Unique Well ID added

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	County	Well Name
FF/NN Landfill	Fond Du Lac	P-117

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
000467	20	PG226	144

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☒	51
pumped slowly	☐	50
other Surged Pump	☒	

3. Time spent developing well: 150 min.

4. Depth of well (from top of well casing): 165.0 ft.

5. Inside diameter of well: 1.94 in.

6. Volume of water in filter pack and well casing: 27.2 gal.

7. Volume of water removed from well: 275.0 gal.

8. Volume of water added (if any): 0.0 gal.

9. Source of water added: NA

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

		Before Development	After Development
11. Depth to Water (from top of well casing)	a.	13.83 ft.	13.88 ft.
Date	b.	11/16/2016	11/16/2016
Time	c.	11:15 ☐ a.m. ☒ p.m.	01:45 ☐ a.m. ☒ p.m.
12. Sediment in well bottom		inches	inches
13. Water clarity		Clear ☐ 10 Turbid ☒ 15 (Describe) Reddish Brown	Clear ☒ 20 Turbid ☐ 25 (Describe) Clear

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm
Mark Biermaier
Cascade Drilling

17. Additional comments on development:
Water level probe on site at the time of development was not long enough to reach the bottom of the well. Sediment thickness was not measured before development.

Facility Address or Owner/Responsible Party Address

Name: FF/NN Landfill Group

Firm:

Street:

City/State/Zip:

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Ashley A. Weimer

Print Name: Ashley Weimer

Firm: Tetra Tech

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
FF/NN Landfill	000467	P-117

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Mark Biermaier Cascade Drilling	11/16/2016	11/17/2016	vibratory

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PG226	144	P-117	817.8 Feet MSL	831.7 Feet MSL	6.0 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane 2,264,401 N, 683,564 E S/C/N
NE 1/4 of NW 1/4 of Section 18, T 16 N, R 14 E
Lat ___ ° ___ ' ___ "
Long ___ ° ___ ' ___ "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
431048200	Fond Du Lac	20	Town of Ripon

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
	60 31.2		1	FILL. Very dark brown, medium grained gravel fill. Gravel pieces are red, angular. Wet. No odor.	GP			3.3						
			2	TOPSOIL. Very dark brown topsoil with little fine to medium grained gravel fill and roots. Wet to moist. No odor.										
			3	POORLY GRADED SAND. Dark yellowish brown poorly graded, fine grained sand with trace silt and trace coarse grained sand. Moist. No odor.	SP									
			4											
			5	GRAVELLY SILT. Yellowish brown silt to very fine grained sand with gravel. Dry. No odor.	ML									
	24 31.2		6	SILT WITH CLAY. Dark yellowish brown silt with clay. Dry to moist. No odor.	CL-ML			0.2						
			7	POORLY GRADED SAND. Reddish brown very fine grained sand with few silt. Dry. Loose. No odor.	SP			0.2						
	96 36		8	SAND. Reddish brown very fine grained sand with few silt, and few fine to coarse grained subrounded gravel. Dry. Loose. No odor.										
			9		SP									
			10											
			11											
			12											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	Tel:
Ashley A. Weimer	Tetra Tech	Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number P-117 Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			13	SAND. Reddish brown very fine grained sand with few silt, and few fine to coarse grained subrounded gravel. Dry. Loose. No odor. *(continued)*	SP									
			14											
			15											
	120 36		16	POORLY GRADED SAND. Dark yellowish brown to reddish brown poorly graded fine grained sand with trace silt and trace fine to very coarse grained gravel. Wet. No odor.	SP			0.2						
			17											
			18											
			19											
			20	WELL GRADED GRAVEL. Dark yellowish brown, fine grained sand to medium grained gravel. Wet. No odor.	GW									
			21	POORLY GRADED SAND. Pale brown to olive brown poorly graded fine to medium grained sand. Wet. No odor. Cobble at 19.8 ft bgs.	SP			0.7						
			22											
			23											
			24											
	60 42		25					0.5						
			26											
			27	WELL GRADED SANDY GRAVEL. Olive brown, subrounded, well graded gravel (fine grained sand to coarse grained gravel). Wet. No odor.	GW									
			28	WELL GRADED SANDY GRAVEL. Very dark brown, subrounded, well graded gravel (fine grained sand to coarse grained gravel). Wet. No odor.	GW									
			29	POORLY GRADED SAND. Grayish brown, poorly graded fine grained sand. Wet. NO odor.	SP									
	60 44.4		30		SP			0.9						
			31	POORLY GRADED SAND. Light olive brown to yellowish brown, poorly graded coarse grained sand with trace fine to medium grained gravel. Wet. No odor.	SP									
			32											

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SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number P-117 Use only as an attachment to Form 4400-122. Page 3 of 9

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			33	POORLY GRADED SAND. Light brownish gray, poorly graded fine to medium grained sand with trace coarse grained sand and trace fine grained gravel. Wet to moist. No odor. *(continued)*	SP									
	60 30		35 36 37 38 39	POORLY GRADED SAND. Grayish brown, poorly graded fine to medium grained sand. Moist to wet. No odor. Loose.	SP			0.8						
	60 36		40 41					0.6						
	60 44.4		42 43 44 45 46 47 48	POORLY GRADED SAND. Pinkish gray to gray, poorly graded very fine grained sand with trace silt. Moist to wet. No odor.	SP			0.5						
	60 44.4		49 50 51	SILT WITH CLAY. Pinkish gray to gray silt with clay. Wet. No odor.	CL-ML			0.8						
			52		SP									

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SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number P-117 Use only as an attachment to Form 4400-122. Page 4 of 9

Sample: Number and Type	Sample: Length Att. & Recovered (in)	Sample: Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
			53	POORLY GRADED SAND. Pinkish gray to gray, poorly graded fine to very fine grained sand. Moist to wet. No odor. *(continued)*	SP									
			54	POORLY GRADED SAND. Pinkish gray to gray, poorly graded medium grained sand. Moist to wet. No odor.	SP									
	60 60		55	POORLY GRADED SAND. Pinkish gray to gray, poorly graded very fine grained sand. Moist to wet. No odor.				0.6						
			56		SP									
			57											
			58											
			59	SILT WITH CLAY. Gray to pinkish gray, silt with clay and trace very fine grained sand. Moist to wet. Dense. No odor.										
	60 52.8		60		CL-ML			0.4						
			61											
			62	SILTY CLAY. Gray to pinkish gray, silty clay and trace very fine grained sand. Moist to wet. Dense. No odor.	CL-ML									
			63	SILT. Gray to pinkish gray, silt with trace very fine grained sand. Moist to wet. No odor.	ML									
			64	POORLY GRADED SAND. Gray to pinkish gray, poorly graded fine grained sand. Moist. No odor.										
	60 44.4		65					0.5						
			66											
			67											
			68		SP									
			69											
	60 40.8		70					0.4						
			71											
			72											

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SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number P-117 Use only as an attachment to Form 4400-122. Page 5 of 9

Sample: Number and Type	Sample: Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
			73	POORLY GRADED SAND. Gray to pinkish gray, poorly graded fine grained sand. Moist. No odor. *(continued)*										
			74											
			75											
	60 72		76		SP			0.7						
			77											
			78											
			79	WELL GRADED SAND. Reddish gray, well graded fine to coarse grained sand. Moist to wet. No odor.	SW									
			80	POORLY GRADED SAND. Gray, poorly graded coarse grained sand with few fine grained gravel. Wet. No odor. Cobble 80.55-80.85 ft bgs.	SP									
	60 57.6		81					0.6						
			82	SILTY CLAY. Gray mottled red, silty clay. Low plasticity. Moist. Dense. No odor.										
			83		CL-ML									
			84											
			85	SILTY CLAY. Gray mottled red, silty clay (varying amounts of silt) Low to moderate plasticity. Moist. Dense. No odor.										
	60 48		86					0.6						
			87											
			88											
			89		CL-ML									
			90											
	60 45.6		91					0.4						
			92											

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SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number P-117 Use only as an attachment to Form 4400-122. Page 6 of 9

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			93	SILTY CLAY. Gray mottled red, silty clay (varying amounts of silt) Low to moderate plasticity. Moist. Dense. No odor. *(continued)*	CL-ML									
			94											
	60 45.6		95	WELL GRADED SAND. Brownish gray, well graded sand, fine to coarse grained sand. Wet. Loose. No odor.	SW			0.9						
			96	WELL GRADED SANDY GRAVEL. Browinish gray, coarse grained gravel to fine grained sand. Gravel is subangular to subrounded. Wet. Loose. No odor.	GW									
			97											
			98											
			99	COBBLES. Red, subangular to subrounded cobbles with little gravel (medium to very coarse grained gravel). Wet. No odor.	GP									
	60 33.6		100	POORLY GRADED SAND. Grayish brown mottled red, poorly graded, medium grained sand. Wet. Loose. No odor.	SP			1.0						
			101											
			102	POORLY GRADED SAND. Grayish brown mottled red, poorly graded, fine grained sand. Wet. Loose. No odor.	SP									
			103											
			104	POORLY GRADED SAND. Brown mottled red, poorly graded, very fine grained sand. Wet. Loose. No odor.	SP									
	120 0		105	NO RECOVERY										
			106											
			107											
			108											
			109											
			110											
			111											
			112											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number P-117 Use only as an attachment to Form 4400-122. Page 7 of 9

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			113	NO RECOVERY *(continued)*										
			114											
			115											
	240 84		116	POORLY GRADED SAND. Grayish brown, poorly graded, fine grained sand. Wet. Loose. No odor.	SP			0.3						
			117	GRAVELLY SAND. Grayish brown, gravelly sand with little cobbles (grain size ranged from cobbles to fine grained sand). Wet. Loose. No odor.										
			118											
			119											
			120					0.3						
			121		GW									
			122											
			123											
			124											
			125					0.3						
			126	GRAVELLY SAND. Grayish brown, gravelly sand (grain size ranged from coarse grained gravel to fine grained sand). Wet. Loose. No odor.										
			127		GW									
			128											
			129	POORLY GRADED SAND. Brownish gray to reddish gray, poorly graded, medium grained sand. Wet. Loose. No odor.										
			130		SP			0.4						
			131											
			132											

State of Wisconsin
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SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number P-117 Use only as an attachment to Form 4400-122. Page 8 of 9

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			133	POORLY GRADED SAND. Brownish gray to reddish gray, poorly graded, medium grained sand. Wet. Loose. No odor. *(continued)*										
			134											
			135					0.4						
	240 76.8		136		SP									
			137											
			138											
			139											
			140					0.6						
			141	GRAVELLY SAND. Grayish brown, gravelly sand with little cobbles (grain size ranged from cobbles to fine grained sand). Wet. Loose. No odor.										
			142											
			143											
			144											
			145					0.3						
			146		GW									
			147											
			148											
			149											
			150					0.3						
			151											
			152											

State of Wisconsin
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SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number P-117 Use only as an attachment to Form 4400-122. Page 9 of 9

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			153	SAND WITH GRAVEL. Reddish yellow to pink sand with coarse grained gravel (pieces of weathered bedrock) and little clay. Wet. Loose. No odor. *(continued)*	SW									
			154		SW									
	132		155	BEDROCK. Red sandstone. Mostly weathered bedrock (not very competent). Some clay within the matrix. Fine grained, well sorted/poorly graded sand.				0.5						
	132		156											
			157	BEDROCK. Red sandstone (color changed to yellowish brown at ~164 ft bgs). Not competent throughout. Some clay within the matrix. Fine grained, well sorted/poorly graded sand. More competent at ~158.5										
			158											
			159											
			160					3.1						
			161											
			162											
			163											
			164											
			165											
			166					0.3						

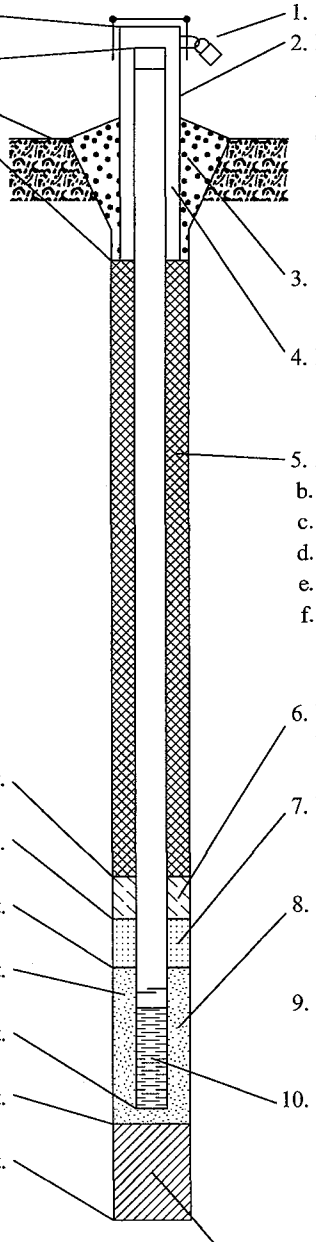
State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: FF/NN Landfill	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: P-117
Facility License, Permit or Monitoring No.: 000467	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PG226 / DNR Well Number: 144
Facility ID: 431048200	St. Plane 2,264,401 ft. N, 683,564 ft. E. S/C/N	Date Well Installed: 11/17/2016
Type of Well: Well Code 72/dp	Section Location of Waste/Source: NE 1/4 of NW 1/4 of Sec. 18, T. 16 N, R. 14 ☒ E ☐ W	Well Installed By: (Person's Name and Firm) Mark Biermaier, Cascade Drilling
Distance from Waste/Source: 1800 ft. / Enf. Stds. Apply ☒	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known	Gov. Lot Number:



A. Protective pipe, top elevation 834.14 ft. MSL

B. Well casing, top elevation 834.02 ft. MSL

C. Land surface elevation 831.7 ft. MSL

D. Surface seal, bottom 828.7 ft. MSL or 3.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☒

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☐ 41
Sonic Other ☒

15. Drilling fluid used: Water ☒ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe

17. Source of water (attach analysis, if required):
City of Ripon

E. Bentonite seal, top 685.7 ft. MSL or 146.0 ft.

F. Fine sand, top 678.7 ft. MSL or 153.0 ft.

G. Filter pack, top 676.2 ft. MSL or 155.5 ft.

H. Screen joint, top 673.7 ft. MSL or 158.0 ft.

I. Well bottom 668.7 ft. MSL or 163.0 ft.

J. Filter pack, bottom 667.2 ft. MSL or 164.5 ft.

K. Borehole, bottom 665.7 ft. MSL or 166.0 ft.

L. Borehole, diameter 6.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.00 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04
Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe:

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
Other ☐

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Bentonite and Sand Other ☐

5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. 3.4 Lbs/gal mud weight . . . Bentonite slurry ☒ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Premier Silica
b. Volume added 0.375 ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint
b. Volume added 1 ft^3

9. Well casing: Flush threaded PVC schedule 40 ☐ 23
Flush threaded PVC schedule 80 ☒ 24
Other ☐

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐
b. Manufacturer
c. Slot size: 0.010 in.
d. Slotted length: 5.0 ft.

11. Backfill material (below filter pack): None ☒ 14
Slough Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Ashley A. Weimer | Firm: Tetra Tech | Tel: | Fax:

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.