



### Memorandum

DATE:	August 24, 2012 (Rev. 1 – September 13, 2012)
FROM:	Charles R. Harman
SUBJECT:	Supplemental Studies – Green Treefrog Surveys
TO:	Project File 3250085298.04.01 Steve Stumne, Bill Elzinga

This memorandum presents the results of a green treefrog (*Hyla cinerea*) survey performed at, and within the vicinity of, the PSEG Site.

A green treefrog survey was performed in June and July 2012 in order to determine the presence or absence of this species at the PSEG Site and at several offsite locations. Anuran call surveys (i.e., audio frog calling surveys) were performed in June 2012 over three consecutive nights, focusing on the onsite location where they were previously observed and seven (7) pre-determined off-site locations within Salem County.

Aerial photography was used to preliminarily identify several candidate offsite survey locations that appeared to provide appropriate habitat for the green treefrog. Targeted habitat included fishless wetlands or ponds with freshwater or limited tidal influence. Subsequent field visits to verify appropriate habitat led to the identification of the seven (7) off-site locations within or near the vicinity of the PSEG Site.

Based on the results of the June survey, the July 2012 effort was modified to include qualitative surveys to the north, east, and south of the original project area. The objective of these efforts was to determine if green treefrogs, previously confirmed to be present onsite, were also present offsite and to what extent. **Table 1** presents a summary of the eight (8) survey locations for the June effort, and **Figures 1** and **2** depicts their locations on a United States Geological Survey (USGS) topographic map and aerial photograph, respectively.

#### **Site Description**

The June survey was performed at the Site in Lower Alloways Creek Township, and at seven (7) offsite locations in Elsinboro Township and Lower Alloways Creek Township, Salem County, New Jersey. The July survey examined a broader area including Quinton Township, Pennsville Township, Mannington Township, and Greenwich Township in Salem County, and Stow Creek Township and Greenwich Township in Cumberland County. A description for each of the original eight survey locations for June is presented below.

**Location 001** is a small and isolated pond and wetland system located within an agricultural field, on the north side of Fort Elfsborg Road in Elsinboro Township (N 39.54016892; W -75.50001914; NAD83). It is set back approximately 100 feet from the road. The edge of this pond and wetland system is vegetated with shrubs and a few trees.

**Location 002** marks the northwest corner of the expansive marsh system associated with the north side of Alloway Creek. This location is situated in Elsinboro Township, accessible from Money Island Road (N 39.52932584; W -75.50 342361; NAD83). The vegetation at the survey point consisted of a mix of

herbaceous species, including common cattail (*Typha latifolia*), common reed (*Phragmites australis*), and various sedges.

**Location 003** marks the north-central edge of the expansive marsh system associated with the north side of Alloway Creek. This location is on the south side of Mason Point Road in Elsinboro Township (N 39.53010150; W -75.49457224; NAD83). The vegetation at the survey point was a very dense, virtually impenetrable, scrub/shrub to forested roadside vegetation community.

**Location 004** is a somewhat linear-shaped open water area on the north side of Fort Elfsborg Road that straddled Elsinboro Township and Lower Alloways Creek Township (N 39.52365289; W -75.47327424; NAD83). A culvert beneath Fort Elfsborg Road connects this open water area to the northeast corner of the expansive marsh system associated with the north side of Alloway Creek. This open water area is situated within an agricultural field, and a narrow band of shrubs lines its banks.

**Location 005** is a pair of large open water areas bisected by a driveway for a private residence. It is located on the east side of Abbots Farm Road in Elsinboro Township (N 39.51750602; W -75.47977701; NAD83). The west side of Abbots Farm Road marks the eastern edge of the expansive marsh system associated with the north side of Alloways Creek. Based on field observations, it is speculated that a pumping system maintains the water level in the ponds.

**Location 006** is a small and isolated open water and marsh area situated in a mowed field. It is located on the west side of Alloway Creek Neck Road in Lower Alloways Creek Township (N 39.48634805; W -75.47006900; NAD83). The edges of this system are a mix of herbaceous, shrub, and tree species.

**Location 007** is an isolated open water and marsh area situated on the north side of a dirt road, east of Alloway Creek Neck Road (N 39.46711586; W -75.47215115; NAD83). The edges of this system are a mix of herbaceous, shrub, and tree species, and the majority of the open water surface was covered with floating brown algae at the time of the survey, and a hydrogen sulfide odor was present. No other locations exhibited this odor.

**Location 008** is the onsite location near the confined disposal facilities (CDF) where the U.S. Army Corps of Engineers historically disposed of Delaware River dredge material (N 39.47253468; W -75.54246828; NAD83). Common reed is the dominant vegetation at this location.

### ***Methods and Results of the June Survey***

The June 2012 survey was performed by Mr. Perhamus and Ms. Benes, over three consecutive nights from June 19, 2012 to June 21, 2012 using the methods presented in the *PSEG Early Site Permit (ESP) Application, ER Work Plan in Support of the Environmental Report* (MACTEC, 2009) with additional guidance from the *North American Amphibian Monitoring Program – Protocol Description* (USGS, 2012). Surveys were initiated each night around 2100 hours (9:00 p.m.) and typically ended around 0030 hours (12:30 a.m.). At each location, the surveyors stood at the edge of the wetland and recorded all anuran calls heard during a 15-minute time period. Data were recorded onto an Anuran Survey Data Sheet (**Attachment 1**) and included information on cloud cover, wind speed, and ambient air temperature. Calls were characterized using a Call Index with the following categories:

0 = None - no calls

1 = Individuals – individuals can be counted; there is spacing between calls

2 = Overlapping – calls of individuals can be distinguished but there is some overlapping

3 = Continuous Chorus – full chorus, calls are constant, continuous and overlapping

In order to avoid performing a survey at a location at the same time period, the sequence in which the locations were surveyed was staggered over the survey period. **Table 2** presents a summary of the sequence in which the locations were surveyed. Incidentally, Location 003 was removed from the survey effort following the 2<sup>nd</sup> night due to the demands of a neighboring landowner.

Wind speed or precipitation did not preclude any survey from being conducted during the three-night survey period. Ambient air temperatures ranged from 72° F on June 19 to 81° F on June 20. An excessive heat warning was issued for New Jersey on June 20 and June 21, with daytime temperatures in Salem County exceeding 100° F with 90% humidity. With the exception of June 19, the Wind Code was typically 0; the Wind Code on June 19 ranged from 0 to 4. The Sky Code was consistently 0 each night.

Green treefrogs were recorded at both onsite and offsite survey locations as indicated below. **Table 3** presents a detailed summary of the survey results, and **Attachment 2** presents photographs of some specimens.

	001	002	003	004	005	006	007	008
<b>Green treefrog</b>	x	x			x	x		x
<b>Spring peeper</b>								x
<b>Northern gray treefrog</b>		x			x	x		
<b>Green frog</b>	x	x		x	x	x	x	
<b>Bullfrog</b>	x	x		x	x			
<b>Fowler's Toad</b>		x						

Green treefrog calls were most numerous at the onsite location (008), exhibiting a Call Index of 3 for all three nights. Calls were also numerous at Locations 002 and 005, exhibiting a Call Index of 3 for two of the three nights. All five locations where green treefrogs were found were somewhat distinct from each other in their physical structure and vegetative composition. Locations 001 and 006 were small, isolated open water/marsh systems within an open field community; Location 002 was along the edge of the vast Alloway Creek marsh system, composed of a mix of herbaceous species including common cattail, common reed, and various sedges; Location 005 was a pair of ponds on a residential property with a narrow band of shoreline vegetation; and Location 008 was a mix of open water and a dense monotypic stand of common reed.

Locations 003 and 007 were anomalies. Location 003, surveyed for only two nights, did not exhibit any anuran calls. The surveyors' attempts to observe through the dense vegetation did not reveal the presence of any open water or a distinctive wetland vegetation community. Location 007 was the only open water system with a mat of floating algae and a hydrogen sulfide odor. A single green frog (*Rana clamitans*) was heard only once during the survey at this location. However, numerous small frogs were observed skittering across the surface of the algae, suggesting that either this location is not conducive to calling or that the courtship period for the species observed is either past or forthcoming.

Green treefrogs were also heard at other onsite and offsite locations while driving from one location to another. This finding resulted in a modification to the scope of the July survey which was originally designed to replicate the June effort. This is discussed in the next section of this memorandum.

### **Methods and Results of the July Survey**

The results of the June survey indicated that green treefrogs were indeed present at most of the seven offsite locations, as well as other offsite locations within the area. A discussion among the AMEC project team leaders, Mr. Steve Stumne, Mr. Bill Elzinga, and Mr. Charles Harman, suggested that a mere replication of the June survey effort would not yield data that would be particularly useful. It was agreed upon by these parties that a qualitative examination for the presence of green treefrogs in areas extending farther outward from the original June project area may prove to be more useful. Therefore, the July survey effort examined potential green treefrog habitat to the north, east, and southeast.

These qualitative July surveys did not employ the same protocol used for the June surveys. The July survey locations were areas where easy access could be gained by a vehicle, and environmental descriptors such as wind code, sky code, air temperature, etc. were not collected. Additionally, the July surveys were presence/absence determinations and thus calling indices were not assigned to the results.

The initial step in performing the July survey was to determine if green treefrogs were still calling at this time of the year. All four off-site locations where green treefrogs were found in June (Locations 001, 002, 005 and 006) were revisited in July in order to determine this. Of these four locations, only Location 001 exhibited green treefrog calling in July. Nevertheless, this finding indicated that this species may still be calling at other locations, and thus a survey extending farther outward was performed.

A total of 26 additional locations were surveyed during the nights of July 16 and 17, 2012. Twenty-one of these exhibited green treefrog calls, as depicted on **Figure 3**, extending northward into Mannington Township (Salem County), eastward into Quinton Township (Salem County), and southward into Greenwich Township (Cumberland County).

### ***Conclusion***

Reproductively active green treefrogs are present onsite at the Salem and Hope Creek Generating Station, and are widespread and abundant at numerous surveyed offsite areas. These offsite areas include portions of western Salem County and northwestern Cumberland County. The abundance of green treefrog calls heard during the June survey was significant; significantly fewer calls were heard during the July survey. During the June survey, there was a constant din of this species' call throughout the landscape, and at times the volume of their calls precluded conversation between the field surveyors at a normal speaking level. Many of the other anuran species' calls could only be heard when there was a break or lessening in volume of the green treefrog calls.

### ***References***

MACTEC, 2009. PSEG Early Site Permit (ESP) Application, ER Work Plan in Support of the Environmental Report, November 4, 2009.

USGS, 2012. North American Amphibian Monitoring Program, Protocol Description. Patuxent Wildlife Research Center. Available on-line at: <http://www.pwrc.usgs.gov/naamp/index.cfm?fuseaction=app.protocol>



## FIGURES



#### Legend

- Approximate site area
- 2012 Green Tree Frog survey location (June survey)

SOURCE:  
ESRI US Topo Maps  
National Geographic Society, I-cubed, 2011



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Figure 1  
Site Location Map  
PSEG Power, LLC  
Elsinboro and Lower Alloways Creek Townships  
Salem County, New Jersey

Reviewed By: PP

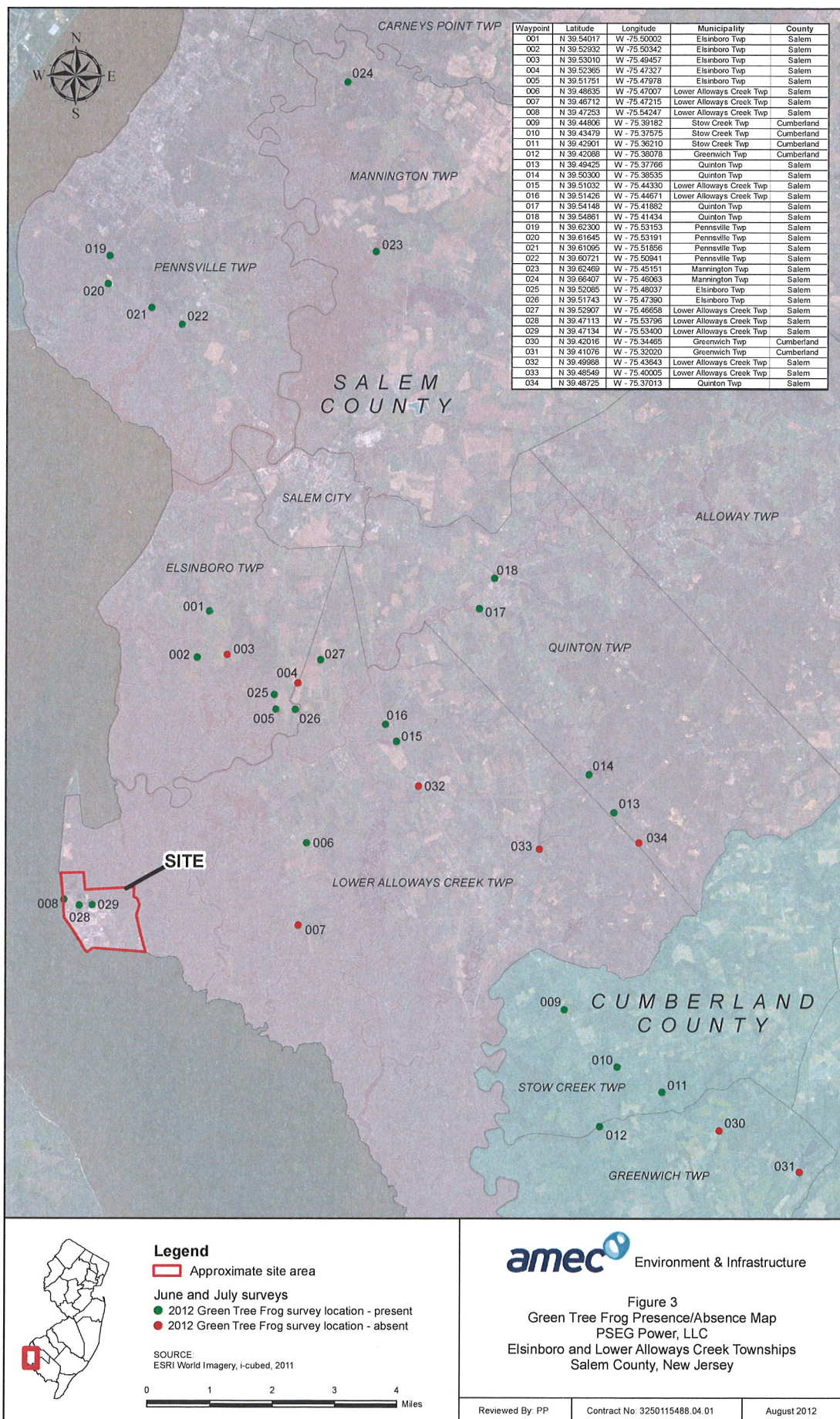
Contract No: 3250115488.04.01

August 2012









#### Legend

Approximate site area

#### June and July surveys

- 2012 Green Tree Frog survey location - present
- 2012 Green Tree Frog survey location - absent

SOURCE:  
ESRI World Imagery, i-cubed, 2011



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Figure 3  
Green Tree Frog Presence/Absence Map  
PSEG Power, LLC  
Elsinboro and Lower Alloways Creek Townships  
Salem County, New Jersey

Reviewed By: PP

Contract No. 3250115488.04.01

August 2012

## TABLES



**Table 1**  
**Anuran Survey Locations**  
**PSEG Site and Vicinity**  
**Salem County, New Jersey**

<b>Location No.</b>	<b>Lat/Lon (NAD83)</b>	<b>Nearest Road</b>	<b>Municipality</b>
001	N 39.54016892 W -75.50001914	Fort Elfsborg Road	Elsinboro Township
002	N 39.52932584 W -75.50342361	Money Island Road	Elsinboro Township
003	N 39.53010150 W -75.49457224	Mason Point Road	Elsinboro Township
004	N 39.52365289 W -75.47327424	Fort Elfsborg Road	Elsinboro Township & Lower Alloways Creek Township
005	N 39.51750602 W -75.47977701	Abbotts Farm Road	Elsinboro Township
006	N 39.48634805 W -75.47006900	Alloway Creek Neck Road	Lower Alloways Creek Township
007	N 39.46711586 W -75.47215115	Alloway Creek Neck Road	Lower Alloways Creek Township
008 (onsite)	N 39.47253468 W -75.54246828	N/A	Lower Alloways Creek Township

**Table 2**  
**Survey Location Order**  
**PSEG Site and Vicinity**  
**Salem County, New Jersey**

<b>June 19, 2012</b>	<b>June 20, 2012</b>	<b>June 21, 2012</b>
008	005	001
007	004	002
006	003	004
004	002	008
005	001	007
003	008	006
002	007	005
001	006	See note

Note: Location 003 was removed from the survey following the 2<sup>nd</sup> night due to the demands of a neighboring landowner.

**Table 3**  
**Anuran Survey Results (June Survey)**  
**PSEG Site and Vicinity**  
**Salem County, New Jersey**

Site No.	001			002			003 <sup>1</sup>			004			005			006			007			008		
Night <sup>2</sup>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Time (hrs)	0:21	22:23	21:00	0:10	22:03	0:00	23:52	21:49		23:11	21:28	21:45	23:31	21:02	23:55	22:50	0:10	23:30	22:25	23:45	22:53	21:36	23:03	22:20
Temp (F)	72	79	79	72	79	79	72	79		72	79	79	72	81	77	72	77	78	72	77	79	73	79	79
Wind Code <sup>3</sup>	0	0	0	0	0	0	0	0		1	0	0	0	0	0	0	0	0	1	0	0	4	0	0
Sky Code <sup>4</sup>	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Species	Calling Index <sup>5</sup>																							
Green treefrog	2	2	1	2	3	3	0	0		0	0	0	2	3	3	1	2	2	0	0	0	3	3	3
Spring peeper	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Northern gray treefrog	0	0	0	1	1	0	0	0		0	0	0	1	0	0	2	1	1	0	0	0	0	0	0
Green frog	1	1	1	1	0	1	0	0		1	1	0	1	1	1	1	1	1	0	0	1	0	0	0
Bullfrog	1	1	1	1	1	1	0	0		1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
Fowler's Toad	0	0	0	1	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

<sup>1</sup> Location 003 was removed from the survey after June 20, 2012 due to the presence of a potentially hostile neighboring landowner.

<sup>2</sup> Survey Night Code:  
1 = 6/19/12  
2 = 6/20/12  
3 = 6/21/12

<sup>3</sup> Wind Code:  
0 = Calm – (<1 mph) smoke rises vertically  
1 = Light Air – (1-3 mph) smoke drifts, weather vane inactive  
2 = Light Breeze – (4-7 mph) leaves rustle, can feel wind on face  
3 = Gentle Breeze – (8-12 mph) leaves and twigs move around, small flag extends  
4 = Moderate Breeze – (13-18 mph) moves thin branches, raises loose papers  
5 = Fresh Breeze – (>19 mph) small trees begin to sway

<sup>4</sup> Sky Code  
0 = few clouds  
1 = Partly cloudy – scattered or variable sky  
2 = Cloudy – cloudy or overcast  
3 = Fog or smoke  
4 = Drizzle or light rain (not affecting hearing ability)  
5 = Snow  
6 = Showers – showers affecting hearing ability – do not conduct survey

<sup>5</sup> Calling Index Code  
0 = None, no calls  
1 = Individuals - individuals can be counted; there is spacing between calls  
2 = Overlapping - calls of individuals can be distinguished but there is some overlapping  
3 = Continuous chorus - full chorus, calls are constant, continuous and overlapping

**Table 4**  
**Green Treefrog Survey Results (July Survey)**

<b>Location</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Municipality</b>	<b>County</b>	<b>Present</b>
009	39.44806	75.39182	Stow Creek Twp	Cumberland	Yes
010	39.43479	75.37575	Stow Creek Twp	Cumberland	Yes
011	39.42901	75.36210	Stow Creek Twp	Cumberland	Yes
012	39.42088	75.38078	Greenwich Twp	Cumberland	Yes
013	39.49425	75.37766	Quinton Twp	Salem	Yes
014	39.50300	75.38535	Quinton Twp	Salem	Yes
015	39.51032	75.44330	Lower Alloways Creek Twp	Salem	Yes
016	39.51426	75.44671	Lower Alloways Creek Twp	Salem	Yes
017	39.54148	75.41882	Quinton Twp	Salem	Yes
018	39.54861	75.41434	Quinton Twp	Salem	Yes
019	39.62300	75.53153	Pennsville Twp	Salem	Yes
020	39.61645	75.53191	Pennsville Twp	Salem	Yes
021	39.61095	75.51856	Pennsville Twp	Salem	Yes
022	39.60721	75.50941	Pennsville Twp	Salem	Yes
023	39.62469	75.45151	Mannington Twp	Salem	Yes
024	39.66407	75.46063	Mannington Twp	Salem	Yes
025	39.52085	75.48037	Elsinboro Twp	Salem	Yes
026	39.51743	75.47390	Elsinboro Twp	Salem	Yes
027	39.52907	75.46658	Lower Alloways Creek Twp	Salem	Yes
028	39.47113	75.53796	Lower Alloways Creek Twp	Salem	Yes
029	39.47134	75.53400	Lower Alloways Creek Twp	Salem	Yes
030	39.42016	75.34465	Greenwich Twp	Cumberland	No
031	39.41076	75.32020	Greenwich Twp	Cumberland	No
032	39.49988	75.43643	Lower Alloways Creek Twp	Salem	No
033	39.48549	75.40005	Lower Alloways Creek Twp	Salem	No
034	39.48725	75.37013	Quinton Twp	Salem	No

**ATTACHMENT 1**

**Anuran Survey Datasheets**

AMEC Environment & Infrastructure, Inc.  
285 Davidson Avenue, Suite 405  
Somerset, New Jersey 08873  
Tel (732) 302-9500  
Fax (732) 302-9504

[www.amec.com](http://www.amec.com)



# Anuran Survey Data Sheet



<b>Location:</b> Salem County, NJ	<b>Project:</b> PSEG CDF
<b>Date:</b> 6/19/12 - 6/20/12 (early am)	<b>Personnel:</b> Phil Perhamus, Christy Benes

<b>Call Index</b> 0 – None, no calls. 1 – Individuals – individuals can be counted; there is spacing between calls 2 – Overlapping – calls of individuals can be distinguished but there is some overlapping. 3 – Continuous Chorus – full chorus, calls are constant, continuous and overlapping
<b>Sky Code</b> 0 – Few clouds 1 – Partly cloudy – scattered or variable sky 2 – Cloudy – cloudy or overcast 3 – Fog or smoke 4 – Drizzle or light rain (not affecting hearing ability) 5 – Snow 6 – Showers – showers affecting hearing ability – do not conduct survey
<b>Wind Speed: Beaufort Scale</b> 0 – Calm – (<1 mph) smoke rises vertically 1 – Light Air – (1-3 mph) smoke drifts, weather vane inactive 2 – Light Breeze – (4-7 mph) leaves rustle, can feel wind on face 3 – Gentle Breeze – (8-12 mph) leaves and twigs move around, small flag extends 4 – Moderate Breeze – (13-18 mph) moves thin branches, raises loose papers 5 – Fresh Breeze – (>19 mph) small trees begin to sway

Site Name/No.	008	007	006	004	005
Time	9:36 pm	10:25 pm	10:50 pm	11:11 pm	11:31 pm
Temperature (F)	73	72	72	72	72
Wind Code	4	1	0	0	1
Sky Code	0	0	0	0	0

Species	Calling Index				
Green treefrog	3	0	1	0	2
Spring peeper	1	0	0	0	0
Northern gray treefrog	0	0	2	0	1
Green frog	0	0	1	1	1
Bull frog	0	0	0	1	1
Fowler's toad	0	0	0	0	0

# Anuran Survey Data Sheet



Location: <i>Salem County, NJ</i>	Project: <i>PSE &amp; G CDF</i>
Date: <i>6/19/12 - 6/20/12 (early am)</i>	Personnel: <i>Phil Perhamus, Christy Benes</i>

## Call Index

- 0 – None, no calls.
- 1 – Individuals – individuals can be counted; there is spacing between calls
- 2 – Overlapping – calls of individuals can be distinguished but there is some overlapping.
- 3 – Continuous Chorus – full chorus, calls are constant, continuous and overlapping

## Sky Code

- 0 – Few clouds
- 1 – Partly cloudy – scattered or variable sky
- 2 – Cloudy – cloudy or overcast
- 3 – Fog or smoke
- 4 – Drizzle or light rain (not affecting hearing ability)
- 5 – Snow
- 6 – Showers – showers affecting hearing ability – do not conduct survey

## Wind Speed: Beaufort Scale

- 0 – Calm – (<1 mph) smoke rises vertically
- 1 – Light Air – (1-3 mph) smoke drifts, weather vane inactive
- 2 – Light Breeze – (4-7 mph) leaves rustle, can feel wind on face
- 3 – Gentle Breeze – (8-12 mph) leaves and twigs move around, small flag extends
- 4 – Moderate Breeze – (13-18 mph) moves thin branches, raises loose papers
- 5 – Fresh Breeze – (>19 mph) small trees begin to sway

Site Name/No.	<i>003</i>	<i>002</i>	<i>001</i>		
Time	<i>11:52 pm</i>	<i>12:10 am</i>	<i>12:32 am</i>		
Temperature (F)	<i>72</i>	<i>72</i>	<i>72</i>		
Wind Code	<i>0</i>	<i>0</i>	<i>0</i>		
Sky Code	<i>0</i>	<i>0</i>	<i>0</i>		

Species	Calling Index				
<i>Green treefrog</i>	<i>0</i>	<i>2</i>	<i>2</i>		
<i>Spring peeper</i>	<i>0</i>	<i>0</i>	<i>0</i>		
<i>Northern gray treefrog</i>	<i>0</i>	<i>1</i>	<i>0</i>		
<i>Green frog</i>	<i>0</i>	<i>1</i>	<i>1</i>		
<i>Bullfrog</i>	<i>0</i>	<i>1</i>	<i>1</i>		
<i>Fowler's toad</i>	<i>0</i>	<i>1</i>	<i>0</i>		

# Anuran Survey Data Sheet



<b>Location:</b> <i>Salem County, NJ</i>	<b>Project:</b> <i>PSE #6 CDF</i>
<b>Date:</b> <i>6/20/12 - 6/21/12 (early am)</i>	<b>Personnel:</b> <i>Phil Perhamus ; Christy Benea</i>

## Call Index

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- 5 – Snow
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## Wind Speed: Beaufort Scale

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- 2 – Light Breeze – (4-7 mph) leaves rustle, can feel wind on face
- 3 – Gentle Breeze – (8-12 mph) leaves and twigs move around, small flag extends
- 4 – Moderate Breeze – (13-18 mph) moves thin branches, raises loose papers
- 5 – Fresh Breeze – (>19 mph) small trees begin to sway

Site Name/No.	005	004	003	002	001
Time	<i>9:02 pm</i>	<i>9:28 pm</i>	<i>9:49 pm</i>	<i>10:03 pm</i>	<i>10:23 pm</i>
Temperature (F)	<i>81</i>	<i>79</i>	<i>79</i>	<i>79</i>	<i>79</i>
Wind Code	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Sky Code	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

Species	Calling Index				
<i>Green treefrog</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>	<i>2</i>
<i>Spring peeper</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Northern gray treefrog</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>
<i>Green frog</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>
<i>Bullfrog</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>1</i>
<i>Fowler's toad</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>

# Anuran Survey Data Sheet



Location: <i>Salem County, NJ</i>	Project: <i>PSE &amp; G CDF</i>
Date: <i>6/20/12 - 6/21/12 (early am)</i>	Personnel: <i>Phil Perhamus, Christy Benes</i>

## Call Index

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- 1 – Individuals – individuals can be counted; there is spacing between calls
- 2 – Overlapping – calls of individuals can be distinguished but there is some overlapping.
- 3 – Continuous Chorus – full chorus, calls are constant, continuous and overlapping

## Sky Code

- 0 – Few clouds
- 1 – Partly cloudy – scattered or variable sky
- 2 – Cloudy – cloudy or overcast
- 3 – Fog or smoke
- 4 – Drizzle or light rain (not affecting hearing ability)
- 5 – Snow
- 6 – Showers – showers affecting hearing ability – do not conduct survey

## Wind Speed: Beaufort Scale

- 0 – Calm – (<1 mph) smoke rises vertically
- 1 – Light Air – (1-3 mph) smoke drifts, weather vane inactive
- 2 – Light Breeze – (4-7 mph) leaves rustle, can feel wind on face
- 3 – Gentle Breeze – (8-12 mph) leaves and twigs move around, small flag extends
- 4 – Moderate Breeze – (13-18 mph) moves thin branches, raises loose papers
- 5 – Fresh Breeze – (>19 mph) small trees begin to sway

Site Name/No.	<i>008</i>	<i>007</i>	<i>006</i>		
Time	<i>11:03 pm</i>	<i>11:45 pm</i>	<i>12:10 am</i>		
Temperature (F)	<i>79</i>	<i>77</i>	<i>77</i>		
Wind Code	<i>0</i>	<i>0</i>	<i>0</i>		
Sky Code	<i>0</i>	<i>0</i>	<i>0</i>		

Species	Calling Index				
<i>Green treefrog</i>	<i>3</i>	<i>0</i>	<i>2</i>		
<i>Spring peeper</i>	<i>0</i>	<i>0</i>	<i>0</i>		
<i>Northern gray treefrog</i>	<i>0</i>	<i>0</i>	<i>1</i>		
<i>Green frog</i>	<i>0</i>	<i>0</i>	<i>1</i>		
<i>Bullfrog</i>	<i>0</i>	<i>0</i>	<i>0</i>		
<i>Fowler's toad</i>	<i>0</i>	<i>0</i>	<i>0</i>		

# Anuran Survey Data Sheet



Location: <i>Salem County, NJ</i>	Project: <i>PSE&amp;G CDF</i>
Date: <i>6/21/12 - 6/22/12 (early a.m.)</i>	Personnel: <i>Phil Perhamus, Christy Benes</i>

## Call Index

- 0 – None, no calls.
- 1 – Individuals – individuals can be counted; there is spacing between calls
- 2 – Overlapping – calls of individuals can be distinguished but there is some overlapping.
- 3 – Continuous Chorus – full chorus, calls are constant, continuous and overlapping

## Sky Code

- 0 – Few clouds
- 1 – Partly cloudy – scattered or variable sky
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- 6 – Showers – showers affecting hearing ability – do not conduct survey

## Wind Speed: Beaufort Scale

- 0 – Calm – (<1 mph) smoke rises vertically
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- 3 – Gentle Breeze – (8-12 mph) leaves and twigs move around, small flag extends
- 4 – Moderate Breeze – (13-18 mph) moves thin branches, raises loose papers
- 5 – Fresh Breeze – (>19 mph) small trees begin to sway

Site Name/No.	001	002	004	008	007
Time	9:00 pm	9:23 pm	9:45 pm	10:20 pm	10:53 pm
Temperature (F)	79	79	79	79	79
Wind Code	0	0	0	0	0
Sky Code	0	0	0	0	0

Species	Calling Index				
<i>Green treefrog</i>	1	3	0	3	0
<i>Spring peeper</i>	0	0	0	0	0
<i>Northern gray treefrog</i>	0	0	0	0	0
<i>Green frog</i>	1	1	0	0	0
<i>Bullfrog</i>	1	1	1	0	0
<i>Fowler's toad</i>	0	0	0	0	0



# Anuran Survey Data Sheet



Location: <i>Salem County, NJ</i>	Project: <i>PSE#6 CDF</i>
Date: <i>6/21/12 - 6/22/12 (early a.m.)</i>	Personnel: <i>Phil Perhamus, Christy Bena</i>

<b>Call Index</b> 0 – None, no calls. 1 – Individuals – individuals can be counted; there is spacing between calls 2 – Overlapping – calls of individuals can be distinguished but there is some overlapping. 3 – Continuous Chorus – full chorus, calls are constant, continuous and overlapping
<b>Sky Code</b> 0 – Few clouds 1 – Partly cloudy – scattered or variable sky 2 – Cloudy – cloudy or overcast 3 – Fog or smoke 4 – Drizzle or light rain (not affecting hearing ability) 5 – Snow 6 – Showers – showers affecting hearing ability – do not conduct survey
<b>Wind Speed: Beaufort Scale</b> 0 – Calm – (<1 mph) smoke rises vertically 1 – Light Air – (1-3 mph) smoke drifts, weather vane inactive 2 – Light Breeze – (4-7 mph) leaves rustle, can feel wind on face 3 – Gentle Breeze – (8-12 mph) leaves and twigs move around, small flag extends 4 – Moderate Breeze – (13-18 mph) moves thin branches, raises loose papers 5 – Fresh Breeze – (>19 mph) small trees begin to sway

Site Name/No.	<i>006</i>	<i>005</i>			
Time	<i>11:15 pm</i>	<i>11:55 pm</i>			
Temperature (F)	<i>78</i>	<i>77</i>			
Wind Code	<i>0</i>	<i>0</i>			
Sky Code	<i>0</i>	<i>0</i>			

Species	Calling Index				
<i>Green treefrog</i>	<i>2</i>	<i>3</i>			
<i>Spring peeper</i>	<i>0</i>	<i>0</i>			
<i>Northern gray treefrog</i>	<i>1</i>	<i>0</i>			
<i>Green frog</i>	<i>1</i>	<i>1</i>			
<i>Bullfrog</i>	<i>0</i>	<i>1</i>			
<i>Fowler's toad</i>	<i>0</i>	<i>0</i>			

## **ATTACHMENT 2**

### **Photographs**



**Photo 1**

**Zoomed-out view of green treefrog at Location 008.**



**Photo 2**

**Zoomed-in view of green treefrog in Photo 1.**

## **PHOTOGRAPHIC DOCUMENTATION**

PSE&G Green Treefrog Survey  
Salem County, New Jersey



AMEC Environment & Infrastructure, Inc.  
285 Davidson Avenue, Suite 405  
Somerset, NJ 08873





**Photo 3**

**Green treefrog at Location 008.**



**Photo 4**

**Northern gray treefrog at Location 006.**

**PHOTOGRAPHIC DOCUMENTATION**

PSE&G Green Treefrog Survey  
Salem County, New Jersey



AMEC Environment & Infrastructure, Inc.  
285 Davidson Avenue, Suite 405  
Somerset, NJ 08873