



February 8, 2017

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

**Re: Clam River Hydroelectric Project FERC #9185
Flambeau Hydro, LLC
Article 401 (b) (M) – Final 2016 Purple Loosetrife Inventory Report**

Dear Ms. Bose:

On behalf of Flambeau Hydro, LLC (Licensee), Renewable World Energies LLC is submitting the *Final 2016 Purple Loosetrife Inventory Report* for the Clam River Hydroelectric Project. It is a requirement of Article 401 (b) (M) amended April 23, 2013 of the License issued to Flambeau Hydro LLC by the Federal Energy Regulatory Commission on July 24, 2006 which was amended May 12, 2014. The 401 (b) (M) amendment changes the monitoring schedule from every year to every other year as well as Galerucella Beetles being placed at documented Purple Loosetrife sites in the non-survey year.

The report was sent to the agencies as an attachment to an e-mail on January 5, 2017. The letter and e-mail asked for comment if they had any to offer. No comment has been received to date from either Mr. Utrup (USFWS) or Ms. Laatsch (WDNR). The survey was conducted on two dates, August 1 and 2, 2016. The Impoundment Survey noted (16) sites with observed Purple Loosetrife. Eight (8) of the sites observed with Purple Loosetrife for the first time. The FHLLC – Owned Property, Bypass Reach, and Tailrace Surveys were conducted but no Purple Loosetrife was observed during this survey. Galerucella Beetles are scheduled to be released in 2017. The next survey and report will be due in 2018.

If you have any questions concerning the report, please contact Brian Kreuzscher at the Renewable World Energy LLC offices @ 855-994-9376 Ext. 230. He can also be reached by e-mail at bkreuscher@rwehydro.com.

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Sincerely,
Renewable World Energies, LLC
Agent for Licensee

A handwritten signature in black ink, appearing to read "Jason Kreuzscher".

for Mr. Jason Kreuzscher
Vice President, Operation

Attachment: Final Clam River 2016 Purple Loosestrife Inventory Report

Cc: Ms. Cheryl Laatsch, WDNR – Attachment to E-Mail
Mr. Nick Utrup, USFWS – Attachment to E-Mail
Mr. Paul Cook, Burnett County – Attachment to E-Mail
RWE

2016 Purple Loosestrife Inventory
for
Clam River Hydroelectric Project
FERC Project #9185
Flambeau Hydro, LLC
Burnett County, Wisconsin

Submitted by:



429 River Lane, P.O. Box 27
Amasa, Michigan 49903
Phone: 906-822-7889

Summary of Purple Loosestrife Inventory for Clam River Hydroelectric Project, FERC #9185

On August 1st and 2nd, 2016, White Water Associates, Inc. performed an inventory of purple loosestrife at the Clam River Hydroelectric Project. This is a requirement of Article 401 (b) (M) amended April 23, 2013 of the License issued to Flambeau Hydro LLC by the Federal Energy Regulatory Commission (FERC) (July 24, 2006; amended May 12, 2014). This amendment changes the monitoring schedule from every year to every other year as well as *Galerucella* beetles being placed at documented purple loosestrife sites in the non-survey year.

2016 Observations

The Clam River Hydroelectric Project boundary was divided into four different areas; *the impoundment* (from approximately 3.1 miles upstream of the Clam River powerhouse downstream to the Clam River powerhouse), *FHLLC-owned property within the project boundary* (FHLLC-owned property adjacent to the dam and powerhouse), *the tailrace* (from the powerhouse to a point approximately 900 feet downstream), and *the bypass reach* (from the spillway to a point approximately 800 feet downstream).

The impoundment was surveyed by boat and sixteen sites had purple loosestrife plants. More description of these sites is provided below.

The FHLLC- owned property within the project boundary was surveyed on foot and no purple loosestrife plants were observed.

The tailrace was surveyed by boat and no purple loosestrife plants were observed.

The bypass reach was surveyed on foot and no purple loosestrife plants were observed.

At Sites CLRV001, CLRV002, CLRV003, CLRV005, CLRV011, CLRV013, CLRV015, and CLRV016 no purple loosestrife plants were observed.

Sixteen sites within the project area had purple loosestrife plants present in 2016.

Site CLRV004 had one plant observed and was not treated. Site CLRV006 had 25 purple loosestrife plants and were all pulled and disposed of. Site CLRV007 had two plants observed and were not treated. CLRV008 had 20 plants and flowering heads were clipped off. Site CLRV009 had 20 plants observed and were not treated. Site CLRV010 had ten plants observed and were not treated. Site CLRV012 had two plants observed and were not treated. Site CLRV014 had two plants observed and were not treated.

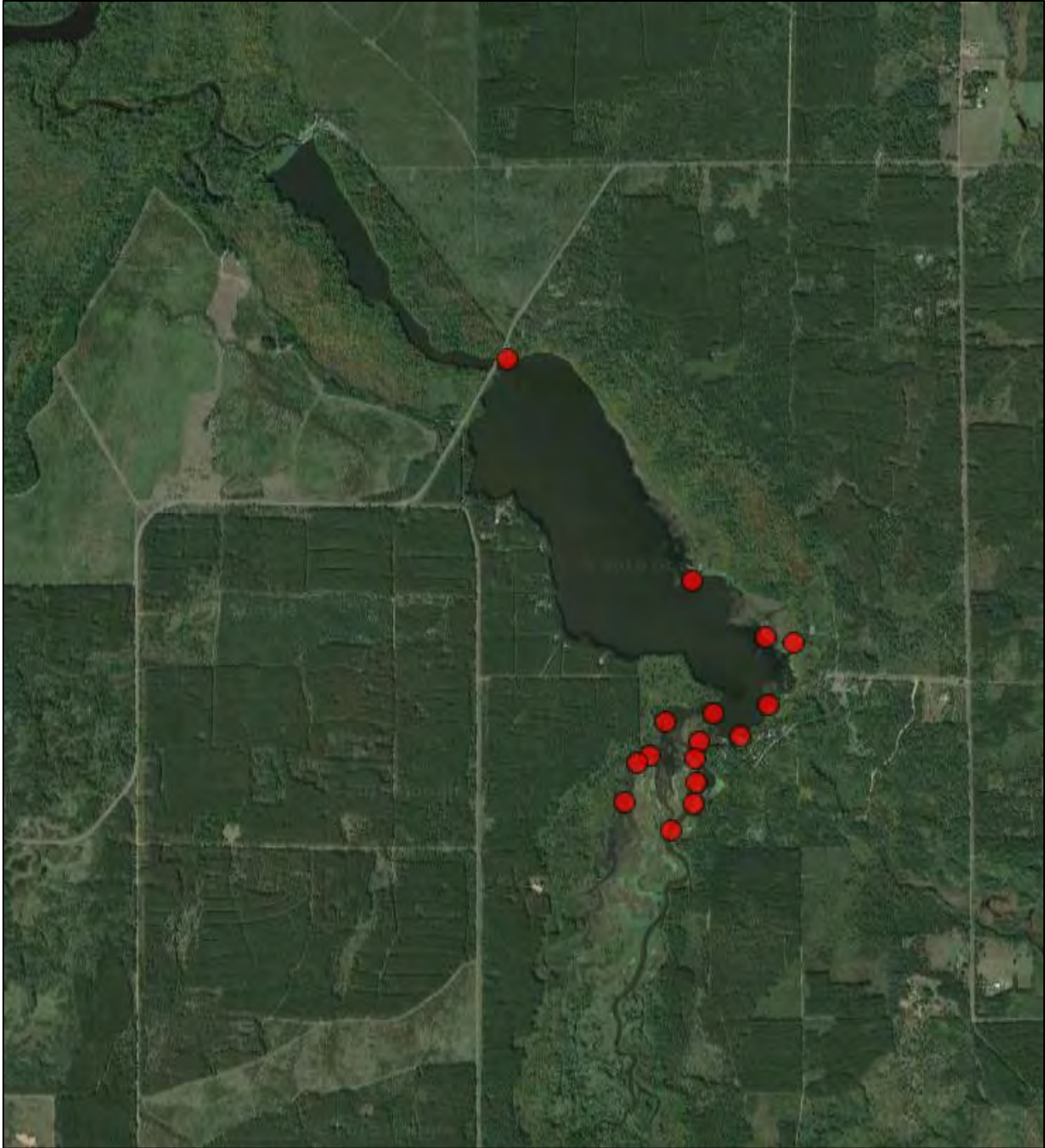
The following sites were observed with purple loosestrife for the first time in 2016. Site CLRVPL4A had fifteen plants and flowering heads were clipped off. Site CLRVPL4B had three plants and flowering heads were clipped off. Site CLRVPL5A had one plant observed and was not treated. Site CLRVPL5B

had one plant observed and was not treated. Site CLRVPL8A had one plant observed and was not treated. Site CLRVPL8B had 20 plants observed and were not treated. Site CLRVPL10A had 21 plants that were pulled. Site CLRVPL16A had fifteen plants that were pulled.

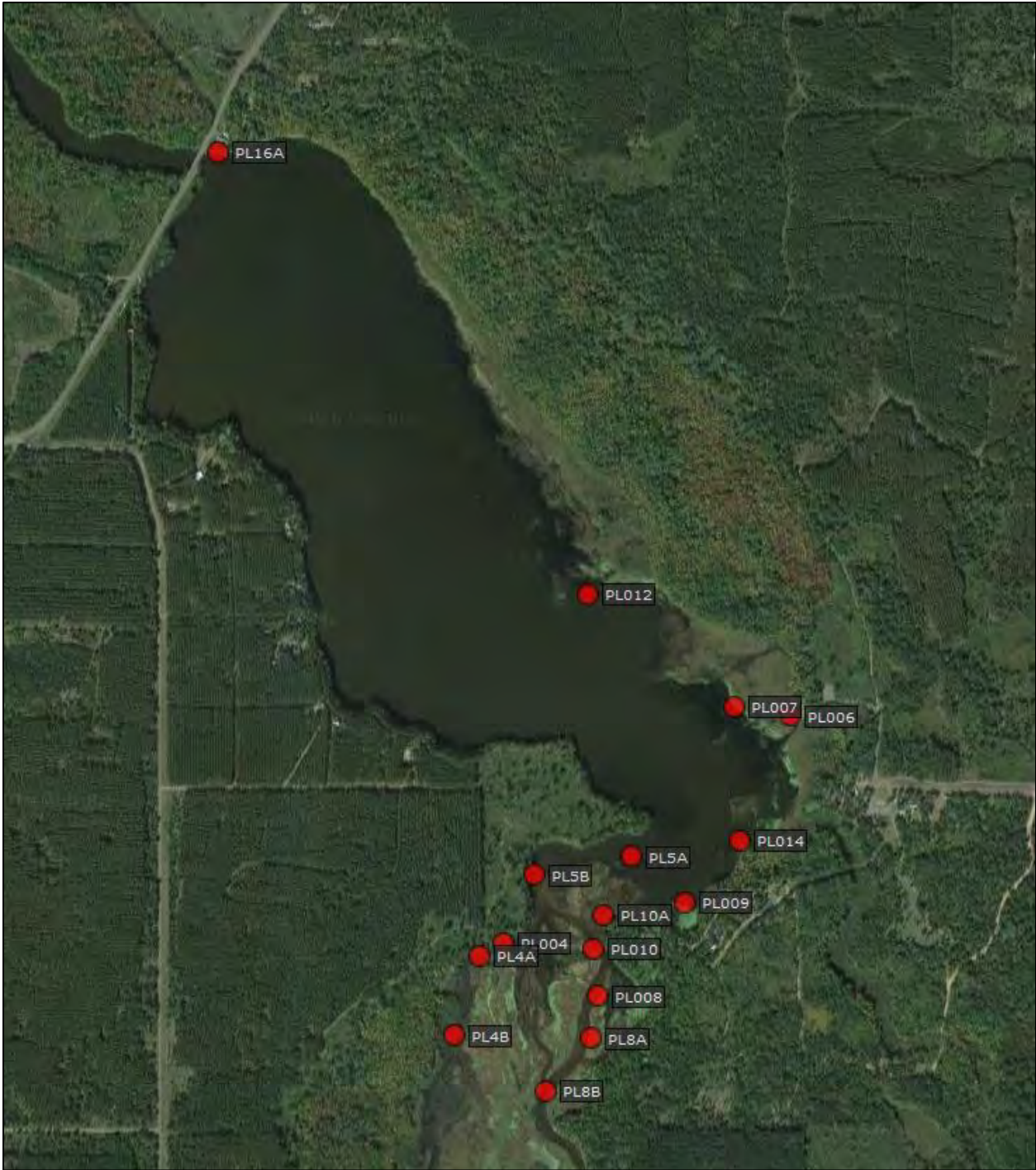
A map of purple loosestrife locations observed in 2016 is available in Appendix A. Appendix B provides tables of historical purple loosestrife data as well as observations made in 2016. Appendix C provides scans of field data sheets. Appendix D provides photos taken at the project area.

Appendix A

Maps



Map 1. Locations of purple loosestrife at Clam River in 2016, zoomed out.



Map 2. Locations of purple loosestrife at Clam River in 2016, zoomed in.

Appendix B

Tables

Table 1. GPS points for purple loosestrife inventory at Clam River, FERC#2640.

<i>GPS Point</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Plant Height</i>	<i>Stand Area</i>	<i>Beetle Activity</i>	<i>Comments</i>
CLRVPL001	45.90821	-92.51880	5'-6'	12'x3'	2014-no damage	2007-first observed. All plants pulled. 2008 & 2009-no plants observed. 2010, 2011 & 2012-site inaccessible due to silting. 2013-no plants observed. 2014-2 plants observed and pulled. 2016-no plants observed.
CLRVPL002	45.91354	-92.51691	N/A	N/A	N/A	2007-first observed. No treatment. 2008-no plants observed. 2009-some plants observed. No beetle damage. No treatment. 2010 & 2011-no plants observed. 2012-site inaccessible. 2013 & 2014-no plants observed. 2016-no plants observed.
CLRVPL003	45.91664	-92.51582	1'-7'	10 acres ~250 plants	2014-beetle damage in 10% of plants	2007-first observed. No treatment. 2009 & 2010-fewer plants observed. No treatment. 2011-considerable increase in plants observed. No beetle damage. No treatment. 2012-site inaccessible. 2013 & 2014-plants observed. 2016-no plants observed.
CLRVPL004	45.92067	-92.51714	1'-7'	10 acres ~250 plants	2014-beetle damage in 10% of plants	2007-first observed. No treatment. 2009 & 2010-fewer plants observed. No treatment. 2011-considerable increase in plants observed. No beetle damage. No treatment. 2012-site inaccessible. 2013 & 2014-plants observed. 2016-1 plant observed. No treatment.

<i>GPS Point</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Plant Height</i>	<i>Stand Area</i>	<i>Beetle Activity</i>	<i>Comments</i>
CLRVPL005	45.92141	-92.51259	N/A	N/A	N/A	2007-first observed. 2012-no beetle damage. Plants blooming. No treatment. 2013-no beetle damage. 2014-no plants observed. 2016-no plants observed.
CLRVPL006	45.92549	-92.50841	4'	1'x1'	2013-no damage 2014-no damage	2007-first observed. No beetle damage. All plants pulled. 2008-no beetle damage. All plants pulled. 2009-seed heads clipped. 2010-no treatment. 2011-same number of plants as previous years. 2012-no plants observed. 2013-1 plant observed. No treatment. 2014-22 plants observed. 2016-25 plants observed and pulled.
CLRVPL007	45.92569	-92.51010	N/A	N/A	2013-no damage	2007-first observed. No beetle damage. No treatment. 2008 & 2009-same as 2007. No treatment. 2010, 2011 & 2012- no plants observed. 2013-1 plant observed. No beetle damage. 2014-no plants observed. 2016-2 plants observed. No treatment.
CLRVPL008	45.91955	-92.51429	5'	66'x15'	2013-some plants are damaged 2014-20% of plants with damage	2008-first observed. No treatment. 2009 & 2010-plants observed. No treatment. 2011-number of plants increased. No treatment. 2012-site inaccessible. 2013-beetles released. 2014-similar number of plants as 2013. 2016-20 plants observed. Flowering heads clipped off.

<i>GPS Point</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Plant Height</i>	<i>Stand Area</i>	<i>Beetle Activity</i>	<i>Comments</i>
CLRVPL009	45.92154	-92.51162	N/A	N/A	N/A	2009-first observed. No treatment. 2010 through 2014-no plants observed. 2016-20 plants observed. No treatment.
CLRVPL010	45.92055	-92.51439	N/A	N/A	N/A	2009-first observed. No beetle damage. No treatment. 2010-plants observed. No treatment. 2011-3 plants observed. 2012, 2013 & 2014-no plants observed. 2016-10 plants observed. No treatment.
CLRVPL011	45.92613	-92.50824	N/A	N/A	N/A	2010-first observed. No treatment. 2011-50 plants observed. No treatment. 2012-No plants observed. 2013-2 plants observed. No beetle damage. 2014-no plants observed. 2016-no plants observed.
CLRVPL012	45.92808	-92.51457	N/A	N/A	N/A	2010-first observed. 2011-3 plants observed. No treatment. 2012-site inaccessible. 2013-site inaccessible. 2014-no plants observed. 2016-2 plants observed. No treatment.
CLRVPL013	45.91452	-92.51613	N/A	N/A	N/A	2010-first observed. 2011-1 plant observed. No beetle damage. No treatment. 2012-site inaccessible. 2013 & 2014-no plants observed. 2016-no plants observed.
CLRVPL014	45.92286	-92.50993	N/A	N/A	N/A	2012-first observed. No treatment. 2013 & 2014-no plants observed. 2016-2 plants observed. No treatment.

<i>GPS Point</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Plant Height</i>	<i>Stand Area</i>	<i>Beetle Activity</i>	<i>Comments</i>
CLRVPL015	45.93168	-92.5261	3'	1'x1'	2014-no damage	2014-first observed. 1 plant pulled. 2016-no plants observed.
CLRVPL016	45.88423	-92.50117	4'	2'x2'	2014-no damage	2014-first observed. Not on RWE property. 2016-no plants observed.
CLRVPL4A	45.92041	-92.51787	4'	2'x2'		2016-first observed. 15 plants observed. Flowering heads clipped off.
CLRVPL4B	45.91872	-92.51866	3'	1'x1'		2016-first observed. 3 plants observed. Flowering heads clipped off.
CLRVPL5A	45.92251	-92.51325	4'	2'x2'		2016-first observed. 1 plant observed. No treatment.
CLRVPL5B	45.92212	-92.51618	3'	1'x1'		2016-first observed. 1 plant observed. No treatment.
CLRVPL8A	45.91866	-92.51450	3'	1'x1'		2016-first observed. 1 plant observed. No treatment.
CLRVPL8B	45.91754	-92.51584	3'	20'x30'		2016-first observed. 20 plants observed. No treatment.
CLRVPL10A	45.92126	-92.51410	4'	2'x3'		2016-first observed. 21 plants observed and pulled.
CLRVPL16A	45.93745	-92.52584	4'	2'x2'		2016-first observed. 15 plants observed and pulled.

Table 2. GPS points for *Galerucella* beetle release at Clam River, FERC#2640.

<i>GPS Point</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Number of beetles released</i>	<i>Comments</i>
CLRVGC001	45.93193	-92.50852	2000-3000	2013-released in July.

Appendix C

Scans of Datasheets

Purple Loosestrife Survey

Clam River Hydroelectric Project – FERC # 9185

Page 1 of 4

Date 8-1-2014 Conducted By Stine Plummer

HWL 878.88 TWL 864.0 CFS 301 Equipment Used: Shovel, shear, GPS, camera, binoculars

Air Temp: 83 °F Wind Speed: 5-10 mph Barometer: 30.0 Sky Conditions: 75% clouds

Time Survey Started 13:04 Time Survey Ended 17:50 Boat (14ft or Canoe) and/or Foot

Latitude Start _____ Longitude End _____

Location of Survey Area: Tailrace _____ Bypass Reach _____ Impoundment FHLLC Property _____

Description of Location 3.1 miles upstream of the Clam River powerhouse downstream to the Clam River powerhouse

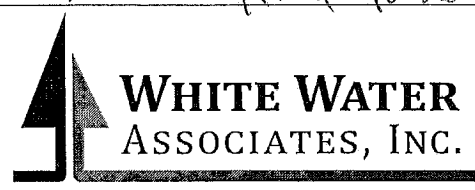
Purple Loosestrife Found: Yes or No Historic Info: Canoe 2014 six areas of PL (6 hrs)

Site: <u>CRUP1006</u>	Time: <u>13:05</u>	Latitude:	Longitude:
Photo ID: <u>3293094</u>	Description of location:		
Species Name: <u>PL</u>	Single Plant or Multi-stem	Actual # of Plants: <u>25</u>	
Acreage of Infestation (circle one): <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>Impoundment</u> pond edge stream edge <u>roadside</u> wooded area ditch field other <u>Boat landing</u>			
Stand Area Density (feet x feet): <u>10x10</u>	Size Colony (#plants): S = 0-5 (M = 6-50 L = >50 ~)		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft (<u>4 = >4 ft</u>)	~ <u>4</u> feet		
Plant Flowering: 1 = <25% of plants (<u>2 = 26-50% of plants</u>) 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = <u>76-100% feeding</u> 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor (<u>7-9 = fair</u>) 10-12 = good			
Plant Removed: <u>Yes</u> <input checked="" type="checkbox"/> <u>No</u> <input checked="" type="checkbox"/>	Description: <u>15 removed shovel realized more</u>		

1 also left side towards trail BL

Site: <u>PLO14</u>	Time: <u>1:44 p.m.</u>	Latitude:	Longitude:
Photo ID:	Description of location: <u>Same location</u>		
Species Name:	Single Plant or Multi-stem	Actual # of Plants: <u>2</u>	
Acreage of Infestation (circle one): <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>Impoundment</u> pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>2x2</u>	Size Colony: <u>S = 0-5</u> M = 6-50 L = >50 ~		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = <u>2-4 ft</u> 4 = >4 ft	~ _____ feet		
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants (<u>3 = 51-99% of plants</u>) 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding <u>NA</u>			
Total plant vigor: 0-3 = very poor 4-6 = poor (<u>7-9 = fair</u>) 10-12 = good <u>NA</u>			
Plant Removed: Yes or <u>No</u> <input checked="" type="checkbox"/>	Description: <u>Hard to reach</u>		

photo didn't see any 1:52 p.m.



Site: <u>PL009</u>	Time: <u>1:50 p.m.</u>	Latitude:	Longitude:
Photo ID: <u>33 95-98</u>	Description of location:		
Species Name: <u>C. 2</u>	Single Plant or <u>Multi-stem</u>	Actual # of Plants: <u>20+</u>	
Acreage of Infestation (circle one) <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>impoundment</u> /pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>70x10</u>	Size Colony: S = 0-5 <u>M = 6-50</u> L = >50 ~ _____		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft <u>4 = >4 ft</u> ~ _____ feet			
Plant Flowering: 1 = <25% of plants <u>2 = 26-50%</u> of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding <u>NA</u>			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = <u>good</u>			
Plant Removed: Yes <u>No</u>	Description: <u>too many wetland areas</u>		

Site: <u>CLR 106A</u>	Time: <u>2:05</u>	Latitude: <u>N45, 92251</u>	Longitude: <u>W092, 51325</u>
Photo ID:	Description of location:		
Species Name:	Single Plant or <u>Multi-stem</u>	Actual # of Plants: <u>1</u>	
Acreage of Infestation (circle one) <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>impoundment</u> /pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>2x2</u>	Size Colony: S = 0-5 <u>M = 6-50</u> L = >50 ~ _____		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft <u>4 = >4 ft</u> ~ _____ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants <u>4 = 100%</u> of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding <u>NA</u>			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = <u>good</u>			
Plant Removed: Yes or <u>No</u>	Description:		

Other Species Observed: _____

Other Pertinent Survey Information: _____

Historic Purple Loosestrife: _____

Signature [Handwritten Signature]

Signature _____

* If colonies less than 20 plants are located on lands owned by RWE within the Project Boundary, RWE will take appropriate steps to eliminate plants at time of detection. For stands larger than 20 plants located on lands owned by RWE within the Project boundary, RWE will consult with the WDNR and USFWS to determine control methods.



Purple Loosestrife Survey

Cam River Hydroelectric Project – FERC # 9185 Page 2 of 4

Date 8-1-16 Conducted By Stine Plummer

HWL 898.88 TWL 864.10 CFS 301 Equipment Used: _____

Air Temp: 84 °F Wind Speed: 6 mph Barometer: 30.10 Sky Conditions: 75% clouds

Time Survey Started _____ Time Survey Ended _____ Boat (14ft or Canoe) and/or Foot _____

Latitude Start _____ Longitude End _____

Location of Survey Area: Tailrace _____ Bypass Reach _____ Impoundment FHLLC Property _____

Description of Location _____ cont

Purple Loosestrife Found: Yes or No _____ Historic Info: _____

Site: <u>LRVPL⁵⁰</u>	Time: <u>2:10</u>	Latitude: <u>N 45.92212</u>	Longitude: <u>W 092.51618</u>
Photo ID: <u>99</u>	Description of location: _____		
Species Name: <u>PL</u>	Single Plant or Multi-stem	Actual # of Plants: <u>1</u>	
Acreage of Infestation (circle one) <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>impoundment/pond edge</u> stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>1x1</u>	Size Colony (#plants): <u>S = 0-5</u> M = 6-50 L = >50 ~ _____		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft ~ <u>3.5</u> feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants <u>4 = 100% of plants</u>			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair <u>10-12 = good</u>			
Plant Removed: Yes <input checked="" type="checkbox"/> No	Description: <u>Damaged spot</u>		

PL 004

Site: _____	Time: <u>2:14</u>	Latitude: _____	Longitude: _____
Photo ID: <u>3400</u>	Description of location: _____		
Species Name: _____	Single Plant or Multi-stem	Actual # of Plants: <u>1</u>	
Acreage of Infestation (circle one) <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): _____ stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>2x2</u>	Size Colony: <u>S = 0-5</u> M = 6-50 L = >50 ~ _____		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = <u>>4 ft</u> ~ _____ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants <u>4 = 100% of plants</u>			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair <u>10-12 = good</u>			
Plant Removed: Yes <input checked="" type="checkbox"/> No	Description: <u>Location hard to get to</u>		

CLRV PL4a

Site:	Time: 2:26	Latitude:	Longitude:
Photo ID: 3401-02	Description of location:		
Species Name:	Single Plant or Multi-stem	Actual # of Plants: 15	
Acreage of Infestation (circle one)	less than 1/2 acre	1/2-1 acre	1-10 acres more than 10 acres
Location type (circle all that apply):	impoundment/pond edge stream edge roadside wooded area ditch field other		
Stand Area Density (feet x feet): 2x2 1x1	Size Colony: S = 0-5 M = 6-50 L = >50 ~		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft	~ feet		
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes No	Description: Cut tops off		

CLRV PL4B

Site:	Time:	Latitude: N45, 91872	Longitude: W 092, 51866
Photo ID: 3404-3403	Description of location:		
Species Name:	Single Plant or Multi-stem	Actual # of Plants: 3 spots	
Acreage of Infestation (circle one)	less than 1/2 acre	1/2-1 acre	1-10 acres more than 10 acres
Location type (circle all that apply):	impoundment/pond edge stream edge roadside wooded area ditch field other		
Stand Area Density (feet x feet): 1x1	Size Colony: S = 0-5 M = 6-50 L = >50 ~		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft	~ feet		
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes or No	Description: tops		

PLO10

Other Species Observed: _____

Other Pertinent Survey Information: _____

Historic Purple Loosestrife: _____

Signature Angie Stone

Signature _____

* If colonies less than 20 plants are located on lands owned by RWE within the Project Boundary, RWE will take appropriate steps to eliminate plants at time of detection. For stands larger than 20 plants located on lands owned by RWE within the Project boundary, RWE will consult with the WDNR and USFWS to determine control methods.



Purple Loosestrife Survey

Clam River Hydroelectric Project - FERC # 9185

Page 3 of 4

Date 8-1-16 Conducted By Steve Plummer

HWL 876.88 TWL 864.0 CFS 301 Equipment Used: _____

Air Temp: _____ °C Wind Speed: _____ Barometer: _____ Sky Conditions: _____

Time Survey Started _____ Time Survey Ended _____ Boat (14ft or Canoe) and/or Foot _____

Latitude Start _____ Longitude End _____

Location of Survey Area: Tailrace _____ Bypass Reach _____ Impoundment FHLLC Property _____

Description of Location _____ cont

Purple Loosestrife Found: Yes or No Historic Info: _____

Site: <u>PL010</u>	Time: <u>2:25</u>	Latitude: _____	Longitude: _____
Photo ID: _____		Description of location: _____	
Species Name: _____		Single Plant or Multi-stem: _____	Actual # of Plants: <u>1/0</u>
Acreage of Infestation (circle one) <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>impoundment</u> pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>2x2</u>		Size Colony (#plants): S = 0-5 <u>M = 6-50</u> L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft <u>4 = >4 ft</u> ~ _____ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants <u>4 = 100% of plants</u>			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding <u>NA</u>			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair <u>10-12 = good</u>			
Plant Removed: Yes <u>(No)</u>		Description: <u>Not accessible</u>	

Site: <u>PL008</u>	Time: _____	Latitude: _____	Longitude: _____
Photo ID: <u>3405</u>		Description of location: <u>Inland Island</u>	
Species Name: _____		Single Plant or Multi-stem: <u>2</u>	Actual # of Plants: <u>20+</u>
Acreage of Infestation (circle one) <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>impoundment</u> pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>1x1</u>		Size Colony: S = 0-5 <u>M = 6-50</u> L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = <u>2-4 ft</u> 4 = >4 ft ~ <u>3'</u> feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants <u>4 = 100% of plants</u>			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = <u>25-50% feeding</u> 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair <u>10-12 = good</u>			
Plant Removed: Yes or No <u>(No)</u>		Description: <u>TOP off</u>	

Removed 2 next 2 shows



WHITE WATER ASSOCIATES, INC.

12 additional clumps
also some on other side
1 plant
could not find 45, 91867
WOA 51450

CLR PL08A
1 plant
could not find

CLRV PL 8B

N 45.91755

Site:	Time: 3:07	Latitude:	Longitude: W 092.51584
Photo ID: 3410	Description of location:		
Species Name:	Single Plant or Multi-stem	Actual # of Plants: 267	
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>Impoundment / pond edge</u> stream edge roadside wooded area ditch field other <u>Island</u>			
Stand Area Density (feet x feet): 2x30	Size Colony: S = 0-5 M = 6-50 L = >50 ~		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft ~ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes	No	Description: <u>condemned fish</u> Many spread out	

CLRV PL 10A another one single upstream on edge

Site:	Time:	Latitude: N 45.92126	Longitude: W 092.51410
Photo ID: 3411	Description of location:		
Species Name: PL	Single Plant or Multi-stem	Actual # of Plants: 21 heads	
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>Impoundment / pond edge</u> stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): 2x3	Size Colony: S = 0-5 M = 6-50 L = >50 ~		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft ~ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes or No	Description: <u>large clump 20 heads pulled</u> PL 6 additional		

4:50 p.m.
 Photo 3420
 CLRV PL-16A
 N 45.93745
 W 092.52584
 1 plant
 15 heads
 at summit
 low herbs
 pulled

Other Species Observed: PL 002 None PL 013 None
PL 03 None

Other Pertinent Survey Information: 3408-9 photo Erosion

Ngus seed along road we go under 45.93629 W 092.52628

Historic Purple Loosestrife:
 Signature Angie Sine Signature Angie Sine

* If colonies less than 20 plants are located on lands owned by RWE within the Project Boundary, RWE will take appropriate steps to eliminate plants at time of detection. For stands larger than 20 plants located on lands owned by RWE within the Project boundary, RWE will consult with the WDNR and USFWS to determine control methods.

116 mud turtle 8" across
 ② map's turtle 3414
 2 Blue Heron by



PL 015 - None
 3415-14 better bird

Purple Loosestrife Survey

Clam River Hydroelectric Project – FERC # 9185

Page 4 of 4

Date 8-1-16 Conducted By Stine Plummer

HWL 818.88 TWL 864.10 CFS 301 Equipment Used: _____

Air Temp: _____ °C Wind Speed: _____ Barometer: _____ Sky Conditions: _____

Time Survey Started _____ Time Survey Ended _____ Boat (14ft or Canoe) and/or Foot _____

Latitude Start _____ Longitude End _____

Location of Survey Area: Tailrace _____ Bypass Reach _____ Impoundment FHLLC Property _____

Description of Location _____ Cont.

Purple Loosestrife Found: Yes or No Historic Info: _____

Site: <u>CLRV PL16 A</u>	Time: <u>4:50</u>	Latitude: _____	Longitude: _____
Photo ID: _____		Description of location: _____	
Species Name: _____		Single Plant or <u>Multi-stem</u>	Actual # of Plants: <u>1</u>
Acreage of Infestation (circle one) <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>impoundment</u> /pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>2x2</u>		Size Colony (#plants) <u>S = 0-5</u> M = 6-50 L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = <u>>4 ft</u> ~ <u>3.5-4 feet</u>			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants <u>4 = 100% of plants</u>			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding <u>4 = 0-25% feeding</u>			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair <u>10-12 = good</u>			
Plant Removed: <u>Yes</u> No		Description: <u>at Log home upstream of bridge</u>	

Site: <u>PL012</u>	Time: <u>5:13 pm</u>	Latitude: _____	Longitude: _____
Photo ID: _____		Description of location: _____	
Species Name: _____		Single Plant or <u>Multi-stem</u>	Actual # of Plants: <u>2</u>
Acreage of Infestation (circle one) <u>less than 1/2 acre</u> 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): <u>impoundment</u> /pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): <u>2x2 2x2</u>		Size Colony: <u>S = 0-5</u> M = 6-50 L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = <u>>4 ft</u> ~ _____ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = <u>51-99% of plants</u> 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding <u>NA</u>			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair <u>10-12 = good</u>			
Plant Removed: Yes or <u>No</u>		Description: <u>at water tower</u>	



CIRV007

Site:	Time:	Latitude:	Longitude:
Photo ID: 21-22	Description of location: shore		
Species Name:	Single Plant or Multi-stem	Actual # of Plants: 2 + a few small	
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): impoundment / pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet): 2x2	Size Colony: S = 0-5 M = 6-50 L = >50 ~		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft	~ feet		
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes (No)	Description: Cowardin Froth		

Site:	Time:	Latitude:	Longitude:
Photo ID:	Description of location:		
Species Name:	Single Plant or Multi-stem	Actual # of Plants:	
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): impoundment / pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet):	Size Colony: S = 0-5 M = 6-50 L = >50 ~		
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft	~ feet		
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes or No	Description:		

Other Species Observed: _____

Other Pertinent Survey Information: _____

Historic Purple Loosestrife: _____

Signature Angie Stone

Signature _____

* If colonies less than 20 plants are located on lands owned by RWE within the Project Boundary, RWE will take appropriate steps to eliminate plants at time of detection. For stands larger than 20 plants located on lands owned by RWE within the Project boundary, RWE will consult with the WDNR and USFWS to determine control methods.



Purple Loosestrife Survey

Clam River Hydroelectric Project – FERC # 9185 Page ___ of ___

Date 8-2-14 Conducted By Stine Plummer

HWL 898.76 TWL 864.10 CFS 299 Equipment Used: _____

Air Temp: 92°F Wind Speed: 52 mph Barometer: 30.0 Sky Conditions: partly cloudy

Time Survey Started 8:30 am Time Survey Ended 9:02 Boat (14ft or Canoe) and/or Foot (Foot)

Latitude Start _____ Longitude End _____

Location of Survey Area: Tailrace _____ Bypass Reach Impoundment _____ FHLLC Property _____

Description of Location from spillway to a point approx 800ft downstream

Purple Loosestrife Found: Yes or No Historic Info: 2014 - no PL - foot

Site:	Time:	Latitude:	Longitude:
Photo ID:		Description of location:	
Species Name:		Single Plant or Multi-stem	Actual # of Plants:
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): impoundment/pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet):		Size Colony (#plants): S = 0-5 M = 6-50 L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft ~ _____ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes No		Description:	

Site:	Time:	Latitude:	Longitude:
Photo ID:		Description of location:	
Species Name:		Single Plant or Multi-stem	Actual # of Plants:
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): impoundment /pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet):		Size Colony: S = 0-5 M = 6-50 L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft ~ _____ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes or No		Description:	



Purple Loosestrife Survey

Clam River Hydroelectric Project – FERC # 9185 Page ___ of ___

Date 8/24/06 Conducted By Stina Plummer

HWL 818.76 TWL 864.0 CFS 299 Equipment Used: _____

Sum Air Temp: 73°F Wind Speed: 5 mph Barometer: 30.0 Sky Conditions: partly cloudy

Time Survey Started 9 Time Survey Ended 9:30 Boat (14ft or Canoe) and/or Foot

Latitude Start _____ Longitude End _____

Location of Survey Area: Tailrace ___ Bypass Reach ___ Impoundment ___ FHLLC Property

Description of Location Adjacent to the dam and powerhouse

Purple Loosestrife Found: Yes or No Historic Info: 2014 - foot - no PL

Site:	Time:	Latitude:	Longitude:
Photo ID:		Description of location:	
Species Name:		Single Plant or Multi-stem	Actual # of Plants:
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): impoundment/pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet):		Size Colony (#plants): S = 0-5 M = 6-50 L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft ~ _____ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes No		Description:	

Site:	Time:	Latitude:	Longitude:
Photo ID:		Description of location:	
Species Name:		Single Plant or Multi-stem	Actual # of Plants:
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): impoundment /pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet):		Size Colony: S = 0-5 M = 6-50 L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft ~ _____ feet			
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes or No		Description:	



Purple Loosestrife Survey

Clam River Hydroelectric Project – FERC # 9185 Page ___ of ___

Date 8/2/16 Conducted By Stine Plummer

HWL 899.76 TWL 864.10 CFS 299 Equipment Used: _____

Air Temp: 73 °F Wind Speed: 3 mph Barometer: 30.0 Sky Conditions: partly cloudy

Time Survey Started 8:30 Time Survey Ended 9:30 Boat (14ft or Canoe) and/or Foot

Latitude Start _____ Longitude End _____

Location of Survey Area: Tailrace Bypass Reach _____ Impoundment _____ FHLLC Property _____

Description of Location From powerhouse to a point approx 900ft downstream

Purple Loosestrife Found: Yes or No Historic Info: 2014 - foot - no PL (all other 3 yrs)

Site:	Time:	Latitude:	Longitude:
Photo ID:		Description of location:	
Species Name:		Single Plant or Multi-stem	Actual # of Plants:
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): impoundment/pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet):		Size Colony (#plants): S = 0-5 M = 6-50 L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft		~ _____ feet	
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes No		Description:	

Site:	Time:	Latitude:	Longitude:
Photo ID:		Description of location:	
Species Name:		Single Plant or Multi-stem	Actual # of Plants:
Acreage of Infestation (circle one) less than 1/2 acre 1/2-1 acre 1-10 acres more than 10 acres			
Location type (circle all that apply): impoundment /pond edge stream edge roadside wooded area ditch field other			
Stand Area Density (feet x feet):		Size Colony: S = 0-5 M = 6-50 L = >50 ~ _____	
Plant Height: 1 = <1 ft 2 = 1-2 ft 3 = 2-4 ft 4 = >4 ft		~ _____ feet	
Plant Flowering: 1 = <25% of plants 2 = 26-50% of plants 3 = 51-99% of plants 4 = 100% of plants			
Beetle Feeding: 1 = 76-100% feeding 2 = 51-75% feeding 3 = 25-50% feeding 4 = 0-25% feeding			
Total plant vigor: 0-3 = very poor 4-6 = poor 7-9 = fair 10-12 = good			
Plant Removed: Yes or No		Description:	



Appendix D

Photos



Photo 1. Purple loosestrife growing among cattails.



Photo 2. Purple loosestrife growing in wetland area.



Photo 3. White water scientist removing purple loosestrife.

CORRESPONDENCE

Brian Kreuscher

From: Jason Kreuscher
Sent: Thursday, January 05, 2017 2:00 PM
To: Laatsch, Cheryl - DNR (Cheryl.Laatsch@wisconsin.gov); 'Nick_Utrup@fws.gov'
Cc: Brian Kreuscher
Subject: 2016 Purple loosestrife reports
Attachments: Upper Flambeau PL Draft Report 2016complete.pdf; Clam River PL Draft Report 2016complete.pdf; Crowley PL Draft Report 2016complete.pdf; Danbury PL Draft Report 2016complete.pdf; Lower Flambeau PL Draft Report 2016complete.pdf; Pixley PL Draft Report 2016complete.pdf

Cheryl and Nick,

Attached are copies of the Purple Loosestrife Reports for the surveys conducted at Flambeau Upper (P-2640), Flambeau Lower (P-2421), Flambeau Pixley (P-2395), Flambeau Crowley (P-2473), Danbury (P-9184), and Clam River (P-9185)

Please return any comments on the reports to me within 30 days.

Jason Kreuscher
Vice President
Renewable World Energies, LLC
100 State St.
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Neshkoro WI 54960
Phone: 855-99HYDRO ext 102
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