Flambeau Mining Company N4100 Highway 27 Ladysmith, WI 54848 (715) 532-6690 FAX (715) 532-6885

June 11, 1999



Mr. Lawrence J. Lynch Mine Reclamation Unit Wisconsin Department of Natural Resources 101 South Webster St., GEF II Madison, WI 53707

RE: Monitoring Well Construction & Soil Boring Logs - Backfill Wells Flambeau Mine Site

The Flambeau Mining Company (Flambeau) is providing the Monitoring Well Construction logs for monitoring wells constructed in the backfilled open pit. MW-1013, MW-1013A, MW-1013B, MW-1013C, MW-1014, MW-1014A, MW-1014B, and MW-1014C were constructed in the backfill during September 1999 and well development was completed during February 1999. Well Construction Logs are found in Attachment 1. Soil Boring Log Information is also included for each of the wells constructed in the backfilled open pit. Soil Boring Log Information is found in Attachment 2. Attachment 3 contains a Well/Drillhole/

Borehole Abandonment form for a borehole initiated as monitoring well MW-1014C, but abandoned due to casing refusal on a boulder.

Please provide the Department assigned Sample Point Identification Numbers for monitoring wells MW-1013, MW-1013A, MW-1013B, MW-1013C, MW-1014, MW-1014A, MW-1014B, and MW-1014C. These ID numbers are necessary so that Flambeau may provide analytical data in electronic format for these wells.

If you require any further information, please contact me at 715-532-6690 Ext. 105.

Sincerely,

Jana E. Murphy

Environmental & Reclamation Manager

drac! Murphy

Mr. Lawrence J. Lynch June 11, 1999 Page 2

Attachments

cc:

Al Christianson, City of Ladysmith Fred Fox, Kennecott Minerals Co. Jim Hutchison, Foth & Van Dyke Ken Markart, WDNR Thure Osuldsen, Rusk County Tom Riegel, Town of Grant Erik Silvola, Foth & Van Dyke CeCe Tesky, Rusk County Zoning

Attachment 1

Monitoring Well Construction Logs for Backfill Wells

| State of Wisconsin | Route to: Sol | id Waste 🗆 Haz. Was | te Wastewate | er 🗆 | MONITORING WELL CONST | RUC | MOITS |
|--|---------------------------------|---------------------------------------|---------------------------------------|-----------------------|--|----------------|----------------|
| Department of Natural Resources | Env.Respons | e & Repair 🗆 Undergr | | Other 🗆 _ | Form 4400-113A | Re | ev. 4-90 |
| Facility/Project Name | | Local Grid Location of | Well | | Well Name | | |
| Flambeau Mining Company - Pit Backfill - V | Well Install | 40138.375 ft. N. 3920 | 0.082 IL E. | | MW-1013 | | , |
| Facility License, Permit or Monitoring Number | ber | Grid Origin Location | | | Wis. Unique Well Number DNR Well Number | er | |
| | | Lat. Long. | or | | J N 8 2 1 | | |
| Type of Well Water Table Observa | | St. Plane | | | Date Well Installed | | |
| Piezometer | □ 12 | Section Location of Wa | ste/Source | | 0 9/1 4/9 8 m m d d y y | | |
| Distance Well Is From Waste/Source Bound | ary | NW 1/4 of SE 1/4 of Sec. | 9 T 34 N R 6 | □ E. ☑ W. | Well Installed By: (Person's Name and Firm) | - | |
| 0 | | Location of Well Relati | | 45.00 | Scott Shira | | |
| Is Well A Point of Enforcement Std. Applica | | u | s □ Sideg | | Layne - Northwest | | |
| N/A □ Ye | | | _ | | | | |
| A. Protective pipe, top elevation 112 | 1.36 ft. MS | L | 1 | Cap and | lock? | <u>~</u> Г | l No |
| | | | | | e cover pipe: | | 110 |
| B. Well casing, top elevation 1122 | 1.38 ft. MS | L | | a. Inside | diameter: | _ | . <u>0</u> in. |
| C. Land surface elevation 11113 | 3.4 ft. MS | | | b. Length | | | <u>.0</u> ft. |
| | <u> </u> | | - Parties | c. Materi | | el 12/ er □ | 04 |
| D. Surface seal, bottom 1 1 1 4 . 4 ft. MS | SL or <u>4</u> . <u>0</u> ft. | | | d. Additio | onal protection? | | ********* |
| 12. USCS classification of soil near screen | en: | A A A A A A A A A A A A A A A A A A A | Karan | If yes, | describe: | _ | |
| GP □ GM □ GC □ GW □ | SW □ SP | | 3. | Surface s | | | |
| SM ☑ SC ☐ ML ☐ MH ☐ | CL □ CH | | | | Concre | | |
| Bedrock □ | | | | Material I | Oth between well casing and protective pipe: | er 🗀 | |
| 13. Sieve analysis attached? ☐ Yes | □ No | | W \ 1. | TVILLETIAI (| Bentoni | te Z | 3 0 |
| * | | | | | Annular space se | | |
| _ | Rotary □ 50 | | | Sand | Otherspace seal: a. Chipped Bentoni | er 🗆 | |
| | Auger □ 41 | | | | | | |
| Percussion Air | Other 🗹 💹 | | | | Lbs/gal mud weight Bentonite-sand slurn Lbs/gal mud weight Bentonite slurn | | |
| 15. Drilling fluid usedWater □ 02 | Air 🗷 01 | | | | % Bentonite Bentonite-cement grow | | |
| Drilling Mud □ 03 | None □ 99 | | e. | 3.9 | _Ft ³ volume added for any of the above | | |
| 16. Drilling additives used? ☐ Yes | □ No | | f. | How insta | | | |
| Describe | | | | | Tremie pumpe | | |
| 17. Source of water (attach analysis): | | _l | 6 | Rentonite | Gravit seal: a. Bentonite granule | | |
| 17. Source of water (under unarysis). | | | . | | i. \square % in. \square ½ in. Bentonite granted Bentonite pelle | | |
| L | | ાં ∭ા | | c. Pure G | old %" Bentonite Chips Othe | er Ø | |
| E. Bentonite seal, top <u>1 1 1 4 . 4</u> ft. N | ASL or 4.0ft. | | 7. | Fine sand | material: Manufacturer, product name | & m | esh size |
| | | | | | int Filter 35-40 | - | |
| F. Fine sand, top <u>1 1 1 0 .9</u> ft. N | MSL or <u>7</u> . <u>5</u> ft. | | M //. | b. Volum | e added <u>1.2</u> ft ³ k material: Manufacturer, product name a | nd m | ach ciza |
| 6 711 | | | ». | | int Filter #30 | IG III | J311 31ZX |
| G. Filter pack, top <u>1 1 0 8 . 9</u> ft. N | ASL or <u>9</u> . <u>5</u> ft. | | | b. Volum | | • | ****** |
| H. Screen joint, top <u>1 1 0 6 . 9</u> ft. N | /SL or 11 5 ft | | 9. | Well casin | ng: Flush threaded PVC schedule 40 | | |
| 11. boroom joung top | .1. <u></u> | | | | Flush threaded PVC schedule 80 | Ø | |
| I. Well bottom <u>1 0 9 6 . 9</u> ft. N | ASL or 21 . 5 ft. | | 10 | Screen | material: PVC | r 🗆 | |
| | | | 10 | a. Screen | | ıt 🗆 | $\frac{-1}{1}$ |
| J. Filter pack, bottom <u>1 0 9 5 .4</u> ft. N | ASL or <u>23</u> . <u>0</u> ft. | | | | Continuous slo | | |
| K. Borehole, bottom <u>1 0 9 5 . 5</u> ft. N | /SI or 23 Off | | | | | r 🗆 | |
| K. Dorenoie, bottom 1022.21t.16 | 15L of <u>25</u> . <u>o</u> ft. | | 3 | | acturer Monoflex | | |
| L. Borehole, diameter 9.0 in. | | | _/ | c. Slot siz | | | 0 in. |
| | | | 11 | d. Slotted Backfil | | e 🗷 | 0.0 ft. 14 |
| M. O.D. well casing <u>2</u> . <u>3</u> 8 in. | | | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | pack): | TAOI | . . | 1.7 |
| N. I.D. well casing <u>1 . 8 9</u> in. | | | ` | | Othe | r 🗆 | |
| I hereby certify that the information on this | form is true and | correct to the best of m | v knowledge. | | | | |
| Signature $\mathcal{L} \setminus \mathcal{L}$ | | | Firm | | | | |
| | Bac | | | | Foth & Van Dyke | | |
| Please complete both sides of this form and return t | | NR off listed at the top of th | is form as required h | v chs. 144. 1 | | de. In | accordan |

rease complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10,000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this for may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form show be sent.

Route to: Solid Waste □ Haz. Waste □ Wastewater □ Env.Response & Repair □ Underground Tanks □ Other ☑ Mining

| Facility/Project Name | County Name | lv | Vell Name | |
|--|-------------------------|---|--------------------------------|---------------------------|
| Flambeau Mining Company - Pit Backfill Well Installation | Rusk | | /W-1013 | |
| Facility License, Permit or Monitoring Number | County Code | Wis.Unique Well Nun | | ell Number |
| <u>0 0 0 0 0 0 0</u> | <u>5</u> <u>5</u> | <u>J N 8 2</u> | 1_ | <u>0 0 0</u> |
| Can this well be purged dry? ✓ Yes | □ No | | Before Development | After Development |
| | | 11. Depth to Water | | |
| 2. Well development method | | (from top of | a. <u>1 5.3 8</u> ft. | _ <u>2 1.2 0</u> ft. |
| surged with bailer and bailed 4 1 | E | well casing) | | |
| surged with bailer and pumped \Box 61 | | | | |
| surged with block and bailed \qquad 42 | | Date | b. <u>0 9/2 8/9 8</u> | 08/02/99 |
| surged with block and pumped \Box 62 | | | mm dd y y | mm dd y y |
| surged with block, bailed and pumped \Box 7 0 | | | □ a.m. | □ a.m. |
| compressed air | | Time | c. <u>N A:</u> \Box p.m. | <u>N A</u> : □ p.m. |
| bailed only | | | | |
| pumped only ✓ 51 | | 12. Sediment in well | NA. inches | NA. inches |
| pumped slowly | | bottom | | |
| Other 🗆 📴 | | 13. Water clarity | Clear □ 10 | Clear □ 20 |
| ************************************** | | | Turbid ☑ 15 | Turbid □ 2.5 |
| 3. Time spent developing well NA | min. | | (Describe) | (Describe) |
| 4. Depth of well (from top of well casing) 2 4 | . 5 ft. | | | |
| | | | | |
| 5. Inside diameter of well1.8 | <u>9</u> in. | | | |
| 6. Volume of water in filter pack and well | | | | |
| casing1_0 | . 0 gal. | | | |
| | 8·· | Fill in if drilling fluids | were used and well is at solid | waste facility: |
| 7. Volume of water removed from well4_4 | . 3 gal. | | | |
| | | 14. Total suspended | mg/l | mg/l |
| 8. Volume of water added (if any) N | <u>A</u> gal. | solids | | |
| 9. Source of water added | | 15. COD | mg/l | mg/l |
| | | | | |
| 10. Analysis performed on water added? ☐ Yes | □ No | 15 | | |
| (If yes, attach results) | | • | | 1 |
| | | | | |
| 16. Additional comments on development: | | | | |
| Well was purged by pumping 8 times and allowed to recover, se | a attached | | | |
| wen was purged by pumping 8 times and anowed to recover, se | e attached. | | | |
| | | | | |
| 3 | | * | · | |
| | | | | |
| | | | | |
| Well developed by: Person's Name and Firm | | I hereby certify that the my knowledge. | he above information is true a | nd correct to the best of |
| | | 6 | | |
| | | Signature: | sik Silvola je | m |
| Name: Jack Christman | | | | |
| | | Print Initials: <u>E A</u> | <u>S</u> | |
| Firm: Flambeau Mining Company | | - | n.1 0 31 - 3 | |
| States at the state of the stat | | Firm: | Foth & Van Dyke | × |
| NOTE: Shaded areas are for DNR use only. See instructions f | tor more information is | ncluding a list of county of | codes. | |

DMW\LAJ\98F009\GBAPP\690 61.61\14000

| | Solid Waste □ Haz. Was | | MONITORING WELL CO | ONSTR | UCT | ПОП |
|--|---------------------------------|--|--|----------------|-------------|--------------------------------|
| Department of Natural Resources Env.Respo | nse & Repair □ Undergro | ound Tanks □ Other □ _ | Form 4400-113A | | Rev | <i>1</i> . 4-90 |
| Facility/Project Name | Local Grid Location of | | Well Name | | | |
| Flambeau Mining Company - Pit Backfill - Well Install | 40141.143 ft. N. 3919 | 5.519 ft. E. | MW-1013A | | | , |
| Facility License, Permit or Monitoring Number | Grid Origin Location Lat. Long. | or | Wis. Unique Well Number DNR We | Number | | 29 |
| Type of Well Water Table Observation Well □ | St. Plane | 0. | Date Well Installed | | | |
| Piezometer | | | 0 9/1 4/9 8 m m d d y y | | | |
| Distance Well Is From Waste/Source Boundary | NW 1/ - CCE 1/ - CC / | □E. | Well Installed By: (Person's Name and I | Firm) | | |
| • | NW ¼ of SE ¼ of Sec. | | | | | |
| | t. Location of Well Relativ | | Scott Shira | | | |
| Is Well A Point of Enforcement Std. Application? | u Dpgradient | | Layne - Northwest | | | |
| | lo d □ Downgradient | n 🗆 Not Known | | | | |
| A. Protective pipe, top elevation 11121.18 ft. l | MSL | 1. Cap and | | Z Yes | | No |
| B. Well casing, top elevation <u>1 1 2 1 . 3 1</u> ft. 1 | MSL | | ve cover pipe: | | | |
| b. Well cusing, top elevation 1121.51 | 100 | 41 42 | e diameter: | | | . <u>0</u> in. |
| C. Land surface elevation 1118.3 ft. I | MSL . | b. Leng c. Mate | | C41 | _ | . <u>0</u> ft. |
| | | c. Mate | nai. | Steel Other | | 0 4 |
| D. Surface seal, bottom 1114.3 ft. MSL or 4. | <u>0 ft.</u> | d Addit | ional protection? | ☐ Yes | | No |
| 12. USCS classification of soil near screen: | 7 | | , describe: | | | 110 |
| GP □ GM □ GC □ GW □ SW □ S | | 3. Surface | | ntonite | | 3 0 |
| l . | 1 1000 | | | oncrete | | 0 1 |
| SM □ SC Ø ML □ MH □ CL □ C | H 🗆 🙀 | | | Other | | |
| Bedrock □ | | 4. Material | between well casing and protective pipe | :: | | 2.5053 |
| 13. Sieve analysis attached? ☐ Yes ☐ N | o 🔛 💥 | | | ntonite | | 3 0 |
| 14. Drilling method used: Rotary □ 5 | o 🔛 | | Annular spa | | | |
| Hollow Stem Auger □ 4 | 1 | Sand | space seal: a. Chipped Ber | Other | 2 | |
| | 1 | 5. Annular | space seal: Lbs/gal mud weight Bentonite-sand | ntonite | | 33 |
| 9" Percussion Air Other 🗷 🚆 | <u> </u> | 0 | Lbs/gal mud weight Bentonite-saidLbs/gal mud weight Bentonite | churry | | 3 5 3 1 |
| 15. Drilling fluid usedWater □ 02 Air ☑ 0 | 1 | d | % Bentonite Bentonite-cement | torout | | 50 |
| Drilling Mud □ 03 None □ 9 | 9 | e. 10.4 | Ft ³ volume added for any of the abov | e | _ | 50 |
| 16. Drilling additives used? ☐ Yes ☑ N | 1 1888 | 4. Material 5. Annular b c d e10.4 f. How ins 6. Bentoning b. □ ¼ i c. Pure 6 | | remie | | 0 1 |
| | ~ | | Tremie pu | umped | | 02 |
| Describe | | | C | Gravity | | 08 |
| 17. Source of water (attach analysis): | | 6. Bentonit | | | | 3 3 |
| | 🐰 | b. □ ¼ i | n. □ ¾ in. □ ½ in. Bentonite | • | | 3 2 |
| | \ | c. Pure | | Other | | |
| E. Bentonite seal, top <u>1 1 1 4 .3</u> ft. MSL or <u>0 0</u> | <u>4</u> . <u>0</u> ft. ₩ | 7. Fine san | | iame & | mes | |
| | 4.0 ft. 9.5 ft. | | Filint Filter 35-40 me added 1.1 ft ³ | | | 44 |
| F. Fine sand, top <u>1 0 8 8 . 8</u> ft. MSL or <u>0 2</u> | 9.5 ft. | 8. Filter pa | | me and | mes | sh size |
| C Eilter mode ton 1 0 9 6 9 A MSI on 0 2 | 1.60 | | lint Filter #30 | | | 11.5 |
| G. Filter pack, top <u>1 0 8 6 .8</u> ft. MSL or <u>0 3</u> | 1.5 L | b. Volur | ne added 6.1 ft ³ | | | |
| H. Screen joint, top <u>1 0 8 4 . 7</u> ft. MSL or <u>0 3</u> | 3 60 | 9. Well cas | sing: Flush threaded PVC schedule 40 | | | 23 |
| 12 50 00 10 10 10 10 10 10 10 10 10 10 10 10 | | | Flush threaded PVC schedule 80 | | Ø | 24 |
| I. Well bottom <u>1 0 7 4 . 7</u> ft. MSL or <u>0 4</u> | 3.6 ft. | 10. Scree | n material: PVC | Other | | |
| | | a. Screen | | ory cut | 17 1 | <u></u> 1 1 |
| J. Filter pack, bottom <u>1 0 7 3 . 3</u> ft. MSL or <u>0 4</u> | <u>5</u> . <u>0</u> ft. | a. scico | Continuo | | | 01 |
| W. D | \ | | | Other | | |
| K. Borehole, bottom <u>1 0 7 3 .3</u> ft. MSL or <u>0 4</u> | 2. <u>0</u> π. | | facturer Monoflex | | | |
| L. Borehole, diameter <u>0 9 . 0</u> in. | | c. Slot s | ize: • d length: | | | <u>0</u> in. . <u>0</u> ft. |
| M. O.D. well casing <u>0 2 .3 8</u> in. | | | - | None | | 14 |
| M. O.D. well casing <u>0 2 .3 8</u> in. | | pack) | | Other | П | 15008 |
| N. I.D. well casing <u>0 1 .8 9</u> in. | | | | Juici | u | |
| I hereby certify that the information on this form is true | and correct to the best of m | y knowledge. | | | | |
| Signature / / / / | | Firm | | | | |
| Erik Selvela KMC | | | Foth & Van Dyke | | | |
| Discourse to the first of the Comment of the second of the | - DMD - Cit-t- J -44b - 4 Cal- | a forms on magnined by also 144 | 147 and 160 Win Stat and ah MD 141 Win A | 10.1. | T | |

Please complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Route to: Solid Waste □ Haz. Waste □ Wastewater □

Env.Response & Repair □ Underground Tanks □ Other ☑ Mining

| Facility/Project Name | | County Name | lw | 'ell Name | |
|---|------------------------------|--------------------|---|---|---|
| Flambeau Mining Company - Pit Backfill Well Insta | llation | Rusk | | W-1013A | |
| Facility License, Permit or Monitoring Number 0 0 0 0 0 0 0 0 | | County Code 5 5 | Wis.Unique Well Num 0 0 0 0 | | ell Number <u>0 0 0</u> |
| Can this well be purged dry? | ☑ Yes □ | l No | | Before Development | After Development |
| Well development method surged with bailer and bailed | □ 41 □ 41 | , | 11. Depth to Water (from top of well casing) | a. <u>2 4.5 6</u> ft. | _ <u>D R. Y</u> _ ft. |
| surged with bailer and pumped surged with block and bailed surged with block and pumped surged with block, bailed and pumped | □ 61 □ 42 □ 62 □ 70 | | Date | b. <u>0 9/2 8/9 8</u> m m d d y y □ a.m. | <u>0 2/1 5/9 9</u> m m d d y y □ an |
| compressed air bailed only | □ 20 □ 10 | | Time | c. <u>N A:</u> □ p.m. | <u>N A</u> : □ p.m |
| pumped only pumped slowly Other | Ø 51 □ 50 □ □ | | 12. Sediment in well bottom13. Water clarity | <u>N</u> <u>A</u> inches Clear □ 10 | N A. inches Clear □ 20 |
| 3. Time spent developing well | <u>N</u> A | min. | | Turbid Z 1 5 (Describe) | Turbid □ 25 (Describe) |
| 4. Depth of well (from top of well casing) | <u>46.7</u> | ft. | | | |
| 5. Inside diameter of well | _1.89 | in. | | | |
| Volume of water in filter pack and well casing | 10.1 | gal. | Fill in if drilling fluids u | vere used and well is at solid | voota facility |
| 7. Volume of water removed from well | _ 3 8.8 | gal. | 14. Total suspended | | . Her |
| 8. Volume of water added (if any) | _ <u>N_A</u> | gal. | solids | mg/l | mg/l |
| 9. Source of water added | -2 | | 15. COD | mg/l | mg/l |
| 10. Analysis performed on water added? (If yes, attach results) | □ Yes □ | No | | | |
| 16. Additional comments on development: Well pumped and allowed to rest/recover 6 times, see | attached | | | | |
| on pumpou and another to receive the contract, etc. | | | | | |
| 4 | | | | | |
| Well developed by: Person's Name and Firm | | | I hereby certify that the my knowledge. | e above information is true a | nd correct to the best of |
| Name: Jack Christman | | | Signature: | rik Silvola | <u> </u> |
| Firm: Flambeau Mining Company | | | Print Initials: <u>E A</u> | | • •• |
| NOTE: Shaded areas are for DNR use only. See ins | tructions for m | ore information in | Firm:cluding a list of county co | Foth & Van Dyke odes. | |

| State of Wisconsin | | Route to: Solid | d Waste □ Haz. W | aste □ Wastev | water □ | MONITORING WELL CONST | RUC | TION |
|---------------------------------|---|--|----------------------------|---------------------|---|---|----------|------------------------|
| Department of Natural R | esources | | & Repair Under | | □ Other □ | Form 4400-113A | Re | v. 4-90 |
| Facility/Project Name | 8 | | Local Grid Location | | | Well Name | | |
| Flambeau Mining Compar | ny - Pit Backfill - V | Vell Install | 40144.240 ft. N. 39 | 191.056 ft. E. | | MW-1013B | | |
| Facility License, Permit or | Monitoring Numb | | Grid Origin Location | | | Wis. Unique Well Number DNR Well Numb | x | |
| | | | Lat. Long | z. | or | <u>J N 8 2 3</u> | | |
| Type of Well Water Tab | ole Observation We | | St. Plane | | | Date Well Installed 0 9/1 5/9 8 | | |
| Piezomete | r | ☑ 12 | Section Location of V | Waste/Source | | <u> </u> | | |
| Distance Well Is From Wa | ste/Source Bounda | ary | NW ¼ of SE ¼ of Se | c 9 T 34 N. R. | □ E. 6 ☑ W. | Well Installed By: (Person's Name and Firm) | | |
| | C | | Location of Well Rel | | | Scott Shira | | |
| Is Well A Point of Enforce | | | u □ Upgradient | | degradient | Layne - Northwest | | |
| N/A | □ Yes | □ No | d □ Downgradier | nt n □Ne | | | | |
| A. Protective pipe, top ele | evation <u>1 1 2 0</u> | . <u>8 9</u> ft. MSI | | | 1. Cap an | d lock? ✓ Ye | s 🗆 | No |
| D W II | | 0.0.0.160 | | | 2. Protect | ive cover pipe: | | |
| B. Well casing, top eleva | tion 1121 | . <u>0 8</u> ft. MSI | | | | de diameter: | | 4.0 in. |
| C. Land surface elevation | 1 <u>1 1 1 8</u> | 1.3 ft. MSI | | Π | b. Lengc. Mate | | | 7. <u>0</u> ft. 0 4 |
| | | | 2000 | 2000 | c. Mau | Othe | | U 4 |
| D. Surface seal, bottom | <u>1114.3ft.</u> | MSL or <u>4</u> . <u>0</u> f | _ \ | | d. Add | itional protection? | | |
| 12. USCS classification | n of soil near scree | en: | Leans ! | I K | | es, describe: | - | |
| GP □ GM □ | GC 🗆 GW 🗆 | SW □ SP | | | 3. Surface | | | |
| SM □ SC Ø | ML 🗆 MH 🗆 | CL 🗷 CH | ⊐ ∣ | | | Concret Othe | | |
| Bedrock □ | | | | | 4. Materia | al between well casing and protective pipe: | נו | |
| 13. Sieve analysis attac | hed? □ Yes | □ No | | | | Bentonit | e Ø | 3 0 |
| 14. Drilling method use | | Rotary 5 0 | - - ₩ | | | Annular space sea | | |
| 14. Drinning inculou use | | - | | | Sand | Othe ar space seal: a. Chipped Bentonit | | |
| | Hollow Stem | - | | |). Annula h | r space seal: Lbs/gal mud weight a. Chipped Bentonite Bentonite-sand slurry | , 0 | 3 3 26 |
| 9" Percussion | | Other 🗷 💆 | | | | Lbs/gal mud weightBentonite slurr | | 3 1 |
| 15. Drilling fluid used! | | Air 🗷 01 | | | d | | t 🗆 | 50 |
| Drilling | Mud □ 03 | None □ 99 | | | | Ft ³ volume added for any of the above | | |
| 16. Drilling additives us | sed? □ Yes | □ No | | | f. How in | | 50 00 00 | 01 |
| Describe | | | _ ₩ | | | Tremie pumped Gravity | | 02 |
| 17. Source of water (att | ach analysis): | | | | 6. Benton | | | |
| ` | • • | | - - | | b. □ 1/4 | in. □ ¾ in. □ ½ in. Bentonite pellet | | |
| - | | | | | | Gold %" Bentonite Chips Othe | | 44 |
| E. Bentonite seal, top | 1114.3 ft. M | ISL or <u>0 0 4</u> . <u>0</u> | | | | nd material: Manufacturer, product name | 爻 me | |
| | | | e ft. | | | Flint Filter 35-45 me added ft ³ | | |
| F. Fine sand, top | 1048.8ft.M | ISL or <u>0 6 9</u> . <u>.</u> | ft. | | | ack material: Manufacturer, product name ar | d me | sh size |
| G. Filter pack, top | 1046.8ft.M | (SL or 0.7.1.4 | in \ | | | Flint Filter #30 | | 101/4 |
| G. Ther pack, up | 1040.01.11 | | | | | ime added 5.5 ft ³ | _ | |
| H. Screen joint, top | <u>1 0 4 4 .8</u> ft. M | ISL or <u>0</u> <u>7</u> <u>3</u> . <u>5</u> | ft. | | 9. Well ca | sing: Flush threaded PVC schedule 40 Flush threaded PVC schedule 80 | | 23 24 |
| Y YY 11 1 | 1004003 | fGI 0 0 2 / | | | | Othe | | |
| I. Well bottom | <u>1 0 3 4 . 8</u> ft. M | 1SL or <u>0 8 3</u> . <u>.</u> | n. | | | en material: PVC | | 1423 |
| J. Filter pack, bottom | 1 0 3 3 . 3 ft. M | ISL or <u>0 8 5</u> . <u>0</u> | ft. | | a. Scree | en Type: Factory cu | | 11 |
| | | | | | | Continuous slo Othe | | 01 |
| K. Borehole, bottom | 1 0 3 3 .3 ft. M | ISL or <u>0</u> <u>8</u> <u>5</u> . <u>0</u> | ft. | | b. Man | ufacturer Monoflex | ш | |
| L. Borehole, diameter | <u>0 8 . 0</u> in. | | | | c. Slot | | 0 1 | <u>0</u> in. |
| L. Borenoie, diameter | <u> </u> | | ¥ | | | ed length: | | 0. <u>0</u> ft. |
| M. O.D. well casing | <u>0 2 . 3 8</u> in. | | | | Back pack | fill material (below filter None | ; 🗷 | 14 |
| | | | | / | pack | Othe | | |
| N. I.D. well casing | <u>0</u> <u>1</u> . <u>8</u> <u>9</u> in. | | | | | | | 1-10-04-1-T- |
| I hereby certify that the in | formation on this | form is true and | correct to the best of | f my knowledge | ·. | | | |
| Signature _ '/ | 0.0 | | 8/847 | Firm | | | | |
| 6 rele | | <i>enc</i> | | | | Foth & Van Dyke | | |
| Please complete both sides of t | his form and return to | the appropriate DN | R off listed at the top of | this form as requir | red by chs. 144 | l, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Co. | e. In a | ccordar |

Please complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats, failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form show be sent.

Route to: Solid Waste □ Haz. Waste □ Wastewater □ Env.Response & Repair □ Underground Tanks □ Other ☑ Mining

| Facility/Project Name | 1. | County Name | lw | ell Name | |
|---|----------------------------|------------------------|---|--------------------------------------|----------------------------|
| Flambeau Mining Company - Pit Backfill Well In | | Rusk | 400 | W-1013B | |
| Facility License, Permit or Monitoring Number | | County Code <u>5_5</u> | Wis.Unique Well Num | ber DNR W | ell Number |
| Can this well be purged dry? | ☑Yes □N | No. | | Before Development | After Development |
| Well development method surged with bailer and bailed | □ 41 | | 11. Depth to Water (from top of well casing) | a. <u>26.24</u> ft. | <u>8_5.5_4</u> ft. |
| surged with bailer and pumped surged with block and bailed surged with block and pumped | □ 61 □ 42 □ 62 | | Date | b. <u>0 9/2 9/9 8</u> m m d d y y | 0 2/1 7/9 9 m m d d y y |
| surged with block, bailed and pumped compressed air bailed only | □ 70 □ 20 □ 10 | | Time | □ a.m. c. <u>N A:</u> □ p.m. | <u>N A:</u> □ p.m |
| pumped only pumped slowly Other | Ø 51 □ 50 □ ■ | | 12. Sediment in well bottom13. Water clarity | inches | inches Clear |
| 3. Time spent developing well | <u>N A</u> m | in. | | Turbid Z 1 5 (Describe) | Turbid |
| 4. Depth of well (from top of well casing) | <u>8 6.3</u> ft. | | | | |
| 5. Inside diameter of well | _ <u>1.8 9</u> in. | | | | |
| 6. Volume of water in filter pack and well casing | <u>1 6.2</u> ga | 1. | Fill in if drilling fluids y | vere used and well is at solid | waste facility |
| 7. Volume of water removed from well | <u>1 3 5.5 ga</u> | al. | 14. Total suspended | mg/l | mg/l |
| 8. Volume of water added (if any) | <u>N A</u> ga | 1. | solids | | |
| 9. Source of water added | | | 15. COD | mg/l | mg/l |
| Analysis performed on water added? (If yes, attach results) | □ Yes □ N | lo | | | |
| 16. Additional comments on development: | | | | | |
| Well purged and allowed to rest 12 times, see attack | ched. | | | | |
| | | | | | |
| Wall day and the December Name of Figure | 37.50 | | I homology courtify that the | e above information is true a | and assumed to the heat of |
| Well developed by: Person's Name and Firm | | | my knowledge. | above information is true at | ind correct to the best of |
| Name: Jack Christman | | | _ | sik Silvola | jen. |
| Firm: Flambeau Mining Company | | | Print Initials: <u>E A</u> Firm: | Foth & Van Dyke | |
| NOTE: Shaded areas are for DNR use only. See | e instructions for mor | e information in | | | |

| State of Wisconsin | | id Waste 🗆 Haz. Was | | | MONITORING WELL CONSTR | | |
|---|---|---|-----------------------|---------------|---|-------------|-----------------|
| Department of Natural Resource | es Env.Respons | e & Repair □ Underg | | Other □ _ | Form 4400-113A Well Name | Rev | v. 4-90 |
| Facility/Project Name | | Local Grid Location of 40135.567 ft. N. 3920 | | | | | |
| Flambeau Mining Company - Pit | Backfill - Well Install | 101001001 10111 222 | 20,002 14 2. | | MW-1013C | | |
| Facility License, Permit or Monito | oring Number | Grid Origin Location | | | Wis. Unique Well Number DNR Well Number | r | |
| | | Lat. Long. | or | | <u>J N 8 2 4</u> | | |
| Type of Well Water Table Obse | ervation Well | St. Plane | | | Date Well Installed | | |
| Piezometer | ☑ 12 | Section Location of Wa | aste/Source | | 0 9/1 1/9 8 m m d d y y | | |
| Distance Well Is From Waste/Sou | urce Boundary | NW 1/ of CE 1/ of Con | 0 T 24 N D 6 | □ E. ☑ W. | Well Installed By: (Person's Name and Firm) | | |
| | - | NW ¼ of SE ¼ of Sec. Location of Well Relati | | 0. 10 0000 10 | Scott Shira | | |
| Is Well A Point of Enforcement S | | u Upgradient | | | Layne - Northwest | | |
| | ☐ Yes ☐ No | | | | Layne - Northwest | | |
| A. Protective pipe, top elevation | | | | | 1 10 | | |
| A. Protective pipe, top elevation | 1 1 1 2 1 .4 0 IL MS | | | Cap and | lock? | | No |
| B. Well casing, top elevation | 1121.59 ft. MS | | 7 | | diameter: | 2 | 4. <u>0</u> in. |
| | | . 11- | 1 | b. Length | | | 7.0 ft. |
| C. Land surface elevation | <u>1118.1</u> ft. MS | | | c. Materi | | | |
| D Surface seal bottom 1 1 | 1 4 1 ft MSI or 4 0 | | | | Other | . \square | |
| D. Surface seal, bottom 11 | | | 1.36 | | onal protection? | | No |
| 12. USCS classification of soi | | 13 | 18/ | | describe: | | 2.0 |
| GP □ GM □ GC □ | □ GW □ SW □ SP | | | Surface s | eal: Bentonite Concrete | | |
| SM □ SC Ø ML □ | □ MH □ CL Ø CH | | | | Other | | |
| Bedrock □ | | | 4. 5. b. c. d. e. f. | Material | between well casing and protective pipe: | _ | |
| 13. Sieve analysis attached? | ☐ Yes ☐ No | | | | Bentonite | | 3 0 |
| 1 | Rotary □ 50 | | | | Annular space seal | | |
| 14. Drilling method used: | | | | Sand | Other | | |
| Ho | ollow Stem Auger □ 41 | | 5. | | space seal: a. Chipped Bentonite | | |
| Percussion | Other 🗹 👱 | | b. | | Lbs/gal mud weight Bentonite-sand slurry Lbs/gal mud weight Bentonite slurry | | |
| 15. Drilling fluid usedWater | □ 02 Air Ø 01 | | d. | | % Bentonite Bentonite-cement grout | | |
| Drilling Mud D | □ 03 None □ 99 | | e. | | Ft ³ volume added for any of the above | | 20 |
| 16. Drilling additives used? | | | f. | How inst | | | 0 1 |
| Describe | | | | | Tremie pumped | | |
| W. C. St. St. St. St. St. St. St. St. St. St | | -l 🐰 | | D | Gravity | | |
| 17. Source of water (attach and | alysis): | | 6. | | e seal: a. Bentonite granules . □ ¾ in. □ ½ in. Bentonite pellets | | |
| | | 📓 | | | Gold 3/8" Bentonite Chips Other | | |
| | | \ | | Fine sand | I material: Manufacturer, product name & | | |
| E. Bentonite seal, top 1111 | <u>1 4 . 1</u> ft. MSL or <u>0 0 4</u> . | Ω п. | | | int Filter 35-45 | | |
| F. Fine sand, top <u>0 9 3</u> | 3 4.1 ft. MSL or 1 8 4. | 0 ft. | 8. | b. Volum | | | |
| 1. The said, top <u>0.2.2.</u> | <u> </u> | | 8. | | k material: Manufacturer, product name and | d me | |
| G. Filter pack, top 0 9 3 | 3 2 . 1 ft. MSL or 1 8 6 . | Qft. | | | int Filter #30 ne added 7.6 ft ³ 11 bags | | |
| | | | | b. Volum | ne added <u>7.6</u> ft ³ 11 bags ng: Flush threaded PVC schedule 40 | | 23 |
| H. Screen joint, top <u>0 9 3</u> | <u>3 0</u> . <u>1</u> ft. MSL or <u>1 8 8</u> . | <u>0</u> ft. | | W CII Casi | Flush threaded PVC schedule 80 | | 24 |
| I W.111 | 3 0 1 0 3 40T 1 0 0 | | | | Other | | |
| I. Well bottom <u>0 9 2</u> | 2 <u>0</u> . <u>1</u> ft. MSL or <u>1 9 8</u> . | | 10 | . Screen | material: PVC | | |
| J. Filter pack, bottom <u>0 9 1</u> | 1 9 . 1 ft. MSL or 1 9 9 . | 0.ft | | a. Screen | | | 1 1 |
| <u></u> | | | | | Continuous slot | | 0 1 |
| K. Borehole, bottom <u>0 9 1</u> | 1 9 . 1 ft. MSL or 1 9 9 . | <u>0</u> ft. | | h Manuf | Other acturer Monoflex | Ц | |
| | | | | c. Slot siz | | 0 1 | <u>0</u> in. |
| L. Borehole, diameter <u>0 9</u> | . <u>0</u> in. | 2 | | d. Slotted | | | 0.0 ft. |
| M OD soull seeke | 2.0: | | 11. | | Il material (below filter None | | |
| M. O.D. well casing $\underline{0} \underline{2}$ | . <u>3_8</u> in. | | | pack): | · | | |
| N. I.D. well casing <u>0 1</u> | . <u>8 9</u> in. | | • | | Other | | 44 |
| | | | | | | | |
| I hereby certify that the informat | tion on this form is true and | correct to the best of r | | | | | |
| Signature = 1, 0 0 | ` | | Firm | | | | |
| Gred Sel | vola time | TD (01) | • | | Foth & Van Dyke | | |
| riease complete both sides of this form | n and return to the appropriate D | NK off listed at the top of the | us form as required b | v cns. 144. l | 147 and 160, Wis, Stat., and ch. NR 141, Wis, Ad. Cod | e. In a | accordan |

riease complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10,000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this for may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form show be sent.

Route to: Solid Waste □ Haz. Waste □ Wastewater □ Env.Response & Repair □ Underground Tanks □ Other ☑ Mining

| _ | | | | | | |
|------|---|-------------------|-------------|---------------------------------------|------------------------------------|---|
| | acility/Project Name | | County Name | | Well Name | |
| | ambeau Mining Company - Pit Backfill Well Instal | lation | Rusk | | MW-1013C | |
| Fa | acility License, Permit or Monitoring Number | | County Code | Wis.Unique Well N | | ell Number |
| _ | | eache | <u>5 5</u> | | | 1 2007 — — — — — — — — — — — — — — — — — — |
| 1. | Can this well be purged dry? | □ Yes • | No | | Before Development | After Development |
| | can and won so parget any. | | 110 | 11. Depth to Water | Before Bevelopment | Titter Bevelopment |
| 2. | Well development method | D. | | (from top of | a. <u>26.87</u> ft. | <u>1 1 1.5 0</u> ft. |
| _ | surged with bailer and bailed | □ 41 | ¥ | well casing) | <u></u> | |
| | surged with bailer and pumped | □ 61 | |) | | |
| | surged with block and bailed | □ 42 | | Date | b. <u>1 0/0 5/9 8</u> | 0 2/0 9/9 9 |
| | surged with block and pumped | □ 62 | | | mm dd y y | m m d d y y |
| | surged with block, bailed and pumped | □ 70 | | , | □ a.m. | 1 |
| | compressed air | □ 20 | | Time | c. <u>N A:</u> _ p.m. | |
| | bailed only | □ 10 | | | | |
| | pumped only | 2 5 1 | | 12. Sediment in wel | N.A. inches | N A. inches |
| | pumped slowly | □ 50 | | bottom | | |
| | Other | | | 13. Water clarity | Clear □ 10 | Clear □ 20 |
| | | - | | pocused the second-second contraction | Turbid ☑ 15 | Turbid □ 25 |
| 3. | Time spent developing well | <u>N A r</u> | nin. | | (Describe) | (Describe) |
| | | | | 1 | | |
| 4. | Depth of well (from top of well casing) | 2 0 1.5 f | t . | | | |
| | | | | | | |
| 5. | Inside diameter of well | _ <u>1.8 9</u> ir | 1. | | | |
| | | | | | | |
| 6. | Volume of water in filter pack and well | | | | | |
| | casing | <u>3 7.8 g</u> | al. | 7777 10 1 1111 10 1 | | |
| 7 | V-1 | 0 4 5 5 | 1 | Fill in if drilling fluid | ds were used and well is at solid | waste facility: |
| /. | Volume of water removed from well | <u>8 4 5.5</u> g | gai. | 14 Total gram and ad | /1 | I |
| Q | Volume of water added (if any) | <u>N A g</u> | ro1 | 14. Total suspended solids | mg/l | mg/l |
| 0. | volume of water added (if any) | <u> </u> | ;aı. | Solius | | |
| 9. | Source of water added | | | 15. COD | mg/l | mg/l |
| | | | | \$60\$1000000 | | |
| | | | | | | |
| 1. | Analysis performed on water added? | □ Yes □ | No | | | |
| | (If yes, attach results) | | | | | |
| | | | | | | |
| 16. | Additional comments on development: | | | | | |
| | | | | | | |
| ** 7 | | | | | | |
| we | ell purged and allowed to recover 13 times, see attac | hed. | | | | |
| | 3 | | | | | |
| | | | | | | |
| W | ell developed by: Person's Name and Firm | | | | t the above information is true as | nd correct to the best of |
| | | | | my knowledge. | | |
| | | | | G: | Esik Silvola | • |
| NI. | ma. Jack Christman | | | Signature: | Courc school | - jeni |
| INa | me: Jack Christman | | | Print Initials: <u>E</u> | _A_S_ | 9 |
| Fir | m: Flambeau Mining Company | | | Tink minais. E | n u | |
| . 11 | | | | Firm: | Foth & Van Dyke | |
| | | | | | | |

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

| State of Wisconsin | | | Waste □ Haz. Wa | | | MONITORING WELL CONSTR | | |
|--|---------------------------------|--------------------------------|--|-------------------------|-------------------------|--|---------|----------------------|
| Department of Natural | Resources | | & Repair Underg | | otner ⊔ _ | Form 4400-113A | Rev | v. 4-90 |
| Facility/Project Name Flambeau Mining Comp | any - Pit Backfill - V | | ocal Grid Location of t. Plane <u>41289.698</u> ft. | | E. | Well Name MW-1014 | | , |
| Facility License, Permit | or Monitoring Numb | | Grid Origin Location | | | Wis. Unique Well Number DNR Well Numbe | r | |
| Type of Well Water Ta | able Observation We | | at. Long. t. Plane | or | | J N 8 2 5 Date Well Installed | | |
| Piezome | | | ection Location of Wa | aste/Source | | 0 9/1 6/9 8 m m d d y y | | |
| Distance Well Is From W | Vaste/Source Bounda | ary 1 | TW 1/4 of SE 1/4 of Sec. | 9, T. 34 N, R. 6 | □ E. ☑ W. | Well Installed By: (Person's Name and Firm) | | |
| | | | ocation of Well Relat | | - | Scott Shira | | |
| Is Well A Point of Enforce | cement Std. Applicat ☐ Yes | tion? u □ No d | 10 | s □ Sideg n □ Not K | | Layne - Northwest | | |
| A. Protective pipe, top e | elevation 1139 | | | | Cap and | lock? | | No |
| B. Well casing, top elev | ration <u>1139</u> | . <u>6 7</u> ft. MSL | | 2. | Protective a. Inside | e cover pipe: | Á | Į. <u>0</u> in. |
| | | | 11- | 117 | b. Length | 87-87-7-87-8-18 | | 7.0 ft. |
| C. Land surface elevation | on <u>1136</u> | . <u>8</u> ft. MSL | | | c. Materi | al: Steel | Ø | 04 |
| D. Surface seal, bottom | <u>1 1 3 2 .8</u> ft. | MSL or <u>4</u> . <u>0</u> ft. | | | d Additio | Other onal protection? | | No |
| 12. USCS classification | on of soil near scree | n: | | X Section 1 | If yes, | describe: | | 140 |
| GP □ GM □ | GC \square GW \square | SW □ SP □ | | 3. | Surface s | | | 3 0 |
| SM Ø SC □ | ML 🗆 MH 🗆 | CL □ CH □ | ı 📓 | | | Concrete Other | | 01 |
| Bedrock □ | | | | 4. | Material I | between well casing and protective pipe: | | |
| 13. Sieve analysis atta | iched? Yes | □ No | | | | Bentonite | | 3 0 |
| 14. Drilling method us | sed: I | Rotary □ 50 | | | Sand | Annular space seal Other | | |
| | Hollow Stem | Auger □ 41 | | 5. | Annular s | pace seal: a. Chipped Bentonite | | 33 |
| 9" Percussion | | Other 🗷 👱 | | b. | | _Lbs/gal mud weight Bentonite-sand slurry | | 3 5 |
| 15. Drilling fluid used | lWater □ 02 | Air ☑ 01 | | | | _Lbs/gal mud weight Bentonite slurry _% Bentonite Bentonite-cement grout | | 3 1 5 0 |
| Drilling | g Mud □ 03 | None □ 99 | | е . | 3.8 | _Ft ³ volume added for any of the above | _ | 50 |
| 16. Drilling additives | used? □ Yes | □ No | | f. | How insta | | | 01 |
| Describe | | | - l 🔛 | | | Tremie pumped Gravity | | 02 08 |
| 17. Source of water (a | ttach analysis): | | | 6. | Bentonite | | | 33 |
| | | | | | | . □ 3/8 in. □ ½ in. Bentonite pellets | | |
| E D | | | . 🔪 📓 | 7. | Fine sand | old %" Bentonite Chips Other material: Manufacturer, product name & | | sh size |
| E. Bentonite seal, top | <u>1 1 3 2 .8</u> ft. M | ISL or <u>0 0 4</u> . <u>0</u> | it. | | | int Filter 35-45 | , 11101 | |
| F. Fine sand, top | <u>1119.8</u> ft. M | ISL or <u>0 1 7</u> . <u>0</u> | ft. ft. | M //. | b. Volum | | 1 | |
| O P". | 1117003 | | | | | k material: Manufacturer, product name and int Filter #30 | mes | sn size 103/4 |
| G. Filter pack, top | <u>1 1 1 7 .8</u> ft. M | ISL or <u>0 1 9 . 0</u> | | | b. Volume | e added <u>5.8</u> ft ³ | | |
| H. Screen joint, top | <u>1 1 1 5 .8</u> ft. M | ISL or <u>0 2 1</u> . <u>0</u> | ft. | 9. | Well casir | ng: Flush threaded PVC schedule 40 Flush threaded PVC schedule 80 | | 23 24 |
| I. Well bottom | <u>1 1 0 5 .8</u> ft. M | ISL or <u>0 3 1 . 0</u> | ft. | 10. | Screen | material: PVC | | |
| J. Filter pack, bottom | <u>1 1 0 4</u> . <u>8</u> ft. M | ISL or <u>0 3 2</u> . <u>0</u> | ft. | | a. Screen | | | 1 1 0 1 |
| K. Borehole, bottom | <u>1 1 0 4 .8</u> ft. M | ISL or <u>0 3 2 . 0</u> | ft. | | h Manufa | Other | | |
| L. Borehole, diameter | <u>0 9</u> . <u>0</u> in. | | | | c. Slot siz | | | <u>0</u> in. |
| M. O.D. well casing | <u>0 2 .3 8</u> in. | | 6 | | | l material (below filter None | | . <u>0</u> ft. 14 |
| N. I.D. well casing | <u>0 1 .8 9</u> in. | | | \ | | Other | | |
| I hereby certify that the i | nformation on this | form is true and c | orrect to the best of n | ny knowledge | | TV T | | |
| Signature (|) o o | Lorin 15 u de did C | one to the best of fi | Firm | ****** | | | |
| Grek 2 | Selvola en | c | | | | Foth & Van Dyke | | |
| Please complete both sides of | this form and return to | the appropriate DNI | off listed at the top of the | nis form as required by | chs. 144, 1 | 47 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code | . In a | ccordan |

rease complete boun sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this for may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form show be sent.

Route to: Solid Waste □ Haz. Waste □ Wastewater □ Env.Response & Repair □ Underground Tanks □ Other ☑ Mining

| Facility/Project Name Flambeau Mining Company - Pit Backfill Well Instal | County Name Rusk | | Well Name MW-1014 | | | | |
|--|---------------------|--------------------|---------------------------|-----------------------------------|----------------------------|--|--|
| Facility License, Permit or Monitoring Number | lation | County Code | Wis.Unique Well No | | | | |
| | | <u>5 5</u> | Wisterinque Wen I've | umod Brite ii | CH 1 TURBOG PA | | |
| | | | | | | | |
| 1. Can this well be purged dry? | □ Yes 🗷 | No | | Before Development | After Development | | |
| | | | 11. Depth to Water | | | | |
| 2. Well development method | | | (from top of | a. <u>N A</u> ft. | <u>N A ft.</u> | | |
| surged with bailer and bailed | □ 4 1 | | well casing) | | | | |
| surged with bailer and pumped | □ 61 | | | | | | |
| surged with block and bailed | □ 42 | | Date | b. <u>N A//_</u> _ | N A//_ | | |
| surged with block and pumped | □ 62 | | | mm dd y y | m m d d y y | | |
| surged with block, bailed and pumped | □ 70 | | | □ a.m. | | | |
| compressed air | □ 20 | | Time | c. <u>N A:</u> □ p.m. | | | |
| bailed only | | | | •• <u></u> — p | | | |
| pumped only | □ 51 | | 12. Sediment in well | inches | . inches | | |
| pumped slowly | □ 5 0 | | bottom | | | | |
| Other None - Dry | | | 13. Water clarity | Clear □ 10 | Clear □ 20 | | |
| 110110 21) | 52 | | | Turbid □ 15 | Turbid □ 25 | | |
| 3. Time spent developing well | mi | n. | | (Describe) | (Describe) | | |
| 3. Time spent developing went | | ••• | | _NA | NA | | |
| 4. Depth of well (from top of well casing) | <u>3 3.9</u> f | t. | | | | | |
| | | | | | | | |
| 5. Inside diameter of well | _ <u>1.8 9</u> ii | n. | | | | | |
| | | | | | | | |
| 6. Volume of water in filter pack and well | | | | | | | |
| casing | <u>N A </u> | gal. | | | | | |
| | | | Fill in if drilling fluid | ls were used and well is at solid | l waste facility: | | |
| 7. Volume of water removed from well | <u>N A</u> | gal. | | | Ī a | | |
| | | | 14. Total suspended | mg/l | mg/l | | |
| 8. Volume of water added (if any) | <u>N A</u> | gal. | solids | | | | |
| 9. Source of water added | | | 15. COD | mg/l | mg/l | | |
| 9. Source of water added | | | 13. COD | inig/1 | | | |
| | | | | | | | |
| 1 . Analysis performed on water added? | □ Yes □ | No | | | | | |
| (If yes, attach results) | _ 100 _ | | <u>I</u> | | Ī | | |
| (ii yes, amen resum) | | | | | | | |
| | | | | | | | |
| 16. Additional comments on development: | | | | | | | |
| | | | | | | | |
| Could not develop - well is dry. | | | | | | | |
| | | | | | | | |
| ₹ | | | | | | | |
| | | | | | | | |
| | | | | ., | | | |
| Well developed by: Person's Name and Firm | | | | the above information is true a | and correct to the best of | | |
| | | | my knowledge. | | | | |
| | | | Signature: | Frik Silvola | . 10 m | | |
| Name: Jack Christman | | | Digitatio. | 10000 - 010000 | 7 | | |
| rano. Jack Chrisullan | | ***** | Print Initials: E | <u>A S</u> |) | | |
| Firm: Flambeau Mining Company | | | | | | | |
| | | | Firm: | Foth & Van Dyke | | | |
| NOTE: Shaded areas are for DNR use only. See ins | structions for mo | ore information in | ncluding a list of county | codes. | | | |

| State of Wisconsin | | id Waste □ Haz. Was | | | MONITORING WELL C | | | |
|---|--------------------------------|--|---------------------------------|--|---|----------------------|--------------|--------------------------------|
| Department of Natural Resources | Env.Respons | e & Repair □ Undergr | | Other 🗆 _ | Form 4400-113A | | Rev | v. 4-90 |
| Facility/Project Name | | Local Grid Location of 41284.550 ft. N. 4047 | | | Well Name | | | |
| Flambeau Mining Company - Pit Backfill - V | | ar in a second | | | MW-1014A | | | |
| Facility License, Permit or Monitoring Numb | per | Grid Origin Location Lat. Long. | or | | Wis. Unique Well Number DNR Well | Number | ė. | |
| Type of Well Water Table Observation We | | Lat. Long. St. Plane | or | | J N 8 2 6 Date Well Installed | | | |
| Piezometer | Z12 | Section Location of Wa | ste/Source | | <u>0 9/1 6/9 8</u> | | | |
| Distance Well Is From Waste/Source Boundary | | | | □ E. | m m d d y y Well Installed By: (Person's Name and | Firm) | | |
| | - | NW ¼ of SE ¼ of Sec. | | ØW. | 1 | гишј | | |
| Is Well A Point of Enforcement Std. Applica | | Location of Well Relativu Upgradient | ve to waste/Sourc s ☐ Sidegr | | Scott Shira Layne - Northwest | | | |
| N/A | | • • | | | Layire - Northwest | | | |
| A. Protective pipe, top elevation 1 1 3 9 | | | | Cap and | lost? | ☑ Yes | | No |
| | | | | | e cover pipe: | 2 15 | ш | NO |
| B. Well casing, top elevation 1139 | 2. <u>4.7</u> ft. MS | L ——— | 3 8 | a. Inside | diameter: | | 4 | 1.0 in. |
| C. Land surface elevation 1 1 3 6 | 5.6 ft. MS | | | b. Length | | C41 | | 4.0 ft. |
| | | | - Control 1 | c. Materi | aı: | Steel Other | | 04 |
| D. Surface seal, bottom 1132.6 ft. | | | | d. Additi | onal protection? | ☐ Yes | | |
| 12. USCS classification of soil near screen | | A Same | IX. | | describe: | | | • • |
| GP □ GM □ GC □ GW □ | SW □ SP | 1 700 | 3. | Surface s | | entonite Concrete | | |
| SM □ SC Ø ML □ MH □ | CL 🗷 CH | | | | | Other | - | 11 |
| Bedrock □ | | | 4. | Material | between well casing and protective pip | | | tality |
| 13. Sieve analysis attached? ☐ Yes | □ No | | | | | entonite | | 3 0 |
| 14. Drilling method used: | Rotary □ 50 | | | Sand | Annular sp | | | == |
| Hollow Stem | Auger □ 41 | | 5. | Annular s | space seal: a. Chipped Be | | | 33 |
| 9" Percussion | Other 🗷 👱 | | b . | | Lbs/gal mud weight Bentonite-sand | d slurry | | 3 5 |
| 15. Drilling fluid usedWater □ 02 | Air ☑ 01 | | DOOL . | | Lbs/gal mud weight Bentonit % Bentonite Bentonite-cemen | | | 3 1 5 0 |
| Drilling Mud □ 03 | None □ 99 | | | | Ft ³ volume added for any of the abo | | ш | 30 |
| 16. Drilling additives used? ☐ Yes | □ No | | | How inst | alled: | Tremie | | 0 1 |
| Describe | | _ | | | Tremie p | | | 02 |
| 17. Source of water (attach analysis): | | _ | 6. | Bentonite | | Gravity granules | | |
| , , , | | | | b. □ ¼ in | n. □ 3/8 in. □ 1/2 in. Bentonite | pellets | | 3 2 |
| | | | | | indi 3/6" Bentonite Chips I material: Manufacturer, product | Other | | |
| E. Bentonite seal, top <u>1 1 3 2 . 6</u> ft. N | ASL or <u>0 0 4</u> . | <u>0</u> ft. ₩ | / / | | int Filter 35-45 | name & | , mes | SII SIZE |
| F. Fine sand, top <u>1089.6</u> ft. N | 4SI or 0 4 7 | <u>0</u> ft. | | b. Volum | e added 1.0 ft ³ | | | |
| 1. The said, top | | | 8. | | k material: Manufacturer, product n | ame and | mes | sh size |
| G. Filter pack, top <u>1 0 8 7 . 6</u> ft. N | /ISL or <u>0 4 9</u> . | Q ft. | | a. Ked FI | int Filter #30 ne added 5.9 ft ³ | | | |
| H. Screen joint, top <u>1 0 8 5 . 6</u> ft. N | 4SI on 0 5 1 | 0.0 | 9. | | ng: Flush threaded PVC schedule 40 | | | 23 |
| H. Screen joint, top <u>1 0 8 5 . 6</u> ft. N | ASL 01 <u>0 2 1</u> . | ¥ | | | Flush threaded PVC schedule 80 | | Ø | 2 4 |
| I. Well bottom <u>10 7 5 . 6</u> ft. M | ISL or <u>0 6 1</u> . | ı ft. | 10. | Screen | material: PVC | Other | | |
| I Pikanah hawara 1074 (0) | /CI 0 6 2 | | | a. Screen | | tory cut | Ø | 11 |
| J. Filter pack, bottom <u>1 0 7 4 .6</u> ft. N | ASL or <u>U 6 2</u> . | <u>∪</u> π. | | | Continue | | | 0 1 |
| K. Borehole, bottom <u>1074.6</u> ft. M | ISL or <u>0 6 2</u> . <u>(</u> |) ft. | | | acturer Monoflex | Other | | |
| L. Borehole, diameter <u>0 9 . 0</u> in. | | | | c. Slot sizd. Slotted | | | | <u>0</u> in. . <u>0</u> ft. |
| M. O.D. well casing <u>0 2 .3 8</u> in. | | | 11. | Backfii pack): | ll material (below filter | None | | 1 4 |
| N. I.D. well casing <u>0 1 . 8 9</u> in. | | | • | | | Other | | |
| I hereby certify that the information on this | form is true and | correct to the best of n | ny knowledge. | | | | | |
| Signature £ 1/ 0 0' 0 | | | Firm | | | | | |
| Please complete both sides of this form and return to | Smc . | ATT OF THE STATE O | | | Foth & Van Dyke | .1.0 : | - | |
| Please complete both sides of this form and return to | o the appropriate D | NK Att listed at the tan of th | us torm as required b | v cns 144 1 | 4 and the Wis Stat and ch NR 141 Wis | An L'orde | in a | ccordan |

Please complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this for may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form show be sent.

Route to: Solid Waste □ Haz. Waste □ Wastewater □

Env.Response & Repair □ Underground Tanks □ Other ☑ Mining

| Facility/Project Name Flambeau Mining Company - Pit Backfill | | County Name Rusk | | Well Name MW-1014A | 3.00 |
|---|--|---------------------|--|--|---|
| Facility License, Permit or Monitoring Number | | County Code | Wis.Unique Well N | | ell Number |
| | TALLER AND STORY OF THE STORY O | <u>5</u> <u>5</u> | | | esteriori programa estera de la companya de la comp |
| 1. Can this well be purged dry? | ØYes □ | No | II Date We | Before Development | After Development |
| Well development method surged with bailer and bailed grand with bailer and purposed. | □ 41 □ 61 | | 11. Depth to Water (from top of well casing) | a. <u>4 2.5 0</u> ft. | <u>D R Y.</u> ft. |
| surged with bailer and pumped surged with block and bailed surged with block and pumped surged with block, bailed and pumped | □ 61 □ 42 □ 62 □ 70 | | Date | b. <u>1 0/1 7/9 8</u> m m d d y y □ a.m. | <u>N A</u> // m m d d y y □a.m |
| compressed air bailed only pumped only | □ 20 □ 10 □ 51 | | Time 12. Sediment in well | c. <u>N A:</u> □ p.m. 1 <u>N A.</u> inches | <u>N A:</u> □ p.m. <u>N A.</u> inches |
| pumped slowly Other | ☑ 50 | | bottom 13. Water clarity | Clear □ 10 | Clear □ 20 |
| 3. Time spent developing well | <u>N A</u> n | nin. | | Turbid ☑ 1 5 (Describe) | Turbid □ 25 (Describe) |
| 4. Depth of well (from top of well casing) | <u>6_4.1</u> ft | | | | |
| 5. Inside diameter of well | <u>1.8_9</u> in | l. | | | |
| Volume of water in filter pack and well casing | _ <u>1 0.0</u> ga | al. | Fill in if drilling fluid | ds were used and well is at solid | waste facility: |
| 7. Volume of water removed from well | _ <u>1 4.0</u> ga | al. | 14. Total suspended | | mg/l |
| 8. Volume of water added (if any) | <u>N A</u> g | | solids | | |
| 9. Source of water added | | | 15. COD | mg/l | mg/l |
| Analysis performed on water added? (If yes, attach results) | □ Yes □ ì | No | | | |
| 16. Additional comments on development: | | , | | | |
| Purged dry twice, then never recovered. | | | | | |
| * | | | | • | |
| Wall daysland by Daysula Nama and Eine | | | I hamahar agust sa sha | 44h allanain farmadian in tana | and assumed to the best of |
| Well developed by: Person's Name and Firm | | | my knowledge. | t the above information is true a | |
| Name: <u>Jack Christman</u> | | | Signature: | Esik Sholo | - yen |
| Firm: Flambeau Mining Company | | | _ | A S | _ |
| NOTE: Shaded areas are for DNR use only. See in | structions for mo | re information in | Firm: | Foth & Van Dyke y codes. | |

| State of Wisconsin | Route to: Solid | l Waste □ Haz. Was | te Wastewate | er 🗆 | MONITORING WELL CONS | TRU | CTION |
|--|--|--------------------------|---|-------------|--|----------|-------------------------------|
| Department of Natural Resources | | & Repair Undergr | | Other 🗆 _ | Form 4400-113A | R | ev. 4-90 |
| Facility/Project Name | | ocal Grid Location of | | | Well Name | | |
| Flambeau Mining Company - Pit Backfill - V | Well Install | 11279.386 ft. N. 4047 | 3.017 ft. E. | | MW-1014B | | * |
| Facility License, Permit or Monitoring Num | ber (| Grid Origin Location | | | Wis. Unique Well Number DNR Well Num | ber | |
| | | at. Long. | or | • | <u>J N 8 2 7</u> | | |
| Type of Well Water Table Observation W | ell 🗆 11 | St. Plane | | | Date Well Installed | | , |
| Piezometer | Ø12 | Section Location of Wa | ste/Source | | <u>0 9/1 7/9 8</u> m m d d y y | | |
| Distance Well Is From Waste/Source Bound | | | | □ E. | Well Installed By: (Person's Name and Firm | | |
| Distance wen is From wastersource Bound | | NW 1/4 of SE 1/4 of Sec. | | ØW. | 1 | , | |
| | | ocation of Well Relativ | | | Scott Shira | | |
| Is Well A Point of Enforcement Std. Applica | | □ Upgradient | s □ Sideg | | Layne - Northwest | | |
| N/A ☐ Yes | | | n □ Not K | nown | | | |
| A. Protective pipe, top elevation <u>1 1 3 9</u> | 9. <u>3.7</u> ft. MSL | | | Cap and | | es [| □ No |
| D. Well assing top elevation 1 1 2 4 | n s a A Met | | 2. | | e cover pipe: | | |
| B. Well casing, top elevation 1 1 3 2 | 9. <u>5.2</u> ft. MSL | | | a. Inside | | | 4.0 in. |
| C. Land surface elevation 113 | 6. <u>6</u> ft. MSL | 11 | | b. Length | | 1 . | 7.0 ft. |
| | | | - Constitution | c. Materi | | eel (| |
| D. Surface seal, bottom <u>1 1 3 2 . 6</u> ft | . MSL or <u>4</u> . <u>0</u> ft | | 1.4 | d Addition | onal protection? | | |
| 12. USCS classification of soil near scre | en: | 1 | N. Section | | describe: | C3 L | J 110 |
| GP □ GM □ GC □ GW □ | SW II SP I | - | 3. | Surface s | | ite [| 3 0 |
| | | 1 1 | | | Concre | ete 6 | Z 01 |
| SM SC ML MH | CL Z CH | Ŭ | | | | er [| |
| Bedrock □ | | | 4. | Material 1 | between well casing and protective pipe: | _ | |
| 13. Sieve analysis attached? ☐ Yes | □ No | | | | Benton | | |
| 14. Drilling method used: | Rotary □ 50 | | 4. 5. b. c. d. e. f. | Sand | Annular space se | | |
| Hollow Stem | Auger □ 41 | | 5 | | space seal: a. Chipped Benton | | |
| 9" Percussion | Other 🗹 🏬 | | b. | | Lbs/gal mud weight Bentonite-sand slur | | |
| The state of the s | 300000000000000000000000000000000000000 | | C. | | Lbs/gal mud weight Bentonite slur | | |
| | Air 🗷 01 | | d. | | % Bentonite Bentonite-cement gro | | |
| Drilling Mud □ 03 | None □ 99 | | e. | 27.1 | _Ft ³ volume added for any of the above | | |
| 16. Drilling additives used? ☐ Yes | □ No | | f. | How insta | | | |
| Describe | | | | | Tremie pump | | |
| 17. Source of water (attach analysis): | | - | | Bentonite | Gravi e seal: a. Bentonite granul | | |
| 17. Source of water (attach analysis). | | | 6 . | | a. \square % in. \square ½ in. Bentonite pelle | | |
| | | - □ ■ | | | | er E | |
| E. Dontonito goal ton 11226A | 4SI 0= 0 0 4 0 | | | Fine sand | material: Manufacturer, product name | | |
| E. Bentonite seal, top <u>1 1 3 2 . 6</u> ft. N | MSL or <u>0 0 4</u> . <u>0</u> | ft. | | | int Filter 35-45 | _ | 1012 |
| F. Fine sand, top <u>1 0 4 8 . 6 ft. N</u> | MSL or <u>0 8 8 . 0</u> | ft. | | b. Volum | | | |
| <u> </u> | .102 or <u>0 0 0 1</u> | | 8. | | k material: Manufacturer, product name a | ınd m | |
| G. Filter pack, top <u>1 0 4 6 . 6 ft. N</u> | MSL or <u>0 9 0</u> . <u>0</u> | ft. | | | int Filter #30 e added 5.5 ft ³ | - | |
| | | | 3 / 9. | b. Volum | ng: Flush threaded PVC schedule 40 | E | 23 |
| H. Screen joint, top <u>1 0 4 4 . 6</u> ft. N | MSL or <u>0 9 6</u> . <u>0</u> | ft. | | Well cash | Flush threaded PVC schedule 80 | <u> </u> | |
| I W-111-4 1024 (0.1 | 4CI . 1 0 2 0 | | | | | er 🗆 | |
| I. Well bottom <u>1 0 3 4 . 6</u> ft. N | MSL or <u>1 0 2</u> . <u>0</u> | | 10 | Screen | material: PVC | | |
| J. Filter pack, bottom <u>1 0 3 3 . 6</u> ft. N | ASL or <u>1 0 3</u> . <u>0</u> | a | | a. Screen | Type: Factory c | ut 🗹 | 1 1 1 |
| 3. Their pack, bottom <u>1 0 3 3 .0</u> 10 10 | | 1. | | | Continuous sl | | |
| K. Borehole, bottom <u>1 0 3 3 . 6</u> ft. N | ASL or <u>1 0 3 . 0</u> | ft. | | | | er [| |
| | | | 2 | | acturer Monoflex | | |
| L. Borehole, diameter <u>0 9 . 0</u> in. | | | | c. Slot siz | | | $\frac{1}{0} \frac{0}{0}$ in. |
| | | | 11. | d. Slotted | - | ıe ⊑ | <u>0.0</u> ft. 14 |
| M. O.D. well casing <u>0 2 . 3 8</u> in. | | | \ | pack): | in material (octow filter 1901) | 2 | . 14 |
| N. I.D. well cooler. | | | \ | | Oth | er 🗆 | |
| N. I.D. well casing <u>0 1 .8 9</u> in. | | | | | | | m. ien |
| I hereby certify that the information on this | form is true and | correct to the best of m | v knowledge. | | | | |
| Signature $(3, 1, 1)$ | | | Firm | | | | |
| Erik Silvola | Luc | | | | Foth & Van Dyke | | |
| Di 171 de 11 cuit c | The Division of the Division o | p mi . 1 . d | | 1 144 1 | 48 1160 W. C | 1. 7 | 1 |

Please complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form show be sent.

Route to: Solid Waste □ Haz. Waste □ Wastewater □ Env.Response & Repair □ Underground Tanks □ Other ☑ Mining

| Facility/Project 1 | Name | | County Name | | Well Name | |
|--------------------------------|--|------------------|----------------------|--------------------------|--|---------------------------|
| Flambeau Minin | g Company - Pit Backfill | | Rusk | | MW-1014B | |
| Facility License, | Permit or Monitoring Number | | County Code 5 5 | Wis.Unique Well I | | ell Number |
| | | | | | | |
| 1. Can this well | be purged dry? | ☐ Yes | ☑ No | | Before Development | After Development |
| | | | | 11. Depth to Water | r | |
| Well develop | | 3 | | (from top of | a. <u>3 5.0 0</u> ft. | <u>1 0 0.9 0</u> ft. |
| | bailer and bailed | □ 41 | | well casing) | | |
| | bailer and pumped | □ 61 | | | | |
| _ | block and bailed | □ 42 | | Date | b. <u>1 0/0 7/9 8</u> | 0 2/2 3/9 9 |
| - | block and pumped | Ø 62 | | | mm dd y y | mm dd y y |
| _ | block, bailed and pumped | □ 7 0 | | | □ a.m. | |
| compressed | air | □ 20 | | Time | c. $\underline{N} \underline{A}$: \square p.m. | <u>N A</u> : □ p.m |
| bailed only | | | | | | |
| pumped only | | □ 5 1 | | 12. Sediment in we | ell <u>N A.</u> inches | N A. inches |
| pumped slov | | □ 50 | | bottom | | |
| Other | | _ 🗆 🌉 | | 13. Water clarity | Clear □ 10 | Clear 20 |
| 2 5 | | | | | Turbid ☑ 15 | Turbid □ 25 |
| 3. Time spent d | leveloping well | <u>N A</u> | min. | | (Describe) | (Describe) |
| 4 Donth of such | II (f | 1 0 4 0 | Δ | | | |
| 4. Depth of Wel | ll (from top of well casing) | 1 0 4.9 | , II. | | | |
| 5. Inside diame | ter of well | 1.89 | in | | | |
| J. Hiside diame | ter or wen | _ 1.8 3 | 111. | | | |
| 6 Volume of w | vater in filter pack and well | | | | Control of the Contro | |
| casing | ader in inter pack and wen | <u>17.8</u> | gal. | | | |
| Juning | | | 8 | Fill in if drilling flu | ids were used and well is at solid | waste facility: |
| 7. Volume of w | vater removed from well | 7 0 7.5 | gal. | | | • |
| | | | | 14. Total suspended | dmg/l | mg/l |
| 8. Volume of w | rater added (if any) | ga | al. | solids | | |
| | | | | | | |
| 9. Source of wa | ter added | | | 15. COD | mg/l | mg/l |
| | | | | | | |
| | | | | | | |
| | formed on water added? | ☐ Yes ☐ | l No | | | İ |
| (If yes, attach | results) | | | | | |
| | | | | | | |
| 16 Additional ac | | | | | | |
| 16. Additional co | mments on development: | | | | | |
| | | | | | | |
| Well purged and | allowed to recover 26 times. | | | | | |
| 8 | | | | | | |
| | | | | | | |
| 5 | | | | | | |
| Well developed b | y: Person's Name and Firm | | | | at the above information is true a | nd correct to the best of |
| | | | | my knowledge. | | |
| | | | | | C C . V | |
| | | | | Signature: | Evite Silvola | Jen |
| Name: <u>Jack</u> | Christman | | | - | | \cup |
| TI | 1 | | | Print Initials: <u>E</u> | <u> A S</u> | |
| Firm: Flan | nbeau Mining Company | | | - _{Ei} | Dath 9 Vin Dat | |
| NOTE: Shaded | areas are for DNR use only. See in | atmentions for m | agra information in | Firm: | Foth & Van Dyke | |
| NOIE. Shaded | areas are for Divik use offine. See in | Suuchons for n | iole illouliation il | iciuullig a list of coun | ny codes. | |

| State of Wisconsin | | Route to: Soli | d Waste Haz. Was | ste Wastewate | er 🗆 | MONITORING WELL C | ONSTR | UCT | ПОИ |
|-------------------------------|---|-------------------------------------|---------------------------------|----------------------------------|------------------------|--|----------|---------|-----------------------|
| Department of Natural F | Resources | | e & Repair □ Underg | | Other □ _ | Form 4400-113A | | Rev | ı. 4 - 90 |
| Facility/Project Name | | | Local Grid Location of | | | Well Name | | | |
| Flambeau Mining Compa | ny - Pit Backfill - V | Vell Install | 41268.387 ft. N. 4047 | 70.703 IL E. | | MW-1014C | | | |
| Facility License, Permit o | r Monitoring Numb | er | Grid Origin Location | 144 | | Wis. Unique Well Number DNR Well | Number | | |
| | | | Lat. Long. | OI | • | <u>J N 8 2 8</u> | | | |
| Type of Well Water Tal | ble Observation We | ell 🗆 11 | St. Plane | | | Date Well Installed | | | |
| Piezomete | er | ⊠ 12 | Section Location of Wa | aste/Source | | 0 9/2 2/9 8 m m d d y y | | | |
| Distance Well Is From W | N | | | | □E. | Well Installed By: (Person's Name and | Firm) | | |
| Distance Well is From W | | 1 | NW ¼ of SE ¼ of Sec. | | ØW. | 1 | rumj | | |
| | | | Location of Well Relati | | | Scott Shira | | | |
| Is Well A Point of Enforce | | | u Dpgradient | s □ Sideg | • | Layne - Northwest | | | |
| N/A | ☐ Yes | □ No | | n □ Not k | MIOWII | 1. | | | |
| A. Protective pipe, top el | levation <u>1 1 3 9</u> | 2. <u>2.0</u> ft. MS | L | | Cap and | | ☑ Yes | | No |
| B. Well casing, top eleva | ation <u>1139</u> | . <u>4 0</u> ft. MS | | 2. | | e cover pipe: | | | |
| b. Well casing, top cieva | mon <u>112</u> 2 | . <u></u> 1. Mb/ | 1 | 7179 | a. Inside b. Length | diameter: | | | .0 in. |
| C. Land surface elevation | n <u>1136</u> | . <u>8</u> ft. MS | | | c. Materi | | Steel | _ | . <u>0</u> ft. 0 4 |
| | | | | 200 | C. IVILLETI | ш. | _ Other | | |
| | <u>1 1 3 2 . 8</u> ft. | | | 1335 | d. Addition | onal protection? | ☐ Yes | | No |
| 12. USCS classification | n of soil near scree | en: | 1000 | K | If yes, | describe: | | | |
| GP □ GM □ | GC □ GW □ | SW □ SP | | 3. | Surface s | | entonite | | 3 0 |
| SM Z SC 🗆 | мі пмн п | CL 🗆 CH | | | × | C | Concrete | | 0 1 |
| Bedrock □ | | 02 _ 011 | | | Motorial | between well casing and protective pip | _ Other | Ц | |
| | 1 - 10 37 | П. N- | | ¥. | Material | | entonite | Ø | 3 0 |
| 13. Sieve analysis attac | | □ No | | | | Annular sp | | | 11 |
| 14. Drilling method us | | Rotary □ 50 | | 5. b. c. d. e. f. | Sand | _ | Other | 0 | |
| | Hollow Stem | Auger □ 41 | | 5. | | space seal: a. Chipped Bo | | | 3 3 |
| 9" Percussion | | Other 🗷 👱 | | b. | | Lbs/gal mud weight Bentonite-sand | | | 3 5 |
| 15. Drilling fluid used! | Water □ 02 | Air ☑ 01 | | C. | | Lbs/gal mud weight Bentonit | | | 3 1 |
| | | None □ 99 | | d. | | % Bentonite Bentonite-cemerFt³ volume added for any of the abo | | П | 5 0 |
| | | | | f. | How insta | | Tremie | | 0 1 |
| _ | iseur 🗆 i es | LI NO | | | | Tremie p | oumped | | 02 |
| Describe | | | -l ₩ | | | | Gravity | | 08 |
| 17. Source of water (at | tach analysis): | | | 6. | Bentonite | | | | 3 3 |
| | | | | | | a. ☑ ¾ in. □ ½ in. Bentonite | - | | 3 2 |
| | | | _ \ | 1 / 7 | | l material: Manufacturer, product | Other | | ch size |
| E. Bentonite seal, top | <u>1 1 3 2 .8</u> ft. N | 1SL or <u>0</u> <u>0</u> <u>4</u> | <u>0</u> ft | M / '' | | int Filter 35-40 (2 bags) | name & | · IIIC3 | 311 312X |
| P P' 1. | 0.006.001 | fOI 1 4 0 | 0 ft. 0 ft. | | b. Volum | | | | *** |
| F. Fine sand, top | <u>0 9 9 6 . 8</u> ft. N | 1SL or <u>1 4 0</u> . | Uπ. | 8. | Filter pac | k material: Manufacturer, product n | ame and | mes | sh size |
| G. Filter pack, top | <u>0 9 9 4 . 8</u> ft. M | ISL or 1 4 2. | | | | int Filter #30 (12.5 bags) | | | |
| G. Their pacie, top | <u> </u> | | | 4 / . | | the added 6.7 ft^3 | | _ | 0.0 |
| H. Screen joint, top | 0992.8ft. M | ISL or <u>1 4 4</u> . | 0 ft. | 9. | Well cash | ng: Flush threaded PVC schedule 40 Flush threaded PVC schedule 80 | | | 23 24 |
| | | | \ [[] | | | Flush direaded FVC schedule 80 | Other | | 2 4 |
| I. Well bottom | <u>0 9 8 2 . 8</u> ft. M | ISL or <u>1</u> <u>5</u> <u>4</u> . | Qft. | 10 | . Screen | material: PVC | Outer | | |
| I Ellen and batter | 00002201 | 4CI on 1 5 4 | | | a. Screen | | tory cut | Z | 11 |
| J. Filter pack, bottom | <u>0 9 8 2 . 3</u> ft. M | 1SL or <u>1 2 4</u> | 211. | | | Continue | ous slot | | 0 1 |
| K. Borehole, bottom | 0 9 8 2 . 3 ft. M | 1SI or 1 5 4 | 5 ft \ | | | | Other | | |
| ix. Dorenoic, bottom | <u>0 2 0 2 .3 1c 1v</u> | 15D 01 <u>1 2 1</u> . | - 1. I | | | acturer Monoflex | | | |
| L. Borehole, diameter | <u>0 9 . 0</u> in. | Note: Borehole | caved | _ | c. Slot siz | | | | $\frac{0}{0}$ in. |
| | | | | 11 | d. Slotted | length: Il material (below filter | None | | . <u>0</u> ft. |
| M. O.D. well casing | <u>0 2 . 3 8</u> in. | between 35-ft. a | nd 59 ft. | \ '' | pack): | ii materiai (below filter | HOHE | €1 | 1 77 |
| N. ID!!' | 0.1.00 | hala 3 | y face | \ | 1 7. | • | Other | | |
| N. I.D. well casing | <u>0</u> <u>1</u> . <u>8</u> <u>9</u> in. | below ground st | лтасе. | | | | | | |
| I hereby certify that the in | nformation on this | form is true and | correct to the best of r | ny knowledge. | | | | | |
| Signature / | 0 0 . 0 | | | Firm | | | | | |
| Crise | Selvola | KMC | | | | Foth & Van Dyke | | | |
| Please complete both sides of | this form and return to | the appropriate Di | NR off listed at the top of the | nis form as required b | y chs. 144, 1 | 47 and 160, Wis. Stat., and ch. NR 141, Wis. | Ad. Code | . In a | ccordan |

Please complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this for may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form show be sent.

Route to: Solid Waste □ Haz. Waste □ Wastewater □ Env.Response & Repair □ Underground Tanks □ Other ☑ Mining

| Facility/Project Name Flambeau Mining Company - Pit Backfill Well Install | ation | County Name Rusk | | Well Name MW-1014C | |
|--|--|---------------------|---------------------------|-----------------------------------|---------------------------|
| Facility License, Permit or Monitoring Number | ation | County Code | Wis.Unique Well No | | ell Number |
| racinty License, Fernit of Montoring Number | | <u>5</u> <u>5</u> | W15, Offique Well 140 | ullioci DIVK W | CH INIHIDEI |
| | | 1 22 | | | |
| 1. Can this well be purged dry? | □ Yes • | ž No | | Before Development | After Development |
| | | - 1 10 | 11. Depth to Water | | Titter Bevelopment |
| 2. Well development method | | | (from top of | a. <u>3 7.8 8</u> ft. | <u>3 7.5 0</u> ft. |
| surged with bailer and bailed | □ 41 | | well casing) | | |
| surged with bailer and pumped | □ 61 | | , van endang) | | |
| surged with block and bailed | □ 42 | | Date | b. <u>1 0/1 4/9 8</u> | 0 2/0 5/9 9 |
| surged with block and pumped | Z 62 | | | mm dd y y | m m d d y y |
| surged with block, bailed and pumped | □ 70 | | | □ a.m. | |
| compressed air | □ 20 | | Time | c. <u>N A:</u> _ p.m. | |
| bailed only | □ 10 | | | v. <u>түтү.</u> пр.ш. | 1 1 11 u p.m. |
| pumped only | □ 51 | | 12. Sediment in well | inches | . inches |
| pumped slowly | □ 5 0 | | bottom | menes | |
| Other | | | 13. Water clarity | Clear □ 10 | Clear □ 20 |
| | . – ". | | 15. Water charty | Turbid Z 15 | Turbid \square 2.5 |
| 3. Time spent developing well | <u>N A </u> : | min | | (Describe) | (Describe) |
| 3. Time spent developing wen | <u> </u> | | | (Describe) | (Describe) |
| 4. Depth of well (from top of well casing) | 1 5 6.6 | ft | | | |
| in 2 spar of war (nom top of war anding) | | | | | |
| 5. Inside diameter of well | <u>1.89</u> i | n. | | | |
| | | | | | 8 |
| 6. Volume of water in filter pack and well | | | | | |
| casing | <u>25.8</u> | gal. | 1 | | |
| | The state of the s | | Fill in if drilling fluid | ls were used and well is at solid | waste facility: |
| 7. Volume of water removed from well | 3 7 5.0 | gal. | | | |
| | | | 14. Total suspended | mg/l | mg/l |
| 8. Volume of water added (if any) | <u>N A </u> | gal. | solids | | |
| | | | | | |
| 9. Source of water added | | | 15. COD | mg/l | mg/l |
| | | | | | |
| | | | | | |
| 1. Analysis performed on water added? | □ Yes □ | No | 1 | | |
| (If yes, attach results) | | | | | |
| | | | | | |
| 16. Additional comments on development: | | | | | |
| To. Hadisəliki Collinolik oli acvelopillelik. | | | | | |
| | | | | | |
| Well purged and allowed to recover 7 times, see attached | ed. | | | | |
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| | | | Tr | | |
| Well developed by: Person's Name and Firm | | | | the above information is true as | nd correct to the best of |
| | | | my knowledge. | | |
| | | | Signature: | Erik Silvola | . 10 |
| Name: Jack Christman | | | Signature. | The Shore | |
| Timile. Jack Christinal | | | Print Initials: <u>E</u> | <u>A S</u> | \bigcup |
| Firm: Flambeau Mining Company | | | Time minus. L | <u></u> | |
| The same of the sa | | | Firm: | Foth & Van Dyke | |

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Attachment 2

Soil Boring Log Information for Backfill Wells

| | | sconsin t of Natur | al Reso | ources | ļ | Route to: □ Solid Waste □ Emergency R | 'esnon | se [| | laz. Was | | nks | SC | | | LOG I 0-122 | NFORM | MATION 7-91 |
|-------|----------------------------|-----------------------|---------|----------------|--|---|-------------|-----------|-------------|-------------------|-------------------|-------------|-----------------|-------------|-------------------|----------------|----------|----------------|
| | | | | | | □ Wastewater | | |) V | Vater Re Other | source | s | | | | | Page 1 | of 1 |
| | | ject Name | | D# D | lookfill Wall Inc | tollation | Lic | ense/Pe | rmit/N | Monitorin | g Num | ber | | | oring 1 W - 10 | Numbe | r | |
| | | | | | ackfill - Well Inst name of crew ch | | Da | te Starte | d | | Date | Comp | leted | | | | Method | |
| | | rthwest | | | | * | | 1/DD/YY | | | | DD/YY | | | | - | | |
| | Shira | | | | | | | 14/98 | 4-4:- 1 | Vater Le | 09/1 | | | C14 | | Perci | - | iameter |
| DNR | Facilit | y Well No |). | JN 82 | nique Well No. 1 | Common Well Na | me | Final S | | | | 11 | urface 118.4 | | 1011 | 9" | enoie D | nameter |
| State | g Loca Plane /4 of S |) | Section | N, 1 9. T 3 | , E 34 N, R 6 E | S/C/N | Lat Long | | Lo | cal Grid | Locatio 40138. | | oplicab N | | 39200 | <u>.682</u> | E | |
| Coun | ty | | | , | | | DNR 55 | County | Code | | | | il Towr | - | r Villa | ge | | |
| | IPLE | | | | | | | | U | | | | | 1 111 11 1 | Prope | erties | | |
| No. | Rec (in) | Blow Counts | | th in | | oil/Rock description d geologic origin fo each major unit | | | S C S | Graph Log | Well Diag | PID/ FID | Std Pntr | Mst Cont | Liq Lim | Plas Lim | P 200 | RQD/ Comm |
| | (111) | Counts | | ,01 | 0-2: Blind perc | ussion - dual tube ne; see MW-10130 | | | | J | J | | | | | | | |
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| | | | | | | □ Wastev | | | | | Vater Re | source | S | | | | 1 | Page 1 | of 1 |
| Facil | ih //Dro | ioot Name | | | | - ALVERTON | | Lice | | | Monitorin | a Num | ber | | В | orina I | Numbe | | 01 1 |
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| DNR | Facilit | y Well No |). | ı | ique Well No. | Common W | Vell Nam | е | Final S | tatic \ | Nater Le | evel | | | Elevati | on | Bore 9" | ehole D | iameter |
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| | (in) | Counts | F | eet | | each major | | | | S | Log | Diag | FID | Pntr | Cont | Lim | Lim | 200 | Comm |
| | | | | 5 | 0-45: Blind dri | I see MW-10 |)13C | | | | | | | | | | | | |
| | 81 | | | 3 | 0-23: Brown til | l, last severa | al feet, sa | andsto | one | | | | | | | | | | |
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| | | sconsin t of Natur | al Reso | ources | [] | Route to: Solid V Emerg Waste | ency Res | spon | se C |) L) V | laz. Was Indergro Vater Re Other | und Ta | | | SOI | | RING LO | 122 | ORMATION 7-91 ge 1 of 2 |
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| | - | ject Name | | - Pit B | ackfill - Well Inst | allation | | Lice | ense/Pe | | <i>M</i> onitorin | g Num | ber | | | Boring MW - ' | Numbe | | |
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| | t Shira Facilit | y Well No |) . | WI Un JN 82 | nique Well No. | Common V | Vell Nam | | | tatic \ | Water Le | | 5/96 | Surface 1118.3 | Eleva | | 9" Perc Boi | | Diameter |
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Route to:

SOIL BORING LOG INFORMATION

Form 4400-122

7-91

Department of Natural Resources BORING NUMBER: MW-1013B

Page 2 of 2

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State of Wisconsin

Route to:

SOIL BORING LOG INFORMATION

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| | | | | _ | 0-34: Till, sand | stone in last few fe | eet | | | | | | | | | | | | |
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| | | | | | 34-41: Red-bro | own silty clay (sapr | olite) | | | | | | | | | | | | |
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Department of Natural Resources BORING NUMBER: MW-1014B Route to:

SOIL BORING LOG INFORMATION

Form 4400-122

7-91

Page 2 of 2

| - | | 1 | 10100-10146 | T | T | | | T | , | | | | Page . | 2012 |
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| State of Wisconsin Route to: Department of Natural Resources Solid Waste Figure 1992 | | | | | | | | | | laz. Was | | | | rm 440 | | | NFORN | 7-91 |
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| | | | | | | ☐ Emergency R ☐ Wastewater | espon | onse □ Underground Tanks □ Water Resources □ Other Page 1 or | | | | | | of 2 | | | | |
| Facility/Project Name | | | | | | | Lic | icense/Permit/Monitoring Number Boring Number | | | | | | | | | | |
| Flambeau Mining Company - Pit Backfill - Well Installation | | | | | | | | MW | | | | | W - 10 | - 1014C | | | | |
| Boring Drilled by (Firm name and name of crew chief) | | | | | | | 1 | Date Started Date Completed | | | | | | | rilling I | Method | | |
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| DNR Facility Well No. WI Unique Well No. Common Well Name JN 1014C | | | | | | me | | | | | | urface Elevation Borehole Diameter 36.8' MSL 9" | | | | | | |
| Boring Location State Plane N, E S/C/N NW 1/4 of SE 1/4 of Section 9, T 34 N, R 6 W | | | | | | Local Grid Location (if applicable) Lat 41268.387 N 40470.703 E Long | | | | | | | | | | | | |
| County | | | | | | DNR 55 | County (| Code | | | | l Town ysmith | /City/o | r Villa | ge | | | |
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| | (111) | Courts | | .c. | 0-155: Blind dri | | | | | Log | Diag | 1,0 | | 00.11 | | | 200 | Connin |
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| | | | | | 34-41: Red sap | orolite | | | | | | | | | | | | |
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| | , | | | 40 | 41-69: Type I, r | red to red-brown | | 1 | | | | | | | | | | |
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Foth & Van Dyke

State of Wisconsin

Route to:

SOIL BORING LOG INFORMATION

Form 4400-122

7-91

Page 2 of 2

| Department of Natur | al Resources |
|---------------------|--------------|
| BORING NUMBER: | MW-1014C |

| SAMPLE | | | | 0.115 | | | | | Soil Properties | | | | | |
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| | | | | 69: Red to red-brown Type II waste rock | | | | | | | | | | |
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| | 1 | | | 98: Red to red-brown T-II waste rock; resume drilling (wet) 9/21/98 @1410 | | | | | | ı | 1 | | | |
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| | İ | | | 102: Red to red-brown Type II waste rock | | | | | | | - 1 | | | |
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Attachment 3 Well/Drillhole/Borehole Abandonment

State of Wisconsin Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5B

Rev. 3-95

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

| applicable. | 7130, 300 III311 UCIONS ON DO | IUN. | | | | | | | | | |
|-------------|--|--------------------------------|----------|---|---|----------------------------|--------------------|--------------------------------|--|--|--|
| | ERAL INFORMATION | | (2) | FACILIT | Y NAME | | è | | | | |
| | Drillhole/Borehole Location | County | | | ell Owner (If I | | | | | | |
| | | Rusk | | | Mining Compa | ny | | | | | |
| | | ⊔ E | | Present W | | | | | | | |
| <u>NW</u> ! | 1/4 of SE 1/4 of Sec. 9; T. | . <u>34</u> N R. <u>6</u> ☑ W | <u> </u> | | Mining Compa | ny | | | | | |
| (If app | plicable) | 0.1131 | 1 | Street or R | | | | | | | |
| | | Grid Number | _ | N4100 Hig City, State | | | | | | | |
| Grid I | Location | ft. □ E. □ W. | | | , Zip Code , WI 54848 | | | | | | |
| Civil | ft. □ N. □ S., Town Name | 1L LI E. LI W. | - | | | Name (If applicab | ole) | WI Unique Well No. | | | |
| Ladys | | | 1 | B-1014C | on roo and or r | tarre (ir appresso | ,, | _ <u>N_A</u> | | | |
| | Address of Well | * | | | r Abandonmen | t | | | | | |
| | 0 Highway 27 | | | | fusal on Boulde | | | | | | |
| | Village | | | Date of Al | andonment | | | | | | |
| | smith, WI 54848 | | | 9/18/98 | | | | | | | |
| WELL/DR | ILLHOLE/BOREHOLE I | NFORMATION | | | | | | | | | |
| (3) Origina | l Well/Drillhole/Borehole C | onstruction Completed On | (4) | Depth to V | Vater (Feet) | N/A | | | | | |
| . , | 9/18/98 | • | | Pump & P | iping Removed | ? Пу | es 🗆 No | Not Applicable | | | |
| (Date) | 21.10.20 | | | Liner(s) R | | | es \square No | = = = | | | |
| _ | | Construction Report Available? | | Screen Ren | | | es \square No | Not Applicable Not Applicable | | | |
| | onitoring Well | | | | | | | Not Applicable | | | |
| ☐ Wa | ater Well | ☐ Yes ☐ No | | 1.00 | ft in Place? | | es 🗆 No | | | | |
| ☐ Dri | llhole | N/A | | If No, Exp | lain | | | | | | |
| Bor | rehole | | | | | | | | | | |
| | | | | | g Cut Off Belo | | ☐ Yes | s □ No N/A | | | |
| Constru | iction Type: | | | Did Sealin | g Material Rise | to Surface? | ☐ Yes | □ No N/A | | | |
| 🗹 Dri | lled Driven (Sandp | oint) 🔲 Dug | | Did Mater | ial Settle After | 24 Hours? | ☐ Yes | ☑ No | | | |
| | ner (Specify) | | | If Yes | , Was Hole Ret | opped? | ☐ Yes | i □ No | | | |
| | (1)/ | | (5) | Required N | Method of Placi | ng Sealing Mater | | | | | |
| Formati | ion Type: | | l`´ | - | ctor Pipe-Grav | | onductor Pi | pe-Pumped | | | |
| | | Bedrock | | ☐ Dump | 4.5 | 15 | ther (Explai | 5 | | | |
| | | | | | | | | | | | |
| | Vell Depth (ft.)24' | Casing Diameter (ins.) N/A | (6) | Sealing Ma | ells and monitoring | | | | | | |
| (From g | groundsurface) | Casing Depth (ft.) N/A | | ☐ Neat Cement Grout well boreholes only | | | | | | | |
| | | | | ☐ Sand-Cement (Concrete) Grout | | | | | | | |
| Lower 1 | Drillhole Diameter (in.) | 9" | | ☐ Concre | rete | | | | | | |
| | | | | ☐ Clay-S | ☐ Clay-Sand Slurry ☐ Granular Bentonite | | | | | | |
| Was W | ell Annular Space Grouted? | ☐ Yes ☐ No ☐ Unknown | | ☑ Benton | nite-Sand Slurr | у ¦□ в | entonite - C | Cement Grout | | | |
| | Yes, To What Depth? N/A | | | ☐ Chipp | ed Bentonite | • | | | | | |
| (7) | | | Ī | | | No. Yards, | | | | | |
| (.,) | Material Used T | o Fill Well/Drillhole | F | rom (Ft.) | To (Ft.) | Sacks Sealant or Volume | Mix R | atio or Mud Weight | | | |
| | | | - | | | | | | | | |
| Pure C | Gold %" Chipped Bentonite | | | Surface | 24' | 300 lbs. | N/A | | | | |
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| (8) Comme | ents: | | | | | | | | | | |
| (0) 37 | | | | - г. | | | | | | | |
| | of Person or Firm Doing Seal | ung Work | | | | OR DNR OR CO | | | | | |
| | vola, Foth & Van Dyke re of Person Doing Work | Date Signed | 1 | | Date Received | /Inspected | Dist | rict/County | | | |
| | | 6-11-99 | 1 | | Reviewer/Insp | ector | Пп | Complying Work | | | |
| Street o | uk Schoola jem | Telephone Number | 1 | | Keviewei/ilisp | CCIOI | | Noncomplying Work | | | |
| | Ridge Road | (920) 497-2500 | | | | | | . , , , | | | |
| City, St | ate, Zip Code | | | | | | Second Burning Co. | | | | |
| Green E | Bay, WI 54304 | | | | | | | 200 | | | |

REASONS FOR WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Wis. Adm. Code (NR 111, NR 112, & NR 141) requires well owners to permanently abandon unused wells/drillholes/boreholes on their property. The reasons for this requirement are:

- To prevent contamination from entering the well/drillhole/borehole at the surface or through corroded well casings and moving downward to an aquifer used by other wells, and
- · To prevent vertical movement of water between different geologic formations of differing water quality.

Most licensed well drillers and pump installers have the equipment, knowledge and experience needed to permanently abandon wells/drillholes/boreholes. We recommend that these licensed contractors be hired to do this work.

PROCEDURE

- 1. Remove any pump, pump piping, debris or other obstacles that could interfere with the sealing operation. In most situations the well casing should be left in place. When the casing is removed it should be pulled during the abandonment process so the drillhole does not collapse.
- 2. The sealing material must be placed with a conductor (tremie) pipe either by pumping or by gravity, (except when approved chipped bentonite is used according to written department instructions and restrictions).
- 3. The bottom end of the conductor pipe must initially reach the bottom of the well and must be kept submerged in the sealing material as it is placed.
- 4. Unconsolidated formation wells should be sealed with the materials listed in item (6) on the form. When clay or sodium bentonite slurry is used to fill wells, the top 20 feet must be sealed with neat cement grout, concrete grout, concrete, or bentonite chips. Bedrock formation wells should be filled with neat cement grout, concrete grout, concrete, or bentonite chips. Monitoring wells must be filled with the materials specified by NR 141, Wis. Adm. Code.
- 5. Fill the entire well column from the bottom to the top with the required sealing material.
- 6. When using concrete or cement grout, any standing water in the hole will be forced out by the concrete or cement grout (it is more dense) resulting in an entire column of cement to seal the well. The sealing material must flow at the surface with the same consistency as it is being pumped in.
- 7. The casing may be cut off several feet below the ground surface.
- 8. To abandon flowing wells, the flow must be stopped or greatly reduced. This can be accomplished by extending the well casing to an elevation higher than the artesian head, or inserting a seal or packer in the casing. Once the flow has been stopped or reduced, the well can be abandoned the same as other wells.
- 9. For a municipal well, information regarding drillhole diameter and depths and geologic formations should be submitted on a separate sheet.
- 10. For use of alternative methods and materials, especially for deep, multi-formation wells contact DNR.

TEMPORARY ABANDONMENT

- · A well may be temporarily abandoned if it is planned to place the well back in service within a time specified by administrative rule.
- Temporary abandonment is accomplished by threading or welding a watertight cover to the casing or by filling the well with a clean clay slurry and then placing a cover over the well.
- · If the well is not placed back into service, it should be permanently abandoned unless a written extension is granted by DNR.

REPORT TO DNR

The Well/Drillhole/Borehole Abandonment Form 3300-5W, on the front, must be completed by the owner (or agent) and submitted to the appropriate DNR district office or delegated county office within 30 days.