and Greg have both said, it goes back to the total  
16 maximum daily load that was developed for the inland  
17 bays. And those of you that are familiar with the  
18 history know that, for some years, nitrogen and  
19 phosphorous has been discussed and its impact on the  
20 inland bays.

21           The impact of nitrogen and phosphorous  
22 is over-enrichment, and so that needed to be dealt  
23 with. It was dealt with in the TMDL that was  
24 finalized by DNREC in some extensive modeling in 1998.  
25 At that point, the TMDL, the total maximum daily load,

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1 said that the point sources in the inland bays need to  
2 eliminate that discharge. And that, over a period of  
3 time, became the consent order that was negotiated, so  
4 by 2002 the City of Rehoboth Beach was put on a time  
5 clock and said you've got to get out of the bay.

6 So right away, the City started to look  
7 at alternatives, and these are the alternatives they  
8 considered. Of course no action, which is really not  
9 practical, but it had to be considered as a base line  
10 comparison.

11 We looked at nutrient trading, which  
12 the consent order allowed. In other words, for every  
13 pound of nitrogen that you could not eliminate from  
14 the discharge, that you would trade away by finding  
15 non-point sources of nitrogen and phosphorous to  
16 eliminate, probably on a ratio of two-to-one. I'll  
17 talk more about that.

18 Land application, which is a proven  
19 technology, rapid infiltration beds, ground water  
20 injection, and then the ocean outfall. And that's the  
21 report that was completed in August, 2005; you may  
22 have seen that report.

23 So the first one, no action, of course  
24 it would result in continued discharged of nitrogen  
25 and phosphorous to the inland bays, which would

1 violate the consent order and then we would continue  
2 to have the environmental consequences, so it was not  
3 considered feasible.

4 Nutrient trading, we did look at that.  
5 You have to trade at a ratio of two-to-one. So every  
6 point of point source, we look for two pounds of non-  
7 point source. And one of the requirements is that you  
8 must find them in the same watershed, and there just  
9 were not enough opportunities to come anywhere near  
10 the nitrogen and phosphorous we needed to eliminate.

11 Land application was considered very  
12 seriously during this report, in fact took an extra  
13 year, probably two years, of land search looking for  
14 the property required which is several hundred acres  
15 that the City could pump to and use for agricultural  
16 application. We could not find the land. We looked  
17 for land we could purchase, the City looked for land  
18 they could lease, looked at agricultural preservation  
19 lands. We also -- the City also issued an RFP,  
20 inviting private utilities to propose a solution, and  
21 we did go down that path a little way but that proved  
22 not to be practical either. But I will note, even  
23 though this was not feasible technically or  
24 environmentally, it's an acceptable technology, and so  
25 it was carried forward in the EIS.

1 Another process that was considered is  
2 rapid infiltration beds where you take the treated  
3 effluent and you percolate it into the ground water  
4 through sand beds, and that's a picture of a typical  
5 rib. Again, we did not find enough land; didn't need  
6 as much as land application, but it was not available.

7 We also did some ground water modeling,  
8 and found that the ground water would tend to mound  
9 up, which could cause problems with other wells,  
10 changing flows of ground water flow directions and  
11 flooding basins potentially. And it would not  
12 eliminate the discharge of nitrogen into the inland  
13 bays because the ground waters flow toward the inland  
14 bays.

15 We looked at ground water injection,  
16 two types: Shallow and deep well. Shallow being  
17 finding an aquifer that's already contaminated and,  
18 therefore, could take the treated effluent; did not  
19 exist.

20 We looked at deep well injection where  
21 you drill down and discharge your treated effluent  
22 into a confined aquifer below an area of geology where  
23 the treated effluent could not percolate up. We  
24 believe we found one, but it was over a mile deep, and  
25 in pursuing the cost of even piloting that for a

1 permit was over a million dollars just to mobilize a  
2 contractor. It was considered to be a very high risk  
3 alternative and very expensive.

4 And then ocean outfall, where we  
5 discharged the treated effluent to a point off shore  
6 where dispersion meets all public health requirements.  
7 And that is the one, through a number of years of  
8 workshops and study, that we preferred.

9 Okay, so let's talk now about the ocean  
10 outfall and what it would look like. The project  
11 consists of a force main to convey the wastewater, the  
12 treated wastewater, from the treatment plant to the  
13 staging area, the point where it would leave the  
14 shore, and that would be Deauville Beach parking area  
15 as shown on the map. An outfall would be  
16 approximately 6,000 feet extending off shore, and it  
17 would terminate in a diffuser, a specially designed  
18 diffuser, to promote dilution and dispersion.

19 The force main was studied, an  
20 alignment study was done in December of 2011, and  
21 there is a preferred alignment as shown here.  
22 Basically it consists of a combination of open-cut  
23 conventional-type construction, if possible, and then  
24 directional drill. Directional drill is favored to  
25 get underneath congested areas and also to avoid

1 sensitive -- environmentally sensitive areas, trees  
2 and things like that. So it would be a combination.

3 The outfall shown on this map, we  
4 actually looked at two locations: One outfall which  
5 would go 6,000 feet directionally perpendicular off  
6 shore, so straight off shore. And as you may know,  
7 there's the Chicken Henlopen shoals out there.

8 So we decided to look at a second  
9 location which puts it a little bit further from the  
10 shoals, that's why the more southern location; again,  
11 6,000 feet distance from -- the pipe would be  
12 6,000 feet from the shore.

13 So in terms of construction techniques,  
14 we are looking at both directional drill, horizontal  
15 directional drill, and I'll show you what that looks  
16 like in a moment, and more conventional excavation  
17 which is basically dredging.

18 The advantage of the directional drill  
19 is that it certainly minimizes environmental impacts  
20 because there are no surface disruptions. And in  
21 fact, it's a very good thing because we can get  
22 beneath the dune and the surf zone without any concern  
23 for disrupting the dunes.

24 So further out when you get to any  
25 portion of the outfall which would have to be

1 installed by conventional open cut or dredging, this  
2 is what the section would look like: It would be a  
3 typical dredge construction sitting on a jacked-up  
4 barge, it would be buried well beneath the sea bed,  
5 and it would be anchored with concrete collars, stone  
6 back-fill, and then ballast or anchor stone on top of  
7 that. In profiles, though, we show also the point at  
8 which it has to reach the sea bed again, and that's  
9 where the diffuser is installed on piles.

10 Directional drill is shown here, we  
11 show a close-up on the upper left of the Deauville  
12 Beach area, which would be the staging area. A pit  
13 would be built there, and that's a point at which the  
14 pipe would begin to be inserted into the soil and go  
15 below the ocean bed.

16 This is a typical type of drill rig  
17 required in the mobilization that you might see out  
18 there. It's about a two or three month process of  
19 actual construction. Once the hole is drilled, it's  
20 only a couple of days to actually pull the pipe, and  
21 this is what it looks like in kind of a cartoon  
22 sketch. There would be a jack-up barge off shore with  
23 a drill rig, and then a drill rig on land-side, too.

24 A pilot hole is first drilled from the  
25 land side, and it's a small diameter hole drilled

1 beneath the sea bed, and it actually reaches depths of  
2 approximately 40, 60, even 80 feet below the soil.

3           So that's the pilot hole, but it needs  
4 to be large enough to hold a 24-inch pipe, so it is  
5 reamed out going back and forth between the jack-up  
6 barge out in the ocean and the land-side to the point  
7 at which it gets to about a 30-inch diameter, and at  
8 that point the pipe is pulled in from the land. So  
9 the pipe sits on the land side, and it's pulled  
10 through the hole by the ocean barge.

11           The diffuser located at the end of the  
12 outfall is also -- it's not just a discharge point,  
13 it's actually a designed diffuser where we optimize  
14 the amount of dilution provided by that diffuser. And  
15 modeling has been done to optimize its design; it will  
16 look something like this, just a linear pipe with  
17 diffusers projecting on the top.

18           Okay, so now we're going to get into  
19 modeling but, first of all, what kind of data did we  
20 collect as a basis for the model and the EIS  
21 statement? First of all, we did soil borings. I  
22 mentioned the desire to do directional drill, and we  
23 want to go 6,000 feet if we can. We know we can at  
24 least go 3,000. So we did soil borings, and found --  
25 and this is where we went 1500, 3,000, 4500, did four

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1 borings along the alignment to a depth of 80 feet, and  
2 found that -- actually got very good results. It's  
3 possible, the contractors believe that they can  
4 actually go all 6,000 feet, but we're not guaranteeing  
5 that. So the Environmental Impact Statement  
6 considered both directional drill and conventional  
7 dredging.

8                   Archaeological studies were done. So a  
9 boat went out and did a magnetometer and side-scan  
10 radar survey. They did find some anomalies; most of  
11 them were identified as just some discarded chain or  
12 pipe. The buoys were located, of course; there are a  
13 few that may be potentially of interest, but they  
14 weren't near the northern outfall location.

15                   Physical oceanography studies were done  
16 because, as a basis of the model that we're going to  
17 talk about in a moment, you need to know things like  
18 salinity, current direction, wave height, all that  
19 needs to be -- that data needs to be collected over a  
20 period of time.

21                   So two buoys were installed: One at  
22 each of the proposed outfall locations. And they were  
23 set out there for two periods of time, they were  
24 deployed for several months each time to collect data  
25 on the current direction and the wave heights.

1 They're called ADCP buoys -- if you were down at the  
2 beach, you may have seen them out there -- acoustic  
3 doppler current profilers. Attached to those also  
4 were some instruments that read out continuously the  
5 conductivity, the temperature, and density, all those  
6 things required to really produce a calibrated model.

7 In addition to the fixed buoys and  
8 CTDs, we also had cruises that were conducted a number  
9 of different times as shown on that table; they were  
10 done to collect a wider scan or wider area of CTD  
11 data, not just at the buoy locations, and that very  
12 much helped calibrate the model.

13 During two of those cruises, we also  
14 collected water quality data, we wanted to know what  
15 is the base line ambient conditions for things of  
16 interest, like BODs, solids, bacteriological studies,  
17 things like that. So that data was collected.

18 All that went into what is called an  
19 EIS to Dispersion model. And it's a two-dimensional  
20 computer model that replicates the actual current  
21 direction, the wave heights, and can calculate,  
22 therefore, the amount of dilution that's provided by  
23 the diffuser. In other words, it tracks the plume and  
24 gives us the concentration of anything that might be  
25 discharged from the plume from the outfall.

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1 with solids. There is obviously nitrogen and  
2 phosphorous in the discharge but, again, very little.  
3 One of main interests would be the bacteriological  
4 standards, and the dilution, therefore, required.

5 If we're going to get -- dilute the  
6 plant effluent to a level below what's already in the  
7 ocean, you would need 1 to 17. So every gallon of  
8 effluent discharge, we want 17 gallons of dilution,  
9 ocean dilution. Keep in mind, the actual water  
10 quality standard for Enterococcus is 35 colonies, so,  
11 by all means, we're still below the water quality  
12 standards. That is a normal plant operation,  
13 day-to-day operation.

14 What if, and the EIS considers this in  
15 depth, the plant was not operating in a normal  
16 condition, there was some upset?

17 And so the worst case scenario that was  
18 envisioned is what if the plant did not disinfect its  
19 effluent, so now we're worried about bacteriological  
20 standards. And what if the filtration process at the  
21 end of the plant were to fail? I can't imagine a  
22 situation where that would actually happen because of  
23 the maintenance of the plant, the back-up systems,  
24 things like that.

25 But let's say it did happen. Again,

1 the bacteriological standards would be one of concern  
2 for not disinfecting and, based on literature, because  
3 it's never happened but we have measured at other  
4 plants and looked at the literature, you might expect  
5 as many as 2.2 times 10 to the 3, or 22,000 colony  
6 forming units, CFUs, of Enterococcus per milliliter,  
7 so that's a lot. And keeping in mind that the water  
8 quality standard that we need to meet is 35.

9 So the dilution required, therefore,  
10 the exact dilution required would be 1-to-62. So keep  
11 those numbers in mind. Normal operation, 1-to-17; the  
12 worst case scenario, 1-to-62.

13 So now we're going to talk about what  
14 the model told us. We did two types of models: The  
15 near field, and that's the dilution that occurs at the  
16 immediate point of discharge as the effluent plume  
17 rises to the surface because it tends to be bouyant.  
18 And then we did far field modeling, and that's where  
19 all that EDCP data, the CTD stuff, at of that went  
20 into it. And that's what happens with a plume after  
21 the initial discharge. So this model can track the  
22 plume and tell us exactly what's going on over a  
23 period of any types of current and wind conditions.

24 Talking first about the near field  
25 model, and there's a lot of data here, but I'll just

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1 point out a couple of things. This, again, is what  
2 happens at the point of discharge. What does the  
3 diffuser that I showed you do? And we looked at a  
4 number of conditions.

5 Base case where -- well, basically  
6 these different conditions replicated different  
7 current velocities, different wind conditions, and  
8 conditions where there might be stratification or  
9 density conditions in the ocean which prevented the  
10 plume from rising all the way to the surface.

11 The normal, most often, most frequent  
12 case that we found in the ocean was case three. But  
13 we looked at all kinds of conditions, again, to get a  
14 whole window of operating conditions. So keep in mind  
15 case three.

16 What this model produced was plots like  
17 this. And it's hard to read, but case three is the  
18 light blue line in the upper left graph, okay? So  
19 that's the most normal condition that you see day to  
20 day.

21 On the bottom axis, the X axis, is the  
22 distance in meters from the outfall, and the Y axis is  
23 the amount of dilution you actually get. You can see  
24 the most normal conditions: Within a few meters,  
25 we've got 100 to 1, and the numbers we were looking

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1 for in the worst case was 1 to 62. So normal  
2 conditions, again, meet water quality criteria right  
3 around the immediate vicinity of the plume.

4 As shown in tabular form here, the red  
5 outline one is, again, case three. But you can also  
6 see under different conditions the dilution provided  
7 at the end of the near field region, and it varies  
8 from 89 up to almost a thousand. Okay, so it varies  
9 with the amount of current and the wind conditions  
10 that drives the mixing out there. But, again, 1 to 62  
11 was what we were looking for under a complete failure  
12 condition at the plant.

13 So just to give you some perspective,  
14 though, I have given you some distances. These are  
15 circles drawn around the outfall. The purple circle  
16 in the middle is a hundred meters, so if that gives  
17 you kind of a perspective of distance on the site.

18 Now the far field modeling. This plot,  
19 this grid, shows you how the model was developed. And  
20 the area that was modeled was extensive, it actually  
21 went way up into New Jersey and down into Virginia  
22 Beach practically, that's the area along the shore,  
23 and then about 63 kilometers off shore. There's a  
24 reason to do that. If we could replicate at the  
25 boundary of this area, actually input to the model the

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1 current and the wave heights, and have this model tell  
2 us what it was at the shore and actually replicate the  
3 actual field data we collected, then we have a good  
4 calibrated model.

5           The grid got finer and finer as you go  
6 in toward the diffuser. You can see the two green  
7 dots, those are the diffuser locations. And then an  
8 even closer model version of it.

9           Each one of those little triangles is a  
10 finite element, and this model calculates -- does all  
11 the calculations that the flow goes from one grid to  
12 the other. So it could take -- any one run could take  
13 three or four days on a computer.

14           The model was calibrated to that first  
15 set of ADCP data that I mentioned. By calibration --  
16 I'm showing here just a sample, but it's in the EIS  
17 statement -- on the left column, those graphs show  
18 what was actually measured out there in terms of  
19 current velocity, and direction, things like that.  
20 The right-hand set of graphs is the calibration, so  
21 you can see visually that we've got a calibrated  
22 model. And so here are the results.

23           Now, this is a little complicated to  
24 understand, but if you look at the diffuser locations,  
25 there's two circles drawn around two jagged kind of

1 ellipsis, there's a purple one and a green line, and  
2 they show different levels of dilution.

3           The one in the middle, the purple line,  
4 is 1 to 5,000, the green line is 1 to 10,000. And so  
5 what this is telling us is that by the time anything  
6 that is discharged from that outfall reaches that  
7 purple boundary, it's already diluted 1 to 5,000.  
8 This data is based on a model which was run over a  
9 whole year of actual -- replicating actual field  
10 conditions in the ocean. In other words, a whole year  
11 of typical ocean currents, wind-driven velocities,  
12 temperature profiles, things like that. And so this  
13 is an average of what you would expect, but it would  
14 not extend beyond those boundaries.

15           In terms of actual concentrations,  
16 therefore, if the plant was discharging 2.8-milligrams  
17 per liter of BOD, by the time it got to that purple  
18 line it would be diluted to .0006, in other words  
19 non-detectable. And those other numbers are provided  
20 for you in the columns there, too.

21           So what is the conclusion of the model?  
22 The conclusion is that the dilution of the effluent  
23 for normal operations, basically water quality  
24 criteria within the initial immediate vicinity and  
25 actually some within the plume. Worst case scenarios

1 would also meet water quality standards, we're looking  
2 for a 1 to 62 dilution, but we achieve much, much  
3 higher levels of dilution than is required. And just  
4 kind of an overall snapshot, you actually get  
5 1 to 10,000 dilution within a thousand feet of the  
6 outfall.

7           The document goes further of course  
8 than just the model. The model was used to make some  
9 conclusions within the impact statement, but I invite  
10 you to look at each of the chapters, because we have  
11 extensive information on all the environmental  
12 consequences, including the physical environment,  
13 biological, human, and then cumulative impacts, too,  
14 and I'll explain that in a moment.

15           But three alternatives were considered  
16 for each of these types of environmental consequences.  
17 What if we did nothing? What about land application?  
18 And then ocean outfall, the preferred alternative? So  
19 every one of those were discussed.

20           And, for example, in the physical  
21 environment, we looked at what you would expect: Air  
22 quality, impact on soils, ground water, what about  
23 flood planes, surface water quality, agricultural  
24 land, that's in chapter seven. So, please, I invite  
25 you to study that.

1                   And in chapter eight, we look at the  
2 biological environment. And here are all the impacts  
3 on any terrestrial or wetlands issues; there are no  
4 wetlands on the outfall. Some issues associated with  
5 land application. We looked at all the types of --  
6 various types of fish species, and marine mammals,  
7 looked at specifically the endangered species, for  
8 example the different varieties of sea turtles. And  
9 so, again, invite you to study chapter eight.

10                   Chapter nine was the human environment.  
11 And here's the one point at which some of the  
12 economics and financial issues crept in, that's  
13 provided there. But also what about tourism,  
14 esthetics? What about historical, archaeological  
15 artifacts? And that's addressed in chapter nine.

16                   Cumulative impacts considers the  
17 possibility that if you were to build to outfall, what  
18 if 10, 20, 100 years from now, somebody came along and  
19 did something else, and could potentially add impact  
20 to what you have already done. So you can't consider  
21 environmental impacts in isolation, you have to  
22 consider them with them overlapping each other. What  
23 if somebody built another outfall? And so those are  
24 addressed.

25                   The issues that did crop up that need

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1 to be considered were things like beach replenishment  
2 projects, which we don't go on. The outfall. The  
3 Rehoboth Avenue Street Scape project, and anything  
4 that might go on with the inlet, Indian River bridge.  
5 So, again, I invite you to look at chapter ten to  
6 review those issues.

7 The conclusion of the EIS, and it's  
8 basically just providing facts, it's not providing the  
9 conclusion, that's for the record of the City. But  
10 any impacts that were identified were primarily  
11 temporary during construction and could be mitigated.  
12 And, again, the City's preferred alternative is the  
13 ocean outfall.

14 That's a real brief summary of what's  
15 in the document. And at this point, I guess, Tim,  
16 I'll turn it back to you.

17 THE HEARING OFFICER: Okay. Thank you.

18 Now, I'm going to open it up then for  
19 the public comments, and I'm going to call on those of  
20 you who have indicated on the sign-up sheets that you  
21 wish to make a statement. I'll call on you in no  
22 particular order.

23 I don't believe -- typically, I call on  
24 any kind of agency person first. Is there anyone from  
25 an agency that has indicated they'd like to make a

1 statement?

2 (No response.)

3 THE HEARING OFFICER: Okay, very good  
4 then.

5 ANNA LEGATES: We have a question, not  
6 a statement.

7 THE HEARING OFFICER: Absolutely, you  
8 may come up and ask the question. It won't be  
9 answered today, but your question will be looked at in  
10 the context of the draft Environmental Impact  
11 Statement and determine whether your question has been  
12 answered by that document or not. If not, then I  
13 would think that part of my recommendation to the City  
14 would be in the final EIS, you need to answer this  
15 question.

16 ANNA LEGATES: I think I can get the  
17 answer, get an answer by the Mayor or the County, so  
18 I'm okay.

19 THE HEARING OFFICER: All right, very  
20 good.

21 So I'm going to call on you in no  
22 particular order here. I'll also indicate who's going  
23 to talk next. And when I go through the list of those  
24 that have indicated they wish to make a statement, I  
25 will at the end give an opportunity for anyone else

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1 who has changed their mind to go ahead and make a  
2 statement.

3 So I want to remind you, as we just  
4 said this, it is not a question and answer period.  
5 You're making a statement for the record. Those  
6 statements may certainly include questions, and part  
7 of my responsibility is to determine whether further  
8 examination of that question is warranted. Does that  
9 make sense to everybody? So you want to direct your  
10 comments to me, to the record, if you will, please.

11 And with that background, I want to  
12 thank you again for attending the hearing, and we'll  
13 start with public comments with Greg Rossiner. So if  
14 you'd come up, state your name and address for the  
15 record, please. And if you are representing someone,  
16 please indicate that to us as well. Thank you, Greg,  
17 go ahead.

18 GREG ROSSINER: Thanks, Timothy.  
19 Resident of Selbyville, just as a concerned citizen.  
20 Our planet is called earth, but it should be called  
21 water. The ocean is the driving mechanism of all  
22 life-sustaining eco-systems on this planet, from  
23 weather to carbon dioxide levels, to currents that  
24 transport aquatic life around the globe.

25 Today, Rehoboth Beach presents a

1 proposition to add to the denigration of this  
2 disappearing habitat, a proposition that cites across  
3 the spectrum an addition of toxic chemicals, heavy  
4 metals, viruses, and pharmaceuticals.

5           The report attempts to rationalize the  
6 acceptable levels of all substances disappearing with  
7 a false algyomy and wizardry of diffusion. Diffusion  
8 rates in ocean eco-systems do not adhere to the true  
9 science of water, the fluid dynamics and soft  
10 boundaries that allow the synergistic mixing and  
11 movement of these foreign substances, all with  
12 uncalculated outcomes.

13           The applied science is the health of  
14 the micro-layer of the ocean, the largest living  
15 organism on the planet, just .05 millimeters thick.  
16 It is the beginning of an inter-connected gel membrane  
17 full of fish larvae and sea life, where plankton live  
18 and photosynthesis begins, where the ocean absorbs the  
19 increasing carbon dioxide from our atmosphere.

20           It is here and in the sediments of the  
21 benthic layer of our ocean that these diffuse  
22 chemicals accumulate to extreme toxic levels from a  
23 hundred to a million times greater than in the water  
24 column.

25           Such bio-accumulation in the

1 micro-layer deforms fish at their primal stages of  
2 development, pollutes the hydrosphere where marine  
3 mammals and sea turtles surface to breathe hundreds of  
4 times a day.

5           Some micro-layer facts: The upper  
6 meter of sea water is divided into other sublayers,  
7 the first .05 millimeters is a dense concentration of  
8 minerals, organic chemicals, protozoans, and  
9 micro-organisms. The upper 70 millimeters has  
10 slightly larger organisms, including fish eggs and  
11 larva; many creatures of the ocean trans into the  
12 sunlight at this level.

13           And for instance in the Chesapeake Bay,  
14 over 99 percent of the blue crab come to the surface  
15 to grab a nutrient before heading back over -- before  
16 they start to develop; a very important part of our  
17 ocean eco-system.

18           I want to just, for the record, cite  
19 from the Office of Protected Resources a species that  
20 is in the Delaware waters that has just, as this past  
21 Friday, been listed as endangered, it is the Atlantic  
22 Sturgeon as we know. It is a highly, highly  
23 endangered species, nearly extinct in our district.  
24 Now, from historical records in Delaware, in the 1890s  
25 there was over 180,000 spawning females; today, we

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1 have less than 300 in the waters. Now, these are ones  
2 that spawn north and come into our estuarian waters.

3 The document I will present and ask any  
4 questions is on the federal register, it's volume 77,  
5 number 24, dated February 6, 2012. Final rule went  
6 into law April 6, 2012, just this past Friday. Now,  
7 it's a very distinct species that is in our waters, it  
8 is genetically not similar to anything else.

9 The ruling involved the course of  
10 overall description of where this was, what it was,  
11 and the critical habitat that is involved. At  
12 presently, NOAA will be making comments starting next  
13 month for designation of the three areas, the three  
14 districts in the northeast for critical habitat for  
15 this animal. Now they are benthic feeders, they tend  
16 to live up to 60 years old, and range in 14 feet, so  
17 long living. They have been threatened, as we know,  
18 as Timothy's probably dealt with dredging issues in  
19 the Delaware Bay with dredging and gill-net catches,  
20 so there's a huge fear among fisheries that they may  
21 become extinct.

22 THE HEARING OFFICER: Thank you, Greg.

23 Next up, Suzanne Thurman. Have I got  
24 that right? I don't think so.

25 SUZANNE THURMAN: That was right.

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1 THE HEARING OFFICER: Oh, was it?

2 SUZANNE THURMAN: You did it just  
3 right. Thank you. Well, I'm Suzanne Thurman, I'm the  
4 executive director of the Marion Institute, and we are  
5 the marine mammal and sea turtle stranding respondent  
6 throughout the State of Delaware.

7 And I did have the chance to briefly  
8 look over the EIS, and I did notice that the data  
9 collected on these species that we're responsible for  
10 is from previous years. And I will submit written  
11 comments that include species from 2000 through 2012,  
12 and these do include several endangered species,  
13 including the North Atlantic Wright Whale, of which  
14 there are only 350 individuals left in the world, and  
15 we do have documentation of that species occurring in  
16 our waters; Fin Whales, Humpback Whales, the severely  
17 endangered kempii Ridley Sea Turtle, and the  
18 Leatherback Sea Turtles are also an endangered  
19 species. So I will in my written comments provide  
20 actual numbers of times of occurrence.

21 And I also noted in the aerial surveys  
22 that some of the species that were being identified  
23 during a time frame don't actually occur in our waters  
24 during that time frame. For example, the Harbor  
25 Porpoise is generally here from March to May, and I

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1 believe the studies were done in the summer months.  
2 So I will also provide that data.

3           And then I was also -- I wasn't able to  
4 interpret whether the benthic layers and the surface  
5 layers were taken into account with the diffusion  
6 rates and how those might be potentially negatively  
7 impacted. And since our animals surface to breathe  
8 over a hundred times a day and must break through that  
9 layer, as well as feeding on the organisms in that  
10 layer, this was another concern that we had.

11           And then lastly, although I realize a  
12 question now won't be answered, but I was curious just  
13 as to whether any investigation had been done into the  
14 viability of constructed wetlands as a financially  
15 feasible and environmentally sound alternative; that  
16 is being used in other municipalities. That's it.

17           THE HEARING OFFICER: Thank you,  
18 Suzanne. If I understood one of your questions right,  
19 it was stratification and how that would affect the  
20 diffuser function?

21           SUZANNE THURMAN: Yeah. Well, how that  
22 ultimately -- in addition to diffusion, I believe that  
23 it's known that portions of the diffuse material does  
24 enter the benthic layer and the micro layer on the  
25 surface.

1 THE HEARING OFFICER: Okay. Thank you.

2 SUZANNE THURMAN: Thank you.

3 THE HEARING OFFICER: And Susan -- or  
4 Suzanne, I'm sorry, you're going to be submitting  
5 these in writing then?

6 SUZANNE THURMAN: Yes.

7 THE HEARING OFFICER: I'd appreciate  
8 that. Thank you very much.

9 Okay. Next up, John Thader.

10 JOHN THADER: My name is John Thader.

11 I represent Artesian Water Company, but I am a  
12 resident of Dewey Beach at the Opal, 302S -- S302.  
13 I'm the senior vice-president of Artesian Water on the  
14 operations. And Artesian has thousands of customers  
15 in this coastal Sussex County area, so we represent a  
16 large area of both water and wastewater customers.

17 And just to start, I mean what seems to  
18 be the easiest solution or the easiest way to go is  
19 not always -- is not always apparent. And that the  
20 ocean outfall, you know, when you look at it on the  
21 map, has some benefits, but all along the east coast,  
22 all the way down to Florida, there are many  
23 municipalities and states that are getting out of the  
24 ocean outfall or re-evaluating the environmental  
25 appropriate system that they have.



1 relative recent past that I don't think were used in  
2 the attempt to bring the farming community into play.

3           Artesian has a hundred years of  
4 experience in building utility infrastructure. So  
5 when we talk about the cost of building infrastructure  
6 and doing it, we don't do it from just the pure  
7 estimating or engineering side; it's from the  
8 practical experience of building both water and waste-  
9 water systems in Delaware and running pipe lines.

10           We have put together a plan that will  
11 be submitted today that kind of shows the frame work,  
12 actually a little more than a frame work, we put quite  
13 a bit of time in to do it, to show how there could be  
14 modifications to the Rehoboth pumping station that  
15 would move the treated effluent from Rehoboth through  
16 a 12-mile pipeline, 20-inch in diameter, to a lagoon  
17 that would be situated on 30 acres of land, hold  
18 approximately 90-million gallons of wastewater in the  
19 Cool Spring area south of Milton.

20           From that area, we have also looked and  
21 designed a three-mile distribution main that would go  
22 to different spray fields that would be to farmers in  
23 the area and also a dedicated leased area that would  
24 be just for handling spray in the event that farmers  
25 at that time did not need it for their purposes but it





1 JOHN THADER: Yes, it will be done  
2 today.

3 THE HEARING OFFICER: Okay, thank you.

4 I have a question. Rip or Greg, I seem  
5 to recall in reviewing the EIS that there was some  
6 basic reason why wastewater treatment plant effluent  
7 could not be placed on active agricultural land.

8 RIP COPITHORN: You may be referring to  
9 the law at the time, which I believe was amended. But  
10 we did look at agricultural preservation, correct,  
11 Greg?

12 GREG POPE: Yes, that's acceptable for  
13 to spray on ag. land preservation lands. There was a  
14 MOU between DNREC and Department of Ag. several years  
15 ago.

16 THE HEARING OFFICER: Okay. So it's  
17 now okay to do that?

18 RIP COPITHORN: Yeah, but our study  
19 recognized at the time that it would be okay, even if  
20 it wasn't at the time, that it was going to be  
21 acceptable, so that was in there.

22 THE HEARING OFFICER: Okay, very good.  
23 Thank you for the clarification.

24 John, did you sign in twice for me?

25 JOHN THADER: Yes, I did.

1 THE HEARING OFFICER: All right. I'm  
2 going to pick the most -- oh, we have two different  
3 addresses, which one would you prefer to be used?

4 JOHN THADER: The Dewey Beach.

5 THE HEARING OFFICER: Dewey Beach, very  
6 good.

7 Gary Arren. Am I close?

8 GARY WARREN: Warren, w-a-r-r-e-n.

9 THE HEARING OFFICER: Oh, I'm sorry, I  
10 thought it was Gary W. Arren. It's Gary Warren, I'm  
11 sorry.

12 GARY WARREN: I'd like to thank you for  
13 the opportunity to speak on this issue.

14 THE HEARING OFFICER: Could you state  
15 your name and address?

16 GARY WARREN: I'm Gary Warren, and I'm  
17 the president of Delaware Farm Bureau. And just last  
18 week I was out in Ohio, Ohio State, and I heard a  
19 presentation by a Doctor Lal, L-a-l, and he's the  
20 center director for the Ohio Agricultural Research and  
21 Development Center. And the topic was healing the  
22 climate and feeding the world.

23 Some of the points that he made were  
24 that we're really going to have to take a hard look at  
25 recycling all of our water in the future; not only the

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1 gray, but the black. By the year 2050, the  
2 predictions are that we're going to need to grow an  
3 additional billion tons of grain a year to feed the  
4 world.

5 We're also going to have to produce an  
6 additional 200 million tons of meats, beef, pork,  
7 poultry per year. It's going to cause a minimum of a  
8 40 percent increase in water demand. One in seven  
9 humans will not have enough to eat. The benefits of  
10 the spray irrigation of recycled wastewater provides  
11 farmers a water supply, and decreases the amount of  
12 ground water that they have to take for the crops to  
13 survive.

14 And by the way, we're five inches below  
15 on rain right now, I talked to three farmers, and  
16 they've all shut down their planters because it's too  
17 dry to plant as we speak. To waste this water would  
18 be -- we recycle plastic, we recycle metals, we  
19 recycle paper, and we need to do everything we can to  
20 recycle our waters. Adequate water on the crops  
21 allows the crops to utilize all of the nutrients that  
22 you apply to those crops to grow a certain yield.  
23 Droughts cause those nutrients to stay on the soils,  
24 in the soils, or wash off into your inland bays.

25 This wastewater also provides a

1 benefit, an economic benefit to the farmers. Under  
2 the present systems that they're using now,  
3 Middletown, for instance, I think the figures are over  
4 a million gallons a day to pump to the local farms for  
5 irrigation. That water is put to the edge of the  
6 farm, under pressure, and the only thing the farmer  
7 has to do is turn it on and off when he needs it, and  
8 that cuts back on his energy costs, thus making  
9 agriculture more productive.

10           The need to treat and recycle  
11 wastewater, I just heard that the land application is  
12 a proven technology. And I have no idea how many  
13 million gallons a day you're talking about, but if you  
14 talk about 30 or 35 years, that's a lot of water that  
15 could be recycled or re-used that we wouldn't have.

16           Agriculture is the State's largest  
17 industry. Tourism is Rehoboth's largest industry.  
18 Both depend heavily on an endless supply of clean  
19 water. Ag., everything that is produced requires  
20 water. Rehoboth, nearly everyone that visits does so  
21 because of water. Rehoboth's draw is the clean, safe  
22 beaches and waterways. Future water needs of ag.  
23 predicts in the next 30 to 40 years, ag. will have to  
24 double production of everything we do to feed the  
25 world. We can do that, but we need the water and

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1 other technology to do so.

2           The world population, these are the  
3 figures given by Doctor Lal, is increasing at the rate  
4 of 150 persons per minute. Actually, 250 are being  
5 born and only a hundred die. With those kind of  
6 figures, I wish my bank account would increase that  
7 much, but it doesn't.

8           I think that we do have adequate land  
9 available and with partnerships with the local  
10 farmers. The fact that somebody states that adequate  
11 land is not available, I think I heard somebody use  
12 this term, but it's a myth at best, and it's a lie at  
13 worst.

14           I think that we can do these  
15 partnerships with the ag. community, make the land  
16 more viable for agriculture, and keep more open farm  
17 land in the state as we do so. Thank you.

18           THE HEARING OFFICER: Thank you.

19           H. Jack Muser?

20           H. JACK MUSSER: Musser

21           THE HEARING OFFICER: Musser. I'm  
22 sorry, sir.

23           H. JACK MUSSER: I don't have the  
24 expertise that's already been expressed, but my  
25 immediate reaction when I read about this in the

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1 newspaper is this seems very, very short-sighted. We  
2 have a history of our rivers being polluted by sewage.  
3 Turning our ocean into a toilet does not seem a  
4 reasonable thing to do at this stage.

5           Why does Rehoboth -- and I live in  
6 Rehoboth -- why does Rehoboth think that it has the  
7 right to put its water in the ocean? What about all  
8 the other jurisdictions along the way? If they all  
9 considered the easiest way, to dump it in the ocean,  
10 we'll have a problem.

11           It seems to me there must be a  
12 practical way of recycling, and I think we have just  
13 heard two possibilities. And I think it is very, very  
14 important that Rehoboth accept the responsibility of  
15 recycling its water, and even perhaps consider going  
16 in with other jurisdictions.

17           Other jurisdictions have the same  
18 problem, they have to get rid of their water. If we  
19 can't find something for ourselves alone, certainly if  
20 we work with other communities we can discover a way  
21 to do this probably a lot cheaper than 30 million  
22 dollars.

23           THE HEARING OFFICER: Thank you,  
24 Mr. Musser.

25           Is there anyone else? I think I have

1 called on everybody who indicated they wanted to make  
2 a statement. Did I miss anyone?

3 (No response.)

4 THE HEARING OFFICER: Okay. Has anyone  
5 changed their mind and they'd like to make a further  
6 comment?

7 Please, sir, come on up, state your  
8 name and address for the record, please.

9 TERRY O'BRIEN: My name is Terry  
10 O'Brien, and my address in Rehoboth is 31 Sussex  
11 Street. I just have a question, particularly for  
12 those who have been speaking in favor of the spray  
13 irrigation option.

14 It seems very impressive to me, but the  
15 question I have for any of the previous speakers that  
16 spoke on it was how does the concentration of  
17 hazardous waste components such as coliform bacteria,  
18 viruses, chlorinated organics, heavy metals, things  
19 like that, how do they compare to the levels found in  
20 the tertiary treated wastewater that's currently being  
21 treated?

22 I just have a concern that putting a --  
23 spraying this water on crops might have an adverse  
24 affect because of these hazardous waste components, no  
25 one has addressed that yet today, and I'd just like to

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1 know what people think about it, and what the data  
2 show as in terms of the levels, and how they compare  
3 with the tertiary treated wastewater.

4 THE HEARING OFFICER: So your concern  
5 is?

6 TERRY O'BRIEN: Well, it's more of a  
7 question than a concern, sir.

8 THE HEARING OFFICER: Okay. So your  
9 question is, I want to be sure I understand it, has  
10 anyone looked at the potential accumulation of those  
11 constituents of concern that would potentially  
12 accumulate in an ag. treatment situation?

13 TERRY O'BRIEN: Yes.

14 THE HEARING OFFICER: Okay. And that  
15 would be even from the tertiary plant?

16 TERRY O'BRIEN: Well, yeah. I'm  
17 talking about the levels of those hazardous components  
18 that would be sprayed on the agricultural products.

19 THE HEARING OFFICER: That currently  
20 come out of the tertiary treatment.

21 TERRY O'BRIEN: That's right.

22 THE HEARING OFFICER: Okay, got you.  
23 Okay, is there anyone else who would  
24 like to make a statement?

25 (No response.)

1 THE HEARING OFFICER: Going once.

2 Okay, I want to thank you all for  
3 coming here this afternoon. You have been a great  
4 audience, very respectful to the listeners, and I sure  
5 appreciate that. Please keep in mind that I'm  
6 personally going to encourage you to make further  
7 comments or questions or outline your concerns for the  
8 record. This is pretty much the last opportunity,  
9 folks, for you to get those comments before DNREC  
10 proceeds to a Record of Decision. So this is your  
11 opportunity.

12 There's 30 more days for written  
13 comments, and I think as Mr. Pope indicated, he'd  
14 prefer electronic submissions, but you are welcome to  
15 fax or submit written comments as well. I will be  
16 getting a hard copy of every comment submitted, and I  
17 promise you that every comment will be read and will  
18 be considered in my report.

19 Does anyone have any questions for me?

20 (No response.)

21 THE HEARING OFFICER: Okay, thank you.  
22 Have a good afternoon, we appreciate your attendance.

23 Oh, I'm sorry, there's one more thing I  
24 need to do, and that is I want to formally accept into  
25 the record 38 exhibits produced for the City, and

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1 these detail, for example, all the meetings that the  
2 City has gone to, everything that's happened  
3 essentially up to date. Rip, is that correct?

4 RIP COPITHORN: That's correct.

5 THE HEARING OFFICER: So there's 38  
6 exhibits from when the City started this effort to the  
7 publication of the notice of this hearing. So those  
8 38 exhibits, I'd like to formally accept into the  
9 record at this time. And then everything from this  
10 point, on, will be recorded and logged by DNREC as  
11 exhibits. Thanks again, I appreciate it.

12 - - - - -

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C E R T I F I C A T E

STATE OF DELAWARE )  
 )  
KENT COUNTY )

I, Pamela C. Herrmann, Registered Professional Reporter and Notary Public, do hereby certify the foregoing pages were taken before me at the time and place indicated herein; that the testimony was stenographically reported by me and thereafter reduced to typewriting under my personal supervision; that I am neither of counsel nor kin to parties in said action nor interested in the outcome thereof.

WITNESS my hand this \_\_\_\_\_day of

\_\_\_\_\_, 2012.



\_\_\_\_\_  
Pamela C. Herrmann  
Registered Professional Reporter  
and Notary Public

Certificate Number: 128-PS

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Milford, DE 19963

April 10, 2012

To the Mayor of Rehoboth Beach:

I am concerned about the pipe to the ocean. I called last year to let the city know of a solution to this monetary fiasco that will hurt Rehoboth Beach businesses greatly.

The product is Incinlet and the web site will tell you about a toilet that uses NO Water and it burns all the sewage that goes into it. The ash from the completely burned material (sewage) can be dumped into the garbage, about 1 cup of ash. Now that number of people to be using it is about 4 and the cost a few years ago was \$1500 and is probably more now. So please consider this as an actual factual option to the pipe. There are several other similar products as well.

Sincerely yours,

Mrs. Judy Adams, 422-8940

PS I own no part of this business but think all new construction in Delaware should require this type of toilet.



**From:** [John](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** The City of Rehoboth Beach Wastewater Treatment Plant  
**Date:** Wednesday, March 07, 2012 12:37:54 PM

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Hello,

I understand that the treated effluent will be discharged 6000 ft. off of Deauville Beach. I hope consideration has been made if we have a severe Northeaster that this effluent will not end up all over the beach. Will this have any effect on the quality of sand for any future beach replenishment projects?

Thank You  
John G. Kleitz, Jr.



**From:** [Wirtz Christina \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#); [Pope Greg \(DNREC\)](#)  
**Cc:** [Crofts Marjorie A. \(DNREC\)](#); [Wolff Elizabeth \(DNREC\)](#); [Stanley Krystal A. \(DNREC\)](#); [Zeiters Douglas \(DNREC\)](#); [Rittberg Alex \(DNREC\)](#); [Ratsep Timothy T. \(DNREC\)](#); [Marker Nancy C. \(DNREC\)](#)  
**Subject:** UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028  
**Date:** Wednesday, March 21, 2012 5:13:44 PM  
**Attachments:** [CAW12008\\_Rohobeth\\_Outfall\\_NEPA\\_Review\\_-\\_WHS\\_Comments.doc](#)

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Hello Greg:

Thanks so much for the opportunity to comment on the subject project. Please see the attached memo for a summary of comments from the Division of Waste and Hazardous Substances. The Air Quality folks will submit their comments separately, as previously. Please let me know if you should need anything else.

Best regards,

Christina  
Christina Wirtz, P.G.  
Outreach Ombudsman  
Division of Waste and Hazardous Substances  
Department of Natural Resources and Environmental Control  
391 Lukens Drive  
New Castle, DE 19720  
phone: 302.395.2515  
fax: 302.395.2555  
[christina.wirtz@state.de.us](mailto:christina.wirtz@state.de.us)

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**From:** Pope Greg (DNREC)  
**Sent:** Monday, March 12, 2012 11:35 AM  
**To:** Arndt Tricia K. (DNREC); Cooksey Sarah W. (DNREC); DeGeorgio.Alaina@epamail.epa.gov; Herr Laura M. (DNREC); Hummel Anthony E. (DNREC); Luoma Jennifer L. (DNREC); Sadler Maria K. (DNREC); Schneider John W. (DNREC); Searfoss.Renee@epamail.epa.gov; Stetzar Edna (DNREC); Stiller Kathleen M. (DNREC); Tinsman Jeffrey (DNREC); Underwood Robert (DNREC); Wilson Bartholomew D. (DNREC); Walling Lee Ann (DNREC); Clark Cherie (DNREC); Melendez Milton (DDA); Mirzakhaili Ali (DNREC); Schepens Dave J. (DNREC); Graeber Ronald E. (DNREC); Lovell Stewart E. (DNREC); LORENZ Andy; [devin\\_ray@fws.gov](mailto:devin_ray@fws.gov); [kgreene@snook.sh.nmfs.gov](mailto:kgreene@snook.sh.nmfs.gov); Slavin Timothy A (DOS); Gray Valerie A. (DNREC); Morozowich Deanna (DNREC)  
**Cc:** Piorko Frank M. (DNREC); Baldwin Robert S. (DNREC); Salkin Charles (DNREC); Crofts Marjorie A. (DNREC); Saveikis David (DNREC); Deputy Terry (DNREC)  
**Subject:** UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

**TO:** Reviewing Agencies (DNREC, USEPA, US F&W, NMFS, and other DE State Agencies)

**FROM:** Greg Pope, P.E., Engineer VI, DNREC, Financial Assistance Branch

**DATE:** March 9, 2012

**RE:** Project # 201028 – Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project

On behalf of the City of Rehoboth Beach, DNREC is soliciting comments on the Draft Environmental Impact Statement (EIS) for the above referenced project. The draft report and appendices can be viewed at:

<http://www.dnrec.delaware.gov/wr/Services/Pages/Financial-Assistance-Branch-proposed-Rehoboth-ocean-outfall.aspx>

Written comments will be accepted until May 10, 2012 at 4:30 p.m. You may e-mail your comments to [Rehoboth\\_EIS\\_Comments@state.de.us](mailto:Rehoboth_EIS_Comments@state.de.us). If you do not have any comments, please respond and say “No Comments.”

If you have any questions or need a CD version of the report, please email or call me at 302-739-9941.

Thank you for your input on this project.

Greg Pope, P.E.

State of Delaware

DNREC, Office of the Secretary,

Financial Assistance Branch

5 East Reed Street, Suite 200

Dover, DE 19901

Tel: 1-302-739-9941

Fax: 1-302-739-2137

Attachments: EIS Distribution List, City of Rehoboth Beach Public Notification

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL  
DIVISION OF WASTE AND HAZARDOUS SUBSTANCES (WHS)

MEMORANDUM

TO: Greg Pope, P.E., Engineer VI, DNREC, Financial Assistance Branch (FAB)

FROM: Christina Wirtz, Outreach Ombudsman, DNREC - WHS

SUBJECT: FAB Project # 201028 – Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project

DATE: March 21, 2012

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DNREC's Division of Waste and Hazardous Substances (WHS) appreciates the opportunity to comment on the Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall (FAB Project 201028). WHS includes the Solid and Hazardous Waste Management Section (SHWMS), Tank Management Section (TMS) and the Site Investigation and Restoration Section (SIRS).

SIRS and TMS comments on the project can be found below. SHWMS did not have any comments.

### **SIRS Comments**

Agency Name: DNREC

Project Name: Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

Division: Waste and Hazardous Substances/ SIRS

Contact Person: Krystal A. Stanley

### **Regulations/Code Requirements**

DNREC's Site Investigation and Restoration Section (SIRS) has reviewed the proposed project. There are no SIRS sites or salvage yards found within a ½-mile radius of the proposed project. Please be aware:

- If it is determined by the Department that there was a release of a hazardous substance on the property in question and the Department requires remediation pursuant to the Hazardous Substance Cleanup Act, the provisions of 7 Del.C. Chapter 91, Delaware Hazardous Substance Cleanup Act and the Delaware Regulations Governing Hazardous Substance Cleanup shall be followed.”

## Suggestions

- SIRS strongly recommends that the land owner perform environmental due diligence of the property by performing a Phase I Environmental Site Assessment (**including a title search to identify environmental covenants**) in accordance to Section 9105(c) (2) of the Delaware Hazardous Substance Cleanup Act (HSCA). While this is not a requirement under HSCA, it is good business practice and failure to do so will prevent a person from being able to qualify for a potential affirmative defense under Section 9105(c) (2) of HSCA.
- Additional remediation may be required if the project property or site is re-zoned by the county or state.
- Should a release or imminent threat of a release of hazardous substances be discovered during the course of development (e.g., contaminated water or soil), construction activities should be discontinued immediately and DNREC should be notified at the 24-hour emergency number (800-662-8802). SIRB should also be contacted as soon as possible at 302-395-2600 for further instructions.

## TMS Comments

Agency Name: DNREC Project Name: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project

Division: Tank Management Section Contact Person: Elizabeth Wolff

## Regulations/Code Requirements

DNREC's Division of Waste and Hazardous Substances – Tank Management Section (TMS) appreciates the opportunity to comment on the draft environmental impact statement. There are no Leaking Underground Storage Tank projects (LUSTs) within a quarter mile from the site. Please be aware:

- If there is a release of a Regulated Substance within the limits of the City of Rehoboth Beach, you must comply with 7 Del.C. Chapter 60, 7 Del.C., Chapter 74 and DE Admin. Code 1351, State of Delaware *Regulations Governing Underground Storage Tank Systems* (the UST Regulations).
- Per the **UST Regulations: Part E, § 1. Reporting Requirements:**
  - “Any indication of a Release of a Regulated Substance that is discovered by any Person, including but not limited to environmental consultants, contractors, utility companies, financial institutions, real estate transfer companies, UST Owners or Operators, or Responsible Parties shall be reported within 24 hours to:
    - The Department's 24-hour Release Hot Line by calling 800-662-8802; and

- The DNREC, Tank Management Section by calling 302-395-2500.”

### **Suggestions**

- Should the municipality anticipate being more restrictive than Delaware’s Regulations Governing Underground Storage Tank Systems or Delaware’s Regulations Governing Aboveground Storage Tanks, please be aware that the municipality shall be responsible for enforcing the more restrictive rules.
- When contamination is encountered, PVC pipe materials should be replaced with ductile steel and nitrile rubber gaskets in the contaminated areas.
- If any aboveground storage tanks (ASTs) less than 12,500 gallons are installed, they must be registered with the TMS. If any ASTs greater than 12,500 gallons are installed, they are also subject to installation approval by the TMS.

CAW12008



**From:** [Andy J. Lorenz](#)  
**To:** [DNREC EIS Comments](#)  
**Cc:** [BROCKENBROUGH Kim](#)  
**Subject:** Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028  
**Date:** Thursday, March 22, 2012 10:19:14 AM  
**Attachments:** [image002.png](#)  
[image003.png](#)  
[image004.png](#)

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RE: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

The Delaware State Housing Authority has “No Comments” on the above referenced proposed Project.

Thank you,

Andy Lorenz

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Providing Affordable Housing Opportunities



Andrew J. Lorenz, Management Analyst III, DSHA  
18 The Green, Dover, DE 19901  
PHONE: (302) 739-0261 FAX: (302) 739-2416 TOLL FREE: 888-363-8808  
[andy@destatehousing.com](mailto:andy@destatehousing.com) \* [www.DESateHousing.com](http://www.DESateHousing.com)

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**From:** [Pope Greg \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** FW: UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028  
**Date:** Wednesday, March 28, 2012 10:51:29 AM

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**From:** Lovell Stewart E. (DNREC)  
**Sent:** Monday, March 12, 2012 12:30 PM  
**To:** Pope Greg (DNREC)  
**Subject:** RE: UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

No comments.

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**From:** Pope Greg (DNREC)  
**Sent:** Monday, March 12, 2012 11:35 AM  
**To:** Arndt Tricia K. (DNREC); Cooksey Sarah W. (DNREC); DeGeorgio.Alaina@epamail.epa.gov; Herr Laura M. (DNREC); Hummel Anthony E. (DNREC); Luoma Jennifer L. (DNREC); Sadler Maria K. (DNREC); Schneider John W. (DNREC); Searfoss.Renee@epamail.epa.gov; Stetzar Edna (DNREC); Stiller Kathleen M. (DNREC); Tinsman Jeffrey (DNREC); Underwood Robert (DNREC); Wilson Bartholomew D. (DNREC); Walling Lee Ann (DNREC); Clark Cherie (DNREC); Melendez Milton (DDA); Mirzakhilili Ali (DNREC); Schepens Dave J. (DNREC); Graeber Ronald E. (DNREC); Lovell Stewart E. (DNREC); LORENZ Andy; devin\_ray@fws.gov; kgreene@snook.sh.nmfs.gov; Slavin Timothy A (DOS); Gray Valerie A. (DNREC); Morozowich Deanna (DNREC)  
**Cc:** Piorko Frank M. (DNREC); Baldwin Robert S. (DNREC); Salkin Charles (DNREC); Crofts Marjorie A. (DNREC); Saveikis David (DNREC); Deputy Terry (DNREC)  
**Subject:** UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

**TO:** Reviewing Agencies (DNREC, USEPA, US F&W, NMFS, and other DE State Agencies)  
**FROM:** Greg Pope, P.E., Engineer VI, DNREC, Financial Assistance Branch  
**DATE:** March 9, 2012  
**RE:** Project # 201028 – Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project

On behalf of the City of Rehoboth Beach, DNREC is soliciting comments on the Draft Environmental Environmental Impact Statement (EIS) for the above referenced project. The draft report and appendices can be viewed at:

<http://www.dnrec.delaware.gov/wr/Services/Pages/Financial-Assistance-Branch-proposed-Rehoboth-ocean-outfall.aspx>

Written comments will be accepted until May 10, 2012 at 4:30 p.m. You may e-mail your comments to [Rehoboth\\_EIS\\_Comments@state.de.us](mailto:Rehoboth_EIS_Comments@state.de.us). If you do not have any comments, please respond and say “No Comments.”

If you have any questions or need a CD version of the report, please email or call me at 302-739-9941.

Thank you for your input on this project.

Greg Pope, P.E.

State of Delaware

DNREC, Office of the Secretary,

Financial Assistance Branch

5 East Reed Street, Suite 200

Dover, DE 19901

Tel: 1-302-739-9941

Fax: 1-302-739-2137

Attachments: EIS Distribution List, City of Rehoboth Beach Public Notification

**From:** [markam1@ucia.gov](mailto:markam1@ucia.gov)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Ocean Outfall- Main Location Question  
**Date:** Monday, April 09, 2012 3:33:54 PM

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The proposed main goes through our development, Park Place on the Canal, according to the diagram. Will it go behind the townhomes, or in front of them? There seems to be no room behind our townhomes for the main. And it could jeopardize the townhome foundations that line the Rehoboth- Lewes Canal if the main goes between our townhome and the canal (the rear location). Thank you in advance for providing clarification. Mark and Karen Mikatavage, 103 Canal Street



**From:** [Shields, Diane - NRCS, Dover, DE](#)  
**To:** [DNREC EIS Comments](#)  
**Cc:** [Kepfer, Sally - NRCS, Dover, DE](#); [Morgan, Russell - NRCS, Dover, DE](#)  
**Subject:** EIS - Rehobeth Beach WWTP Ocean Outfall  
**Date:** Monday, April 09, 2012 4:56:01 PM  
**Attachments:** [7cfr658\\_edition\\_1\\_1\\_09.pdf](#)  
[Prime and other Important FarmlandsSussex.RTF](#)

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Greg Pope  
DNREC  
Financial Assistance Branch  
5 E. Reed St. Suite 200  
Dover, DE 19901

I have reviewed the draft EIS for Proj. #201028- City Rehobeth Beach for proposed WWT Ocean Outfall, and have a few comments.

In reference to Prime Agricultural Land, the information given in the report, Chapter 7, pp. 20-22 is incorrect. The list of Prime Farmland Soil Types and Statewide Important Farmland Soils is out of date. It appears this list was used with the current Soil Map of Sussex County, giving a misleading map interpretation (Figure 7-11).

Current soil data and maps are kept on the web:

Soil Data Mart:

<http://soildatamart.nrcs.usda.gov/SDM%20Web%20Application/default.aspx>

Web Soil Survey:

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

If this project will use any federal funds or assistance (including loans, etc.), it would fall under the Farmland Protection Policy Act, and should include a USDA "Farmland Conversion Impact Rating" Form, tracking the evaluation of alternatives and effects on Prime Farmland. The process and instructions are included in the CFR (I've attached a copy).

If you have any questions, don't hesitate to call or email.

Diane Shields  
USDA/NRCS  
Assistant State Soil Scientist  
*Lesbian, Gay, Bisexual, Transgender SEPM*  
Dover, DE

(302)-678-4172  
diane.shields@de.usda.gov

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deep, during part of each year the conductivity of the saturation extract is less than 4 mmhos/cm and the exchangeable sodium percentage (ESP) is less than 15; and,

(vi) The soils are not flooded frequently during the growing season (less often than once in 2 years); and,

(vii) The product of K (erodibility factor) × percent slope is less than 2.0, and the product of I (soils erodibility) × C (climatic factor) does not exceed 60; and

(viii) The soils have a permeability rate of at least 0.06 inch (0.15 cm) per hour in the upper 20 inches (50 cm) and the mean annual soil temperature at a depth of 20 inches (50 cm) is less than 59 °F (15 °C); the permeability rate is not a limiting factor if the mean annual soil temperature is 59 °F (15 °C) or higher; and,

(ix) Less than 10 percent of the surface layer (upper 6 inches) in these soils consists of rock fragments coarser than 3 inches (7.6 cm).

(b) *Unique farmland*—(1) *General*. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, fruit, and vegetables.

(2) *Specific characteristics of unique farmland*. (i) Is used for a specific high-value food or fiber crop; (ii) Has a moisture supply that is adequate for the specific crop; the supply is from stored moisture, precipitation, or a developed-irrigation system; (iii) Combines favorable factors of soil quality, growing season, temperature, humidity, air drainage, elevation, aspect, or other conditions, such a nearness to market, that favor the growth of a specific food or fiber crop.

(c) *Additional farmland of statewide importance*. This is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops. Criteria for defining and de-

lineating this land are to be determined by the appropriate State agency or agencies. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmlands if conditions are favorable. In some States, additional farmlands of statewide importance may include tracts of land that have been designated for agriculture by State law.

(d) *Additional farmland of local importance*. In some local areas there is concern for certain additional farmlands for the production of food, feed, fiber, forage, and oilseed crops, even though these lands are not identified as having national or statewide importance. Where appropriate, these lands are to be identified by the local agency or agencies concerned. In places, additional farmlands of local importance may include tracts of land that have been designated for agriculture by local ordinance.

## PART 658—FARMLAND PROTECTION POLICY ACT

- Sec.
- 658.1 Purpose.
- 658.2 Definitions.
- 658.3 Applicability and exemptions.
- 658.4 Guidelines for use of criteria.
- 658.5 Criteria.
- 658.6 Technical assistance.
- 658.7 USDA assistance with Federal agencies' reviews of policies and procedures.

AUTHORITY: 7 U.S.C. 4201-4209.

SOURCE: 49 FR 27724, July 5, 1984, unless otherwise noted.

### § 658.1 Purpose.

This part sets out the criteria developed by the Secretary of Agriculture, in cooperation with other Federal agencies, pursuant to section 1541(a) of the Farmland Protection Policy Act (FPPA or the Act) 7 U.S.C. 4202(a). As required by section 1541(b) of the Act, 7 U.S.C. 4202(b), Federal agencies are (a) to use the criteria to identify and take into account the adverse effects of their programs on the preservation of farmland, (b) to consider alternative

## § 658.2

## 7 CFR Ch. VI (1-1-09 Edition)

actions, as appropriate, that could lessen adverse effects, and (c) to ensure that their programs, to the extent practicable, are compatible with State and units of local government and private programs and policies to protect farmland. Guidelines to assist agencies in using the criteria are included in this part. The Department of Agriculture (hereinafter USDA) may make available to States, units of local government, individuals, organizations, and other units of the Federal Government, information useful in restoring, maintaining, and improving the quantity and quality of farmland.

### § 658.2 Definitions.

(a) *Farmland* means prime or unique farmlands as defined in section 1540(c)(1) of the Act or farmland that is determined by the appropriate state or unit of local government agency or agencies with concurrence of the Secretary to be farmland of statewide or local importance. "Farmland" does not include land already in or committed to urban development or water storage. Farmland "already in" urban development or water storage includes all such land with a density of 30 structures per 40-acre area. Farmland already in urban development also includes lands identified as "urbanized area" (UA) on the Census Bureau Map, or as urban area mapped with a "tint overprint" on the USGS topographical maps, or as "urban-built-up" on the USDA Important Farmland Maps. Areas shown as white on the USDA Important Farmland Maps are not "farmland" and, therefore, are not subject to the Act. Farmland "committed to urban development or water storage" includes all such land that receives a combined score of 160 points or less from the land evaluation and site assessment criteria.

(b) *Federal agency* means a department, agency, independent commission, or other unit of the Federal Government.

(c) *Federal program* means those activities or responsibilities of a Federal agency that involve undertaking, financing, or assisting construction or improvement projects or acquiring, managing, or disposing of Federal lands and facilities.

(1) The term "Federal program" does not include:

(i) Federal permitting, licensing, or rate approval programs for activities on private or non-Federal lands; and

(ii) Construction or improvement projects that were beyond the planning stage and were in either the active design or construction state on August 4, 1984.

(2) For the purposes of this section, a project is considered to be "beyond the planning stage and in either the active design or construction state on August 4, 1984" if, on or before that date, actual construction of the project had commenced or:

(i) Acquisition of land or easements for the project had occurred or all required Federal agency planning documents and steps were completed and accepted, endorsed, or approved by the appropriate agency;

(ii) A final environmental impact statement was filed with the Environmental Protection Agency or an environmental assessment was completed and a finding of no significant impact was executed by the appropriate agency official; and

(iii) The engineering or architectural design had begun or such services had been secured by contract. The phrase "undertaking, financing, or assisting construction or improvement projects" includes providing loan guarantees or loan insurance for such projects and includes the acquisition, management and disposal of land or facilities that a Federal agency obtains as the result of foreclosure or other actions taken under a loan or other financial assistance provided by the agency directly and specifically for that property. For the purposes of this section, the phrase "acquiring, managing, or disposing of Federal lands and facilities" refers to lands and facilities that are acquired, managed, or used by a Federal agency specifically in support of a Federal activity or program, such as national parks, national forests, or military bases, and does not refer to lands and facilities that are acquired by a Federal agency as the incidental result of actions by the agency that give the agency temporary custody or ownership of the lands or facilities, such as

acquisition pursuant to a lien for delinquent taxes, the exercise of conservatorship or receivership authority, or the exercise of civil or criminal law enforcement forfeiture or seizure authority.

(d) *State or local government policies or programs to protect farmland* include: Zoning to protect farmland; agricultural land protection provisions of a comprehensive land use plan which has been adopted or reviewed in its entirety by the unit of local government in whose jurisdiction it is operative within 10 years preceding proposed implementation of the particular Federal program; completed purchase or acquisition of development rights; completed purchase or acquisition of conservation easements; prescribed procedures for assessing agricultural viability of sites proposed for conversion; completed agricultural districting and capital investments to protect farmland.

(e) *Private programs to protect farmland* means programs for the protection of farmland which are pursuant to and consistent with State and local government policies or programs to protect farmland of the affected State and unit of local government, but which are operated by a nonprofit corporation, foundation, association, conservancy, district, or other not-for-profit organization existing under State or Federal laws. Private programs to protect farmland may include: (1) Acquiring and holding development rights in farmland and (2) facilitating the transfer of development rights of farmland.

(f) *Site* means the location(s) that would be converted by the proposed action(s).

(g) *Unit of local government* means the government of a county, municipality, town, township, village, or other unit of general government below the State level, or a combination of units of local government acting through an areawide agency under a State law or an agreement for the formulation of regional development policies and plans.

[49 FR 27724, July 5, 1984, as amended at 59 FR 31117, June 17, 1994]

### § 658.3 Applicability and exemptions.

(a) Section 1540(b) of the Act, 7 U.S.C. 4201(b), states that the purpose of the

Act is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. Conversion of farmland to nonagricultural uses does not include the construction of on-farm structures necessary for farm operations. Federal agencies can obtain assistance from USDA in determining whether a proposed location or site meets the Act's definition of farmland. The USDA Natural Resources Conservation Service (NRCS) field office serving the area will provide the assistance. Many State or local government planning offices can also provide this assistance.

(b) Acquisition or use of farmland by a Federal agency for national defense purposes is exempted by section 1547(b) of the Act, 7 U.S.C. 4208(b).

(c) The Act and these regulations do not authorize the Federal Government in any way to regulate the use of private or non-Federal land, or in any way affect the property rights of owners of such land. In cases where either a private party or a non-Federal unit of government applies for Federal assistance to convert farmland to a nonagricultural use, the Federal agency should use the criteria set forth in this part to identify and take into account any adverse effects on farmland of the assistance requested and develop alternative actions that would avoid or mitigate such adverse effects. If, after consideration of the adverse effects and suggested alternatives, the landowners want to proceed with conversion, the Federal agency, on the basis of the analysis set forth in § 658.4 and any agency policies or procedures for implementing the Act, may provide or deny the requested assistance. Only assistance and actions that would convert farmland to nonagricultural uses are subject to this Act. Assistance and actions related to the purchase, maintenance, renovation, or replacement of existing structures and sites converted prior to the time of an application for assistance from a Federal agency, including assistance and actions related to the construction of minor new ancillary structures (such as garages or sheds), are not subject to the Act.

(d) Section 1548 of the Act, as amended, 7 U.S.C. 4209, states that the Act

## § 658.4

## 7 CFR Ch. VI (1-1-09 Edition)

shall not be deemed to provide a basis for any action, either legal or equitable, by any person or class of persons challenging a Federal project, program, or other activity that may affect farmland. Neither the Act nor this rule, therefore, shall afford any basis for such an action. However, as further provided in section 1548, the governor of an affected state, where a state policy or program exists to protect farmland, may bring an action in the Federal district court of the district where a Federal program is proposed to enforce the requirements of section 1541 of the Act, 7 U.S.C. 4202, and regulations issued pursuant to that section.

[49 FR 27724, July 5, 1984, as amended at 59 FR 31117, June 17, 1994]

### § 658.4 Guidelines for use of criteria.

As stated above and as provided in the Act, each Federal agency shall use the criteria provided in § 658.5 to identify and take into account the adverse effects of Federal programs on the protection of farmland. The agencies are to consider alternative actions, as appropriate, that could lessen such adverse effects, and assure that such Federal programs, to the extent practicable, are compatible with State, unit of local government and private programs and policies to protect farmland. The following are guidelines to assist the agencies in these tasks:

(a) An agency may determine whether or not a site is farmland as defined in § 658.2(a) or the agency may request that NRCS make such a determination. If an agency elects not to make its own determination, it should make a request to NRCS on Form AD-1006, the Farmland Conversion Impact Rating Form, available at NRCS offices, for determination of whether the site is farmland subject to the Act. If neither the entire site nor any part of it are subject to the Act, then the Act will not apply and NRCS will so notify the agency. If the site is determined by NRCS to be subject to the Act, then NRCS will measure the relative value of the site as farmland on a scale of 0 to 100 according to the information sources listed in § 658.5(a). NRCS will respond to these requests within 10 working days of their receipt except that in cases where a site visit or land

evaluation system design is needed, NRCS will respond in 30 working days. In the event that NRCS fails to complete its response within the required period, if further delay would interfere with construction activities, the agency should proceed as though the site were not farmland.

(b) The Form AD 1006, returned to the agency by NRCS will also include the following incidental information: The total amount of farmable land (the land in the unit of local government's jurisdiction that is capable of producing the commonly grown crop); the percentage of the jurisdiction that is farmland covered by the Act; the percentage of farmland in the jurisdiction that the project would convert; and the percentage of farmland in the local government's jurisdiction with the same or higher relative value than the land that the project would convert. These statistics will not be part of the criteria scoring process, but are intended simply to furnish additional background information to Federal agencies to aid them in considering the effects of their projects on farmland.

(c) After the agency receives from NRCS the score of a site's relative value as described in § 658.4(a) and then applies the site assessment criteria which are set forth in § 658.5 (b) and (c), the agency will assign to the site a combined score of up to 260 points, composed of up to 100 points for relative value and up to 160 points for the site assessment. With this score the agency will be able to identify the effect of its programs on farmland, and make a determination as to the suitability of the site for protection as farmland. Once this score is computed, USDA recommends:

(1) Sites with the highest combined scores be regarded as most suitable for protection under these criteria and sites with the lowest scores, as least suitable.

(2) Sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated.

(3) Sites receiving scores totaling 160 or more be given increasingly higher levels of consideration for protection.

(4) When making decisions on proposed actions for sites receiving scores

totaling 160 or more, agency personnel consider:

(i) Use of land that is not farmland or use of existing structures;

(ii) Alternative sites, locations and designs that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a lower relative value;

(iii) Special siting requirements of the proposed project and the extent to which an alternative site fails to satisfy the special siting requirements as well as the originally selected site.

(d) Federal agencies may elect to assign the site assessment criteria relative weightings other than those shown in § 658.5 (b) and (c). If an agency elects to do so, USDA recommends that the agency adopt its alternative weighting system (1) through rule-making in consultation with USDA, and (2) as a system to be used uniformly throughout the agency. USDA recommends that the weightings stated in § 658.5 (b) and (c) be used until an agency issues a final rule to change the weightings.

(e) It is advisable that evaluations and analyses of prospective farmland conversion impacts be made early in the planning process before a site or design is selected, and that, where possible, agencies make the FPPA evaluations part of the National Environmental Policy Act (NEPA) process. Under the agency's own NEPA regulations, some categories of projects may be excluded from NEPA which may still be covered under the FPPA. Section 1540(c)(4) of the Act exempts projects that were beyond the planning stage and were in either the active design or construction state on the effective date of the Act. Section 1547(b) exempts acquisition or use of farmland for national defense purposes. There are no other exemptions of projects by category in the Act.

(f) Numerous States and units of local government are developing and adopting Land Evaluation and Site Assessment (LESA) systems to evaluate the productivity of agricultural land and its suitability for conversion to nonagricultural use. Therefore, States and units of local government may have already performed an evaluation using criteria similar to those con-

tained in this rule applicable to Federal agencies. USDA recommends that where sites are to be evaluated within a jurisdiction having a State or local LESA system that has been approved by the governing body of such jurisdiction and has been placed on the NRCS State conservationist's list as one which meets the purpose of the FPPA in balance with other public policy objectives, Federal agencies use that system to make the evaluation.

(g) To meet reporting requirements of section 1546 of the Act, 7 U.S.C. 4207, and for data collection purposes, after the agency has made a final decision on a project in which one or more of the alternative sites contain farmland subject to the FPPA, the agency is requested to return a copy of the Form AD-1006, which indicates the final decision of the agency, to the NRCS field office.

(h) Once a Federal agency has performed an analysis under the FPPA for the conversion of a site, that agency's, or a second Federal agency's determination with regard to additional assistance or actions on the same site do not require additional redundant FPPA analysis.

[49 FR 27724, July 5, 1984, as amended at 59 FR 31118, June 17, 1994]

#### § 658.5 Criteria.

This section states the criteria required by section 1541(a) of the Act, 7 U.S.C. 4202(a). The criteria were developed by the Secretary of Agriculture in cooperation with other Federal agencies. They are in two parts, (1) the land evaluation criterion, relative value, for which NRCS will provide the rating or score, and (2) the site assessment criteria, for which each Federal agency must develop its own ratings or scores. The criteria are as follows:

(a) *Land Evaluation Criterion—Relative Value.* The land evaluation criterion is based on information from several sources including national cooperative soil surveys or other acceptable soil surveys, NRCS field office technical guides, soil potential ratings or soil productivity ratings, land capability classifications, and important farmland determinations. Based on this information, groups of soils within a local government's jurisdiction will be

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evaluated and assigned a score between 0 to 100, representing the relative value, for agricultural production, of the farmland to be converted by the project compared to other farmland in the same local government jurisdiction, This score will be the Relative Value Rating on Form AD 1006.

(b) *Site Assessment Criteria.* Federal agencies are to use the following criteria to assess the suitability of each proposed site or design alternative for protection as farmland along with the score from the land evaluation criterion described in § 658.5(a). Each criterion will be given a score on a scale of 0 to the maximum points shown. Conditions suggesting top, intermediate and bottom scores are indicated for each criterion. The agency would make scoring decisions in the context of each proposed site or alternative action by examining the site, the surrounding area, and the programs and policies of the State or local unit of government in which the site is located. Where one given location has more than one design alternative, each design should be considered as an alternative site. The site assessment criteria are:

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?

- More than 90 percent—15 points
- 90 to 20 percent—14 to 1 point(s)
- Less than 20 percent—0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

- More than 90 percent—10 points
- 90 to 20 percent—9 to 1 point(s)
- Less than 20 percent—0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than 5 of the last 10 years?

- More than 90 percent—20 points
- 90 to 20 percent—19 to 1 point(s)
- Less than 20 percent—0 points

(4) Is the site subject to State or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

- Site is protected—20 points
- Site is not protected—0 points

(5) How close is the site to an urban built-up area?

- The site is 2 miles or more from an urban built-up area—15 points
- The site is more than 1 mile but less than 2 miles from an urban built-up area—10 points
- The site is less than 1 mile from, but is not adjacent to an urban built-up area—5 points
- The site is adjacent to an urban built-up area—0 points

(6) How close is the site to water lines, sewer lines and/or other local facilities and services whose capacities and design would promote non-agricultural use?

- None of the services exist nearer than 3 miles from the site—15 points
- Some of the services exist more than 1 but less than 3 miles from the site—10 points
- All of the services exist within ½ mile of the site—0 points

(7) Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county? (Average farm sizes in each county are available from the NRCS field offices in each State. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with \$1,000 or more in sales.)

- As large or larger—10 points
- Below average—deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average—9 to 0 points

(8) If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

- Acreage equal to more than 25 percent of acres directly converted by the project—10 points
- Acreage equal to between 25 and 5 percent of the acres directly converted by the project—9 to 1 point(s)
- Acreage equal to less than 5 percent of the acres directly converted by the project—0 points

(9) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

- All required services are available—5 points

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Some required services are available—4 to 1 point(s)

No required services are available—0 points

(10) Does the site have substantial and well-maintained on-farm investments such as barns, other storage buildings, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment—20 points

Moderate amount of on-farm investment—19 to 1 point(s)

No on-farm investment—0 points

(11) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is converted—10 points

Some reduction in demand for support services if the site is converted—9 to 1 point(s)

No significant reduction in demand for support services if the site is converted—0 points

(12) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

Proposed project is incompatible with existing agricultural use of surrounding farmland—10 points

Proposed project is tolerable to existing agricultural use of surrounding farmland—9 to 1 point(s)

Proposed project is fully compatible with existing agricultural use of surrounding farmland—0 points

(c) *Corridor-type Site Assessment Criteria.* The following criteria are to be used for projects that have a linear or corridor-type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor-type site or design alternative for protection as farmland along with the land evaluation information described in § 658.4(a). All criteria for corridor-type sites will be scored as shown

in § 658.5(b) for other sites, except as noted below:

(1) Criteria 5 and 6 will not be considered.

(2) Criterion 8 will be scored on a scale of 0 to 25 points, and criterion 11 will be scored on a scale of 0 to 25 points.

### § 658.6 Technical assistance.

(a) Section 1543 of the Act, 7 U.S.C. 4204 states, "The Secretary is encouraged to provide technical assistance to any State or unit of local government, or any nonprofit organization, as determined by the Secretary, that desires to develop programs or policies to limit the conversion of productive farmland to nonagricultural uses." In § 2.62, of 7 CFR part 2, subtitle A, NRCS is delegated leadership responsibility within USDA for the activities treated in this part.

(b) In providing assistance to States, local units of government, and nonprofit organizations, USDA will make available maps and other soils information from the national cooperative soil survey through NRCS field offices.

(c) Additional assistance, within available resources, may be obtained from local offices of other USDA agencies. The Agricultural Stabilization and Conservation Service and the Forest Service can provide aerial photographs, crop history data, and related information. A reasonable fee may be charged. In many States, the Cooperative Extension Service can provide help in understanding and identifying farmland protection issues and problems, resolving conflicts, developing alternatives, deciding on appropriate actions, and implementing those decisions.

(d) Officials of State agencies, local units of government, nonprofit organizations, or regional, area, State-level, or field offices of Federal agencies may obtain assistance by contacting the office of the NRCS State conservationist. A list of Natural Resources Conservation Service State office locations appears in Appendix A, § 661.6 of this title. If further assistance is needed, requests

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should be made to the Assistant Secretary for Natural Resources and Environment, Office of the Secretary, Department of Agriculture, Washington, DC 20250.

**§ 658.7 USDA assistance with Federal agencies' reviews of policies and procedures.**

(a) Section 1542(a) of the Act, 7 U.S.C. 4203, states, "Each department, agency, independent commission or other unit of the Federal Government, with the assistance of the Department of Agriculture, shall review current provisions of law, administrative rules and regulations, and policies and procedures applicable to it to determine whether any provision thereof will prevent such unit of the Federal Government from taking appropriate action to comply fully with the provisions of this subtitle."

(b) Section 1542(b) of the Act, 7 U.S.C. 4203, requires, as appropriate, each department, agency, independent commission, or other unit of the Federal Government, with the assistance of the Department of Agriculture, to develop proposals for action to bring its programs, authorities, and administrative activities into conformity with the purpose and policy of the Act.

(c) USDA will provide certain assistance to other Federal agencies for the

purposes specified in section 1542 of the Act, 7 U.S.C. 4203. If a Federal agency identifies or suggests changes in laws, administrative rules and regulations, policies, or procedures that may affect the agency's compliance with the Act, USDA can advise the agency of the probable effects of the changes on the protection of farmland. To request this assistance, officials of Federal agencies should correspond with the Chief, Natural Resources Conservation Service, P.O. Box 2890, Washington, DC 20013.

(d) To meet the reporting requirements of section 1546 of the Act, 7 U.S.C. 4207, and for data collection purposes, each Federal agency is requested to report to the Chief of the Natural Resources Conservation Service by November 15th of each year on progress made during the prior fiscal year to implement sections 1542 (a) and (b) of the Act, 7 U.S.C. 4203 (a) and (b). Until an agency fully implements those sections, the agency should continue to make the annual report, but may omit the report upon full implementation. However, an agency is requested to file an annual report for any future year in which the agency has substantially changed its process for compliance with the Act.

[49 FR 27724, July 5, 1984, as amended at 59 FR 31118, June 17, 1994]

# Prime and other Important Farmlands

Sussex County, Delaware

Map symbol	Map unit name	Farmland classification
DnA	Downer loamy sand, 0 to 2 percent slopes	All areas are prime farmland
DnB	Downer loamy sand, 2 to 5 percent slopes	All areas are prime farmland
DoA	Downer sandy loam, 0 to 2 percent slopes	All areas are prime farmland
DoB	Downer sandy loam, 2 to 5 percent slopes	All areas are prime farmland
GrA	Greenwich loam, 0 to 2 percent slopes	All areas are prime farmland
GrB	Greenwich loam, 2 to 5 percent slopes	All areas are prime farmland
HbA	Hambrook sandy loam, 0 to 2 percent slopes	All areas are prime farmland
HbB	Hambrook sandy loam, 2 to 5 percent slopes	All areas are prime farmland
HmA	Hammonton loamy sand, 0 to 2 percent slopes	All areas are prime farmland
HnA	Hammonton sandy loam, 0 to 2 percent slopes	All areas are prime farmland
IeA	Ingleside loamy sand, 0 to 2 percent slopes	All areas are prime farmland
IeB	Ingleside loamy sand, 2 to 5 percent slopes	All areas are prime farmland
IgA	Ingleside sandy loam, 0 to 2 percent slopes	All areas are prime farmland
IgB	Ingleside sandy loam, 2 to 5 percent slopes	All areas are prime farmland
ImB	Ingleside-Hammonton-Fallsington complex, 0 to 5 percent slopes	All areas are prime farmland
KfA	Keyport fine sandy loam, 0 to 2 percent slopes	All areas are prime farmland
KpA	Keyport silt loam, 0 to 2 percent slopes	All areas are prime farmland
KpB	Keyport silt loam, 2 to 5 percent slopes	All areas are prime farmland
PyA	Pineyneck loam, 0 to 2 percent slopes	All areas are prime farmland
SaA	Sassafras sandy loam, 0 to 2 percent slopes	All areas are prime farmland
SaB	Sassafras sandy loam, 2 to 5 percent slopes	All areas are prime farmland
UIA	Unicorn loam, 0 to 2 percent slopes	All areas are prime farmland
WdA	Woodstown sandy loam, 0 to 2 percent slopes	All areas are prime farmland
WoA	Woodstown loam, 0 to 2 percent slopes	All areas are prime farmland
CaA	Carmichael loam, 0 to 2 percent slopes	Farmland of statewide importance
CdB	Cedartown loamy sand, 0 to 5 percent slopes	Farmland of statewide importance
CoA	Corsica mucky loam, 0 to 2 percent slopes	Farmland of statewide importance
DnC	Downer loamy sand, 5 to 10 percent slopes	Farmland of statewide importance
DoC	Downer sandy loam, 5 to 10 percent slopes	Farmland of statewide importance
FaA	Fallsington sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
FgA	Fallsington loam, 0 to 2 percent slopes	Farmland of statewide importance
GaB	Galestown loamy sand, 0 to 5 percent slopes	Farmland of statewide importance
GoA	Glassboro sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
HoA	Hammonton-Fallsington-Mullica complex, 0 to 2 percent slopes	Farmland of statewide importance
HuA	Hurlock loamy sand, 0 to 2 percent slopes	Farmland of statewide importance
HvA	Hurlock sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
KgB	Klej-Galloway complex, 0 to 5 percent slopes	Farmland of statewide importance
KsA	Klej loamy sand, 0 to 2 percent slopes	Farmland of statewide importance
LfA	Lenni sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
LhA	Lenni silt loam, 0 to 2 percent slopes	Farmland of statewide importance
McA	Marshyhope loam, 0 to 2 percent slopes	Farmland of statewide importance
MdA	Marshyhope sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
SaC	Sassafras sandy loam, 5 to 10 percent slopes	Farmland of statewide importance
BhA	Berryland mucky loamy sand, 0 to 2 percent slopes	Prime farmland if drained
MmA	Mullica mucky sandy loam, 0 to 2 percent slopes	Prime farmland if drained
MuA	Mullica-Berryland complex, 0 to 2 percent slopes	Prime farmland if drained
FhB	Fort Mott-Henlopen complex, 2 to 5 percent slopes	Prime farmland if irrigated
FmA	Fort Mott loamy sand, 0 to 2 percent slopes	Prime farmland if irrigated
FmB	Fort Mott loamy sand, 2 to 5 percent slopes	Prime farmland if irrigated

# Prime and other Important Farmlands

Sussex County, Delaware

Map symbol	Map unit name	Farmland classification
HpA	Henlopen loamy sand, 0 to 2 percent slopes	Prime farmland if irrigated
HpB	Henlopen loamy sand, 2 to 5 percent slopes	Prime farmland if irrigated
HrA	Henlopen-Rosedale complex, 0 to 2 percent slopes	Prime farmland if irrigated
HrB	Henlopen-Rosedale complex, 2 to 5 percent slopes	Prime farmland if irrigated
PpA	Pepperbox loamy sand, 0 to 2 percent slopes	Prime farmland if irrigated
PpB	Pepperbox loamy sand, 2 to 5 percent slopes	Prime farmland if irrigated
PrA	Pepperbox-Rockawalkin complex, 0 to 2 percent slopes	Prime farmland if irrigated
PrB	Pepperbox-Rockawalkin complex, 2 to 5 percent slopes	Prime farmland if irrigated
PsA	Pepperbox-Rosedale complex, 0 to 2 percent slopes	Prime farmland if irrigated
PsB	Pepperbox-Rosedale complex, 2 to 5 percent slopes	Prime farmland if irrigated
RkA	Rockawalkin loamy sand, 0 to 2 percent slopes	Prime farmland if irrigated
RkB	Rockawalkin loamy sand, 2 to 5 percent slopes	Prime farmland if irrigated
RoA	Rosedale loamy sand, 0 to 2 percent slopes	Prime farmland if irrigated
RoB	Rosedale loamy sand, 2 to 5 percent slopes	Prime farmland if irrigated

**From:** [mario-rocha@aol.com](mailto:mario-rocha@aol.com)  
**To:** [DNREC EIS Comments](#)  
**Cc:** [T.Holmes@aol.com](mailto:T.Holmes@aol.com)  
**Subject:** Rehoboth Ocean Outfall  
**Date:** Wednesday, April 11, 2012 4:13:05 PM

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Greg Pope:

I have several concerns and comments on the Rehoboth Beach ocean outfall environmental impact statement as it relates to the tree canopy along Henlopen Ave.

What damage will be done to the root structure of these trees? A change to the tree's crown or cutting off of main roots will stress the tree and could eventually lead to disease and eventual death. How many trees will be negatively impacted that could eventually result in having to have them removed after they die off from the construction process and underground disruption?

To improve the tree canopy along the path of the pipeline, what can be done to use this opportunity to put all the overhead utility lines underground? I understand that the pipeline will run along the north side of Henlopen Ave which is the same side where the poles and overhead wiring runs. Couldn't the current and future environmental impact be mitigated by having all of these lines put underground while disrupting the surface of Henlopen Ave for the pipeline. Doing so would result in a healthier and more complete tree canopy with the following benefits:

1. Healthier and larger trees result in cleaner air,
2. A better tree canopy would result in lower energy consumption during the hot summers.
3. Currently, these trees are being butchered by the utility companies to keep the tree limbs from interfering with the lines and thus reducing the tree canopy,
4. Utility companies incur extra costs to keep the trees cut back and repairing damaged lines after storms,
5. Power outages from fallen lines, with associated disruptions to the community, would be eliminated,
6. Rehoboth Beach's goal to increase it's tree canopy would be better met,
7. Better tree canopies will result in a more scenic Rehoboth Beach with resulting increases to property values and more tourist revenue,
8. Putting the lines underground when Henlopen Ave is already being dug up will eliminate the additional cost of putting the lines underground at a later date,
9. Buried in the Rehoboth Beach comprehensive development plan is the desire to put more of the city's utility lines underground, and
10. The above benefits should help to significantly reduce the cost (the primary factor not to put the lines underground) and effort of having to coordinate with all utilities to have their wires put underground while putting in the pipeline,

Thanks for the opportunity to provide this input. Please confirm receipt of this e-mail and let me know how this input will or will not be further used.

Mario Rocha  
114 Henlopen Ave  
Rehoboth Beach, DE 19971  
(302) 226-2263



**From:** [Peter W. Havens CEP](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Rehoboth Beach outfall EIS  
**Date:** Thursday, April 12, 2012 1:45:40 PM

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Please include me on your distribution list for any further published action on the DEIS, the FEIS and ROD.

Thank you,  
P

Peter W. Havens, CEP  
Sound & Sea Technology  
3507 Shelby Road  
Lynnwood, WA 98087  
Desk: 360-779-6311  
Mobile: 360-471-5167  
SST: 425-743-1282  
Fax: 425-742-5643  
[SST Web Site](#)  
[My Calendar](#)



**From:** [Rich & Or Tam](#)  
**To:** [DNREC EIS Comments](#)  
**Cc:** [scooper@cityofreboth.com](mailto:scooper@cityofreboth.com)  
**Subject:** Rehoboth Beach Ocean Outfall EIS Comments  
**Date:** Sunday, April 15, 2012 10:44:15 AM

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I have been following the Rehoboth wastewater issue since my retirement to the Bay Vista community (served by the Sussex County West Rehoboth Expansion District) in late 2004. From 1997-2004, I served as the Assistant County Engineer for New Castle County with my primary responsibility being the operation and maintenance of the New Castle County wastewater collection and treatment systems. The NCC system serves approximately 115,000 customers that generate approximately 60 million gallons of wastewater per day.

After attending several of the early public meetings and reviewing the studies posted on the Rehoboth website, in particular the August 2008 presentation by DNREC, I have gone on record to support the ocean outfall option and funding through the Clean Water Advisory Council. I have also supported the draft Ocean Outfall EIS through positive comments. The EIS confirms that this project will meet all water quality criteria and achieve all public health standards.

After reading about the comments in support of land disposal made at the latest public hearing, I am again motivated to go on the record to strongly support the Ocean Outfall proposal as the environmentally correct and most economical means to meet the present and future needs for wastewater disposal in Rehoboth.

In my opinion, for years DNREC has worked diligently to eliminate the surface water discharge of treated wastewater throughout the state and in so doing has oversold the benefits and ignored the operational and environmental deficiencies of spray irrigation as a disposal method. More importantly, the agency has chosen to ignore the advances that have been made in wastewater treatment systems that can now produce a high quality effluent that in most instances is 'cleaner' than stressed receiving waters.

I would like to point out several factual counterpoints regarding spray irrigation in the state of Delaware as promoted by DNREC:

\*In most of our state watersheds, the total annual amount of collected and treated wastewater compared to the annual amount of rainfall, runoff and infiltration in the local water cycle is miniscule.

\*Due to the generous 40+ inches per year of average rainfall in Delaware, storage must be provided for treated wastewater that cannot be applied to saturated or frozen ground, and the construction of large, earthen storage lagoons greatly increases both the initial and operating costs of spray irrigation disposal systems.

\*The statement that reuse wastewater benefits agricultural production is somewhat

bogus - the spray fields located on government land grow marginal silage crop grass which costs the utility to have harvested and removed from site.

\*The statement that reclaimed wastewater benefits recharge of aquifers is another tenuous claim - most public drinking water aquifers in Delaware are relatively deep and below confining strata. Surface disposal of reuse wastewater in defined disposal fields only affects the aquifer closest to the surface, and this source is rarely used for public drinking supplies.

\*Probably the most damaging misconception as far as the Rehoboth situation is concerned is the statement that spray irrigation disposal of treated wastewater removes pollutants, like nitrogen, from a watershed. Not so - most times, in order to sustain the proper growth of the cover crop on disposal fields, nitrogen fertilizer must be added to the spray fields. To me, this counters the argument that spray disposal will actually remove nutrients from the Inland Bays watershed.

Regarding the latest public hearing, the question must be asked – “Who benefits economically from spray irrigation land disposal of wastewater effluent?” Answer - The private agricultural landowners (represented by Gary Warren of the Delaware Farm Bureau) and the private wastewater utilities such as Tidewater and Artesian Water (represented by John Thaeder of Artesian Water).

A properly designed and constructed deep water outfall, as proposed for Rehoboth, is by far the most reliable, environmentally sound and economical method for disposal of this highly treated water. Further, the construction and operation of this system by the City of Rehoboth Beach offers the most responsible and cost effective service to the customers.

The EIS confirms that this project will meet all water quality criteria and achieve all public health standards.

Rich Baccino, P.E.  
21224 Robin Road  
Bay Vista  
Rehoboth Beach, DE

*Please confirm that these comments have been received for the public hearing comments now open. Thank you.*

**From:** [Nettie Green](#)  
**To:** [DNREC EIS Comments](#); [Cape Gazette](#)  
**Subject:** the outfall  
**Date:** Monday, April 16, 2012 12:03:16 PM

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Dear Sam Cooper, the city of Rehoboth, the Department of Natural Resources and Environmental Control, and citizens of Rehoboth Beach,

Until I read Friday's Cape Gazette, I thought that the sewage outfall being put 6000 feet off Deauville Beach was a "done deal". I was discouraged that I had kept silence on this issue feeling that my input would not make a difference.

After reading the article about the recent hearings, it seems obvious that spraying the outfall over farmland is the right way to go. After a gorgeous but very dry spring, spraying treated sewage which is mostly water on dry farmland is better than sending it out into the ocean. The treated sewage will fertilize the farmland. This plan is also cheaper than an ocean outfall. Processes in the land purify the treated sewage. Sewage sent out over the ocean will immediately affect fish, crabs, oysters, clams and sea grasses.

Another note of concern: Why do we allow pharmaceuticals and heavy metals to be dispensed in our sewage? We need obvious and well publicized sites for dispensing of these things such as signs over every public toilet and well placed, convenient dispensing sites. Our bodies are already full of more antibiotics than we ever agreed to take.

Thank you,

Nettie Green  
(302)227-2595



**From:** [Samie](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Outfalls Pipeline #1  
**Date:** Thursday, April 19, 2012 3:06:34 PM

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Dear Mr. Pope,

My name is Samie Dozor and I have been a resident of Lewes for 12 years. I live on the west side of the Rehoboth Bay and I work on the beach just north of Deauville Beach.

I am going on the record to comment on the plans to construct Outfalls Pipeline. I attended the public hearing and I believe that diffusing treated sewage in the ocean is a risky and potentially dangerous environmental issue. No one mentioned the possibility of an earthquake and what that could do to the pipeline.

My question to all the folks who are proposing this idea is would you swim through this diffused treated sewage with your eyes open? Would you allow your children and grandchildren to swim in this ocean with treated sewage?

I work at Henlopen Acres Beach Club and this concerns me not only for the sea life but also for people who love the water. Tides and currents bring all kinds of stuff on the beach. A mile out is not that far.

Remember when someone thought that planting Phragmites to stop erosion would be a good idea? Years later that turned into an environmental train wreck.

I do think that the spray irrigation is a possible good idea especially, with the fact that the water would be recycled.

My favorite idea is one that was not discussed and I have sent an attachment of a 1994 article from "American Forests" magazine. The article is titled, "Pollution Solution: Build A Marsh." Arcata, CA was facing a similar situation and they constructed a marsh to filter the water. It is a low cost and low-tech solution.

I also included links to other articles about this idea.

I would like to see DNREC and the city of Rehoboth Beach to explore this possibility because other cities have done it with success and proving that constructed marshes can turn a "disposal problem" into a resource.

Thank you for allowing me to express my views. I am sending 2 emails for the files are large,

W A T E R

# POLLUTION SOLUTION: *Build a Marsh*

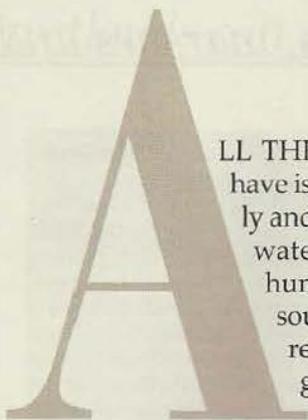
By LYNN MacDONALD

*A few towns across the country are proving that a low-tech, low-cost system of constructed marshes can turn a "disposal problem" into a resource.*

*Bird's-eye view of two constructed marshes and a brackish-water lake in Arcata.*



David M. Gordon



ALL THE WATER this planet has ever had and will ever have is now on earth—a fixed commodity that is constantly and naturally recycled. Most of the world is covered by water, but less than one percent of it is available for human use, and unfortunately, pollution from many sources has degraded much of that. The cleansing and recycling of our water resources will be one of the great challenges of the 21st century.

The federal Clean Water Act of 1965 and its 1972 amendments mandated reduction of point-source pollution (pollution generated at a specific site). In meeting these new standards, numerous communities and factories around the world have learned that huge treatment plants are not the only or best solutions. Nature provides its own highly effective water-cleansing system—it's called a marsh. According to a growing number of experts, marshes and wetlands can clean up almost anything we can throw in.

Arcata is a town of 15,000 on the northern California coast where citizens "flush with pride." The town, once known for its redwoods and more recently for the marijuana produced in logged-over forests nearby, has a new export—tangible proof that a constructed wetland system can provide cost-effective and environmentally sound treatment for municipal wastewater.

Back in 1979, Arcata's sewage-treatment plant was failing. Its discharge into Humboldt Bay did not meet the Clean Water Act's wastewater standards, and it was operating with a temporary pollution exemption from the state. Something had to change.

Guided by the fervent belief of Dr. George Allen, a fisheries professor at Humboldt State University, that wastewater is a resource and not a disposal problem, a coalition of academia, local politicians, concerned citizens, city bureaucrats, and environmental

*Lynn MacDonald writes on environmental and business issues from Berkeley, California.*

groups launched an attack against the conventional wisdom of sewage treatment. The town wanted to opt out of the county's expensive regional treatment plant and install a low-tech, low-cost system of marshes to treat its wastewater.

In what became known as the "Wastewater Wars," the town of Arcata ultimately triumphed over the state bureaucracy and local naysayers. Because the effluent (wastewater) would be released into Humboldt Bay rather than the Pacific Ocean, state law required Arcata to prove not only the system's ability to meet wastewater standards but that it would enhance the Bay. A three-year pilot project demonstrated the marsh system's effectiveness (see "Waste Not Wastewater," *American Forests*, June 1982).

The city proved enhancement in two ways. The first was George Allen's aquaculture research station, which utilized the effluent to raise anadromous fish. The second was the restoration of wetlands, which created additional wildlife habitat. Arcata

opened its full-scale treatment process in 1986 for far less than the proposed \$50 million regional treatment facility.

The Arcata Marsh and Wildlife Sanctuary adjoins Humboldt Bay, just three minutes from downtown. A primary treatment plant and oxidation ponds settle out solids and begin the biological breakdown of the sewage with micro-organisms. Effluent then moves through three 2-acre treatment marshes before going through three enhancement marshes in the Arcata Marsh and Wildlife Sanctuary.

Wetlands improve water quality with a mix of physical, chemical, and biological processes. Marsh vegetation obstructs water flow, enhancing sedimentation (settling of solids). The vegetation also provides an environment for algae, fungi, protozoa, and bacteria, the microbes that break down or remove substances from wastewater.

As early as 1970, Dr. George Allen demonstrated the value of effluent from Arcata's treat-

ment ponds. He used it to establish an aquaculture research station to rear juvenile salmon in wastewater-seawater ponds.

Standing beside dark pools, netted and fenced to keep out predators from the air and ground, he says modestly, "We killed every fish the first year. Our salinity and our temperatures were too high." With a smile he adds, "Now we have an 85 to 100 percent survival rate." Because of the high level of nutrients in the wastewater, Allen has substantially reduced the need for high-priced fish food.

Though coho salmon have been the most successful species raised, other species of anadromous salmonids like chinook salmon, steelhead, and coastal cutthroat trout have been raised. Allen's one-percent return (the rate of fish that return to the release site to spawn) betters or equals that of most commercial hatcheries.

The Arcata Marsh and Wildlife Sanctuary is much more than a wastewater-treatment system. According to Dr. Robert Gearheart, professor of environmental engineering at Humboldt State University and one of the key developers of the marsh concept, the marsh is only a tiny part of the water cycle, a connection between the rivers and streams and the bay and the ocean. "Our job is to restore the functions of the water system and help get the whole flow back in order," he says.

The new wetlands enhance the entire Arcata waterfront, which heretofore had been nearly inaccessible to the public. Formerly the site of a sealed sanitary landfill, an abandoned log pond, and degraded pasture, the 154 acres that comprise the Arcata Marsh and Wildlife Sanctuary are now

## According to a growing number of experts, marshes and

open to the public.

The marsh is an important wintering ground for migrating waterfowl and has become one of the best birding sites in northern California. More than 200 bird species have been identified, including the endangered peregrine falcon. River otters, rabbits, voles, and pocket gophers also live there.

The marsh is a human as

dren and university students use the marsh for a variety of projects. Artists come to sketch. City workers flee downtown for a few moments of lunchtime calm. More than 150,000 people a year visit the marsh—not bad in a county of 100,000 population.

Julie Fulkerson, who represents the Arcata area on the Humboldt County Board of

and fewer chemicals than conventional systems. I can't imagine an area in which it wouldn't work if you've got enough land."

Today the State Water Quality Control Board (SWQCB) cites the Arcata project as a model for others to emulate. According to Bill Rodriguez at SWQCB, "The treatment marshes seem to be

tasks," he says. "This technology has great promise."

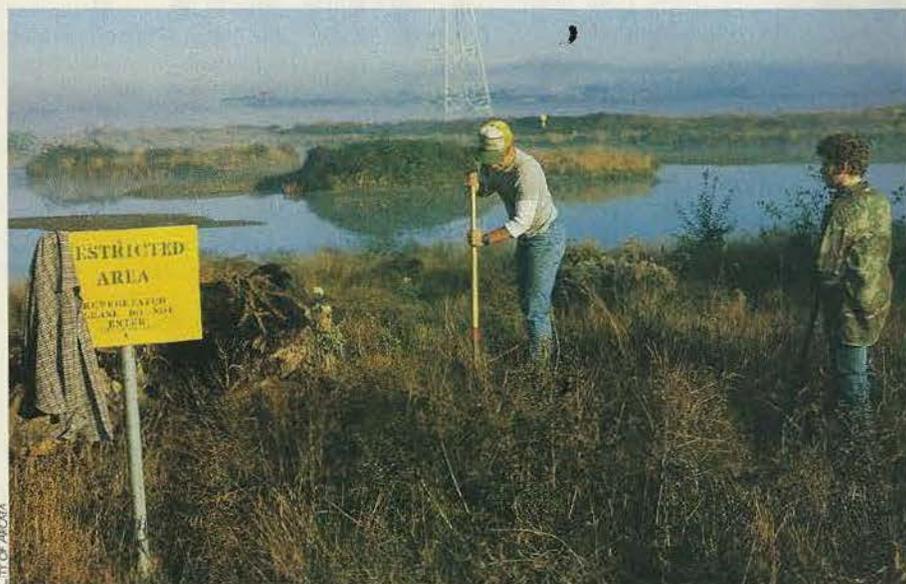
In central Florida, the Orlando Easterly Wetlands Reclamation Project protects the St. Johns River by removing nutrients from the already highly treated wastewater. Like Arcata, Orlando was faced with an effluent that did not meet state standards. In 1986 a 1,600-acre wetlands was built to perform advanced secondary treatment of effluent, removing both phosphorus and nitrogen.

According to JoAnn Jackson, an engineer and program manager with the firm that designed the marsh, "The Orlando wetland has been extremely successful at performing the function it was designed to do."

It also serves to restore wildlife habitat and as a park and recreation facility. The wetland supports more than 150 plant species, 141 species of birds, 22 reptiles, and 16 mammals. The estimated life-cycle costs of the Orlando project are 15 to 30 percent less than the city's other options.

"Twenty years ago," says Francesca Demgen, former wetlands manager for the Mt. View Sanitary District in Martinez, California, the general public didn't even use the word 'wetland.' Fifteen years of experience have proven the treatment marshes to be at least as reliable as conventional treatment methods. Wetland systems are so complex that if one part stops working, two or three elements are left to pick up the work."

If these systems are so great, why aren't there more of them? In the San Francisco Bay area, constructed wetlands are used for enhancement—habitat restoration and public access—rather than treatment. Demgen, who now works for



With morning fog as a backdrop, crewmen install the right kind of vegetation in a new marsh.

well as a wildlife sanctuary. In 1987 the Ford Foundation recognized this wetlands project as an innovative local government project. The award included \$100,000 to fund establishment of the Arcata Marsh and Wildlife Sanctuary Interpretive Center, which opened in spring 1993. Five miles of trails with educational displays and a freshwater lake facilitate public access.

As the morning vapors rise off the still waters, birdlovers with binoculars sweep the marshes. Then come the walkers, joggers, and bicyclists. Later in the day, school chil-

Supervisors, believes the project's success has had a beneficial impact on Arcata. "It made us aware of the entire watershed," she says, "of what happens when we turn on the tap or flush our toilets, and of what makes our planet healthy."

Steve Tyler, the town's director of environmental services, is confident that the marsh system can meet all the future demands placed on it. "It can do a lot more than we're asking it to do," he says. "We've got a cost-effective, environmentally sound response that uses less energy

doing what they were designed to do—meet the permit levels. However," he cautions, "this system may not meet the needs everywhere."

**T**he Environmental Protection Agency (EPA) is enthusiastic about the use of constructed wetlands for wastewater treatment. It has provided construction grants for 17 successful projects in 10 states, says Bob Bastian, environmental scientist for EPA's Office of Water. "Each system is different; each is designed to perform specific

**From:** [Samie](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Outfalls Pipeline#2  
**Date:** Thursday, April 19, 2012 3:15:34 PM

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Dear Mr. Pope,

Here is the other file to the article and the links.

Warmest regards,

Samie Dozor  
[soonproductions@hotmail.com](mailto:soonproductions@hotmail.com)

[www.appropedia.org/Arcata\\_Marsh\\_overview](http://www.appropedia.org/Arcata_Marsh_overview)

[www.ag.arizona.edu/AZWATER/arroyo/094wet.html](http://www.ag.arizona.edu/AZWATER/arroyo/094wet.html)

[www.co.bell.tx.us/bellnet/bellnetweb/web/res\\_grid/ncbeaum.htl](http://www.co.bell.tx.us/bellnet/bellnetweb/web/res_grid/ncbeaum.htl)

# wetlands can clean up almost anything we can throw in.

## Industry Tries the Natural Approach

The American Crystal Sugar Company in Hillsboro, North Dakota, has constructed a 157-acre wetland to receive the partly treated wastewater from its sugar-beet factory. The wetland has produced a high-quality effluent for the last two years, and the company plans to build an additional wetland for its Drayton, North Dakota, facility.

Chevron Oil's refinery in Richmond, California, constructed a wetland beside San Pablo Bay. Source-control efforts upstream reduced the need for downstream oxidation ponds. As the old ponds dried up, a 90-acre eyesore was created. Project coordinator Peter Duda proposed restoring the devastated moonscape by developing a wetland. Though it is not used for wastewater treatment, the wetland has greatly improved wildlife habitat in a sensitive area by the bay.

For Duda, the wetland was a labor of love. He put in untold hours evenings and weekends planting much of the vegetation himself.

Duda praises both Chevron and environmental groups—traditional antagonists—for joining their efforts and resources to restore the 90-acre site.

Today more than 100 species of birds have been identified at the site, and local universities use the wetland for research projects—LYNN MACDONALD

## Living Machines

"Ecologic repair is possible." So states Dr. John Todd of Ocean Arks International of Falmouth, Massachusetts. "We can clean up the horrors of this planet with 'living machines.'"

His "living machines" (see photo) use natural treatment processes similar to a wetland but in a more restricted space. Comprised of a series of distinct ecologies contained within a number of cylinders, the living machines are installed in a greenhouse to allow sunlight to serve as an energy source. As water moves between cylinders, each containing suc-

cessively higher life forms, wastes created by the inhabitants of one cylinder become the food for the next cylinder.

In the first tank, bacteria consume suspended organic matter and thrive. In the next tank, algae consume the waste products of the bacteria. Next, snails consume the algae. Farther down the line of tanks, mollusks and fish join the natural process of consumption. Compounds are thus broken down without using chemicals and without creating hazardous byproducts.

In 1991 Todd's Solar Aquatic wastewater treatment system received *Discover Magazine's* award for technological innovation in the environment. Todd is currently working with funding from the EPA on pilot projects in Maryland, California, and Vermont.

Says EPA environmental scientist Bob Bastian, "I have no doubt the technology will treat almost any type of wastewater. It has yet to demonstrate it is cost-effective."

Todd believes his living machines will prove cost-effective. "They use less energy and less chemicals than conventional treatment plants, and they require less land than the constructed wetlands."

—LYNN MACDONALD



the environmental consulting company Woodward-Clyde in Oakland, says, "Wetlands can do a lot more for treatment than they've been allowed to do up to now. But the conventional treatment plants in the San Francisco Bay area are very large, and a wetlands system for something that large requires a lot of land—a limited, expensive quantity here." Wetland experts estimate a minimum of two acres per 1,000 people are required.

Concerns about protection of groundwater can also drive costs up. If the proposed wetland site sits above tight clay

soils, protection may not be an issue. But if the soil beneath the site is loose and porous, a synthetic liner underneath the marsh might be required—a very expensive proposition.

Arcata has found its treatment facility relatively inexpensive to operate because of all the chemicals it doesn't have to buy. But maintenance costs can vary from project to project. JoAnn Jackson from Orlando points out that pumping costs can vary widely depending how far the treatment marshes are from the collection point.

Gearheart says engineers are

partly to blame for constraining the growth of constructed wetlands: "They're not comfortable with passive, natural systems. They also don't have a lot of incentive to suggest this type of system. Engineers are paid a percentage of construction costs, not including land acquisition. Construction costs for constructed wetlands are relatively low."

Nonetheless, the development curve is upward. Ecologist Dr. Donald Hammer of the Tennessee Valley Authority says, "Five or six years ago, we kept track of all the projects on a database.

Now the numbers are growing so fast we can't keep up with it." He estimates that more than 300 municipalities are now using natural treatment systems.

Pioneer projects around the U.S. and around the world have demonstrated that natural treatment systems work. In many cases, they not only treat wastewater but enhance wildlife habitat, recreation, and educational opportunities. Perhaps in the not-too-distant future, all of us—like Arcatans—will be able to flush with pride—or at least without guilt. AF

**From:** [Clark, Cherie \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Cc:** [Pope, Greg \(DNREC\)](#); [Lukezic, Craig \(DOS\)](#)  
**Subject:** Revised Rehoboth Ocean Outfall EIS  
**Date:** Friday, April 20, 2012 1:15:38 PM

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Greg,

I have reviewed the sections of the EIS pertaining to historic/archaeological resources (4.3 to 4.4, and 9.9.1 to 9.9.3) in the EIS. It all looks good. No further comment.

I am working with Jeff Riling to finalize comments on the Proposed WWTP improvements.

Cherie Clark  
Cultural Heritage  
Division of Parks and Recreation  
152 S. State Street  
Dover, DE

Phone 302-739-9184



**From:** [Bill Paton](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Outfall vs irrigation of treated wastewater  
**Date:** Sunday, April 22, 2012 5:08:01 PM

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For the following reasons I do not object to the outfall method of disposal. I like the spray irrigation too but I think the outfall will be cheaper and avoid the problems below.

1. The water being discharged is very clean and clear, almost potable. It has been well treated. I believe there is virtually no danger of polluting the beaches from the outfall of this treated effluent.

2. The water table in southern Delaware is very shallow. In Henlopen acres, in some places I know, it's only a couple of feet down. Therefore, unlike Florida, spreading thousands of gallons over time or at certain times of the year may not percolate as quickly into the ground as well as is necessary to disperse the treated water efficiently and may even cause bogs or small ponds. This may necessitate greater expense to pipe the water in more complicated ways to prevent this.

3. I would think some engineer at NOAA or Univ. of Del in Lewes could come up with some numbers like the back of a napkin numbers below to compare the annual amount of normal freshwater rainfall on 10 square miles of ocean (about the size of the visible ocean in front of Deauville Beach) to the amount of anticipated annual discharge from the outfall. If ten square miles of ocean gets 12 inches of rain in a year, the ocean is diluted by nearly 280 million cubic feet of fresh water which is somewhere near 2 billion gallons. The rain doesn't seem to dilute the salinity of the ocean. What is the anticipated outfall discharge? How much dilution will it cause? (This may not be a valid argument because the rain came out of the ocean in the first place - but ask some expert)(but the present discharge into the canal is about the same, isn't it?)

William K. Paton  
243 Oayside Circle  
Maitland, FL 32751  
407-628-9707  
148 Henlopen Ave  
302-227-9402



**From:** [Jere Stephano](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Rehoboth Outfall comment  
**Date:** Monday, April 23, 2012 2:14:19 PM

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I hope that you will take into serious consideration the detrimental effects Rehoboth's Ocean Outfall will have on our local environment and on that of the Earth. Scientists have clearly shown that ocean currents eventually disperse contaminants around the world. This connection among oceans means our planet has only ONE ocean. Proponents of the Rehoboth Outfall might argue that ocean currents will further dilute Rehoboth's "minimal" contaminants. What they fail to take into consideration is that the ocean is filled with contaminants from worldwide sources, the amount of which increases daily. Each community who chooses to add their "minimal" contaminants furthers the pollution.

Just because, for instance, the dispersant oil pollutants released in the Deepwater Horizon disaster in the Gulf of Mexico is not at present causing our local beachgoers to suffer from burning eyes and respiratory problems or our local marine life to suffer lesions, birth defects, and slow death (as they are there), doesn't mean such will not eventually happen here as the amounts of total pollutants in our Earth's one ocean increase and are further dispersed.

If Rehoboth needs some inspiration to keep our ocean healthy, they should read a new study by an international group of scientists from The Stockholm Environment Institute which reports that if human impacts on the ocean don't change, the cost to the world's economy from the destruction of Earth's one ocean will be \$428 billion per year by 2050. This unique study looked at six different threats to the ocean, (acidification, warming, hypoxia, sea level rise, overuse of marine resources, and pollution).

Every beach community, Rehoboth included, needs to take care not to add their "minimal" amount to the cumulative amount of ocean pollutants.

Thank you,  
Jere Stephano  
2815 S. Bay Shore Drive  
Milton, Def 19968



**From:** [Pope Greg \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** FW: Artesian comments submitted at Public Hearing  
**Date:** Wednesday, April 25, 2012 4:31:26 PM  
**Attachments:** [Rehoboth Capital Cost Sheet 4 09 2012 JT.XLSX](#)

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**From:** John Thaeher [mailto:JThaeher@artesianwater.com]  
**Sent:** Friday, April 20, 2012 2:28 PM  
**To:** Pope Greg (DNREC)  
**Cc:** Deputy Terry (DNREC); Schneider John W. (DNREC); Rodney Wyatt  
**Subject:** RE: Artesian comments submitted at Public Hearing

Greg, attached is the financial analysis for the land application alternative. We are making this part of our submittal for the public record. If after reviewing the information you have any questions please do not hesitate to call.

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## Rehoboth Beach Out-Fall Alternative – Preliminary Project Construction Cost Estimate

Line Item	Item Name	Qty	UOM	Unit Price	Ext Price
1	Rehoboth Beach Pumping Station w/Equalization - Upgrade	1	LS	\$ 1,500,000	\$ 1,500,000
2	Transmission Main Rehoboth to Island Farm	80,000	LF	\$ 81	\$ 6,480,000
3	Site Access Road & Security	1	LS	\$ 300,000	\$ 300,000
4	Lagoon Construction and Land	30	acre		\$ 5,200,000
5	Spray Irrigation Pumping Station	1	LS	\$ 500,000	\$ 500,000
6	Control Center & Lab Bldg (Controls/SCADA Included)	1	LS	\$ 425,000	\$ 425,000
7	Irrigation Distribution System	1	LS	\$ 525,000	\$ 525,000
8	Irrigation Equipment	1	LS	\$ 565,000	\$ 565,000
9	Distribution and Valve Control System	1	LS	\$ 275,000	\$ 275,000
10	Construction Layout and As-Builts	1	LS	\$ 200,000	\$ 200,000
11	Contingency (10%)	10%			\$ 1,597,000
12	Prevailing Wage Factor (15%)	15%			\$ 2,635,050
<b>SUB-TOTAL</b>					<b>\$ 20,202,050</b>

### Engineering – Total Project Value

Line Item	Item Name	Qty	UOM	Unit Price	Ext Price
1	Transmission & Distribution Mains Survey, Design & Permitting	80,000	LF	\$ 20	\$ 1,600,000
2	Geo-Hydro			\$ 100,000	\$ 100,000
3	Spray Fields Permitting			\$ 150,000	\$ 150,000
4	Irrigation Systems Design			\$ 100,000	\$ 100,000
5	Rehoboth Beach Lift Station Upgrades Design & Permitting			\$ 325,000	\$ 325,000
6	Project Management Oversight			\$ 1,500,000	\$ 1,500,000
<b>SUB-TOTAL</b>					<b>\$ 3,775,000</b>

**PROJECT TOTAL**

**\$ 23,977,050**

## Ocean Outfall

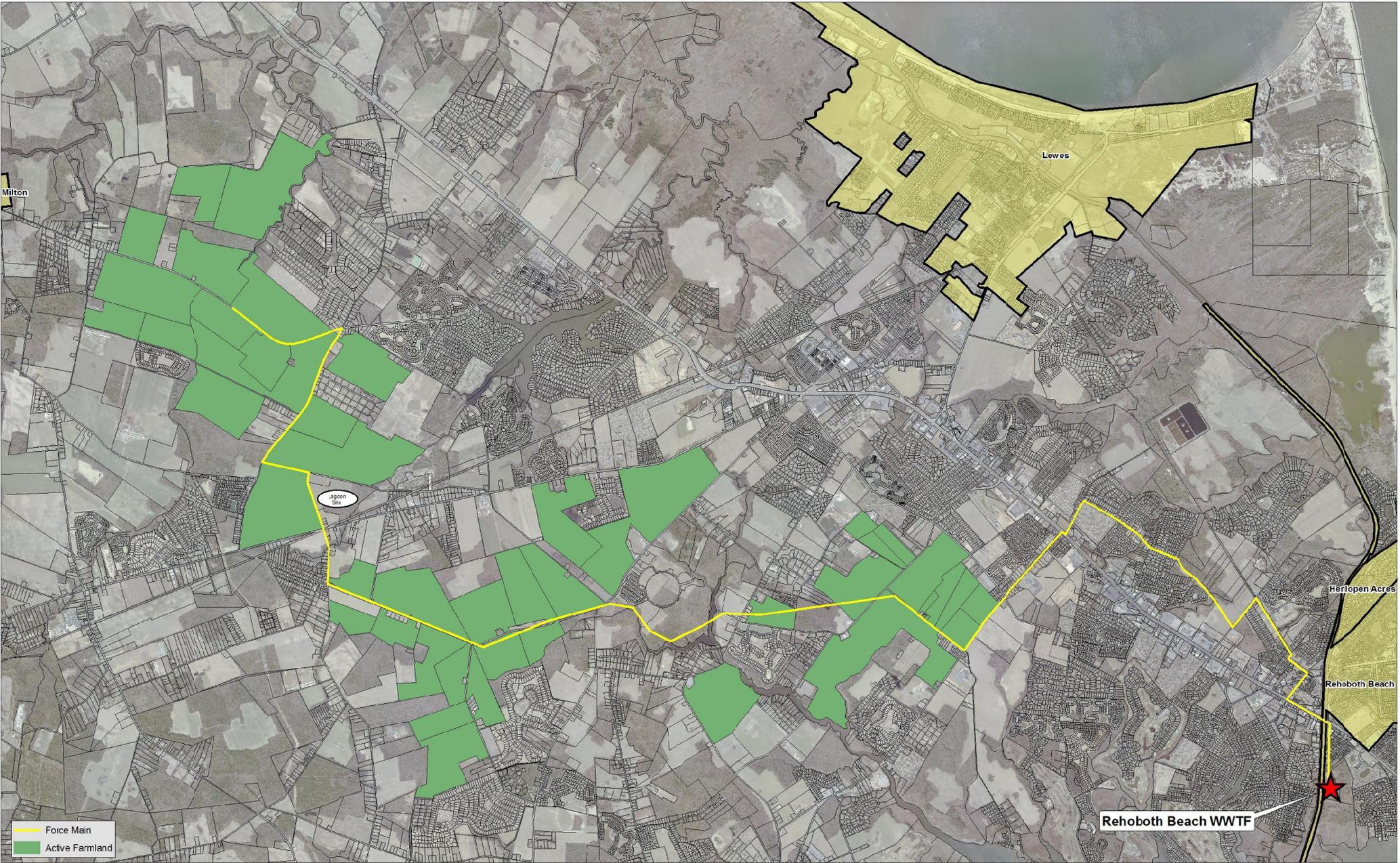
Bond Rate	4.40%
Amortization Period	20 years
Ocean Outfall Capital Investment	\$ 30,370,000
EDU Calculation	
Current Revenues	\$ 1,240,000
Current Rate per EDU	\$ 325
EDUs	3,815

## Land Disposal

Bond Rate	4.40%
Amortization Period	20 years
Capital Investment	\$23,977,050
EDU Calculation	
EDUs	3,815

	<b>Ocean Outfall</b>	<b>Land Disposal</b>
Cost of Service		
Existing O&M	\$ 1,740,000	\$ 1,740,000
Additional for Outfall	\$ 150,000	
Spray irrigation		\$ 1,000,000
Annual Mortgage Payment	\$ 2,286,002	\$1,804,793
	<b>\$ 4,176,002</b>	<b>\$ 4,544,793</b>
Rehoboth Share 57.60%	\$ 2,405,377	\$ 2,617,801
Rate per EDU	<b>\$ 630</b>	<b>\$ 686</b>





Milton

Lewes

Agon Site

Herlopen Acres

Rehoboth Beach

Rehoboth Beach WWTF

Force Main  
Active Farmland

0 1 2 4 Miles



**From:** [Pope Greg \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** FW: Artesian Map  
**Date:** Wednesday, April 25, 2012 4:31:46 PM

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**From:** Adam Gould [mailto:AGould@artesianwater.com]  
**Sent:** Tuesday, April 17, 2012 1:59 PM  
**To:** Pope Greg (DNREC)  
**Cc:** John Thaeber; Rodney Wyatt  
**Subject:** Artesian Map

Mr. Pope,  
I have attached an image of the map as you have requested.  
Please let me know if you have any questions.  
Thanks,

Adam Gould  
Assistant Manager of Systems Planning & Design  
Artesian Water Company, Inc.  
664 Churchmans Road  
Newark, DE 19702  
(302) 453-6908 - Office  
(800) 332-5114 - Headquarters

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## **Pope Greg (DNREC)**

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**From:** Emily Van Alyne <rosegardenbride@gmail.com>  
**Sent:** Thursday, April 26, 2012 5:58 PM  
**To:** DNREC EIS Comments  
**Subject:** outfall comment

### **Financial Impacts:**

- Negative public opinion re: ocean outfalls will impact tourism in the area. This is a \$709 million industry in Sussex County. A loss of 10-20% from bad publicity regarding even the consideration of installing an ocean outfall off of Rehoboth beach could cost business and the local economy \$70-140 million dollars a year.
  - Tourism
  - Commerce
  - Real Estate
  - Fisheries
- The most cost effective means of waste water treatment is the Constructed Wetlands option (see attached)
- Land application is purported to be less costly than the statistics referenced in the study conducted by the planning engineers (see Artesian info in local papers).

### **Human Impact**

- Oceans will be far less healthy for recreation
- Illnesses such as upper respiratory and other infections occur more commonly when ocean recreation occurs in areas with outfall pipes
- Livelihood impacted
  - Tourism
  - Commerce
  - Fishing
  - Real estate

### **Ocean and Marine Life Impact**

- Ocean Outfalls were outlawed in Florida because the toxic levels of chlorine and other treatment chemicals were destroying the coral reefs
- Treated effluent contains the following harmful contaminants that cannot be filtered with traditional treatments systems:
  - Heavy metals
  - Pharmaceuticals
  - Caffeine
  - Endocrine inhibitors
  - PCBs
  - PFC's(water repellents)
  - Sulfates
  - PBCEs(flame retardants)
  - Toxic amounts of chlorine and other effluent treatment chemicals

## Ocean and marine life health

- **Microlayer (surface)**
  - Foundation of all life exists in .5ml layer at the surface of the ocean. The life forms found here include phytoplankton and zooplankton. Not only do these organisms provide the primary food source for many other marine creatures, they also develop to become species that are utilized by different fisheries as a food source for humans.
  - Research shows that effluent does not simply disperse in a horizontal direction. It also floats to the surface and impacts the all important microlayer
  - Marine mammals and sea turtles surface to breath 100 or more times a day, breaking through the microlayer with each breath. A contaminated microlayer will impact their respiratory system, and potentially enter their bloodstream
- **Benthic layer (bottom)**
  - Research shows that effluent does not simply disperse in a horizontal direction, it also settles to the bottom where it infiltrates the sediment layers of the ocean bottom which house the benthic organisms of the oceans.
  - Organisms that occur in this layer are equally important, and also provide food source for bottom feeding marine creatures, such as Sea Turtles
- **Marine Mammal disease**
  - Overexposure to antibiotic tainted ocean water makes marine mammals more susceptible to antibiotic resistant bacteria
  - Suppressed immune systems
  - Effluent contaminants naturally accumulate in the lipids (blubber layer) of marine mammals
  - Nursing female dolphins can have contaminant levels so toxic that their milk is deadly to their newborn calf
  - Research has been conducted on Bottlenose Dolphin populations in South Carolina linking the presence of PCBs; heavy metals; DDT; PFCs (water repellents); organic compounds and flame retardants in their systems to infections, cancers, lymphatic disorders, and immune system suppressions.
  - Marine mammals are not just transient. Bottlenose dolphins are documented as remaining in our waters from April-Oct. They will therefore be exposed to toxicity from the outfall pipe for 6 months out of the year
  - The most direct exposure occurs through the contaminated prey that they eat.

## Endangered species

- Many endangered species occur throughout the year in Delaware Waters. These animals depend on healthy food sources for their survival. They utilize Delaware waters to forage for food for themselves, and often times teaching their young how to feed
  - Fin Whales
  - Humpback Whales
  - North Atlantic Right Whales (severely endangered)
  - Sei Whales
  - West Indian Manatee (severely endangered)

- Leatherback Sea Turtles
- Kemp's Ridley Sea Turtles(severely endangered)
- Atlantic Sturgeon
- Threatened and protected species include
  - Atlantic Bottlenose dolphin/
  - Atlantic White sided dolphin/
  - Rissos' dolphin/
  - Striped dolphin/
  - Common dolphin/
  - Atlantic spotted dolphin/
  - Rough toothed dolphin/
  - Harbor porpoise/
  - Short finned and
  - Long finned pilot whale/
  - Pygmy Sperm whale/
  - Minke whale/
  - Northern Bottlenose whale/
  - Several species of Beaked Whales
  - Harbor Seals
  - Harp Seals
  - Hooded Seals
  - Gray Seals
  - Loggerhead Sea Turtles
  - Green Sea Turtles

Only 1 out of 10 dogs born ever get a home. Only 1 out of 12 cats born ever find a home. 800 dogs & cats are **KILLED** each **HOUR** in the U.S. because there are not enough homes for them. Spay and neuter your pets! Do **NOT** buy dogs from pet stores...rescue, rescue, rescue!

**From:** [kcburgwin](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Outflow pipe  
**Date:** Saturday, April 28, 2012 7:11:30 AM

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This seems like a very bad idea for the area. Rehoboth is one of the most beautiful and beaches on the east coast. There must be another way to solve this problem. Perhaps there could be a targeted fund that collects the money needed to solve this problem in a more environmentally thoughtful way....a certain percentage of the summer parking funds..or perhaps flushing the waters through a man made wetland that removes all the chemicals etc.



**From:** [elisabeth stoner](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Proposed outfall pipe  
**Date:** Saturday, April 28, 2012 1:51:07 PM

---

Dear Greg Pope,

I am strongly opposed to the proposed outfall pipe that would discharge waste water into the ocean off Rehoboth Beach.

I am concerned because of the detrimental effects such an outfall pipe would have on our ocean, the species that live there, and ----- us humans and our grandchildren.

Please find another, safer, method to dispose of waste water.

Thank you.

Sincerely,

Elisabeth Stoner



**From:** [delaware@surfrider.org](mailto:delaware@surfrider.org)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Rehoboth Beach Wastewater Outfall  
**Date:** Wednesday, May 02, 2012 6:56:26 AM  
**Attachments:** [Outfall letter to DNREC.doc](#)

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Please see attached. Thank you very much and have a great day.  
Melissa Dombrowski  
Chair

Surfrider Foundation Delaware Chapter  
P.O. Box 1114  
Millsboro, DE 19966  
[Surfrider.org/delaware](http://Surfrider.org/delaware)

The Surfrider Foundation is an international non-profit environmental organization dedicated to the protection and enjoyment of the world's oceans, waves, and beaches, for all people, through conservation, activism, research and education.



## DELAWARE CHAPTER

May 1, 2012

DNREC Financial Assistance Branch  
5 East Reed Street, Suite 200  
Dover, DE 19901

Dear Greg Pope;

On behalf of over 130 members of the Surfrider Foundation Delaware Chapter, we **strongly oppose the creation of an ocean outfall in Rehoboth Beach.**

The Surfrider Foundation **enthusiastically supports Land Based Application (LBA) as the better option** to recycle our wastewater and protect our beaches, environment and local economy. LBA is good for Rehoboth Beach because it will:

- Recharge our ground water, protecting our water supply. Delaware has gone through drought conditions. We can't be wasting our fresh water;
- Provide a weather independent supply of freshwater for large-scale irrigation needs;
- Help protect water quality, as crops, turf and other plants filter out some of the remaining pollution in the wastewater by taking up nutrients, particularly nitrogen which has been especially problematic in our coastal waters; and
- Protect against salt water intrusion into our groundwater.

Again, The Surfrider Foundation Delaware Chapter strongly urges the officials of DNREC to look at other more environmentally responsible options, such as land application.

Sincerely,

Melissa Dombrowski  
Chairperson  
Surfrider Foundation Delaware Chapter  
[Delaware@surfrider.org](mailto:Delaware@surfrider.org)

The Surfrider Foundation is a grassroots, non-profit, environmental organization that works to protect our oceans, waves, and beaches as well as preserve the natural living and non-living diversity and ecological integrity of the coastal environment. The majority of Surfrider Foundation's coastal environment work is carried out by the 60 local chapters such as the **Delaware Chapter** based here in Sussex County. The Delaware Chapter sponsors activities such as beach clean-ups, water quality testing, and education programs that teach our youth to respect and preserve our aquatic environments.

**From:** [Gregg Rosner](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Rehoboth Outfall  
**Date:** Wednesday, May 02, 2012 9:16:11 AM  
**Attachments:** [Our planet is called Earth.doc](#)

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Written copy of document submitted by USPS, certified reply receipt requested.

Gregg Rosner

Our planet is called Earth, but it should be called water. The ocean is THE driving mechanism of all life-sustaining ecosystems on this planet, from weather to carbon dioxide levels, to the currents and gyres that transport aquatic life around the globe.

Today, Rehoboth Beach presents a proposition to add to the denigration of this disappearing habitat, a proposition that cites across the spectrum, an addition of toxic chemicals, heavy metals, viruses and pharmaceuticals. The report attempts to rationalize the acceptable levels of such substances, all disappearing with the false alchemy and wizardry of diffusion.

Diffusion rates in ocean ecosystems do not adhere to the true science of water, the fluid dynamics and soft boundaries that allow the synergistic mixing and movement of these foreign substances all with uncalculated outcomes. The applied science is the health of the micro layer of the ocean, the largest living organism on the planet, just .05 millimeters thick. It is the beginning of an interconnected gel membrane full of fish larvae and sea life, where plankton live and photosynthesis begins, where the ocean absorbs the increasing carbon dioxide in our poisoned atmosphere. It is here and in the sediments of the benthic layer at the ocean bottom, that these diffused chemicals accumulate to extreme toxic levels, from a hundred to a million times greater than in the water column. Such bio-accumulation in the micro-layer deforms fish at their primal stages of development, and pollutes the hydrosphere where marine mammals and sea turtles surface to breathe hundreds of times a day.

Microlayer facts;

- The upper meter of seawater, is divided into sublayers, the first 0.05 millimeters a dense concentration of minerals, organic chemicals, protozoans and micro-organisms. The upper 70 millimeters has slightly larger organisms, including fish eggs and larvae. Many creatures of the ocean transition into the sunlight at this level.
- John Hardy, one of the first to study the ocean microlayer stated; “A polluted surface microlayer, has the potential to poison much of the complex food web, including fish, crustaceans, whales and seabirds and may alter the exchange of materials between the ocean and atmosphere and ocean, thereby affecting global climate.”

- For example, in the Chesapeake Bay, 99% of the blue crab larvae swim to the surface to feed on nutrient during the early stages of their lifecycles. The recognition that micro layer pollutants in that watershed are impacting recreational and commercial fisheries is now being researched.

My concern is that the proposed effluent plume, (as modeled in the pages of the EIS report), will off-gas the highly unstable chlorine used to kill the bacteria and viruses through this micro layer. (Note: the salinity of effluent is less than that of sea water, so the initial dispersion area is at the immediate ocean surface.) Combine winds, tides and currents in the near-shore waters and this plume, becomes in applied theory, a migratory and indiscriminate killing machine, frying the organisms that inhabit this essential marine biosphere. Please address the science and chemistry of the effluent plume.

Other ocean outfall questions, concerns and issues to be addressed and commented; please cite scientific studies when applicable. This information may be utilized for legal remedies and jurisprudence if applicable, so exacting science and specific data is necessary.

- 1) How much does Rehoboth Beach pay for their municipal water supply on a yearly basis? Where does it derive from? How much would be the projected cost for constructing and operation of a closed loop wastewater system?
- 2) For ocean outfalls in Florida, the EIS cites an outdated study (Hazen and Sawyer 1994) that does not address the bleaching and destruction of the coral reefs that resulted in then Governor Christ outlawing them in 2008. Comment on the specific economic impact of lost tourism, the applied science of long-term impacts of outfalls in Florida and the protracted costs of mitigating this matter in legislation and courts of law.
- 3) Calculate the foot/acre and feet/min of the anticipated maximum outfall flow of 7.3 MGD and relate it to the size of the immediate impact area. How will the loss of salinity impact the diversity of marine life in this area? Include all fish species and larvae identified by NOAA as essential fish habitat. Comment on the recent NOAA study revealing the link between dolphin skin disease and lower salinity levels. ([Skin lesions on common bottlenose dolphins \(Tursiops truncatus\) from three sites in the northwest Atlantic, USA](#)) Ocean salinity is 35 parts/million; what is the salinity level at the diffuser head? At incremental distribution (100 yards and outward) away from the diffuser head?

- 4) What benthic organisms will be impacted with the use of the various dredgers used to install the steel pipe pile at the end of the outfall pipe?
- 5) What is the anticipated yearly addition of nitrogen and phosphorus from this outfall in pounds? Calculate nitrogen at 6.2 mg/l and phosphorus at .35 mg/l and the respective totals from recent yearly outflow of RBWWTP.
- 6) Calculate in pounds the yearly totals for all metals listed in the EIS, which will contaminate the ocean from the proposed outfall. Include; Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc.
- 7) If outfall is installed, will Rehoboth Beach perform weekly water testing for viruses, pathogens and oocysts and post them on their city website so swimmers and tourists will know the calculated risks of swimming in the ocean?
- 8) What is the likely scenario for monitoring Enterococcus? Would this be available for weekly dissemination to the public? Such information is required in California for public beaches. Please comment on this public health issue.
- 9) Could more recent studies of PCB's and their environmental impact be cited for the updated EIS? The study cited (ATSDR 1990) is twenty-two years old. Include studies from single celled organisms in the micro layer to the apex consumers of marine mammals and include reproductive, endocrine disruption and carcinogenic effects of PCB's when applicable. Calculate the yearly anticipated addition of this outfall, using the 425 pg/liter result from November 14, 2011 sample. The conclusion that less PCB's in the Rehoboth effluent will be available to be bio-accumulated by fish and other aquatic life needs to be readdressed. How will the long-term addition affect the ecosystem in the critical location of the Hen and Chicken shoals? Include all fish species in found Delaware waters. Specifically address which PCB's are lipophilic and which are hydrophobic and the potential for physical adherence to fish larvae in the micro layer.
- 10) Is the city of Rehoboth in compliance with their storm water outfalls? How can they do better with the mixing zone being close to the swimming areas?
- 11) Are there no recent studies by UDEL on the benthic environment in Rehoboth Bay? The study cited is from 1972.
- 12) Are the USACE an academy with published credentials in scientific journals or an independent academic institution? The study cited (Scott 2011) found only a limited benthic sampling of organisms. The benthic region is the beginning of one of the food webs in ocean ecosystems. How would loss of benthic diversity impact fish species including the Atlantic Sturgeon, a benthic feeder? Where was geographic location of the Diener et al (1995) study?

- 13) Further address specific diversity and populations of plankton at the diffuser location. What species are found? In what concentrations? What would be the concentration of chlorine at the surface and what is the anticipated mortality effect on the multi-celled organisms in the diffusion plume. Cite scientific studies specific to this area of concern.
- 14) The local fisheries study is from 2001, issued from the USACE and contrasts the listings for the essential fish habitat in the area (NOAA 2001). Could more updated population studies, relative to the current trends and demographics be presented in the final EIS? Would liver toxicologies be available for a baseline study and application to the long-term effects of the outfall on fish populations in the local waters?
- 15) Seal stranding data for all species that occur in Delaware waters, is fourteen years old. Could the revised EIS address this issue?
- 16) Clarify the coastal morphotype of the Atlantic Bottlenose dolphin in Delaware, location of local feeding grounds and historical number of seasonal populations. Cite available studies on the endemic loss of first time maternal births, the toxic load of mammary milk from bio-accumulation of heavy metals and toxins. Detail infant dolphin mortality events from regional stranding organizations during the last five years.
- 17) Is there more recent data to address ocean health from the South Coastal Wastewater treatment plant? The study cited is from 1992. (USEPA)
- 18) Could you revise the conclusion found 9.5.2.4 on Southern California beaches that effluent discharge is not causing unacceptable effects on coastal environments? The supporting data is 24 years old. (Gunnerson 1988) Include the one current study conclusion of msgrs. [Maruya, Vidal-Dorsch, Bay, Kwon, Kia, and Armbrust. Re: Organic contaminants of emerging concern in sediments and flatfish collected near outfalls discharging treated municipal wastewater effluent to the Southern California bight.](#) Also, studies have addressed the collection of bacteria on the littoral shore in So. Cal., (in the sand) a persistent and pervasive pollution that compromises daily beach health for swimmers. Please cite this study and disseminate this information. [Yamahara, Sassoubre, Goodwin, Boehm Re: Occurrence and Persistence of Bacterial Pathogens and Indicator Organisms in Beach Sand along the California Coast](#) [ae.asm.org](http://ae.asm.org) January 2012 AEM.06185-

- 19) There have been many studies of the survival ability of pathogenic organisms in the environment, but the one cited in the EIS (Fujioka, Philip and Lau 1980) is thirty-two years old. Include the limited ability to predict viral contamination in marine ecosystems and the potential to impact recreational activities.
  
- 20) Profile and detail the Atlantic Sturgeon population of the New York bight DPS, a genetically specific species spawning in the Delaware Bay, and living an adult in the coastal waters south to Fenwick Island. Comment on the recent listing of the species under the Endangered Species Act and the potential liability of DNREC and Rehoboth Beach in legal lawsuits by conservation groups to protect habitat as defined in Section 7(a) (2) of the ESA.

## Conclusion

Where does all this man-made stuff go? How does it diffuse in an increasingly toxic-saturated ocean ecosystem that has lost 90% of fish stock, endangered and threatened species of all morphotypes? Or persist in that environment for tens of thousands of years never disappearing? We need to be more responsible in 2012; a clean ocean and the perception of proper civic stewardship are essential to the economic health of tourism in Delaware.

Rehoboth Beach needs to do further studies on the health of the ocean in the Hen and Chicken shoals and update the findings in the EIS. Baseline populations of all organisms, their present health, toxicologies, and definitive habitat must be established. The simplistic conclusions that nearly all the species impacted in the EIS are highly migratory are unscientific at best and morally irresponsible at worst.

Gregg Rosner

**From:** [Stanheuis@aol.com](mailto:Stanheuis@aol.com)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Rehoboth Beach ocean outfall EIS approval  
**Date:** Thursday, May 03, 2012 6:08:53 AM

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**We are writing as Rehoboth Beach homeowners and taxpayers to strongly support quick approval of the ocean outfall process for an alternative discharge point for treated wastewater from our city. As legally required, the City of Rehoboth Beach conducted a thorough process, with significant expert and public participation, and made a reasoned and well-documented decision, for multiple reasons, to select ocean outfall. This was followed by municipal elections in which the voters strongly supported candidates who had supported this measure. To us, it therefore seems the will of the people.**

**This letter is submitted as part of the public process for commenting on the Environmental Impact Study (EIS) draft before you for review. When the clearly acceptable environmental impacts documented by the EIS are combined with the very significant cost and operational advantages of ocean outfall, it becomes clear that the City's initial decision on this approach is strongly confirmed by the EIS. The choice by Rehoboth Beach should be approved, along with state funding.**

**While we do not question the motives of those who have suddenly reappeared to suggest other applications, the draft EIS says they are at best ill-informed; and ratifies the earlier decision that ocean outfall has minimal environmental impact, is more feasible and less expensive to build, and will cause smaller increases in sewer rates for residents. The EIS notes that ocean outfall "has the lowest impact on estimated user charges and greatest acceptance by citizens of Rehoboth Beach." Writing as people who will be footing this bill, we think this makes a great deal of sense.**

**In conclusion, we strongly recommend that DNREC should approve the conclusions of the EIS. As you know, DNREC approval of the EIS and the project is necessary for the City to receive the state funding for the purposes that the project is intended to serve. The City deserves state approval and funding.**

**Stanley and Betsey Heuisler**

**81 Henlopen Avenue, Rehoboth Beach DE**



**From:** [Howard Menaker](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Rehoboth Beach EIS comment regarding ocean outfall method of discharge  
**Date:** Thursday, May 03, 2012 11:00:12 AM

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May 3, 2012

Greg Pope, Department of Natural Resources and Environmental Control

Financial Assistance Branch

5 E. Reed St. Suite 200

Dover, DE 19901

Dear Mr. Pope:

As a Rehoboth Beach homeowner, voter and taxpayer, I write to strongly support approval of the environmental impact study recommending the ocean outfall process as the wastewater discharge method for our city.

Citizens of the city and our city officials did not take the process of selecting a discharge method lightly. Before reaching a conclusion, the City of Rehoboth Beach conducted an extensive process, with expert and public participation, and made a well-documented and carefully considered decision to select ocean outfall.

When the environmental impacts documented by the EIS are combined with the cost and operational advantages of ocean outfall, it becomes clear that the City's initial decision on this approach is strongly confirmed by the EIS. Most significantly, the EIS concludes that ocean outfall is superior, as contrasted with other alternatives such as land application, because the outfall has minimal environmental impact on our ocean. Any contaminant potentially present from the offshore discharge is rapidly diluted to below minimum water quality standards or non-detectable levels and does not threaten aquatic plants, fish and wildlife.

It states, better than I could, that ocean outfall is the most "practical solution considering the availability of land and the protection of groundwater and water quality of the Inland Bays. Also, this alternative has the lowest impact on estimated user charges and greatest acceptance by citizens of Rehoboth Beach."

In conclusion, I recommend and request that DNREC approve the conclusions of the EIS. The City deserves to move forward, having received state approval and funding, for this crucial project.

Sincerely,

Howard Menaker

16 Dover Street

Rehoboth Beach, DE 19971

[howardmenaker@yahoo.com](mailto:howardmenaker@yahoo.com)

**From:** [Dick Byrne](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Comments re: EIS Proposed Ocean Outfall Rehoboth Beach, DE  
**Date:** Saturday, May 05, 2012 5:39:39 PM  
**Attachments:** [Park Place Outfall letter.docx](#)  
**Importance:** High

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**From:** [Dick Byrne](#)  
**Sent:** Saturday, May 05, 2012 5:36 PM  
**To:** [RehobothEISComments@State.de.us](mailto:RehobothEISComments@State.de.us)  
**Cc:** [scooper@cityofrehoboth.com](mailto:scooper@cityofrehoboth.com) ; [smills@cityofrehoboth.com](mailto:smills@cityofrehoboth.com) ; [mhunker@cityofrehoboth.com](mailto:mhunker@cityofrehoboth.com) ; [pgossett@cityofrehoboth.com](mailto:pgossett@cityofrehoboth.com) ; [lzellers@cityofrehoboth.com](mailto:lzellers@cityofrehoboth.com) ; [pcoluzzi@cityofrehoboth.com](mailto:pcoluzzi@cityofrehoboth.com) ; [bill.sargent@cityofrehoboth.com](mailto:bill.sargent@cityofrehoboth.com) ; [gferrese@cityofrehoboth.com](mailto:gferrese@cityofrehoboth.com) ; [tsullivan@cityofrehoboth.com](mailto:tsullivan@cityofrehoboth.com) ; [Craig.R.Homesley@usace.army.mil](mailto:Craig.R.Homesley@usace.army.mil)  
**Subject:** Comments re: EIS Proposed Ocean Outfall Rehoboth Beach, DE

The Board of Directors of the Park Place on the Canal Condominium Homeowners Association, Rehoboth Beach, DE 9971, is providing the attached comments on the draft Environmental Impact Statement (EIS) for the Proposed Ocean Outfall in Rehoboth Beach, DE.

We look forward to a comprehensive response.

Thank you.

Richard Byrne

President

Park Place on the Canal Homeowners Association

125 Canal Street

Rehoboth Beach, DE 19971

H) 302-226-2308

[rawbyrne@verizon.net](mailto:rawbyrne@verizon.net)

**PARK PLACE on the CANAL CONDOMINIUMS  
HOME OWNERS ASSOCIATION  
REHOBOTH BEACH, DE 19971**

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2 May 2012

Mr. Greg Pope  
Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 East Reed Street, Suite 200  
Dover, DE 19901

Dear Mr. Pope:

The Board of Directors of Park Place on the Canal Condominium Homeowners Association, Rehoboth Beach, DE, 19971, is providing the following comments on the draft Environmental Impact Statement (EIS) to permit the design and construction of a new ocean outfall. Park Place on the Canal is a residential development of 14 condominiums that runs alongside the Army Corps of Engineers (ACE) jurisdiction of land at the top of the Lewes-Rehoboth Canal. The ACE jurisdiction of land is 20 feet wide from the top of the canal to the rear of our property line. The foundation of our homes is within close proximity to the rear property line.

Two alternative alignments were evaluated for constructing the force main pipeline of the ocean outfall as outlined in Chapter 4 and Appendix G of the EIS. Alternative A is to construct the pipeline in the ACE jurisdiction of land between the top of the canal and our rear property line. Alternative A was the recommended option in Appendix G of the EIS.

The Board of Park Place on the Canal finds this recommendation in error because it appears to be based on an incomplete and inaccurate EIS. In particular, Chapter 4 and Appendix G are incomplete and inaccurate for the reasons outlined below.

We request the final EIS address the following 3 impacts that were omitted from the draft EIS. Moreover, we request the one inaccuracy listed below be reconciled in the final EIS. We believe that new information developed from these findings will warrant another review of Alternative A, and we ask that you perform another review of the planned alignment of the force main pipeline in light of this new information.

*Chapter 4 of EIS*

According to Chapter 4 of the draft EIS, a detailed study was completed to determine the best routing of the force main pipeline based on the following:

- Environmental Issues,
- Potential Interferences, and
- Public Concerns.

### **Omitted Impact #1**

Our concern is the pipeline will negatively interfere with the water runoff, as well as negatively impact the soil, trees, and vegetation that cover the bank of the the canal and line its top. Construction will compromise the integrity of the bank itself. The canal is a historic structure according to Chapter 4, but the integrity of its bank is not addressed in the EIS. A complete EIS must address this concern.

### **Omitted Impact #2**

A compromise to the canal bank and/or its soil, trees, and vegetation will compromise the foundation of our homes. This concern is not addressed in the EIS, nor was the Board asked to provide input for the draft EIS. A complete EIS must address this concern.

### *Appendix G of EIS*

### **Omitted Impact #3**

In Appendix G of the EIS, the ACE provided comment (via Coastal & Estuarine Research Inc.) on the lack of Federal 404 wetlands along the pipeline (see letter dated 20 October 2011). No comment was provided by ACE on the impact of the pipeline on the integrity of the bank itself. ACE needs to address the integrity of the bank as stewards of the canal. This is a serious omission.

### **Inaccuracy #1**

In Appendix G of the EIS, the Department of Natural Resources & Environmental Control (DNREC) provided comment on the lack of state-rare or federally listed plants, animals, or natural communities within the pipeline alignment (see letter dated 27 May 2011). According to the DNREC letter, the finding is based on, “construction in close proximity to the canal will be via directional drill” (see paragraph 2 of the letter).

Yet, Figure 4-3 of Chapter 4 of the EIS does not show a directional drill design for the portion of the pipeline between the bank of the canal and our rear property line. The finding of the DNREC letter appears to be based on an inaccurate interpretation of Figure 4-3 of Chapter 4. Our property line is certainly within “close proximity to the canal”.

We look forward to a comprehensive response, which must include a complete and accurate EIS. We understand the time constraints for a decision given the December 31, 2014 deadline for project completion. This may suggest the best alternative for the pipeline alignment

is the one for which the EIS is complete. Please contact me at rawbyrne@verizon.net, 302-226-2308, or the address below, if additional information or assistance is needed.

Respectfully yours,

Richard Byrne  
President  
Park Place on the Canal Homeowners Association  
125 Canal Street  
Rehoboth Beach, DE 19971

Board members:  
Thomas Ingold  
Dave Jacobin  
Bonnie Mann  
Sherri Swenson

cc. Sam Cooper, Mayor  
Greg Ferrese, City Manager  
Terry Sullivan, Chief Building Inspector  
Craig Homesley, Real Estate Div., Army Corps of Engineers  
Lorraine Zellers, Commissioner  
Mark Hunker, Commissioner  
Stan Mills, Commissione  
Bill Sargent, Commissioner  
Pat Coluzzi, Commissioner

**From:** [PD Lovett Info](#)  
**To:** [information@cityofrehaboth.com](mailto:information@cityofrehaboth.com); [Markell Jack \(Governor\)](#); [DNREC EIS Comments](#); [Joanne Hess](#)  
**Subject:** In support of Ocean Outfall  
**Date:** Monday, May 07, 2012 11:45:22 AM  
**Attachments:** [Support for Ocean Outfall.docx](#)

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Please see attached letter...

May 7, 2012

Greg Pope  
Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 E. Reed St. Suite 200  
Dover, DE 19901

Dear Mr. Pope:

As a full time resident of Rehoboth Beach and property owner since 1997, we feel that the Mayor, Commissioners, City Manager and Water Department have all studied the alternatives for discharge in our City to its fullest. Their finding is based on exhaustive research and discussion.

We have followed the process and believe it to be thorough and proper. Their decision has led to the best possible option and we should move forward with it. The clock is ticking for Rehoboth Beach to get this situation resolved.

We give our support to ocean outfall option.

Sincerely,  
Cindy and Paul Lovett  
510A Rehoboth Avenue,  
Rehoboth Beach, DE 19971

**From:** [happyatsettinger@verizon.net](mailto:happyatsettinger@verizon.net)  
**To:** [DNREC EIS Comments](#)  
**Subject:** ocean outfall  
**Date:** Tuesday, May 08, 2012 9:18:02 AM  
**Attachments:** [Letter to DNREC re Rehoboth outfall.pdf](#)

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Attached are our comments relative to the environmental impact statement for the Rehoboth Beach ocean outfall project.

Bill and Melonie Ettinger

23723 Woods Drive  
Lewes, DE 19958-3314

8 May 2012

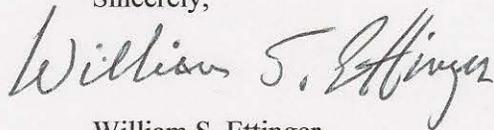
Greg Pope  
DE Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 East Reed Street, Suite 200  
Dover, DE 19901

SUBJECT: Rehoboth Wastewater Treatment Plant EIS

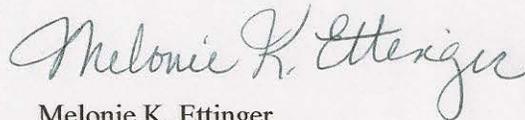
Dear Mr. Pope:

I believe that the treated effluent from the Rehoboth Wastewater Treatment Plant should be applied to land rather than discharged through an ocean outfall. Effluent applied to land will water plants and soak into the subsurface, eventually recharging an aquifer, whereas effluent discharged through an ocean outfall is lost, relative to the land. It may be less expensive to build and use an ocean outfall than to build a pipeline and discharge the effluent to the land, but discharge of the water to the ocean, rather than to the land, is a more important consideration.

Sincerely,



William S. Ettinger



Melonie K. Ettinger

**From:** [Pope Greg \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** FW: EIS for the City of Rehoboth Beach's Wastewater  
**Date:** Tuesday, May 08, 2012 1:29:35 PM  
**Attachments:** [20120504152828503.pdf](#)

---

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

From: Carol Murphy [<mailto:cmurphy@tuiwater.com>]  
Sent: Friday, May 04, 2012 3:33 PM  
To: Pope Greg (DNREC)  
Cc: Jerry Esposito; Ray Ebaugh; Bruce Patrick  
Subject: EIS for the City of Rehoboth Beach's Wastewater

Greg,

Please find attached Tidewater's comments on the Wastewater Disposal EIS for the City of Rehoboth Beach's Wastewater.

Carol S. Murphy  
Community Affairs Manager | Tidewater Utilities, Inc.  
"Southern Delaware's Premier Water Company Since 1964"  
302-734-7500 ext. 1060  
302- 747-1331 |DIRECT DIAL  
302-275-2190 CELL  
[cmurphy@tuiwater.com](mailto:cmurphy@tuiwater.com)  
<http://www.tuiwater.com>

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

From: Ricohmpc4500@tidewater.com [<mailto:Ricohmpc4500@tidewater.com>]  
Sent: Friday, May 04, 2012 3:28 PM  
To: Carol Murphy  
Subject:

This E-mail was sent from "TidewaterHQ" (Aficio MP C4500).

Scan Date: 05.04.2012 15:28:28 (-0400)  
Queries to: Ricohmpc4500@tidewater.com

**TIDEWATER**  
ENVIRONMENTAL SERVICES, INC.

A Middlesex Water Company Affiliate

May 6, 2012

Mr. Greg Pope  
DNREC  
Financial Assistance Branch  
89 Kings Highway  
Dover, DE 19901

RE: Wastewater Disposal EIS for the City of Rehoboth Beach's Wastewater

Dear Mr. Pope:

Please place this letter into record for the public review of the referenced document.

As you may know, Tidewater Environmental Services, Inc. (TESI) has been following the evaluation of Rehoboth's various wastewater treatment and disposal options for several years. We have engaged in various meetings, correspondence, and discussions, culminating in our offer to assist the City during their final public meeting prior to their selection of their wastewater disposal option. At that time we sent a letter to notify the City that TESI was prepared to provide the necessary wastewater services. We requested formal consideration to that offer in their deliberations.

TESI is still prepared to provide the services offered previously. TESI has made significant progress with regard to our proposed Wandendale Regional Wastewater Facility that will be constructed at our site between Route 24 and Camp Arrowhead Road. TESI received the necessary Conditional Use approval and extensions from Sussex County; the Department of Natural Resources and Environmental Control (DNREC) has approved our Coastal Zone Act permit; and DNREC's Construction permit was just issued for the facility.

TESI's Wandendale facility will have the capacity to treat and dispose of a significant portion of Rehoboth's flow. In addition, we have alternatives that could be used to dispose of the remainder of your wastewater on other nearby lands.

As we had previously explained to the City of Rehoboth, if there is a formal interest in our option, we are prepared to pursue the details that will satisfy the City's needs.

In conclusion, TESI is prepared, willing, and able to work with the State and the City to develop and implement a permanent, cost-effective and environmentally sound wastewater disposal solution.

Sincerely,

  
Gerard L. Esposito  
President

Cc: Terry Deputy

**From:** [Pope Greg \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** FW: UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028  
**Date:** Wednesday, May 09, 2012 11:55:51 AM

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**From:** Herr Laura M. (DNREC)  
**Sent:** Wednesday, May 09, 2012 11:11 AM  
**To:** Pope Greg (DNREC)  
**Subject:** RE: UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

Greg: [We have no futher comments.](#)

Tx

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**From:** Pope Greg (DNREC)  
**Sent:** Wednesday, May 09, 2012 10:45 AM  
**To:** Arndt Tricia K. (DNREC); Cooksey Sarah W. (DNREC); DeGeorgio.Alaina@epamail.epa.gov; Herr Laura M. (DNREC); Hummel Anthony E. (DNREC); Luoma Jennifer L. (DNREC); Sadler Maria K. (DNREC); Schneider John W. (DNREC); Searfoss.Renee@epamail.epa.gov; Stetzar Edna (DNREC); Stiller Kathleen M. (DNREC); Tinsman Jeffrey (DNREC); Underwood Robert (DNREC); Wilson Bartholomew D. (DNREC); Walling Lee Ann (DNREC); Clark Cherie (DNREC); Melendez Milton (DDA); Mirzakhilili Ali (DNREC); Schepens Dave J. (DNREC); Graeber Ronald E. (DNREC); Lovell Stewart E. (DNREC); LORENZ Andy; devin\_ray@fws.gov; kgreene@snook.sh.nmfs.gov; Slavin Timothy A (DOS); Gray Valerie A. (DNREC); Morozowich Deanna (DNREC)  
**Cc:** Piorko Frank M. (DNREC); Baldwin Robert S. (DNREC); Salkin Charles (DNREC); Crofts Marjorie A. (DNREC); Saveikis David (DNREC); Deputy Terry (DNREC)  
**Subject:** RE: UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

Reminder to environmental cross cutters and other agencies. **The comment period closes on May 10<sup>th</sup> at 4:30 pm.** Please send your comments to [Rehoboth\\_EIS\\_Comments@state.de.us](mailto:Rehoboth_EIS_Comments@state.de.us). If you do not have any comments, please respond and say "No Comments."

If you have already submitted comments, thanks!

Greg

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**From:** Pope Greg (DNREC)  
**Sent:** Monday, March 12, 2012 11:35 AM  
**To:** Arndt Tricia K. (DNREC); Cooksey Sarah W. (DNREC); DeGeorgio.Alaina@epamail.epa.gov; Herr Laura M. (DNREC); Hummel Anthony E. (DNREC); Luoma Jennifer L. (DNREC); Sadler Maria K. (DNREC); Schneider John W. (DNREC); Searfoss.Renee@epamail.epa.gov; Stetzar Edna (DNREC); Stiller Kathleen M. (DNREC); Tinsman Jeffrey (DNREC); Underwood Robert (DNREC); Wilson Bartholomew D. (DNREC); Walling Lee Ann (DNREC); Clark Cherie (DNREC); Melendez Milton (DDA); Mirzakhilili Ali (DNREC); Schepens Dave J. (DNREC); Graeber Ronald E. (DNREC); Lovell Stewart E. (DNREC); LORENZ Andy; devin\_ray@fws.gov; kgreene@snook.sh.nmfs.gov; Slavin Timothy A (DOS); Gray Valerie A. (DNREC); Morozowich Deanna (DNREC)  
**Cc:** Piorko Frank M. (DNREC); Baldwin Robert S. (DNREC); Salkin Charles (DNREC); Crofts Marjorie A. (DNREC); Saveikis David (DNREC); Deputy Terry (DNREC)  
**Subject:** UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

TO: Reviewing Agencies (DNREC, USEPA, US F&W, NMFS, and other DE State Agencies)  
FROM: Greg Pope, P.E., Engineer VI, DNREC, Financial Assistance Branch  
DATE: March 9, 2012  
RE: Project # 201028 – Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project

On behalf of the City of Rehoboth Beach, DNREC is soliciting comments on the Draft Environmental Impact Statement (EIS) for the above referenced project. The draft report and appendices can be viewed at:

<http://www.dnrec.delaware.gov/wr/Services/Pages/Financial-Assistance-Branch-proposed-Rehoboth-ocean-outfall.aspx>

Written comments will be accepted until May 10, 2012 at 4:30 p.m. You may e-mail your comments to [Rehoboth\\_EIS\\_Comments@state.de.us](mailto:Rehoboth_EIS_Comments@state.de.us). If you do not have any comments, please respond and say “No Comments.”

If you have any questions or need a CD version of the report, please email or call me at 302-739-9941.

Thank you for your input on this project.

Greg Pope, P.E.

State of Delaware

DNREC, Office of the Secretary,

Financial Assistance Branch

5 East Reed Street, Suite 200

Dover, DE 19901

Tel: 1-302-739-9941

Fax: 1-302-739-2137

Attachments: EIS Distribution List, City of Rehoboth Beach Public Notification

**From:** [Suzanne Thurman](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Rehoboth Outfall comments from MERR Institute  
**Date:** Wednesday, May 09, 2012 3:30:02 PM  
**Attachments:** [Rehoboth Outfall comments final.pdf](#)  
[Ocean outfall II.doc](#)

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Dear Mr. Pope,

Included here, please find our prepared comments pertaining to the proposed outfall pipe off of Rehoboth Beach, DE. In addition, I am providing a table of current and complete data pertaining to marine mammal and sea turtle strandings and sightings as they occurred along the Delaware coast and waterways from 2000-2012.

Please let me know if you need any other information. I would also appreciate a notification that you received this email.

Thanks,

Suzanne Thurman

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*Suzanne Thurman*  
*Executive Director*  
*MERR Institute, Inc.*  
*P.O. Box 411*  
*Nassau, DE 19969*  
[\*\(302\)228-5029\*](tel:(302)228-5029)  
[\*\(302\)644-2679\*](tel:(302)644-2679) fax  
[\*merrinstitute@gmail.com\*](mailto:merrinstitute@gmail.com)  
[\*www.merrinstitute.org\*](http://www.merrinstitute.org)

**From:** [Suzanne Thurman](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** Rehoboth Outfall Comments from MERR Institute  
**Date:** Wednesday, May 09, 2012 4:37:26 PM  
**Attachments:** [Rehoboth Beach Outfall Comments final.pdf](#)  
[Ocean outfall II.doc](#)

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Dear Mr. Pope,

I am resending the comments and data tables that I submitted earlier today in the event that your email address is case sensitive. I failed to capitalize one letter.

Additionally, it appeared that one of the data tables was cut off in the original document during pdf conversion, so the tables attached here are preferable.

Thanks, and if possible, I would appreciate a confirmation of receipt.

Suzanne Thurman

--

*Suzanne Thurman*

*Executive Director*

*MERR Institute, Inc.*

*P.O. Box 411*

*Nassau, DE 19969*

*(302)228-5029*

*(302)644-2679 fax*

*[merrinstitute@gmail.com](mailto:merrinstitute@gmail.com)*

*[www.merrinstitute.org](http://www.merrinstitute.org)*



*Marine Education, Research & Rehabilitation Institute, Inc.*  
*MERR P.O. Box 411 Nassau, DE 19969*

*(302) 228-5029*  
*(302)644-2679 fax*

*merrinstitute@gmail.com*  
*www.merrinstitute.org*

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*... dedicated to the conservation of marine mammals and sea turtles and their habitat*

May 8<sup>th</sup>, 2012

Greg Pope  
DNREC  
Financial Assistance Branch  
5 E. Reed St.  
Suite 200  
Dover, DE 19901

Dear Mr. Pope and other Reviewers,

The Marine Education, Research & Rehabilitation Institute, Inc. is the organization responsible for the welfare of marine mammals and sea turtles that occur throughout the state of Delaware. As the leading authority on these species, we would like to contribute the following comments and data for consideration in any final decision making process regarding the proposed outfall pipe off of Rehoboth Beach, DE

MERR has submitted comments previously on this subject during the public comment period in November, 2009. These are also included here.

After reviewing the EIS that was prepared for this proposal, we note that the data for marine mammal and sea turtle occurrences does not include any data from 2000-2011. MERR has responded to approximately 900 strandings and sightings between 2000-2011. This data is provided at the end of this document (Figures 1. And 2.).

Delaware experiences more than 36 different species of marine mammals and sea turtles throughout the year, most of which are threatened or endangered species, and all of which are protected species under the Marine Mammal Protection Act and/or the Endangered Species Act. As the stranding response organization for marine mammals and sea turtles, MERR collects data pertaining to strandings and sightings of these species. Stranding data serves as the tip of the iceberg for the overall number of a species that is present in our waters.

Endangered species documented along the Delaware coast include several large whale species and sea turtle species:

Endangered species

- Humpback whale (*Megaptera novaeangliae*)
- Fin whale (*Balaenoptera physalus*)

- Sei Whale (*Balaenoptera borealis*)
- North Atlantic Right Whale (*Eubalaena glacialis*)
- Beluga Whale (*Delphinapterus leucas*)
- Leatherback Sea Turtle (*Dermochelys coriacea*)
- Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)

Threatened species include:

- Green Sea Turtle (*Chelonia mydas*)
- Loggerhead Sea Turtle (*Caretta caretta*)

We also noted that species surveys were sometimes conducted during time frames when these species aren't present in Delaware waters, as in the case of the Harbor Porpoise (*Phocoena phocoena*). The survey for this species was conducted during the summer months, when in fact Harbor Porpoises occur along the Delaware coast from March-May). Therefore, the population survey presented for this species is inapplicable.

Of the large whale species, the North Atlantic Right whale is the most endangered, with only 350 individuals remaining in the world. Mother/calf pairs have been documented in the vicinity of the Indian River Inlet, and have been sighted north of this area en route to the Delaware Bay. Right whales are known to exhibit matrilineal fidelity for feeding and weaning grounds, and the Delaware Bay has historically served as one of these areas. Right whale mothers will bring their calves to the DE Bay to feed, where they themselves were weaned. As plankton feeders, these severely endangered species must rely on a healthy source of phytoplankton and zooplankton for their survival. These organisms are contained within the microlayer of our oceans, and provide the basis of the food web for larger species, including large whales and humans. Studies show that the microlayer is adversely impacted by the contaminants contained within the treated effluent (i.e. heavy metals, pharmaceuticals, endocrine inhibitors, toxic treatment chemicals, etc.)<sup>1</sup> Contamination of this all important food source is of serious concern for all of the marine mammal and sea turtles species that occur along our coast, bays and inland waterways.

The EIS references the transitory nature of marine mammal and sea turtle species along the Delaware coast. The inference is that these species are merely passing through, and would incur little harm from the effects of treated effluent. In actuality, species such as the Atlantic Bottlenose dolphin (*Tursiops truncatus*) are documented as remaining in our waters for months at a time between April and October. Freeze branded individuals have been sighted and photographed repeatedly throughout a period of months near Cape Henlopen and the Hens and Chicken Shoals area. The time frame for the presence of this species coincides with the higher summer visitor population, and corresponding quantities of effluent that will be introduced into the ocean ecosystem. Concern for marine mammal and sea turtle species goes beyond surface exposure to toxins contained within the effluent, and extends to contamination of their food source. In addition to the detrimental impact on the microlayer are concerns for the effects of treated effluent on

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<sup>1</sup> Hardy, J.T. 1997. Biological effects of chemicals in the sea-surface microlayer. In: The Sea Surface and Global Change. P. Liss and R. Duce (eds.). Cambridge University Press. p. 339-370.

the benthic layer. Treated effluent does not simply dilute into harmless substance when it is dispersed from the pipe, but rather travels to the microlayer and benthic layer of the ocean, adversely effecting the organisms that are contained within these spheres. Many species of fish and sea turtles rely on benthic organisms for sustenance, again exemplifying the need for protection of these vital and fragile systems.

In our previous comments provided in November, 2009, we sighted the correlation between exposure to treated effluent and disease presence in Atlantic Bottlenose dolphins and humans. Bottlenose dolphins continue to be a source of delight for visitors and residents alike, and they remain one of the most effective ambassadors of the sea. With that in mind, we restate that recent and ongoing studies of Atlantic Bottlenose Dolphin populations provide evidence linking environmental toxins found in the tissues of these animals, such as PCBs, mercury, DDT and organic compounds such as water repellants (PFCs) and flame retardants (PBCEs), to infections, cancers, lymphatic disorders, and immune system suppressions. Additionally, dolphins exposed to antibiotics in coastal waters from municipal outfall pipes (pharmaceuticals are unable to be broken down by traditional wastewater facilities) are growing new strains of problematic bacteria. A study by the National Ocean Service Center for Coastal Environmental Health and Biomolecular Research at Fort Johnson, South Carolina found antibiotic-resistant bacteria near waste water treatment plants. Researchers at Fort Johnson found evidence that local dolphin populations contained this same bacteria. This syndrome will impact the dolphin's ability to respond to veterinary treatment if needed, and may suppress their immune system, thus opening wild populations of marine mammals to a myriad of disease.

Marine mammals serve as important barometers for the health of our oceans, acting as sentinels for the presence of toxins that may also impact human swimmers and beachgoers. In localities where both dolphins and human diseases have been contrasted and compared in North America (Alaska, Puget Sound, San Francisco Bay, Gulf Coast, Florida and the St. Lawrence Seaway) evidence has preliminarily linked fish source contamination and increased risk of human myelomas (cancers). Studies are continuing to evaluate the relationships between ocean health, marine mammal health and human health by calculating the incidence of cancers in dolphins and humans in association with exposure to toxins in the marine environment, including toxins contributed by way of treated effluent.

As the Rehoboth Beach Commissioners and State Regulators work to find a viable solution for wastewater treatment for Rehoboth Beach, we urge the decision makers to make responsible decisions for the long term protection of ocean health. Outfall pipes that exist in our neighboring towns were installed in the 1970's. Since that time we have been able to determine substantial information regarding the detrimental impacts of this type of treatment on ocean health, marine species, and human health, just as we are now better informed about the impacts of DDT, sun exposure, and cigarette smoking. Therefore, we hope that better informed solutions will be investigated, and that healthier and more cost effective alternatives will be identified. We note that only 2 solutions have been investigated thus far, that of ocean outfall and land application through spray

irrigation. What, if any, consideration has been given to constructed wetlands, the cost of which is purported to be 50-90% less expensive than conventional systems (i.e. \$35,000-150,000 per acre)?<sup>2</sup> The benefits of this type of waster water treatment system are numerous, and have the positive effect of creating established wildlife habitat while effectively eliminating and stabilizing sediments, heavy metals, and organic contaminants. Public perception of Rehoboth Beach as a progressive, green city can only enhance their image, and hence tourism. This, combined with the cost effective aspect of this type of treatment is worthy of more serious consideration.

Thank you for your consideration and inclusion of these comments in your decision process. Please feel free to contact me should you need any further clarification or information pertaining to these comments, and our data.

Sincerely,

A handwritten signature in blue ink that reads "Suzanne Thurman". The signature is written in a cursive style with a large initial 'S' and a distinct 'T'.

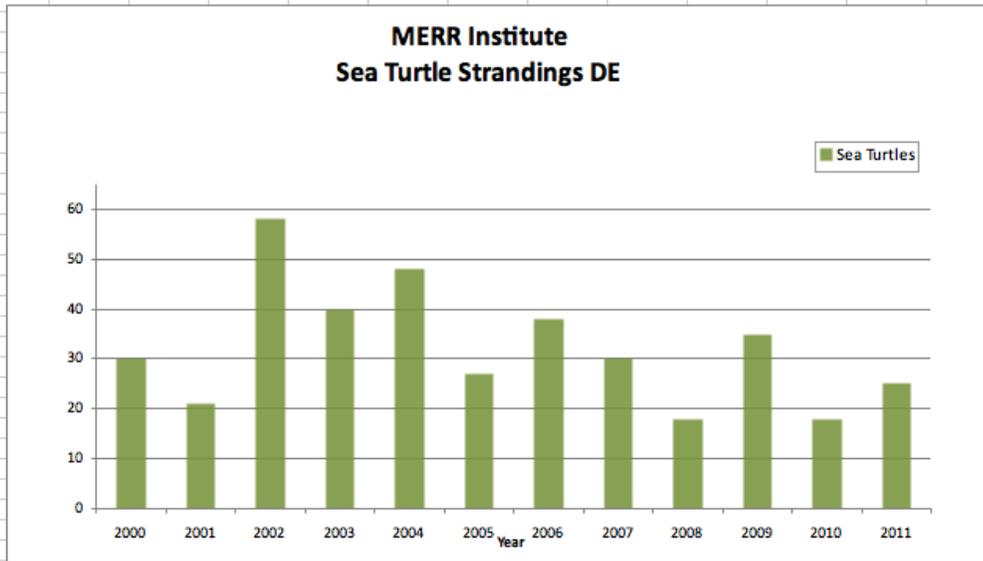
Suzanne Thurman  
Executive Director

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<sup>2</sup> USEPA, 1993, Constructed Wetlands for Wastewater Treatment and Wildlife Habitat  
<http://www.epa.gov/owow/wetlands/construc/>

**M.E.R.R. Institute  
Sea Turtle Strandings  
Delaware**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
<b>Sea Turtles</b>	30	21	58	40	48	27	38	30	18	35	18	25	388
Loggerhead	25	14	41	39	23	18	29	24	17	29	13	17	289
Green	0	0	1	0	0	0	0	0	0	2	0	1	4
Leatherback	1	3	1	0	13	5	4	2	1	2			32
Kemp's Ridley	3	2	3	0	4	1	3	1		2	1	6	26
Hybrid	0	0	0	0	1							0	1
Unidentified Sea Turtle	1	2	12	1	7	3	2	3	0		4	1	36



**Figure 1.**

MERR Institute  
 Marine Mammal Strandings  
 2000-2011

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		Total
<b>Cetaceans</b>	<b>19</b>	<b>14</b>	<b>18</b>	<b>29</b>	<b>22</b>	<b>16</b>	<b>21</b>	<b>24</b>	<b>35</b>	<b>23</b>	<b>18</b>	<b>19</b>	✓	<b>258</b>
Bottlenose dolphin	13	6	13	21	17	9	10	15	26	13	11	13	✓	167
Harbor porpoise	3	4	3	1	1	4	3	3	4	2	3	0	✓	31
Common dolphin	1	1	1	1	2	0	0	0	2	3	0	2	✓	13
Striped dolphin	0	1	0	5	0	0	0	1	0	0	0	0	✓	7
Rough toothed dolphin	0	1	0	0	0	0	0	0	0	0	0	0	✓	1
Rissos Dolphin	0	0	0	0	1	2	0	1	0	0	0	0	✓	4
Un dolphin	0	0	0	0	0	0	1	0	0	0	0	0	✓	1
Humpback whale	0	0	1	1	1	0	0	0	0	0	0	0	✓	3
Minke whale	0	1	0	0	0	0	0	0	0	1	0	1	✓	3
White sided dolphin	0	0	0	0	0	0	1	0	1	1	0	2	✓	5
Pygmy Sperm Whale	0	0	0	0	0	0	2	2	0	0	0	0	✓	4
Short Finned Pilot Whale	0	0	0	0	0	0	0	0	0	1	0	0	✓	1
Fin Whale	0	0	0	0	0	0	1	0	0	1	2	0	✓	4
Northern Right Whale	0	0	0	0	0	0	0	2	0	0	1	1	✓	4
Northern Bottlenose Whale	0	0	0	0	0	0	2	0	0	0	0	0	✓	2
Sei Whale	0	0	0	0	0	0	0	0	0	1	0	0	✓	1
UNWhale	2	0	0	0	0	1	1	0	2	0	1	0	✓	7
<b>Pinnipeds</b>	<b>0</b>	<b>45</b>	<b>2</b>	<b>6</b>	<b>8</b>	<b>23</b>	<b>27</b>	<b>28</b>	<b>31</b>	<b>13</b>	<b>19</b>	<b>33</b>	✓	<b>235</b>
Harbor seal	0	40	0	3	1	13	15	5	3	7	4	18	✓	109
Harp seal	0	1	1	2	4	5	6	7	13	1	4	7	✓	51
Hooded seal	0	1	1	0	2	0	3	0	0	0	0	0	✓	7
Gray seal	0	2	0	1	1	5	1	6	6	3	8	8	✓	41
Un	0	1	0	0	0	0	2	10	9	2	3	0	✓	27
<b>Sirenia</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	✓	<b>3</b>
Manatee	0	0	0	0	1	0	1	0	0	1	0	0	✓	
<b>Total Mammals</b>	<b>19</b>	<b>59</b>	<b>20</b>	<b>35</b>	<b>31</b>	<b>39</b>	<b>49</b>	<b>52</b>	<b>66</b>	<b>37</b>	<b>37</b>	<b>52</b>	✓	<b>496</b>

Figure 2.



*Marine Education, Research & Rehabilitation Institute, Inc.*  
*MERR P.O. Box 411 Nassau, DE 19969*

*(302) 228-5029*  
*(302)644-2679 fax*

*merrins@earthlink.net*  
*www.merrinstitute.org*

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*... dedicated to the conservation of marine mammals and sea and their habitat*

November 7<sup>th</sup>, 2009

City Commissioners Office  
Building and Licensing Department  
City of Rehoboth Beach  
306 Rehoboth Avenue  
Rehoboth Beach, DE 19971

Dear Commissioners,

The Marine Education, Research & Rehabilitation Institute would like to comment on the proposal to install an outfall pipe off of Rehoboth Beach as a means of waste water management. As the organization responsible for the welfare of marine mammals and sea turtles throughout our state, we are particularly concerned about the negative impact an outfall pipe could have on the health of our oceans, the species who reside there, and on our citizens.

Many endangered marine species occur along our coast, and in our bays and inland waterways. Delaware waters serve as an important foraging ground and migratory pathway for whales, dolphins, seals, manatees and sea turtles, all of which are protected species under Federal law. These animals face perils of many origins including environmental toxins resulting from waste water treatment, marine debris, oil spills, boat strike, fisheries interactions, and more.

As much as we may enjoy communing and recreating with the ocean, marine species must rely on them for every aspect of their existence. The waters in which they live, and the food that they eat show high levels of environmental toxins, human in origin. Toxicological studies of dolphins in the last few years are beginning to correlate bioaccumulations of toxins and pharmaceuticals with exposure to marine pollution (man-made) and harmful algal blooms, specifically brevetoxins.

Recent and ongoing studies of Atlantic Bottlenose Dolphin populations provide evidence linking environmental toxins found in the tissues of these animals, such as PCBs, mercury, DDT and organic compounds such as water repellants (PFCs) and flame retardants (PBCEs), to infections, cancers, lymphatic disorders, and immune system suppressions. Additionally, dolphins exposed to antibiotics in coastal waters from municipal outfall pipes (pharmaceuticals are unable to be broken down by traditional wastewater facilities) are growing new strains of problematic bacteria. A study by the National Ocean Service Center for Coastal Environmental Health and Biomolecular

Research at Fort Johnson, South Carolina found antibiotic-resistant bacteria near waste water treatment plants. Researchers at Fort Johnson found evidence that local dolphin populations contained this same bacteria. This syndrome will impact the dolphin's ability to respond to veterinary treatment if needed, and may suppress their immune system, thus opening wild populations of marine mammals to a myriad of disease.

Marine mammals serve as important barometers for the health of our oceans, acting as sentinels for the presence of toxins that may also impact human swimmers and beachgoers. In localities where both dolphins and human diseases have been contrasted and compared in North America (Alaska, Puget Sound, San Francisco Bay, Gulf Coast, Florida and the St. Lawrence Seaway) evidence has preliminarily linked fish source contamination and increased risk of human myelomas (cancers). Studies are continuing to evaluate the relationships between ocean health, marine mammal health and human health by calculating the incidence of cancers in dolphins and humans in association with exposure to toxins in the marine environment.

The primary considerations for waste water treatment solutions seem to be the ocean outfall pipe option, or that of land based applications through spray irrigation. In light of the fact that each of these systems pose environmental and/or costs concerns I am wondering if other alternatives have been researched? One viable option is that of a constructed wetland system. This type of system involves a series of polishing ponds, utilizing both aerobic and anaerobic activity to process the effluent, with the ultimate destination being that of a wetland that becomes natural habitat for a variety of animal and plant species. These systems have been successfully constructed throughout the country, and if properly built, maintained and operated, can effectively remove many pollutants associated with municipal and industrial wastewater. Such systems are especially efficient at removing contaminants such as BOD, suspended solids, nitrogen, phosphorus, hydrocarbons, and even metals. Constructed wetlands are used to treat municipal effluent, industrial and commercial wastewater, agricultural runoff, storm water runoff, animal wastes, acid mine drainage and landfill leachates. From preliminary research, these systems appear to provide enormous savings from a cost standpoint, for both construction and operations.

For you, the leaders and planners for the community of Rehoboth Beach, it must certainly be a difficult task to make decisions that are in the best interest of all facets of the community. We live in a thriving community that sources it's livelihood from the ocean, whether it be through tourism, commerce, real estate, fishing, or personal enjoyment. Many of us choose to make our lives here, out of our affinity for our beautiful coast. As a community that relies so heavily on the enduring presence of these great ecosystems, it is imperative that we make decisions with an eye to the future, and identify ocean health as an essential factor in all of our futures. Difficult choices must be made, and while none seem to be the perfect answer, we hope that our community leaders show the prudence to act as good stewards of our coastal areas by making decisions that help us to conserve and preserve our precious resources, and our way of life.

Sincerely,

Suzanne Thurman  
Executive Director  
Marine Education, Research &  
Rehabilitation Institute  
Lewes, DE



**From:** [bigrexcoco@aol.com](mailto:bigrexcoco@aol.com)  
**To:** [DNREC EIS Comments](#)  
**Subject:** EIS Comments from Dr. Mikatavage  
**Date:** Wednesday, May 09, 2012 6:45:44 PM  
**Attachments:** [Outfall EIS \(v.2\).docx](#)

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Dear Mr. Pope,

Attached you will find my comments on the proposed alignment of the Rehoboth Beach ocean outfall. Please contact me if additional information or assistance is needed. Thank you, Mark A. Mikatavage, Dr.P.H.

9 May 2012

Mr. Greg Pope  
Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 East Reed Street, Suite 200  
Dover, DE 19901

Dear Mr. Pope:

As a resident of Park Place on the Canal, Rehoboth Beach, DE, 19971, I would like to provide the following comments on the draft Environmental Impact Statement (EIS) to permit the design and construction of a new ocean outfall. Park Place on the Canal is a residential development of 14 condominiums that runs alongside the Army Corps of Engineers (ACE) jurisdiction of land at the top of the Lewis- Rehoboth Canal. The ACE jurisdiction of land is 20 feet wide from the top of the canal to the rear of our property line. The foundation of our homes is within close proximity to the rear property line.

Two alternative alignments were evaluated for constructing the force main pipeline of the ocean outfall as outlined in Chapter 4 and Appendix G of the EIS. Alternative A is to construct the pipeline in the ACE jurisdiction of land between the top of the canal and our rear property line. Alternative A was the recommended option in Appendix G of the EIS.

I find this recommendation in error because it appears to be based on an incomplete and inaccurate EIS. In particular, Chapter 4 is incomplete and Appendix G is inaccurate for the reasons outlined below.

I request the final EIS address the following 3 impacts that were omitted from the draft EIS. Moreover, I request the one inaccuracy listed below be reconciled in the final EIS. I believe that new information developed from these findings will warrant another review of Alternative A, and ask that you perform another review of the planned alignment of the force main pipeline in light of this new information.

## *Chapter 4 of EIS*

According to Chapter 4 of the draft EIS, a detailed study was completed to determine the best routing of the force main pipeline based on the following:

- Environmental Issues,
- Potential Interferences, and
- Public Concerns.

### **Omitted Impact #1**

My concern is the pipeline will negatively interfere with the water runoff, and the soil, trees, and vegetation that cover the bank of the canal and line its top, and construction will compromise the integrity of the bank itself. The canal is a historic structure according to Chapter 4, but the integrity of its bank is not addressed in the EIS. A complete EIS would address this concern.

### **Omitted Impact #2**

A compromise to the canal bank and/or its soil, trees, and vegetation will compromise the foundation of my home. This concern is not addressed in the EIS, nor was I asked to provide input for the draft EIS. A complete EIS would address this concern.

## *Appendix G of EIS*

### **Omitted Impact #3**

In Appendix G of the EIS, the ACE provided comment (via Coastal & Estuarine Research Inc.) on the lack of Federal 404 wetlands along the pipeline (see letter dated 20 October 2011). No comment was provided by ACE on the impact of the pipeline on the integrity of the bank itself. ACE needs to address the integrity of the bank as stewards of the canal. This is a serious omission.

### **Inaccuracy #1**

In Appendix G of the EIS, the Department of Natural Resources & Environmental Control (DNREC) provided comment on the lack of state-rare or federally listed plants, animals, or natural communities within the pipeline alignment (see letter dated 27 May 2011). According to the DNREC letter, the

finding is based on, “construction in close proximity to the canal will be via directional drill” (see paragraph 2 of the letter).

Yet, Figure 4-3 of Chapter 4 of the EIS does not show a directional drill design for the portion of the pipeline between the bank of the canal and my rear property line. The finding of the DNREC letter appears to be based on an inaccurate interpretation of Figure 4-3 of Chapter 4. My property line is certainly within “close proximity to the canal”.

I look forward to a comprehensive response, which must include a complete and accurate EIS. I understand the deadline is 31 December 2014 to complete the project, and suggest the best alternative for the pipeline alignment is the one for which the EIS is complete. Please contact me directly if additional information or assistance is needed.

Respectfully yours,

*Electronic Signature, Mark A. Mikatavage*

Mark A. Mikatavage, Dr.P.H.

103 Canal Street  
Rehoboth Beach, DE 19971

Mailing Address:  
4024 Dogberry Lane  
Fairfax, VA 22033

Telephone: 703-830-1814  
Email: [Bigrexcoco@aol.com](mailto:Bigrexcoco@aol.com)

Cc  
Office of the Mayor  
City of Rehoboth Beach  
229 Rehoboth Avenue  
Rehoboth Beach, DE 19971

City Manager  
City of Rehoboth Beach  
229 Rehoboth Avenue  
Rehoboth Beach, DE 19971

**From:** [Jennifer Duncan](#)  
**To:** [Markell Jack \(Governor\)](#)  
**Cc:** [DNREC EIS Comments](#); [information@cityofrehoboth.com](mailto:information@cityofrehoboth.com); [Pope Greg \(DNREC\)](#)  
**Subject:** City of Rehoboth Beach, DE- Comments on Draft Environmental Impact Statement (EIS) Proposed Ocean Outfall for Wastewater  
**Date:** Thursday, May 10, 2012 10:50:37 AM  
**Attachments:** [Sir.doc](#)

---

The Honorable Jack A. Markell,  
Governor,  
State of Delaware

Sir:

I am writing you today to urge you to please support the decision by the City of Rehoboth Beach, DE to select ocean outfall as the preferred method of wastewater disposal.

I have read a considerable amount of “misinformation” printed in our local newspapers and on blogs about this ocean outfall decision.

In brief:

Myth: Land-based sewage treatment is needed to protect public health.

Fact: What’s going out the outfall is 99.97% water.

Fact: Potential environmental impacts of Land-base sewage treatment are very serious because of high water tables and close proximity to Inland

Bays.

Fact: The City of Rehoboth retained an expert international consulting firm to analyze potential solutions. Ocean outfall was deemed the superior choice for our environment.

Fact: This is not 1972. This is 2012. The Typewriter has been replaced by the Tablet. The technology and tools exists today to ensure the City can optimize the protection of our land, ocean, waterways, and habitat by implementing ocean outfall.

Again, I ask that you please support the decision made by our Mayor and Commissioners to best protect our environment.

Very Respectfully,

Jennifer Duncan

Resident, Rehoboth Beach, DE

cc: Greg Pope, Department of Natural Resources and Environmental Control

Financial Assistance Branch

The Honorable, Samuel R. Cooper, Mayor, City of Rehoboth Beach

Commissioners, City of Rehoboth Beach

The Cape Gazette, Letters to the Editor

## The Coast Press, Letters to the Editor

The Honorable Jack A. Markell,  
Governor,  
State of Delaware

Sir:

I am writing you today to urge you to please support the decision by the City of Rehoboth Beach, DE to select ocean outfall as the preferred method of wastewater disposal.

I have read a considerable amount of "misinformation" printed in our local newspapers and on blogs about this ocean outfall decision.

In brief:

Myth: Land-based sewage treatment is needed to protect public health.

Fact: What's going out the outfall is 99.97% water.

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Fact: The City of Rehoboth retained an expert international consulting firm to analyze potential solutions. Ocean outfall was deemed the superior choice for our environment.

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Again, I ask that you please support the decision made by our Mayor and Commissioners to best protect our environment.

Very Respectfully,

Jennifer Duncan  
Resident, Rehoboth Beach, DE

cc: Greg Pope, Department of Natural Resources and Environmental Control  
Financial Assistance Branch

The Honorable, Samuel R. Cooper, Mayor, City of Rehoboth Beach  
Commissioners, City of Rehoboth Beach  
The Cape Gazette, Letters to the Editor  
The Coast Press, Letters to the Editor

**From:** [Dick Byrne](#)  
**To:** [DNREC EIS Comments](#)  
**Cc:** [Dick Byrne](#)  
**Subject:** Comments re: EIS Proposed Ocean Outfall Rehoboth Beach, DE  
**Date:** Thursday, May 10, 2012 10:53:47 AM  
**Attachments:** [Park Place Outfall letter.docx](#)

---

10 May 2012

Please confirm receipt of this communication. Thank you.

Richard Byrne

[rawbyrne@verizon.net](mailto:rawbyrne@verizon.net)

**From:** [Dick Byrne](#)  
**Sent:** Saturday, May 05, 2012 5:39 PM  
**To:** [Rehoboth EIS Comments@state.de.us](mailto:Rehoboth_EIS_Comments@state.de.us)  
**Subject:** Comments re: EIS Proposed Ocean Outfall Rehoboth Beach, DE

The Board of Directors of the Park Place on the Canal Condominium Homeowners Association, Rehoboth Beach, DE 9971, is providing the attached comments on the draft Environmental Impact Statement (EIS) for the Proposed Ocean Outfall in Rehoboth Beach, DE.

We look forward to a comprehensive response.

Thank you.

Richard Byrne

President

Park Place on the Canal Homeowners Association

125 Canal Street

Rehoboth Beach, DE 19971

H) 302-226-2308

[rawbyrne@verizon.net](mailto:rawbyrne@verizon.net)

# **PARK PLACE on the CANAL CONDOMINIUMS HOME OWNERS ASSOCIATION REHOBOTH BEACH, DE 19971**

---

2 May 2012

Mr. Greg Pope  
Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 East Reed Street, Suite 200  
Dover, DE 19901

Dear Mr. Pope:

The Board of Directors of Park Place on the Canal Condominium Homeowners Association, Rehoboth Beach, DE, 19971, is providing the following comments on the draft Environmental Impact Statement (EIS) to permit the design and construction of a new ocean outfall. Park Place on the Canal is a residential development of 14 condominiums that runs alongside the Army Corps of Engineers (ACE) jurisdiction of land at the top of the Lewes-Rehoboth Canal. The ACE jurisdiction of land is 20 feet wide from the top of the canal to the rear of our property line. The foundation of our homes is within close proximity to the rear property line.

Two alternative alignments were evaluated for constructing the force main pipeline of the ocean outfall as outlined in Chapter 4 and Appendix G of the EIS. Alternative A is to construct the pipeline in the ACE jurisdiction of land between the top of the canal and our rear property line. Alternative A was the recommended option in Appendix G of the EIS.

The Board of Park Place on the Canal finds this recommendation in error because it appears to be based on an incomplete and inaccurate EIS. In particular, Chapter 4 and Appendix G are incomplete and inaccurate for the reasons outlined below.

We request the final EIS address the following 3 impacts that were omitted from the draft EIS. Moreover, we request the one inaccuracy listed below be reconciled in the final EIS. We believe that new information developed from these findings will warrant another review of Alternative A, and we ask that you perform another review of the planned alignment of the force main pipeline in light of this new information.

## *Chapter 4 of EIS*

According to Chapter 4 of the draft EIS, a detailed study was completed to determine the best routing of the force main pipeline based on the following:

- Environmental Issues,
- Potential Interferences, and
- Public Concerns.

### **Omitted Impact #1**

Our concern is the pipeline will negatively interfere with the water runoff, as well as negatively impact the soil, trees, and vegetation that cover the bank of the the canal and line its top. Construction will compromise the integrity of the bank itself. The canal is a historic structure according to Chapter 4, but the integrity of its bank is not addressed in the EIS. A complete EIS must address this concern.

### **Omitted Impact #2**

A compromise to the canal bank and/or its soil, trees, and vegetation will compromise the foundation of our homes. This concern is not addressed in the EIS, nor was the Board asked to provide input for the draft EIS. A complete EIS must address this concern.

### *Appendix G of EIS*

### **Omitted Impact #3**

In Appendix G of the EIS, the ACE provided comment (via Coastal & Estuarine Research Inc.) on the lack of Federal 404 wetlands along the pipeline (see letter dated 20 October 2011). No comment was provided by ACE on the impact of the pipeline on the integrity of the bank itself. ACE needs to address the integrity of the bank as stewards of the canal. This is a serious omission.

### **Inaccuracy #1**

In Appendix G of the EIS, the Department of Natural Resources & Environmental Control (DNREC) provided comment on the lack of state-rare or federally listed plants, animals, or natural communities within the pipeline alignment (see letter dated 27 May 2011). According to the DNREC letter, the finding is based on, “construction in close proximity to the canal will be via directional drill” (see paragraph 2 of the letter).

Yet, Figure 4-3 of Chapter 4 of the EIS does not show a directional drill design for the portion of the pipeline between the bank of the canal and our rear property line. The finding of the DNREC letter appears to be based on an inaccurate interpretation of Figure 4-3 of Chapter 4. Our property line is certainly within “close proximity to the canal”.

We look forward to a comprehensive response, which must include a complete and accurate EIS. We understand the time constraints for a decision given the December 31, 2014 deadline for project completion. This may suggest the best alternative for the pipeline alignment

is the one for which the EIS is complete. Please contact me at rawbyrne@verizon.net, 302-226-2308, or the address below, if additional information or assistance is needed.

Respectfully yours,

Richard Byrne  
President  
Park Place on the Canal Homeowners Association  
125 Canal Street  
Rehoboth Beach, DE 19971

Board members:  
Thomas Ingold  
Dave Jacobin  
Bonnie Mann  
Sherri Swenson

cc. Sam Cooper, Mayor  
Greg Ferrese, City Manager  
Terry Sullivan, Chief Building Inspector  
Craig Homesley, Real Estate Div., Army Corps of Engineers  
Lorraine Zellers, Commissioner  
Mark Hunker, Commissioner  
Stan Mills, Commissione  
Bill Sargent, Commissioner  
Pat Coluzzi, Commissioner

**From:** [Pope Greg \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** FW: UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028  
**Date:** Thursday, May 10, 2012 11:30:41 AM

---

**From:** Luoma Jennifer L. (DNREC)  
**Sent:** Thursday, May 10, 2012 8:51 AM  
**To:** Pope Greg (DNREC)  
**Subject:** RE: UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

No comments.

---

**From:** Pope Greg (DNREC)  
**Sent:** Wednesday, May 09, 2012 10:45 AM  
**To:** Arndt Tricia K. (DNREC); Cooksey Sarah W. (DNREC); DeGeorgio.Alaina@epamail.epa.gov; Herr Laura M. (DNREC); Hummel Anthony E. (DNREC); Luoma Jennifer L. (DNREC); Sadler Maria K. (DNREC); Schneider John W. (DNREC); Searfoss.Renee@epamail.epa.gov; Stetzar Edna (DNREC); Stiller Kathleen M. (DNREC); Tinsman Jeffrey (DNREC); Underwood Robert (DNREC); Wilson Bartholomew D. (DNREC); Walling Lee Ann (DNREC); Clark Cherie (DNREC); Melendez Milton (DDA); Mirzakhilili Ali (DNREC); Schepens Dave J. (DNREC); Graeber Ronald E. (DNREC); Lovell Stewart E. (DNREC); LORENZ Andy; devin\_ray@fws.gov; kgreene@snook.sh.nmfs.gov; Slavin Timothy A (DOS); Gray Valerie A. (DNREC); Morozowich Deanna (DNREC)  
**Cc:** Piorko Frank M. (DNREC); Baldwin Robert S. (DNREC); Salkin Charles (DNREC); Crofts Marjorie A. (DNREC); Saveikis David (DNREC); Deputy Terry (DNREC)  
**Subject:** RE: UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

Reminder to environmental cross cutters and other agencies. **The comment period closes on May 10<sup>th</sup> at 4:30 pm.** Please send your comments to [Rehoboth\\_EIS\\_Comments@state.de.us](mailto:Rehoboth_EIS_Comments@state.de.us). If you do not have any comments, please respond and say "No Comments."

If you have already submitted comments, thanks!

Greg

---

**From:** Pope Greg (DNREC)  
**Sent:** Monday, March 12, 2012 11:35 AM  
**To:** Arndt Tricia K. (DNREC); Cooksey Sarah W. (DNREC); DeGeorgio.Alaina@epamail.epa.gov; Herr Laura M. (DNREC); Hummel Anthony E. (DNREC); Luoma Jennifer L. (DNREC); Sadler Maria K. (DNREC); Schneider John W. (DNREC); Searfoss.Renee@epamail.epa.gov; Stetzar Edna (DNREC); Stiller Kathleen M. (DNREC); Tinsman Jeffrey (DNREC); Underwood Robert (DNREC); Wilson Bartholomew D. (DNREC); Walling Lee Ann (DNREC); Clark Cherie (DNREC); Melendez Milton (DDA); Mirzakhilili Ali (DNREC); Schepens Dave J. (DNREC); Graeber Ronald E. (DNREC); Lovell Stewart E. (DNREC); LORENZ Andy; devin\_ray@fws.gov; kgreene@snook.sh.nmfs.gov; Slavin Timothy A (DOS); Gray Valerie A. (DNREC); Morozowich Deanna (DNREC)  
**Cc:** Piorko Frank M. (DNREC); Baldwin Robert S. (DNREC); Salkin Charles (DNREC); Crofts Marjorie A. (DNREC); Saveikis David (DNREC); Deputy Terry (DNREC)  
**Subject:** UPDATED: Draft Environmental Impact Statement for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

TO: Reviewing Agencies (DNREC, USEPA, US F&W, NMFS, and other DE State Agencies)

FROM: Greg Pope, P.E., Engineer VI, DNREC, Financial Assistance Branch  
DATE: March 9, 2012  
RE: Project # 201028 – Draft Environmental Impact Statement for the City of  
Rehoboth Beach Proposed Ocean Outfall Project

On behalf of the City of Rehoboth Beach, DNREC is soliciting comments on the Draft Environmental Environmental Impact Statement (EIS) for the above referenced project. The draft report and appendices can be viewed at:

<http://www.dnrec.delaware.gov/wr/Services/Pages/Financial-Assistance-Branch-proposed-Rehoboth-ocean-outfall.aspx>

Written comments will be accepted until May 10, 2012 at 4:30 p.m. You may e-mail your comments to [Rehoboth\\_EIS\\_Comments@state.de.us](mailto:Rehoboth_EIS_Comments@state.de.us). If you do not have any comments, please respond and say “No Comments.”

If you have any questions or need a CD version of the report, please email or call me at 302-739-9941.

Thank you for your input on this project.

Greg Pope, P.E.  
State of Delaware  
DNREC, Office of the Secretary,  
Financial Assistance Branch  
5 East Reed Street, Suite 200  
Dover, DE 19901

Tel: 1-302-739-9941

Fax: 1-302-739-2137

Attachments: EIS Distribution List, City of Rehoboth Beach Public Notification

**From:** [Stetzar Edna \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** EIS comments  
**Date:** Thursday, May 10, 2012 1:23:31 PM  
**Attachments:** [EIS Feb 2012 draft-DNHESP comments.pdf](#)

---

Greg—Please see attached comments and contact me if there are any questions. I've attached a secured pdf but if you need a word version just let me know.

Sincerely,  
Edna

---

Edna J. Stetzar  
Environmental Scientist III  
DNREC-Division of Fish and Wildlife  
Natural Heritage and Endangered Species Program  
4876 Hay Point Landing Rd  
Smyrna, DE 19977  
(302) 735-8654  
[Edna.Stetzar@state.de.us](mailto:Edna.Stetzar@state.de.us)



**Natural Heritage and Endangered Species Program-Division of Fish and Wildlife  
City of Rehoboth Beach Wastewater Treatment Plant Ocean Outfall Project  
Comments in response to: February 2012 Draft Environmental Impact Statement**

The EIS contains several references to comments that I submitted throughout the review process of this project. The main reference cited is from a May 10, 2011 letter sent to Jeff Riling of GHD which is a general review of the entire project (cited in EIS as Stetzar 2011). This is important to note because comments were also submitted to Rip Copithorn of Stearns and Wheler GHD via Greg Pope on June 22, 2011 in response to a draft EIS document. This June letter is not referenced in Chapter 12. References and some of the comments from this letter are not addressed in the current EIS draft; comments regarding marine mammals in particular. It is clear that the June letter was received because information that was in this letter (but not in any other correspondence) is included in Chapter 8, 8.1.1 Terrestrial Biota/Habitat Environment (although incorrectly referenced as the May 05, 2011 letter).

**Chapter 8: Affected Environment and Environmental Consequences (Biological Environment)**

**8.1.3.2 Land Application**

The EIS states “*A detailed survey of the proposed land application site for state-rare or federally listed plants, animals or natural communities has not been performed.*” As per our May 10, 2011 letter to Jeff Riling of GHD, a request was made for our Division Scientists to have the opportunity to survey the site and map vegetation communities and to evaluate habitat for the potential to support species of concern. It would be useful to have some baseline data prior to a site development plan being drafted so that sensitive areas could be initially avoided rather than having to consider costly or time consuming changes later.

The EIS acknowledges that effluent will not be applied directly to the forested areas of the parcels currently being considered for land application. Run-off from long-term inputs of wastewater effluent could still be a concern unless adequate upland buffers are left intact along forest and wetland areas. As noted in Figure 8-1, there is a coastal plain pond (a type of ‘isolated’ wetland) located within the project area. This unique wetland type can provide breeding habitat for a variety of animals, including amphibians and invertebrates, and often support a unique and rare assemblage of plants. Upland buffers around these ponds can be critical for protecting the wetland from excess nutrients, minimizing invasion by non-native species, and for providing habitat critical to the life cycle of wetland dependent species.

The EIS states that “*plants are more likely to be affected by the use of treated effluent than animals*”. The very fact that plants are affected also affects those animals that depend on those plants for habitat and/or for food. In addition, research findings suggest that long-term inputs of wastewater could have adverse impacts on amphibian reproduction. Although wastewater effluent is not believed to be immediately acutely toxic to the terrestrial salamander species that were studied, long-term adverse effects need further study (Laposata & Dunson 2000<sup>1</sup>). Higher concentrations of sodium were found in those species inhabiting wastewater. Studies also suggest that wastewater effluent may reduce

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<sup>1</sup> Laposata, M., W. Dunson. 2000. Effects of treated wastewater effluent irrigation on terrestrial salamanders. *Water, Air, and Soil Pollution* 119:45-57.

the survival of amphibian eggs and larvae (Laposata and Dunson, 2000<sup>2</sup>). In a forested area in Pennsylvania, significantly fewer egg masses of wood frogs (*Rana sylvatica*), Jefferson salamanders (*Ambystoma jeffersonianum*), and spotted salamanders (*A. maculatum*) were found in wastewater irrigated ponds compared to those found in natural ponds.

#### **8.3.4 Fish-Atlantic sturgeon**

The Atlantic sturgeon was listed by the National Marine Fisheries Service as an endangered species effective April 6, 2012. The EIS fails to adequately address potential impacts of this project on Atlantic sturgeon. The footprint of this project falls within the species range and occurs in close proximity to known concentrations of adult Atlantic sturgeon. There has been a tremendous amount of research conducted on this species and the applicants are strongly encouraged to consult with Dr. Dewayne Fox, of the Delaware State University, who has been conducting research in the vicinity of the project.

##### **8.3.5.1.1 Harbor Seal and 8.3.5.1.2 Gray Seals**

Figure 8-24 and Figure 8-25 are misleading in their depiction of the approximate coastal range of harbor and gray seals in Delaware. Contrary to what one would interpret from the text and Figure 8-24, the occurrence of seals in Delaware is known from sightings of healthy individuals hauled out on coastal beaches or foraging in Delaware's waterways (not just strandings). As described in our June 2011 letter, the occurrence of seals in Delaware is documented annually (typically from November to May). The public does report sightings primarily to the MERR Institute and on occasion to our Division. During 2010-2011, there were 28 seal sightings that included harp, harbor and gray seals (MERR 2011)<sup>3</sup>. Figure 8-24 and Figure 8-25 should be changed to include Delaware within the 'approximate coastal range' of these species, November to May.

##### **8.3.5.1.3 Harp Seal**

The text states '*The range of harp seals is shown in Figure 8-26*', however, the figure only depicts the areas of high density in Canada and off the coast of Greenland. It would be more useful to include a map that depicts the range of this species in Delaware, which is similar to both harbor and gray seals. In recent years, the number of adult harp seal sightings has increased (MERR 2011).

##### **8.3.5.1.6 Harbor Porpoise**

While it is acknowledged in the text that harbor porpoise are more likely to occur off the coast of Delaware when water is cooler in the fall, spring or especially winter, Figure 8-28 depicts the distribution of harbor porpoises during the summer months when this species is not likely to occur in Delaware waters. It is misleading to only include a map that depicts the range of this species when they are most likely *not* to occur within the project area.

##### **8.3.5.1.7 Humpback Whale**

Humpback Whales (*Megaptera novaengliae*) migrate between high latitude feeding areas (during the warmer months) and low latitude calving areas (in the colder months) and pass through Delaware's coastal waters while migrating between these areas. The presence of this species in

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<sup>2</sup> Laposata, M., W. Dunson. 2000. Effects of spray-irrigated wastewater effluent on temporary pond-breeding amphibians. *Ecotoxicology and Environmental Safety* 46: 192-201.

<sup>3</sup> MERR Institute, Inc P.O. Box 411, Nassau, DE 1996. [www.merrinstitute.org](http://www.merrinstitute.org).

Delaware waters is well documented. Figure 8-29 only depicts the occurrence of humpback whales in the summer when they are known to be in northern feeding areas. It would be more useful to those reviewing this project to show seasonal maps rather than just a map of a time of year when they are likely at their lowest abundance in the project area.

#### **8.3.5.1.8 Fin Whale**

Again, why is there only a Figure depicting the summer range of this species? Fin whales are considered to be highly migratory and seasonally move into and out of northern feeding areas. Their complex migratory patterns are not well documented but evidence suggests there is a southward movement in the fall from northern latitudes to southern latitudes. This species occurs in Delaware waters as evidenced by documented sightings and anecdotal information. Most recently (last few years) several fin whales were sighted in the Indian River Inlet and along the coast just off Rehoboth (during the early winter). Additionally, although not well documented, mid-Atlantic waters may be a critical migration route and/or feeding habitat for this species.

#### **North Atlantic Right Whale (*Eubalaena glacialis*)**

As pointed out in our June 2011 letter, North Atlantic Right Whales should be included in the EIS. This species was historically more common in Delaware prior to being exploited to the point of population decline. This species is occasionally sighted in Delaware waters including a juvenile that swam several miles up the Delaware River in 1994 reaching Philadelphia before turning around and leaving the river system. In addition, this species has been documented in both 2007 and 2010 occurring close to shore at the Indian River Inlet area (Derek Stoner, pers. comm.<sup>4</sup>). This is the most critically endangered marine mammal in the North Atlantic and they migrate between known calving grounds in the southeast to feeding grounds off of New England. Coastal waters are within their migratory route as they are known to travel near the shore at least during part of the migration. Spring migrants include mother-calf pairs, the most vulnerable component of the population.

#### **8.4.1 Endangered Species in Delaware**

North Atlantic Right Whale should also be mentioned along with humpback and fin whales in the second sentence. See comments directly above.

##### **8.4.2.1 Sea Turtles in Delaware**

It should be noted in this introductory paragraph that these species are on Delaware's Endangered Species list as shown in Table 8-9.

Figures 8-32 through 8-35 depict sea turtle sightings from NOAA-NMFS aerial and shipboard surveys targeting cetaceans (from <http://www.nefsc.noaa.gov/ecosys/ecology/ProtectedSpecies/SeaTurtles/>). The majority of these surveys were conducted in July and August (July 6, 1998 to September 6, 1998; July 28, 1999 to August 31, 1999; July 19, 2002 to August 2002; June 12 to August 2004; and from July 25, 2006 to August 16, 2006). Sea turtles have been documented in Delaware waters from late-April to early November, so these maps do not represent a complete temporal occurrence of sea turtles in Delaware waters.

##### **8.4.2.1.1 Green Sea Turtle**

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<sup>4</sup> Derek Stoner, Delaware Nature Society, Hockessin, DE.

Although currently not considered a typical occurrence, in August of 2011 a green turtle nested at Cape Henlopen State Park in Lewes Delaware. This is only one of two known occurrences of sea turtle nesting in Delaware, although several false crawls have been reported by reliable sources.

**From:** [Pope Greg \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** FW: Draft EIS- City of Rehoboth Beach Proposed Ocean Outfall Project  
**Date:** Thursday, May 10, 2012 2:40:26 PM

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**From:** Sommers Kendall L. (DNREC)  
**Sent:** Thursday, May 10, 2012 2:01 PM  
**To:** Pope Greg (DNREC)  
**Subject:** Draft EIS- City of Rehoboth Beach Proposed Ocean Outfall Project

Hi Greg-

Please see below for the Division of Parks and Recreation comments for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028.

Please let me know if you have any questions.

Sincerely,

Kendall

Kendall Sommers

Outdoor Recreation Planner

DNREC-Division of Parks and Recreation

89 Kings Highway

Dover, DE 19901

302-739-9242

DNREC-Division of Parks and Recreation  
Draft Environmental Impact Statement Comments  
City of Rehoboth Beach Proposed Ocean Outfall Project #201028

The Division of Parks and Recreation feels that due to mixing and water volume, there will be little or no significant impacts on water based recreation opportunities (swimming, fishing, etc).

Because the temporary construction will close a popular beach recreation area, we highly recommend that all work be completed in off season months- November thru late March/early April.



**From:** [Pope Greg \(DNREC\)](#)  
**To:** [DNREC EIS Comments](#)  
**Subject:** FW: Rehoboth Public Comment Submission  
**Date:** Thursday, May 10, 2012 2:40:56 PM  
**Attachments:** [Signed Letter Of Intent.pdf](#)

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**From:** Rodney Wyatt [mailto:RWyatt@artesianwater.com]  
**Sent:** Thursday, May 10, 2012 1:43 PM  
**To:** Pope Greg (DNREC)  
**Cc:** George Phillips; John Thaeber; Kenneth Branner  
**Subject:** FW: Rehoboth Public Comment Submission

Greg,

Attached is a signed letter of Intent for submission to the public record Rehoboth EIS hearing....Rodney

---

**From:** George Phillips  
**Sent:** Thursday, May 10, 2012 12:21 PM  
**To:** Rodney Wyatt; Kenneth Branner; John Thaeber  
**Subject:** Rehoboth Public Comment Submission

Rodney, here is the signed letter of Intent for submission to DNREC. It needs to be there today!

\*\*\* This e-mail and any files transmitted with it may contain confidential and/or proprietary information. It is intended solely for the use of the individual or entity who is the intended recipient. Unauthorized use of this information is prohibited. If you have received this in error, please contact the sender by replying to this message and delete this material from any system it may be on. \*\*\*



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Artesian Water Maryland ▲ Artesian Wastewater Maryland ▲ Artesian Consulting Engineers

May 1, 2012

Ms. Shauna Thompson  
The Island Farm, Inc.  
16793 Island Farm Lane  
Milton, DE 19968

Re: **Letter of Intent**

Dear Shauna:

The purpose of this Letter of Intent is to set forth certain understandings between (i) Artesian Utility Development, Inc. ("AUDI"), and (ii) The Island Farm, Inc. ("Owner"), (hereinafter referred to as the "Parties") concerning the possible (a) purchase and sale of real property and (b) disposal of treated effluent from the City of Rehoboth onto Owner's property through spray irrigation. This letter is not a binding contract but rather serves as a summary of preliminary terms upon which the Parties plan to negotiate definitive agreements (the "Definitive Agreements") that will become binding only upon execution by and delivery to all Parties. The preliminary terms are:

1. AUDI and Owner shall enter into a Purchase Agreement for land mutually agreeable to the Parties on which to construct lagoons for storage, presently contemplated to be constructed to hold approximately 90 million gallons of storage and comprise between 25-30 acres of land, at a purchase price mutually determined by the Parties. Upon execution of the Purchase Agreement, AUDI shall place into an interest-bearing account a refundable deposit of \$25,000. Closing on the parcel shall be contingent to the determination by AUDI that the land is suitable for its intended purpose, and upon the successful negotiation of a contract with the City of Rehoboth for wastewater disposal services. AUDI's rights in, but not its obligations under, the Purchase Agreement will be assignable to the City of Rehoboth.
2. Spray Sites.
  - a. AUDI and Owner shall enter into one or more 20 year Easement Agreements that will allow AUDI to utilize up to 400 acres of the Owner's lands for spray irrigation purposes. The Easement Agreements will define specific terms, however both parties agree that Easement Fees will be comparable to those for agricultural leases in the area. The Easement Agreements will also provide specific areas of responsibility regarding planting, harvesting and may define potential share cropping opportunities for the Owner. After the initial term of the Easement Agreements, they will automatically renew for two (2) successive five

- (5) year terms unless either party gives notice to terminate not less than twenty four (24) months prior to the expiration of the initial or any renewal term.
- b. Owners will not be responsible for the purchase or installation of any new required spray irrigation equipment (the "Spray Facilities") necessary to deliver treated effluent to Owner's spray sites; and AUDI shall be authorized to utilize any existing spray equipment currently on the spray sites, which ownership thereof shall remain with Owner.
  - c. The proposed spray fields shall be located on Owner's Properties mutually agreeable to the Parties.
  - d. Owner shall operate the spray facilities in compliance with permits issued by the Department of Agriculture at the expense of AUDI, and shall maintain the spray fields in accordance with all applicable permits to allow proper operation of the spray equipment.
3. Owner shall provide AUDI with access agreements, and Owner agrees to cooperate with AUDI in applying for and obtaining permits for the purpose of developing data, and shall provide whatever information is necessary to apply for appropriate regulatory authority to carry out the intent of this Agreement.
  4. Owner agrees to provide to AUDI, its affiliates and assigns, licenses over and across its lands for the effluent disposal mains necessary to fulfill the intent of the proposed operations anticipated by this Agreement, in order to provide continuous wastewater disposal services to AUDI's customers, and to any future land development projects on Owner's properties.
  5. The Definitive Agreements will be contingent upon approvals of the respective Boards of Directors of the Parties, and all necessary government approvals, including without limitation, the City of Rehoboth, Sussex County, the Delaware Department of Natural Resources and Environmental Control, and the Delaware Department of Agriculture.
  6. Insurance. If the Easement Agreement for a particular parcel involves Share Cropping in which the Owner is a participant, then AUDI agrees to maintain insurance coverage of up to \$2,000,000 to cover the market value of the crop in the event any crop damage occurs as a result of AUDI's negligence. The actual amount of crop damage insurance coverable will be determined on an annual basis, and shall be a function of acreage, type of crops (including vegetable and small grain crops), expected yields and futures prices.
  7. Indemnification. AUDI agrees to indemnify and hold harmless Owner from any and all liability, damage, expense, cause of action, suits, claim or judgments, including Court costs and Attorney's fees, arising from injury to person or property on Owner's property which arises out of the act, failure to act, or negligence of AUDI, its officers, agents, employees or contractors, resulting from AUDI's spray irrigation of treated and filtered
-

effluent. AUDI shall maintain, to guarantee this indemnification and hold harmless provision, liability insurance naming Owner as an additional insured.

We look forward to our further discussions on this mutually beneficial relationship. If you wish to proceed with the negotiation of Definitive Agreements, please so signify by executing this letter of intent and returning it to AUDI.

Either of the Parties may terminate this Letter of Intent upon not less than sixty (60) days notice to the other, which notice may be given at any time after the sixth-month anniversary hereof.

**AUDI:**

Artesian Utility Development, Inc.

By:   
Name: Dean C. Taylor  
Title: President & CEO

**OWNER:**

The Island Farm, Inc.

By:   
Name: Shauna Thompson  
Title: Secretary

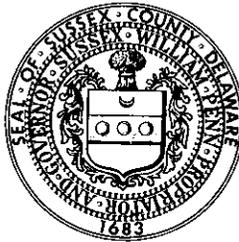
**From:** [Michael Izzo](#)  
**To:** [DNREC EIS Comments; Pope Greg \(DNREC\)](#)  
**Cc:** [maizzox@yahoo.com](mailto:maizzox@yahoo.com)  
**Subject:** Draft EIS comments  
**Date:** Thursday, May 10, 2012 3:43:15 PM  
**Attachments:** [Draft EIS Comments 5-10-2012.pdf](#)

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Greg,

Please find attached my comments on the Draft EIS for the Rehoboth outfall project. Thank you for this opportunity to make comment.

MAI



May 10, 2012

Greg Pope  
Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 E. Reed St.  
Suite 200  
Dover, DE 19901

**REF: DRAFT EIS FOR CITY OF REHOBOTH BEACH  
PROPOSED OCEAN OUTFALL**

Dear Mr. Pope:

I have reviewed the draft EIS for the proposed ocean outfall, and wish to submit my support for the preferred alternative of the ocean outfall.

In my position as County Engineer, I may be unique because I have had many years of experience with wastewater treatment plants that dispose their treated effluent by both ocean outfall and land application. Sussex County owns and operates the South Coastal Regional Wastewater Facility, which utilizes an ocean outfall for disposal, and three (3) wastewater treatment plants that dispose of their effluent via spray irrigation. Each method has its advantages and disadvantages, and neither method is perfect. Rather than state one method of disposal is better than another, each situation must be reviewed on its own merits, and an educated selection of the best method of disposal must be made.

Based upon the content of the draft EIS and drawing upon my years of experience, I submit my support to the selection of the ocean outfall, with some additional comments provided here:

- The Rehoboth Treatment Plant already discharges into the Lewes-Rehoboth canal. The use of an ocean outfall represents no net loss in groundwater re-charge, nor have any environmental impacts such as wide spread saltwater intrusion occurred during its lifetime.
- The use of spray irrigation or rapid infiltration on the lands proposed in the report do not represent a beneficial re-use of the wastewater effluent because the lands being re-charged are very distant (5-10 miles) from the area where the groundwater is being withdrawn.

- The use of spray irrigation or rapid infiltration as a means of disposal in Sussex County does not represent a beneficial re-use in because the aquifer being re-charged is not depleted. In the case of the proposed lands in the report, the land applied effluent will mound above the existing groundwater table. Only in those areas with depleted groundwater table will a beneficial re-use actually result.
- The use of spray irrigation as an agricultural resource is also overstated. Spray irrigation is a just the final step in the industrial operation that is wastewater treatment. It is not a farming operation. Farmers may look to irrigate their crops 30-40 days per year, but wastewater plants spray irrigate some 300-days per year. Wastewater must be disposed whether the crops desire water or not. The wastewater treatment concerns drive the farming, not the other way around, so the benefits to the agricultural community are negligible.
- Ocean outfalls in the nearby beach communities of Bethany Beach and Ocean City, MD have existed for many years with no discernible impact on the tourist industry, the quality of the surf and beach, and the nearby fisheries.

I acknowledge that this is a complicated issue. But the City of Rehoboth is located adjacent to the ocean, and not abundant farmlands. The best wastewater choice is to implement the ocean outfall alternative for this project. If you should have any questions, please do not hesitate to call upon me.

Sincerely,

SUSSEX COUNTY ENGINEERING DEPARTMENT



Michael A. Izzo, P.E.  
County Engineer

MAI:mi



**From:** [Pope Greg \(DNREC\)](#)  
**Bcc:** ["John"](#); [Wirtz Christina \(DNREC\)](#); [LORENZ Andy](#); [Lovell Stewart E. \(DNREC\)](#); ["markam1@ucia.gov"](#); ["Shields, Diane - NRCS, Dover, DE"](#); ["mariorocha@aol.com"](#); ["Peter W. Havens CEP"](#); ["Rich & Or Tam"](#); ["Nettie Green"](#); ["Samie"](#); [Clark Cherie \(DNREC\)](#); ["Bill Paton"](#); ["Jere Stephano"](#); [John Thaeber](#); [Adam Gould \(AGould@artesianwater.com\)](#); ["Emily Van Alyne"](#); ["kcburgwin"](#); ["elisabeth stoner"](#); ["delaware@surfrider.org"](#); ["Gregg Rosner"](#); ["Stanheuis@aol.com"](#); ["Howard Menaker"](#); ["Dick Byrne"](#); ["PD Lovett Info"](#); ["happycatsettinger@verizon.net"](#); ["Carol Murphy"](#); [Herr Laura M. \(DNREC\)](#); ["Suzanne Thurman"](#); ["bigrexco@aol.com"](#); ["Jennifer Duncan"](#); ["Dick Byrne"](#); [Luoma Jennifer L. \(DNREC\)](#); [Stetzar Edna \(DNREC\)](#); [Sommers Kendall L. \(DNREC\)](#); ["Rodney Wyatt"](#); ["Michael Izzo"](#)  
**Subject:** Rehoboth Proposed Ocean Outfall EIS public hearing comments  
**Date:** Thursday, May 10, 2012 5:07:17 PM

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This email is confirmation that your comment was received by DNREC for inclusion into the public hearing on the draft EIS for the City of Rehoboth Beach Proposed Ocean Outfall Project. All comments will be added to the record as an exhibit and sent to the independent hearing officer, Tim Bureau, for his review and inclusion in his hearing report. The hearing officer shall make a determination on the public record in his report and direct the City of Rehoboth Beach to respond to all comments received during the public hearing and the public comment period. Duplicate comments shall be addressed with a singular response.

The final EIS shall be reviewed by the Department to ensure all comments have been addressed. Once reviewed, the final EIS report will be made available publicly. The final EIS shall be sent to the Secretary of DNREC for a Record of Decision.

Greg Pope, P.E.  
Engineer VI  
Financial Assistance Branch  
DNREC, Office of the Secretary  
302-739-9941 (phone)  
302-739-2137 (fax)

*"The mountains are calling and I must go." - John Muir*





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MAY 10 2012  
Financial Assistance Branch

May 6, 2012

Mr. Greg Pope  
DNREC  
Financial Assistance Branch  
89 Kings Highway  
Dover, DE 19901

RE: Wastewater Disposal EIS for the City of Rehoboth Beach's Wastewater

Dear Mr. Pope:

Please place this letter into record for the public review of the referenced document.

As you may know, Tidewater Environmental Services, Inc. (TESI) has been following the evaluation of Rehoboth's various wastewater treatment and disposal options for several years. We have engaged in various meetings, correspondence, and discussions, culminating in our offer to assist the City during their final public meeting prior to their selection of their wastewater disposal option. At that time we sent a letter to notify the City that TESI was prepared to provide the necessary wastewater services. We requested formal consideration to that offer in their deliberations.

TESI is still prepared to provide the services offered previously. TESI has made significant progress with regard to our proposed Wandendale Regional Wastewater Facility that will be constructed at our site between Route 24 and Camp Arrowhead Road. TESI received the necessary Conditional Use approval and extensions from Sussex County; the Department of Natural Resources and Environmental Control (DNREC) has approved our Coastal Zone Act permit; and DNREC's Construction permit was just issued for the facility.

TESI's Wandendale facility will have the capacity to treat and dispose of a significant portion of Rehoboth's flow. In addition, we have alternatives that could be used to dispose of the remainder of your wastewater on other nearby lands.

As we had previously explained to the City of Rehoboth, if there is a formal interest in our option, we are prepared to pursue the details that will satisfy the City's needs.

In conclusion, TESI is prepared, willing, and able to work with the State and the City to develop and implement a permanent, cost-effective and environmentally sound wastewater disposal solution.

Sincerely,

  
Gerard L. Esposito  
President

Cc: Terry Deputy





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

APR 23 2012

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APR 25 2012  
Financial Assistance Branch

Greg Pope  
DNREC, Office of Secretary  
Financial Assistance Branch  
5 East Reed Street, Suite 200  
Dover, Delaware 19901

RE: State Draft EIS for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028

Dear Mr. Pope:

The Draft Environmental Impact Statement (DEIS) for the City of Rehoboth Beach Proposed Ocean Outfall Project #201028 has been completed in accordance with the Environmental Review Procedures of the Delaware Water Pollution Control Revolving Loan Fund as directed by the Delaware Natural Resources and Environmental Control (DNREC). The U.S. Environmental Protection Agency (EPA) has received and reviewed the State DEIS. The proposed action involves the construction of an ocean outfall for the discharge of treated effluent from the City of Rehoboth Beach Wastewater Treatment Plant (RBWWTP). The effluent from RBWWTP currently discharges into the Lewes-Rehoboth Canal. The project purpose and need is to meet a DNREC consent order that requires the City of Rehoboth Beach to eliminate the discharge from the Rehoboth Bay and develop a new discharge method by 2014. Rehoboth Bay is a Clean Water Act Section 303(d) listed water body and has an approved Total Maximum Daily Load (TMDL).

The DEIS considered several alternatives, including the no action; Alternative 2, nutrient trading; Alternative 3, land application; Alternative 4, rapid infiltration beds; Alternative 5, ground water injection; and Alternative 6, ocean outfall. Alternative 6, ocean outfall, has been identified as the preferred alternative. This alternative would discharge the treated wastewater into the ocean at a distance of 6,000 feet from a pumping station location along the force main alignment, the construction of which is also part of the project. The no action, the land based application alternative and the ocean outfall alternative were retained for detailed study.

At this time, EPA has no substantial comments on the DEIS. EPA appreciates that efforts have been made to improve sections of the document, including purpose and need, alternatives analysis, and cumulative impact analysis. Thank you for coordinating with EPA during the development and review of the DEIS and project modeling. If you have any questions, please contact Alaina DeGeorgio, the staff contact for this project, at 215-814-2741.

Sincerely,

Barbara Rudnick,  
NEPA Team Leader







OVER 100 YEARS OF SUPERIOR SERVICE

Artesian Water Company ▲ Artesian Wastewater Management ▲ Artesian Utility Development ▲ Artesian Water Pennsylvania  
Artesian Water Maryland ▲ Artesian Wastewater Maryland ▲ Artesian Consulting Engineers

May 2, 2012

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MAY 04 2012  
Financial Assistance Branch

Mr. Greg Pope  
Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 E. Reed St., Suite 200  
Dover, DE 19901

Re: Public Hearing Comments - Response to News Reports

Dear Mr. Pope:

As you may be aware, there have been recent articles in the *News Journal* (copy attached) and *Delaware Coast Press* written by Mr. Ethan Rothstein regarding the wastewater effluent discharge options for the City of Rehoboth. These articles, in part, provided information from the April 10<sup>th</sup> Public Hearing on this subject.

Mr. Rothstein presented some inaccuracies in his article that Artesian would like to make sure are properly addressed in the Public Record for the Hearing.

1. "...farmers using the water (Rehoboth effluent for irrigation) wouldn't legally be allowed to grow produce or raise livestock for human consumption..."

In fact, crops grown at irrigation sites permitted in accordance with DNREC's land application regulations may be consumed by humans so long as the crops are processed to minimize pathogens before distribution to the consumer. (Subsection 103.(3) and 308.(3))

Also, crops grown at irrigation sites permitted in accordance with DNREC's land application regulations may be used to raise livestock so long as they are harvested before feeding to livestock. (Subsection 308.(3))

2. "...the city would have to buy the land specifically for its use (land application of effluent)..."

Subsection 203 of the land treatment guidance document states, "The options of buying or leasing land or farmer contracts should also be considered," in determining how to acquire land application sites.

Mr. Greg Pope  
Page 2  
May 2, 2012

We appreciate your consideration of the inaccuracies presented and for the opportunity to correct the public record. As always, if you have any questions or require any additional information please do not hesitate to contact me.

Very truly yours,

A handwritten signature in black ink, appearing to read "John M. Thaeder". The signature is fluid and cursive, with a prominent initial "J" and a long, sweeping underline.

John M. Thaeder  
Senior Vice President

JMT/ljb  
Attachment

## Plan to channel waste into ocean opposed

### Some say Rehoboth should spray effluent over farmland

By ETHAN ROTHSTEIN

Delaware Coast Press

**REHOBOTH BEACH** — The city's plan to channel treated wastewater to an offshore site in the Atlantic Ocean is meeting opposition from farmers and environmental groups.

The Board of Commissioners requested a \$25 million loan from the state Department of Natural Resources and Environmental Control to find an alternative to the current procedure, which deposits effluent into the Lewes & Rehoboth Canal.

After years of debate, setbacks and research, the city has a concrete proposal and plan to present to DNREC, which required conducting an environmental impact study.

The study results were presented at a recent public hearing, and after a detailed breakdown by project director Rip Copithorn, who conducted the study on behalf of the city, those in attendance were unsatisfied.

The largest uproar came from the decision to avoid using the wastewater for land application, a method that would spray effluent over farmland to irrigate crops.

According to the proposal, that method is far more costly than ocean outfall. Because farmers using the water wouldn't legally be allowed to grow produce or raise livestock for human consumption, the city would have to buy the land specifically for its use.

John Thaeber, a representative from Artesian Water in Dewey Beach, said those laws are no longer in effect, but according to the state's administrative code, they still stand.

The president of the Delaware Farm Bureau, Gary Warren, spoke after Thaeber, making an impassioned plea for recycling the effluent. He said water recycling will be imperative in a few decades as the world's population — and demand for food — continues to grow.

Suzanne Thurman, executive director of the Marine Education, Research & Rehabilitation Institute, said the statistics presented showed a small environmental impact, particularly on endangered species, that is questionable.

"I noticed the data collected on the species [the MERR Institute] is responsible for is from previous years," Thurman said. "There are several endangered species in these waters. Some of the species that were being counted during a time frame don't actually occur in our waters during that time frame."

DNREC is still accepting written comments on the proposal. They can be submitted via email at [rehoboth\\_EIS\\_comments@state.de.us](mailto:rehoboth_EIS_comments@state.de.us).

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04/22/2012



4 May 2012

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MAY 07 2012  
Financial Assistance Branch

Mr. Greg Pope  
Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 East Reed Street, Suite 200  
Dover, DE 19901

Dear Mr. Pope:

As a resident of Park Place on the Canal, Rehoboth Beach, DE, 19971, I would like to provide the following comments on the draft Environmental Impact Statement (EIS) to permit the design and construction of a new ocean outfall. Park Place on the Canal is a residential development of 14 condominiums that runs alongside the Army Corps of Engineers (ACE) jurisdiction of land at the top of the Lewis- Rehoboth Canal. The ACE jurisdiction of land is 20 feet wide from the top of the canal to the rear of our property line. The foundation of our homes is within close proximity to the rear property line.

Two alternative alignments were evaluated for constructing the force main pipeline of the ocean outfall as outlined in Chapter 4 and Appendix G of the EIS. Alternative A is to construct the pipeline in the ACE jurisdiction of land between the top of the canal and our rear property line. Alternative A was the recommended option in Appendix G of the EIS.

I find this recommendation in error because it appears to be based on an incomplete and inaccurate EIS. In particular, Chapter 4 and Appendix G are incomplete and inaccurate for the reasons outlined below.

I request the final EIS address the following 3 impacts that were omitted from the draft EIS. Moreover, I request the one inaccuracy listed below be reconciled in the final EIS. I believe that new information developed from these findings will warrant another review of Alternative A, and ask that you perform another review of the planned alignment of the force main pipeline in light of this new information.

## *Chapter 4 of EIS*

According to Chapter 4 of the draft EIS, a detailed study was completed to determine the best routing of the force main pipeline based on the following:

- Environmental Issues,
- Potential Interferences, and
- Public Concerns.

### **Omitted Impact #1**

My concern is the pipeline will negatively interfere with the water runoff, and the soil, trees, and vegetation that cover the bank of the canal and line its top, and construction will compromise the integrity of the bank itself. The canal is a historic structure according to Chapter 4, but the integrity of its bank is not addressed in the EIS. A complete EIS would address this concern.

### **Omitted Impact #2**

A compromise to the canal bank and/or its soil, trees, and vegetation will compromise the foundation of my home. This concern is not addressed in the EIS, nor was I asked to provide input for the draft EIS. A complete EIS would address this concern.

## *Appendix G of EIS*

### **Omitted Impact #3**

In Appendix G of the EIS, the ACE provided comment (via Coastal & Estuarine Research Inc.) on the lack of Federal 404 wetlands along the pipeline (see letter dated 20 October 2011). No comment was provided by ACE on the impact of the pipeline on the integrity of the bank itself. ACE needs to address the integrity of the bank as stewards of the canal. This is a serious omission.

### **Inaccuracy #1**

In Appendix G of the EIS, the Department of Natural Resources & Environmental Control (DNREC) provided comment on the lack of state-rare or federally listed plants, animals, or natural communities within the pipeline alignment (see letter dated 27 May 2011). According to the DNREC letter, the

finding is based on, "construction in close proximity to the canal will be via directional drill" (see paragraph 2 of the letter).

Yet, Figure 4-3 of Chapter 4 of the EIS does not show a directional drill design for the portion of the pipeline between the bank of the canal and my rear property line. The finding of the DNREC letter appears to be based on an inaccurate interpretation of Figure 4-3 of Chapter 4. My property line is certainly within "close proximity to the canal".

I look forward to a comprehensive response, which must include a complete and accurate EIS. I understand the deadline is 31 December 2014 to complete the project, and suggest the best alternative for the pipeline alignment is the one for which the EIS is complete. Please contact me directly if additional information or assistance is needed.

Respectfully yours,



Mark A. Mikatavage, Dr.P.H.

103 Canal Street  
Rehoboth Beach, DE 19971

Mailing Address:  
4024 Dogberry Lane  
Fairfax, VA 22033

Telephone: 703-830-1814  
Email: [Bigrexcoco@aol.com](mailto:Bigrexcoco@aol.com)

Cc  
Office of the Mayor  
City of Rehoboth Beach  
229 Rehoboth Avenue  
Rehoboth Beach, DE 19971

City Manager  
City of Rehoboth Beach  
229 Rehoboth Avenue  
Rehoboth Beach, DE 19971



**Guy R Martin  
87 Henlopen Avenue  
Rehoboth Beach, Delaware 19971**

**RECEIVED**  
**MAY 04 2012**  
Financial Assistance Branch

**May 1, 2012**

**Greg Pope, Department of Natural Resources and Environmental Control  
Financial Assistance Branch  
5 E. Reed St. Suite 200  
Dover, DE 19901**

**RE: Comments on Draft Environmental Impact Statement (EIS) for the City of  
Rehoboth Beach, Delaware Proposed Ocean Outfall for Wastewater**

**Dear Mr. Pope:**

**As legally required, the City of Rehoboth Beach conducted a thorough process, with significant expert and public participation, to select an alternative discharge point for its treated wastewater. The City made a reasoned and well documented decision, for multiple reasons, to select ocean outfall as its preferred alternative. The City has now prepared an environmental impact statement (EIS) in support of that decision. The EIS is required to assess this preferred alternative as well as other alternatives not chosen, and to make that assessment available to the public. It is a part of the process by which the preferred plan is approved, and the City becomes eligible for state funding assistance for this important environmental project. To prepare the EIS, the City had a strong base in its own record of its initial decision to select ocean outfall as its preferred alternative many months ago, and it also enlisted an expert consultant, the international consulting firm, GHD (formerly Sterns and Wheeler), to provide technical assistance.**

**This letter is submitted as part of the public process for commenting on that EIS draft. In summary, the draft EIS confirms in every way the wisdom of the City's choice of ocean outfall, and does so for many reasons. The EIS meets the substantive and procedural standards for a valid EIS supporting a preferred alternative chosen by a municipality. That choice by Rehoboth Beach should be approved, along with state funding.**

**As required, every reasonable alternative to the ocean outfall approach (six alternatives total, with several sub-alternatives) is fully analyzed in the EIS as to potential environmental impacts including the advantages and disadvantages of each. At the end of this thorough analysis, ocean outfall clearly emerges as the**

**superior choice for the City of Rehoboth Beach at this time and under the specific circumstances in this location. When the clearly acceptable environmental impacts documented by the EIS are combined with the very significant cost and operational advantages of ocean outfall, it becomes clear that the City's initial decision on this approach is strongly confirmed by the EIS.**

**The environmental impacts of the preferred alternative are fully assessed and it is clear that they present superior results as compared to the alternatives, well within the acceptable range given the environmental objective of moving the wastewater discharge point from its present location in the cause of protecting the inland bays.**

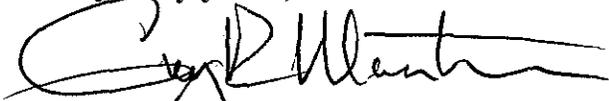
**The EIS fully covers the impact of alternatives on aquatic plants, fish and wildlife, and concludes, regarding offshore discharge, that fish species associated with the area of discharge are highly mobile and migratory, and all mammals near the project range far beyond the area. Any contaminant potentially present near the far offshore discharge is rapidly diluted to below minimum water quality standards or non-detectable levels. The EIS also makes clear that all of the fish species associated with the area of concern are highly mobile and migratory, and all mammals near the project extend far beyond the area.**

**Ultimately, the draft concludes that ocean outfall is superior, as contrasted with other alternatives such as land application, because the outfall is more feasible and less expensive to build, will cause smaller increases in sewer rates for residents and has minimal environmental impact. Ocean outfall, the EIS concludes, has relatively low operational requirements, requires the least maintenance and, most importantly, does not transport nutrients into the Inland Bays, nor disposed of them near the bays. Ocean outfall is also the most cost-effective solution for the City, since after paying back the state's loan, the City's only costs would be operations and maintenance. The EIS says that the preferred alternative is the most "practical solution considering the availability of land and the protection of groundwater and water quality of the Inland Bays. Also, this alternative has the lowest impact on estimated user charges and greatest acceptance by citizens of Rehoboth Beach."**

**DNREC may have technical comments on the EIS but has no basis to consider, suggest another alternative or to withhold state funding. Such actions would effectively overrule the City's legitimate and well documented choice of ocean outfall, and would be neither merited nor consistent with the law. Ocean outfall is clearly the best choice in this situation for this City for every reason, and suggestions for land application or some other methodology are simply not merited based on this analysis for this situation, nor is the opportunity to change the City's decision presented by this EIS or the applicable legal standards.**

**In conclusion, I recommend that DNREC should approve this EIS and support its conclusions, including the preferred alternative the City of Rehoboth Beach has selected. This local choice was thoughtful, on the merits, and is now substantively confirmed by the draft EIS. DNREC approval of the EIS and the project is necessary for the City to receive the state funding for the purposes which the project is intended to serve. The City deserves state approval and funding for this project as soon as reasonably possible. .**

Very truly yours,

A handwritten signature in black ink, appearing to read "Guy R. Martin". The signature is fluid and cursive, with a large initial "G" and "M".

**Guy R. Martin  
Rehoboth Beach**

**CC: Office of the Governor; Cape Gazette**



RECEIVED  
MAY 04 2012  
Financial Assistance Branch

Our planet is called Earth, but it should be called water. The ocean is THE driving mechanism of all life-sustaining ecosystems on this planet, from weather to carbon dioxide levels, to the currents and gyres that transport aquatic life around the globe.

Today, Rehoboth Beach presents a proposition to add to the denigration of this disappearing habitat, a proposition that cites across the spectrum, an addition of toxic chemicals, heavy metals, viruses and pharmaceuticals. The report attempts to rationalize the acceptable levels of such substances, all disappearing with the false alchemy and wizardry of diffusion.

Diffusion rates in ocean ecosystems do not adhere to the true science of water, the fluid dynamics and soft boundaries that allow the synergistic mixing and movement of these foreign substances all with uncalculated outcomes. The applied science is the health of the micro layer of the ocean, the largest living organism on the planet, just .05 millimeters thick. It is the beginning of an interconnected gel membrane full of fish larvae and sea life, where plankton live and photosynthesis begins, where the ocean absorbs the increasing carbon dioxide in our poisoned atmosphere. It is here and in the sediments of the benthic layer at the ocean bottom, that these diffused chemicals accumulate to extreme toxic levels, from a hundred to a million times greater than in the water column. Such bio-accumulation in the micro-layer deforms fish at their primal stages of development, and pollutes the hydrosphere where marine mammals and sea turtles surface to breathe hundreds of times a day.

#### Microlayer facts;

- The upper meter of seawater, is divided into sublayers, the first 0.05 millimeters a dense concentration of minerals, organic chemicals, protozoans and micro-organisms. The upper 70 millimeters has slightly larger organisms, including fish eggs and larvae. Many creatures of the ocean transition into the sunlight at this level.
- John Hardy, one of the first to study the ocean microlayer stated; "A polluted surface microlayer, has the potential to poison much of the complex food web, including fish, crustaceans, whales and seabirds and may alter the exchange of materials between the ocean and atmosphere and ocean, thereby affecting global climate."

- For example, in the Chesapeake Bay, 99% of the blue crab larvae swim to the surface to feed on nutrient during the early stages of their lifecycles. The recognition that micro layer pollutants in that watershed are impacting recreational and commercial fisheries is now being researched.

My concern is that the proposed effluent plume, (as modeled in the pages of the EIS report), will off-gas the highly unstable chlorine used to kill the bacteria and viruses through this micro layer. (Note: the salinity of effluent is less than that of sea water, so the initial dispersion area is at the immediate ocean surface.) Combine winds, tides and currents in the near-shore waters and this plume, becomes in applied theory, a migratory and indiscriminate killing machine, frying the organisms that inhabit this essential marine biosphere. Please address the science and chemistry of the effluent plume.

Other ocean outfall questions, concerns and issues to be addressed and commented; please cite scientific studies when applicable. This information may be utilized for legal remedies and jurisprudence if applicable, so exacting science and specific data is necessary.

- 1) How much does Rehoboth Beach pay for their municipal water supply on a yearly basis? Where does it derive from? How much would be the projected cost for constructing and operation of a closed loop wastewater system?
- 2) For ocean outfalls in Florida, the EIS cites an outdated study (Hazen and Sawyer 1994) that does not address the bleaching and destruction of the coral reefs that resulted in then Governor Christ outlawing them in 2008. Comment on the specific economic impact of lost tourism, the applied science of long-term impacts of outfalls in Florida and the protracted costs of mitigating this matter in legislation and courts of law.
- 3) Calculate the foot/acre and feet/min of the anticipated maximum outfall flow of 7.3 MGD and relate it to the size of the immediate impact area. How will the loss of salinity impact the diversity of marine life in this area? Include all fish species and larvae identified by NOAA as essential fish habitat. Comment on the recent NOAA study revealing the link between dolphin skin disease and lower salinity levels. (Skin lesions on common bottlenose dolphins (*Tursiops truncatus*) from three sites in the northwest Atlantic, USA) Ocean salinity is 35 parts/million; what is the salinity level at the diffuser head? At incremental distribution (100 yards and outward) away from the diffuser head?

- 4) What benthic organisms will be impacted with the use of the various dredgers used to install the steel pipe pile at the end of the outfall pipe?
- 5) What is the anticipated yearly addition of nitrogen and phosphorus from this outfall in pounds? Calculate nitrogen at 6.2 mg/l and phosphorus at .35 mg/l and the respective totals from recent yearly outflow of RBWWTP.
- 6) Calculate in pounds the yearly totals for all metals listed in the EIS, which will contaminate the ocean from the proposed outfall. Include; Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc.
- 7) If outfall is installed, will Rehoboth Beach perform weekly water testing for viruses, pathogens and oocysts and post them on their city website so swimmers and tourists will know the calculated risks of swimming in the ocean?
- 8) What is the likely scenario for monitoring Enterococcus? Would this be available for weekly dissemination to the public? Such information is required in California for public beaches. Please comment on this public health issue.
- 9) Could more recent studies of PCB's and their environmental impact be cited for the updated EIS? The study cited (ATSDR 1990) is twenty-two years old. Include studies from single celled organisms in the micro layer to the apex consumers of marine mammals and include reproductive, endocrine disruption and carcinogenetic effects of PCB's when applicable. Calculate the yearly anticipated addition of this outfall, using the 425 pg/liter result from November 14, 2011 sample. The conclusion that less PCB's in the Rehoboth effluent will be available to be bio-accumulated by fish and other aquatic life needs to be readdressed. How will the long-term addition affect the ecosystem in the critical location of the Hen and Chicken shoals? Include all fish species in found Delaware waters. Specifically address which PCB's are lipophilic and which are hydrophobic and the potential for physical adherence to fish larvae in the micro layer.
- 10) Is the city of Rehoboth in compliance with their storm water outfalls? How can they do better with the mixing zone being close to the swimming areas?
- 11) Are there no recent studies by UDEL on the benthic environment in Rehoboth Bay? The study cited is from 1972.
- 12) Are the USACE an academy with published credentials in scientific journals or an independent academic institution? The study cited (Scott 2011) found only a limited benthic sampling of organisms. The benthic region is the beginning of one of the food webs in ocean ecosystems. How would loss of benthic diversity impact fish species including the Atlantic Sturgeon, a benthic feeder? Where was geographic location of the Diener et al (1995) study?

- 13) Further address specific diversity and populations of plankton at the diffuser location. What species are found? In what concentrations? What would be the concentration of chlorine at the surface and what is the anticipated mortality effect on the multi-celled organisms in the diffusion plume. Cite scientific studies specific to this area of concern.
- 14) The local fisheries study is from 2001, issued from the USACE and contrasts the listings for the essential fish habitat in the area (NOAA 2001). Could more updated population studies, relative to the current trends and demographics be presented in the final EIS? Would liver toxicologies be available for a baseline study and application to the long-term effects of the outfall on fish populations in the local waters?
- 15) Seal stranding data for all species that occur in Delaware waters, is fourteen years old. Could the revised EIS address this issue?
- 16) Clarify the coastal morphotype of the Atlantic Bottlenose dolphin in Delaware, location of local feeding grounds and historical number of seasonal populations. Cite available studies on the endemic loss of first time maternal births, the toxic load of mammary milk from bio-accumulation of heavy metals and toxins. Detail infant dolphin mortality events from regional stranding organizations during the last five years.
- 17) Is there more recent data to address ocean health from the South Coastal Wastewater treatment plant? The study cited is from 1992. (USEPA)
- 18) Could you revise the conclusion found 9.5.2.4 on Southern California beaches that effluent discharge is not causing unacceptable effects on coastal environments? The supporting data is 24 years old. (Gunnerson 1988) Include the one current study conclusion of msgrs. Maruya, Vidal-Dorsch, Bay, Kwon, Kia, and Armbrust. Re: Organic contaminants of emerging concern in sediments and flatfish collected near outfalls discharging treated municipal wastewater effluent to the Southern California bight. Also, studies have addressed the collection of bacteria on the littoral shore in So. Cal., (in the sand) a persistent and pervasive pollution that compromises daily beach health for swimmers. Please cite this study and disseminate this information. Yamahara, Sassoubre, Goodwin, Boehm Re: Occurrence and Persistence of Bacterial Pathogens and Indicator Organisms in Beach Sand along the California Coast [ae.asm.org](http://ae.asm.org) January 2012 AEM.06185-

- 19) There have been many studies of the survival ability of pathogenic organisms in the environment, but the one cited in the EIS (Fujioka, Philip and Lau 1980) is thirty-two years old. Include the limited ability to predict viral contamination in marine ecosystems and the potential to impact recreational activities.
- 20) Profile and detail the Atlantic Sturgeon population of the New York bight DPS, a genetically specific species spawning in the Delaware Bay, and living an adult in the coastal waters south to Fenwick Island. Comment on the recent listing of the species under the Endangered Species Act and the potential liability of DNREC and Rehoboth Beach in legal lawsuits by conservation groups to protect habitat as defined in Section 7(a) (2) of the ESA.

## Conclusion

Where does all this man-made stuff go? How does it diffuse in an increasingly toxic-saturated ocean ecosystem that has lost 90% of fish stock, endangered and threatened species of all morphotypes? Or persist in that environment for tens of thousands of years never disappearing? We need to be more responsible in 2012; a clean ocean and the perception of proper civic stewardship are essential to the economic health of tourism in Delaware.

Rehoboth Beach needs to do further studies on the health of the ocean in the Hen and Chicken shoals and update the findings in the EIS. Baseline populations of all organisms, their present health, toxicologies, and definitive habitat must be established. The simplistic conclusions that nearly all the species impacted in the EIS are highly migratory are unscientific at best and morally irresponsible at worst.

Gregg Rosner



April 23, 2012

To: Greg Pope, DNREC  
Financial Assistance Branch

From, Mable Granke, Concerned Citizen



re: Re City of Rehoboth Beach Ocean Outfall Proposal

The following testimony is submitted for the public record in response to the public hearing held in Rehoboth April 10, 2012.

Spray irrigation is a viable option for re-use of wastewater under the right conditions. However, it is not the be-all or end-all solution. In the case of the City of Rehoboth Beach and the legislated mandate order to remove its wastewater from the Canal it is not the best option.

1. If spray irrigation were pursued, it would require miles of piping.
2. In discussing spray irrigation the immediate comment has been made the possible reduction of the level of treatment to reduce cost.
- 3., Spray irrigation requires back-up of holding ponds for the periods when spray irrigation cannot be used because of saturated ground or frozen ground. These ponds are costly to maintain and present the potential of leaching.
4. There is the question of sludge removal and the need for a sludge disposal site. To my knowledge, never even discussed.

It is my belief that of all the possible alternatives researched, the City of Rehoboth's decision to use ocean outfall is positive for the environment and for the residents of the City who must pay the increased costs.

I fully support the City's decision and urge State approval and support.

1013 Scarborough Ave. Ext.  
Rehoboth Beach, De. 19971  
(302) 227-6637





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April 10, 2012

Mr. Timothy Bureau  
Hearing Officer  
Delaware Department of Natural  
Resources and Environmental Control  
89 Kings Highway  
Dover, DE 19901

Re: Draft Environmental Impact Statement for the Proposed  
Ocean Outfall in Rehoboth Beach, Delaware

Dear Mr. Bureau:

Enclosed are Artesian's comments, alternate proposal and a map relative to our spray irrigation alternative for the City of Rehoboth Beach, Delaware.

We appreciate your full consideration of this information.

Sincerely,

A handwritten signature in black ink, appearing to read 'John M. Thaeher', written in a cursive style.

John M. Thaeher  
Senior Vice President

Enclosures

ARTESIAN UTILITY DEVELOPMENT, INC.  
COMMENTS AT PUBLIC HEARING  
REHOBOTH BEACH  
APRIL 10, 2012

Overview on why we are here:

The City of Rehoboth is under a Consent Order to get waste water discharge out of the Inland Bays. A draft Environmental Impact Study (EIS) has been prepared for the City of Rehoboth Beach to permit the design and construction of a new ocean outfall to dispose treated effluent. Artesian is here to comment on the EIS and to propose a cost effective and environmentally beneficial alternative to the ocean outfall. We propose a spray irrigation system that will apply Rehoboth's effluent to nearby farmland for environmentally beneficial reuse.

In the interest of providing the officials of the City of Rehoboth, the citizens of Sussex County and the Department of Natural Resources and Environmental Control (DNREC) with additional information necessary for them to make a reasonable and cost effective decision regarding their wastewater disposal future, the record needs to be corrected and clarified with regard to a land application alternative to ocean outfall.

The justification used by the Engineer to build the ocean outfall, instead of a spray irrigation system, was based on research of available properties done nearly ten years ago. This research was largely completed through the mail and involved sending out letters instead of actually meeting with and discussing the potential benefits of a water reclamation project with the Agricultural Community. There have been a number of DNREC initiatives and changes in state laws that have improved spray irrigation alternatives and resulted in partnerships between the farming community, municipalities, private utilities, and state agencies. Using reclaimed water to irrigate farmland allows the agricultural community to benefit from the water resource instead of removing more water from our groundwater supply and thus becomes a win-win situation for the City and the farmers. DNREC now considers spray irrigation to be their preferred method of wastewater management, and spray irrigation is used in all three counties in Delaware. The concerns outlined in the EIS do not change nor challenge the fact that spray irrigation is the most environmentally friendly wastewater disposal method. In addition, the state has not permitted a

new wastewater surface discharge in over 25 years as being proposed by GHD Engineering for the City of Rehoboth.

Who is Artesian:

Artesian is a public water utility, in the business of installing pipe lines and utility infrastructure while providing safe and reliable water resource management in Delaware for more than 100 years. Artesian has a successful history of working in partnership with municipalities and area farmers to provide cost effective and environmental friendly solutions to their wastewater needs. Artesian has designed and built wastewater treatment facilities for over 10 years, including a large spray irrigation facility. We have a proven track record in this area.

Government Awards Winning Partnership:

A Water Recycling Partnership was established in 2010 to encourage and support the use of reclaimed water for agricultural irrigation. Artesian engineered the project in cooperation with its partners: the Town of Middletown, Governor Markell's office, the Delaware Department of Natural Resources and Environmental Control, the Delaware Department of Agriculture, the Delaware Farm Bureau, the University of Delaware and two Middletown area farmers. This project saves up to 2.5 million gallons of water per day and enables the farmers to irrigate their fields with reclaimed water instead of using pumped ground water. This partnership is a win for residents, farmers, taxpayers and the environment. The project was so successful that it was awarded the Water Resource Association of the Delaware River Basin Government Award for Innovative Water Recycling Partnership.

Projects such as this can benefit farmers throughout the state by saving millions of gallons of ground water a day and providing much needed irrigation in times of drought. In the past several years there have been dry periods which have severely impacted the yield of the average Delaware farmer. During the summer of 2010, crops on non-irrigated lands were withering while corn in Middletown, irrigated with reclaimed effluent, was 12' high. The benefits to the agricultural community throughout the state are enormous.

### Project Review:

Sussex County has thousands of acres in agricultural use between Rehoboth and Georgetown that are commercially farmed. The farmers have a need for water that has a higher nutrient content. We have designed a route that would take the wastewater from the Rehoboth plant through the agricultural community to Artesian's Cool Spring Road wastewater facility and then to 400 sited acres for spray irrigation south and east of Milton. In fact, the area between Rehoboth and Milton, within a half mile of the proposed pipeline, has over 4,000 acres of active farm land and the flow from Rehoboth's plant could help to irrigate up to 2,000 acres of that land. There is sufficient land to dispose of all of the effluent outside of the inland bays.

Artesian's spray irrigation option consists of the following major components:

- Modifications to the City of Rehoboth pumping station to accommodate the pumps necessary to move the treated effluent to the storage lagoon.
- Installation of a 12 mile, 20" forcemain from the City of Rehoboth to Artesian's Cool Spring Road wastewater facility.
- The construction of a 30 acre, 90 million gallon storage lagoon at the Cool Spring Road location.
- Installation of a 3 mile, 20" distribution main to the spray fields.
- Installation of spray irrigation equipment on 400 acres of dedicated spray land near Milton, Delaware.

This spray irrigation system is designed to meet the City of Rehoboth's peak flows of 3.4 MGD in the summer and the average flow of 1.4 MGD.

### Cost:

The cost to build a spray irrigation system is less than the estimated cost to construct the ocean outfall alternative and is substantially less than the spray irrigation alternative as presented in the EIS. The cost to build the spray irrigation system is \$23.9 million, about \$6 million less than the currently estimated \$30 million cost to build the ocean outfall system. Our cost estimate for a spray irrigation system is based on our actual practical experience with the construction of such

systems. The cost estimates in the EIS for the spray irrigation alternatives are entirely inconsistent with, and unexplainable based upon, our experience.

Impact on Rates:

User rates for our proposed spray irrigation system are estimated to be \$686 per year. This places the user cost of our proposed spray irrigation alternative in the same range as that now estimated for the ocean outfall alternative. At this stage in the review process of alternatives, any variance of less than 10 percent is well within a standard margin of error and such alternatives should be deemed comparable in regard to user costs. Given that user rates are effectively the same, there is no reason to waste precious water resources by utilizing an ocean outfall rather than preserving the water cycle and recharging groundwater, which also benefits the local agricultural community and preserves open space.

Benefits:

Our spray irrigation alternative deserves full consideration in the EIS given its many benefits compared to ocean outfall:

- Ocean outfall unquestionably has a negative public perception
- Cost to the users are effectively comparable for each alternative
- Spray irrigation provides groundwater recharge that reduces the risk for salt water intrusion to oceanfront communities
- The agricultural community obtains a source of irrigation that sustains their crops, especially in times of drought

We should be giving reclaimed water to the farmers who want it instead of to the tourists who don't.

