

Company Name Darmac

Project BAMR Treatment System (D-2) Da

Site Name Darmac 14



AMD TREAT

AMD TREAT MAIN COST FORM

AMDTREAT

Costs

<u>Passive Treatment</u>	<u>A</u>	<u>S</u>	
Vertical Flow Pond			\$0
Anoxic Limestone Drain			\$0
Anaerobic Wetlands			\$0
Aerobic Wetlands			\$0
Manganese Removal Bed	1	0	\$26,791
Oxic Limestone Channel			\$0
Limestone Bed			\$0
BIO Reactor			\$0
Passive Subtotal:			\$26,791
<u>Active Treatment</u>			
Caustic Soda			\$0
Hydrated Lime			\$0
Pebble Quick Lime			\$0
Ammonia			\$0
Oxidants			\$0
Soda Ash			\$0
Active Subtotal:			\$0
<u>Ancillary Cost</u>			
Ponds	1	0	\$5,000
Roads			\$0
Land Access			\$0
Ditching	1	0	\$1,140
Engineering Cost			\$0
Ancillary Subtotal:			\$6,140
Other Cost (Capital Cost)			\$0
Total Capital Cost:			\$32,931
<u>Annual Costs</u>			
Sampling	1	0	\$642
Labor	1	0	\$1,137
Maintenance	1	0	\$329
Pumping			\$0
Chemical Cost			\$0
Oxidant Chem Cost			\$0
Sludge Removal	1	0	\$1,143
Other Cost (Annual Cost)			\$0
Land Access (Annual Cost)			\$0
Total Annual Cost:			\$3,251
Other Cost			

Water Quality

Calculated Acidity mg/L

Alkalinity mg/L

Calculate Net Acidity (Acid-Alkalinity)

Enter Net Acidity manually

Net Acidity (Hot Acidity) mg/L

Design Flow gpm

Typical Flow gpm

Total Iron mg/L

Aluminum mg/L

Manganese mg/L

pH su

Ferric Iron mg/L

Ferrous Iron mg/L

Sulfate mg/L

Filtered Fe mg/L

Filtered Al mg/L

Filtered Mn mg/L

Specific Conductivity uS/cm

Total Dissolved Solids mg/L

Dissolved Oxygen mg/L

**Total Annual Cost: per
1000 Gal of H2O Treated \$0.123**

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AMDTREAT

AMD TREAT MANGANESE REMOVAL BED

MN Removal Bed Name

SIZING METHODS Select One			
Tons of Limestone Needed	1,774.24	<input checked="" type="radio"/> Based on Retention Time	1. Retention Time <input style="width: 50px;" type="text" value="1.00"/> days
Tons of Limestone Needed	200.00	<input type="radio"/> Based on Tons of Limestone	2. Limestone Needed <input style="width: 50px;" type="text"/> tons
Tons of Limestone Needed	919.45	<input type="radio"/> Based on Dimensions	3. Length at Top of Freeboard <input style="width: 50px;" type="text"/> ft
Tons of Limestone Needed	0.00	<input type="radio"/> Based on Kinetics	4. Width at Top of Freeboard <input style="width: 50px;" type="text"/> ft
			5. Rate Constant (k) <input style="width: 50px;" type="text"/> hr/ft

Opening Screen Water Parameters

Influent Water Parameters that Affect MN Removal Bed

Calculated Acidity mg/L

Alkalinity mg/L

Calculate Net Acidity (Acid-Alkalinity)

Enter Net Acidity manually

Net Acidity (Hot Acidity) mg/L

Design Flow gpm

Typical Flow gpm

Total Iron mg/L

Aluminum mg/L

Manganese mg/L

6. Stone Diameter	<input style="width: 50px;" type="text" value="1.00"/>	inches
7. Effluent Mn Concentration	<input style="width: 50px;" type="text" value="5.00"/>	mg/l
8. % Void Space of Limestone Bed	<input style="width: 50px;" type="text" value="35.00"/>	%
9 Density of Loose Limestone	<input style="width: 50px;" type="text" value="107.53"/>	lbs/ft3
10. Limestone Unit Cost	<input style="width: 50px;" type="text" value="12.00"/>	\$/ton
11. Limestone Placement Unit Cost	<input style="width: 50px;" type="text" value="0.00"/>	\$/yd3
12. Freeboard Depth	<input style="width: 50px;" type="text" value="2.00"/>	ft
13. Limestone Depth	<input style="width: 50px;" type="text" value="1.00"/>	ft
14. Excavation Unit Cost	<input style="width: 50px;" type="text" value="4.50"/>	\$/yd3
15. Slope of Pond Sides	Run <input style="width: 30px;" type="text" value="2.0"/> : Rise <input style="width: 30px;" type="text" value="1"/>	

Liner Cost

No Liner

Clay Liner

16. Clay Liner Unit Cost \$/yd3

17. Thickness of Clay Liner ft

Synthetic Liner

18. Synthetic Liner Unit Cost \$/yd2

19. Clearing and Grubbing?

20. Land Multiplier ratio

21. Clear/Grub Acres acres

22. Clear and Grub Unit Cost \$/acre

Manganese Removal Bed Sizing Summaries

23. Top Length at Freeboard	<input style="width: 50px;" type="text" value="267.90"/>	ft
23. Top Width at Freeboard	<input style="width: 50px;" type="text" value="137.95"/>	ft
25. Freeboard Volume	<input style="width: 50px;" type="text" value="2,618"/>	yd3
26. Limestone Surface Area	<input style="width: 50px;" type="text" value="33,774.3"/>	ft2
27. Limestone Volume	<input style="width: 50px;" type="text" value="1,222.2"/>	yd3
28. Tons of Limestone	<input style="width: 50px;" type="text" value="1,774"/>	tons
29. Excavation Volume	<input style="width: 50px;" type="text" value="1,222"/>	yd3
30. Clear and Grub Area	<input style="width: 50px;" type="text" value="0.0"/>	acres
31. Liner Area	<input style="width: 50px;" type="text" value="0"/>	ft2
32. Theoretical Retention Time	<input style="width: 50px;" type="text" value="1.00"/>	days

Manganese Removal Bed Sub-Totals

33. Limestone Cost	<input style="width: 50px;" type="text" value="21,291"/>	\$
34. Limestone Placement Cost	<input style="width: 50px;" type="text" value="0"/>	\$
35. Excavation Cost	<input style="width: 50px;" type="text" value="5,500"/>	\$
36. Liner Cost	<input style="width: 50px;" type="text" value="0"/>	\$
37. Clear and Grub Cost	<input style="width: 50px;" type="text" value="0"/>	\$
38. Total Cost	<input style="width: 50px;" type="text" value="26,791"/>	\$

Record Number 1 of 1

Company Name Darmac
 Project BAMR Treatment System (D-2) Da
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AMD TREAT PONDS

AMDTREAT

Pond Name

Pond Design Based On:

Retention Time

1. Desired Retention Time hours

2. Include Sludge Removal?

3. Sludge Removal Frequency times/year

4. Titration?

5. Sludge Rate gal sludge/
gal H2O

6. Percent Solids %

7. Sludge Density lbs./gal

Pond Size

8. Pond Length at Top of Freeboard ft

9. Pond Width at Top of Freeboard ft

Run Rise

10. Slope Ratio of Pond Sides :

11. Freeboard Depth ft

12. Water Depth ft

13. Excavation Unit Cost \$/yd3

14. Total Length of Effluent / Influent Pipe ft

15. Unit Cost of Pipe \$/ft

Liner Cost

No Liner

Clay Liner

16. Clay Liner Unit Cost \$/yd3

17. Thickness of Clay Liner ft

Synthetic Liner

18. Synthetic Liner Unit Cost \$/yd2

19. Clearing and Grubbing?

20. Land Multiplier ratio

21. Clear/Grub Acres acres

22. Clear and Grub Unit Cost \$/acre

23. Revegetation Cost \$/acre

24. Number of Ponds for this Design number

25. Cost of Baffles \$

Calculated Pond Dimensions per Pond

26. Length at Top of Freeboard ft

27. Width at Top of Freeboard ft

28. Freeboard Volume yd3

29. Water Volume yd3

30. Estimated Annual Sludge yd3/yr

31. Volume of Sludge per Removal yd3/removal

32. Excavation Volume acre ft

33. Excavation Volume yd3

34. Clear and Grub Area acres

35. Liner Area yd2

36. Calculated Retention Time hours

Ponds Sub-Totals per Pond

37. Excavation Cost \$

38. Pipe Cost \$

39. Liner Cost \$

40. Clearing and Grubbing Cost \$

41. Revegetation Cost \$

42. Baffle Cost \$

43. Estimated Cost \$

44. Accept Minimum Pond Cost?

The Recommended Minimum Construction Cost of Building a Pond is \$ 5,000

45. Recommended Minimum Cost \$

46. Total Cost \$

Opening Screen Water Parameters

Influent Water Parameters that Affect Ponds

Calculated Acidity mg/L

Alkalinity mg/L

Calculate Net Acidity (Acid-Alkalinity)

Enter Net Acidity manually

Net Acidity (Hot Acidity) mg/L

Design Flow gpm

Typical Flow gpm

Total Iron mg/L

Aluminum mg/L

Manganese mg/L

Record Number
1 of 1

Company Name Darmac

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Project BAMR Treatment System (D-2) Da

Site Name Darmac 14

AMD TREAT DITCHING



AMDTREAT

Ditching Name

- 1. Ditch Length Rock ft
- 2. Ditch Length Grass ft
- 3. Bottom Width of Ditch ft
- 4. Ditch Depth ft
- 5. Geo Textile Unit Cost \$/yd2
- 6. Length of Geo Textile ft
- 7. Slope Ratio of Ditch Sides

Run		Rise
<input type="text" value="2.00"/>	:	<input type="text" value="1.00"/>
- 8. Surveying?
- 9. Survey Rate acres/day
- 10. Survey Unit Cost \$/day
- 11. Clearing and Grubbing?
- 12. Clear and Grub Cost \$/acre

- 13. Ditch Depth of Rock ft
- 14. Cost of Ditch Surface Rock \$/yd3
- 15. Cost to Place Rock \$/yd3
- 16. Excavation Unit Cost \$/yd3
- 17. Length of Silt Fence ft
- 18. Unit Cost of Silt Fence \$/ft
- 19. Revegetation Unit Cost \$/acre

Ditching Sub-Totals

- 20. Excavation Cost \$
- 21. Survey Cost \$
- 22. Clear and Grub Cost \$
- 23. Aggregate Cost \$
- 24. Filter Fabric Cost \$
- 25. Silt Fence Cost \$
- 26. Revegetation Cost \$

Record Number 1 of 1

27. Total Cost \$

Company Name Darmac

Printed on 08/21/2007

Project BAMR Treatment System (D-2) Da

Site Name Darmac 14



AMDTREAT

AMD TREAT SAMPLING

Sampling Name

Estimate Sampling Cost

1. Unit Labor Cost \$/hr

2. Collection Time per Sample hours/sample

3. Travel Time hr

4. Sample Frequency samples/mo

5. Lab Cost Per Sample \$/sample

6. Number of Sample Points points

Enter Established Annual Sampling Cost

7. Actual Annual Sampling Cost \$

Sampling Sub-Totals

8. Yearly Sample Analysis Cost \$

9. Yearly Travel Cost \$

10. Yearly Collection Cost \$

11. Sampling Cost \$

Record Number 1 of 1

Company Name Darmac

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Project BAMR Treatment System (D-2) Da

Site Name Darmac 14



AMDTREAT

AMD TREAT

LABOR

Labor Name

Estimate Labor Cost

1. Site Visits per Week

2. Site Labor Time per Visit hours

3. Travel Time per Visit hours

4. Unit Labor Cost \$/hour

Enter Established Annual Labor Cost

5. Actual Annual Labor Cost \$

6. Total Cost \$

Record Number 1 of 1

Company Name Darmac
Project BAMR Treatment System (D-2) Da
Site Name Darmac 14



AMDTREAT

AMD TREAT

MAINTENANCE

Estimate Maintenance Cost

- 1. Percent of Active Cost %
- 2. Percent of Passive Cost %
- 3. Percent of Ancillary Cost * %
- 4. Percent of Other Capital Cost %

Enter Established Annual Maintenance Cost

5. Annual Maintenance Cost \$

Maintenance Sub-Totals

- 6 Total Maintenance Active Cost \$
- 7. Total Maintenance Passive Cost \$
- 8. Total Maintenance Ancillary Cost \$
- 9. Total Maintenance Other Capital Cost \$
- 10. Total Maintenance Cost \$

* Ancillary Cost does not include Cost for
Land Access and Engineering Cost

Company Name Darmac
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AMD TREAT SLUDGE REMOVAL

Opening Screen Water Parameters

Sludge Removal Name

Influent Water Parameters that Affect Sludge Removal

Calculated Acidity mg/L

Alkalinity mg/L

Calculate Net Acidity (Acid-Alkalinity)

Enter Net Acidity manually

Net Acidity (Hot Acidity) mg/L

Design Flow gpm

Typical Flow gpm

Total Iron mg/L

Aluminum mg/L

Manganese mg/L

1. Select One Selection for Method of Removing Sludge

Sludge Removal by \$ per Gallon

2. Sludge Removal Unit Cost \$/gal

Sludge Removal by Vacuum Truck

3. Vacuum Truck Unit Cost \$/hr

4. Mobilization Cost \$

5. Hours to be Used hr

Sludge Removal by Mechanical Excavation

6. Mechanical Excavation Unit Rate \$/hr

7. Mobilization Cost \$

8. Hours to be Used hr

Sludge Removal by Lagoon Cleaner

9. Lagoon Cleaning Unit Rate \$/hr

10. Mobilization Cost \$

11. Hours to be Used hr

Actual Sludge Removal Cost

12. Actual Sludge Removal Cost \$

13. Off Site Disposal Cost \$

14. Iron Concentration mg/L

15. Manganese Concentration mg/L

16. Aluminum Concentration mg/L

17. Total Miscellaneous Concentration mg/L

18. Percent Solids %

19. Sludge Density lbs/gal

20 Titration?

21. Gal. of Sludge per Gal of Water Treated gal

22. Estimated Sludge Volume yd³/yr

Cost for Sludge Removal Types

23. Removal by \$ per Gallon \$

24. Removal by Vacuum Truck \$

25. Removal by Mechanical Excavation \$

26. Removal by Lagoon Cleaner \$

27. Actual Sludge Removal Cost \$

Sludge Removal Sub-Totals

28. Currently Selected Removal Cost Plus Off Site Disposal Cost \$

Record Number 1 of 1

Company Name Darmac

Project BAMR Treatment System (D-2) Da

Site Name Darmac 14



AMD TREAT RECAPITIALIZATION COST

AMDTREAT

Calculation Period yrs Inflation Rate % Net Return Rate %

Recapitalization Name

A.	B.	C.	D.	E.	F.	G.
Description of Item	Unit Cost Per Item	Quantity	Total Item Cost	Life Cycle	Number of Periods	Total PV
1. Replace LS in open channel (LS Cost only)	18	600	10,800	15	5	18,316
2. Labor and Inst cost for above	5,000	1	5,000	15	5	8,479
3. Replace MN Bed	21,000	1	21,000	15	5	35,614
4.	0	0	0	0	0	0
5.	0	0	0	0	0	0
6.	0	0	0	0	0	0
7.	0	0	0	0	0	0
8.	0	0	0	0	0	0
9.	0	0	0	0	0	0
10.	0	0	0	0	0	0
11.	0	0	0	0	0	0
12.	0	0	0	0	0	0
13.	0	0	0	0	0	0
14.	0	0	0	0	0	0
15.	0	0	0	0	0	0
16.	0	0	0	0	0	0
17.	0	0	0	0	0	0
18.	0	0	0	0	0	0
19.	0	0	0	0	0	0
20.	0	0	0	0	0	0

Total Capital Cost \$ PV Grand Total \$

Company Name Darmac

Project BAMR TRMT SYSTEM (D-1)

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AMD TREAT

AMD TREAT MAIN COST FORM

AMDTREAT

Costs

<u>Passive Treatment</u>	<u>A</u>	<u>S</u>	
Vertical Flow Pond			\$0
Anoxic Limestone Drain			\$0
Anaerobic Wetlands			\$0
Aerobic Wetlands			\$0
Manganese Removal Bed	1	0	\$28,389
Oxic Limestone Channel			\$0
Limestone Bed			\$0
BIO Reactor			\$0
Passive Subtotal:			\$28,389
<u>Active Treatment</u>			
Caustic Soda			\$0
Hydrated Lime			\$0
Pebble Quick Lime			\$0
Ammonia			\$0
Oxidants			\$0
Soda Ash			\$0
Active Subtotal:			\$0
<u>Ancillary Cost</u>			
Ponds	1	0	\$5,000
Roads			\$0
Land Access			\$0
Ditching	1	0	\$1,140
Engineering Cost			\$0
Ancillary Subtotal:			\$6,140
Other Cost (Capital Cost)			\$0
Total Capital Cost:			\$34,529
<u>Annual Costs</u>			
Sampling	1	0	\$787
Labor	1	0	\$1,137
Maintenance	1	0	\$345
Pumping			\$0
Chemical Cost			\$0
Oxidant Chem Cost			\$0
Sludge Removal	1	0	\$1,196
Other Cost (Annual Cost)			\$0
Land Access (Annual Cost)			\$0
Total Annual Cost:			\$3,465
Other Cost			

Water Quality

Calculated Acidity mg/L

Alkalinity mg/L

Calculate Net Acidity (Acid-Alkalinity)

Enter Net Acidity manually

Net Acidity (Hot Acidity) mg/L

Design Flow gpm

Typical Flow gpm

Total Iron mg/L

Aluminum mg/L

Manganese mg/L

pH su

Ferric Iron mg/L

Ferrous Iron mg/L

Sulfate mg/L

Filtered Fe mg/L

Filtered Al mg/L

Filtered Mn mg/L

Specific Conductivity uS/cm

Total Dissolved Solids mg/L

Dissolved Oxygen mg/L

**Total Annual Cost: per
1000 Gal of H2O Treated \$0.131**

Company Name Darmac

Project BAMR TRMT SYSTEM (D-1)

Site Name Darmac 14



AMDTREAT

AMD TREAT MANGANESE REMOVAL BED

MN Removal Bed Name

SIZING METHODS Select One					
Tons of Limestone Needed	1,774.24	<input checked="" type="radio"/> Based on Retention Time	1. Retention Time	1.00	days
Tons of Limestone Needed	200.00	<input type="radio"/> Based on Tons of Limestone	2. Limestone Needed		tons
Tons of Limestone Needed	919.45	<input type="radio"/> Based on Dimensions	3. Length at Top of Freeboard		ft
Tons of Limestone Needed	0.00	<input type="radio"/> Based on Kinetics	4. Width at Top of Freeboard		ft
			5. Rate Constant (k)		hr/ft

Opening Screen Water Parameters

Influent Water Parameters that Affect MN Removal Bed

Calculated Acidity

mg/L

Alkalinity

mg/L

Calculate Net Acidity (Acid-Alkalinity)

Enter Net Acidity manually

Net Acidity (Hot Acidity)

mg/L

Design Flow

gpm

Typical Flow

gpm

Total Iron

mg/L

Aluminum

mg/L

Manganese

mg/L

- 6. Stone Diameter inches
- 7. Effluent Mn Concentration mg/l
- 8. % Void Space of Limestone Bed %
- 9. Density of Loose Limestone lbs/ft3
- 10. Limestone Unit Cost \$/ton
- 11. Limestone Placement Unit Cost \$/yd3
- 12. Freeboard Depth ft
- 13. Limestone Depth ft
- 14. Excavation Unit Cost \$/yd3
- 15. Slope of Pond Slides Run : Rise

Liner Cost

No Liner

Clay Liner

16. Clay Liner Unit Cost \$/yd3

17. Thickness of Clay Liner ft

Synthetic Liner

18. Synthetic Liner Unit Cost \$/yd2

19. Clearing and Grubbing?

20. Land Multiplier ratio

21. Clear/Grub Acres acres

22. Clear and Grub Unit Cost \$/acre

Manganese Removal Bed Sizing Summaries

- 23. Top Length at Freeboard ft
- 23. Top Width at Freeboard ft
- 25. Freeboard Volume yd3
- 26. Limestone Surface Area ft2
- 27. Limestone Volume yd3
- 28. Tons of Limestone tons
- 29. Excavation Volume yd3
- 30. Clear and Grub Area acres
- 31. Liner Area ft2
- 32. Theoretical Retention Time days

Manganese Removal Bed Sub-Totals

- 33. Limestone Cost \$
- 34. Limestone Placement Cost \$
- 35. Excavation Cost \$
- 36. Liner Cost \$
- 37. Clear and Grub Cost \$

38. Total Cost \$

Record Number 1 of 1

Company Name Darmac
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AMD TREAT PONDS

AMDTREAT

Pond Name

Pond Design Based On:

Retention Time

1. Desired Retention Time hours

2. Include Sludge Removal?

3. Sludge Removal Frequency times/year

4. Titration?

5. Sludge Rate gal sludge/
gal H2O

6. Percent Solids %

7. Sludge Density lbs./gal

Pond Size

8. Pond Length at Top of Freeboard ft

9. Pond Width at Top of Freeboard ft

Opening Screen
Water Parameters

Influent Water Parameters that Affect Ponds

Calculated Acidity mg/L

Alkalinity mg/L

Calculate Net Acidity (Acid-Alkalinity)

Enter Net Acidity manually

Net Acidity (Hot Acidity) mg/L

Design Flow gpm

Typical Flow gpm

Total Iron mg/L

Aluminum mg/L

Manganese mg/L

Run Rise

10. Slope Ratio of Pond Sides :

11. Freeboard Depth ft

12. Water Depth ft

13. Excavation Unit Cost \$/yd3

14. Total Length of Effluent / Influent Pipe ft

15. Unit Cost of Pipe \$/ft

Liner Cost

No Liner

Clay Liner

16. Clay Liner Unit Cost \$/yd3

17. Thickness of Clay Liner ft

Synthetic Liner

18. Synthetic Liner Unit Cost \$/yd2

19. Clearing and Grubbing?

20. Land Multiplier ratio

21. Clear/Grub Acres acres

22. Clear and Grub Unit Cost \$/acre

23. Revegetation Cost \$/acre

24. Number of Ponds for this Design number

25. Cost of Baffles \$

Calculated Pond Dimensions per Pond

26. Length at Top of Freeboard ft

27. Width at Top of Freeboard ft

28. Freeboard Volume yd3

29. Water Volume yd3

30. Estimated Annual Sludge yd3/yr

31. Volume of Sludge per Removal yd3/removal

32. Excavation Volume acre ft

33. Excavation Volume yd3

34. Clear and Grub Area acres

35. Liner Area yd2

36. Calculated Retention Time hours

Ponds Sub-Totals per Pond

37. Excavation Cost \$

38. Pipe Cost \$

39. Liner Cost \$

40. Clearing and Grubbing Cost \$

41. Revegetation Cost \$

42. Baffle Cost \$

43. Estimated Cost \$

44. Accept Minimum Pond Cost?

The Recommended Minimum Construction Cost of Building a Pond is \$ 5,000

45. Recommended Minimum Cost \$

46. Total Cost \$

Record Number
1 of 1

Company Name Darmac

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Project BAMR TRMT SYSTEM (D-1)

Site Name Darmac 14

AMD TREAT DITCHING



AMDTREAT

Ditching Name

- 1. Ditch Length Rock ft
- 2. Ditch Length Grass ft
- 3. Bottom Width of Ditch ft
- 4. Ditch Depth ft
- 5. Geo Textile Unit Cost \$/yd2
- 6. Length of Geo Textile ft
- 7. Slope Ratio of Ditch Sides Run : Rise
- 8. Surveying?
- 9. Survey Rate acres/day
- 10. Survey Unit Cost \$/day
- 11. Clearing and Grubbing?
- 12. Clear and Grub Cost \$/acre

- 13. Ditch Depth of Rock ft
- 14. Cost of Ditch Surface Rock \$/yd3
- 15. Cost to Place Rock \$/yd3
- 16. Excavation Unit Cost \$/yd3
- 17. Length of Silt Fence ft
- 18. Unit Cost of Silt Fence \$/ft
- 19. Revegetation Unit Cost \$/acre

Ditching Sub-Totals

- 20. Excavation Cost \$
- 21. Survey Cost \$
- 22. Clear and Grub Cost \$
- 23. Aggregate Cost \$
- 24. Filter Fabric Cost \$
- 25. Silt Fence Cost \$
- 26. Revegetation Cost \$

Record Number 1 of 1

27. Total Cost \$

Company Name Darmac

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Project BAMR TRMT SYSTEM (D-1)

Site Name Darmac 14

AMD TREAT SAMPLING



Sampling Name

Estimate Sampling Cost

1. Unit Labor Cost \$/hr

2. Collection Time per Sample hours/sample

3. Travel Time hr

4. Sample Frequency samples/mo

5. Lab Cost Per Sample \$/sample

6. Number of Sample Points points

Enter Established Annual Sampling Cost

7. Actual Annual Sampling Cost \$

Sampling Sub-Totals

8. Yearly Sample Analysis Cost \$

9. Yearly Travel Cost \$

10. Yearly Collection Cost \$

11. Sampling Cost \$

Record Number 1 of 1

Company Name Darmac
Project BAMR TRMT SYSTEM (D-1)
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AMDTREAT

AMD TREAT

LABOR

Labor Name

Estimate Labor Cost

1. Site Visits per Week
2. Site Labor Time per Visit hours
3. Travel Time per Visit hours
4. Unit Labor Cost \$/hour

Enter Established Annual Labor Cost

5. Actual Annual Labor Cost \$

6. Total Cost \$

Record Number 1 of 1

Company Name Darmac
Project BAMR TRMT SYSTEM (D-1)
Site Name Darmac 14



AMDTREAT

AMD TREAT

MAINTENANCE

Estimate Maintenance Cost

- 1. Percent of Active Cost %
- 2. Percent of Passive Cost %
- 3. Percent of Ancillary Cost * %
- 4. Percent of Other Capital Cost %

Enter Established Annual Maintenance Cost

5. Annual Maintenance Cost \$

Maintenance Sub-Totals

- 6 Total Maintenance Active Cost \$
- 7. Total Maintenance Passive Cost \$
- 8. Total Maintenance Ancillary Cost \$
- 9. Total Maintenance Other Capital Cost \$
- 10. Total Maintenance Cost \$

* Ancillary Cost does not include Cost for Land Access and Engineering Cost

Company Name Darmac
Project BAMR TRMT SYSTEM (D-1)
Site Name Darmac 14



AMDTREAT

AMD TREAT SLUDGE REMOVAL

Opening Screen
Water Parameters

Sludge Removal Name

Influent Water Parameters that Affect Sludge Removal

Calculated Acidity mg/L

Alkalinity mg/L

Calculate Net Acidity (Acid-Alkalinity)

Enter Net Acidity manually

Net Acidity (Hot Acidity) mg/L

Design Flow gpm

Typical Flow gpm

Total Iron mg/L

Aluminum mg/L

Manganese mg/L

1. Select One Selection for Method of Removing Sludge

Sludge Removal by \$ per Gallon

2. Sludge Removal Unit Cost \$/gal

Sludge Removal by Vacuum Truck

3. Vacuum Truck Unit Cost \$/hr

4. Mobilization Cost \$

5. Hours to be Used hr

Sludge Removal by Mechanical Excavation

6. Mechanical Excavation Unit Rate \$/hr

7. Mobilization Cost \$

8. Hours to be Used hr

Sludge Removal by Lagoon Cleaner

9. Lagoon Cleaning Unit Rate \$/hr

10. Mobilization Cost \$

11. Hours to be Used hr

Actual Sludge Removal Cost

12. Actual Sludge Removal Cost \$

13. Off Site Disposal Cost \$

14. Iron Concentration mg/L

15. Manganese Concentration mg/L

16. Aluminum Concentration mg/L

17. Total Miscellaneous Concentration mg/L

18. Percent Solids %

19. Sludge Density lbs/gal

20 Titration?

21. Gal. of Sludge per Gal of Water Treated gal

22. Estimated Sludge Volume yd3/yr

Cost for Sludge Removal Types

23. Removal by \$ per Gallon \$

24. Removal by Vacuum Truck \$

25. Removal by Mechanical Excavation \$

26. Removal by Lagoon Cleaner \$

27. Actual Sludge Removal Cost \$

Sludge Removal Sub-Totals

28. Currently Selected Removal Cost Plus Off Site Disposal Cost \$

Record Number 1 of 1

Company Name Darmac

Project BAMR TRMT SYSTEM (D-1)

Site Name Darmac 14



AMD TREAT RECAPITIALIZATION COST

AMDTREAT

Calculation Period yrs Inflation Rate % Net Return Rate %

Recapitalization Name

A.	B.	C.	D.	E.	F.	G.
Description of Item	Unit Cost Per Item	Quantity	Total Item Cost	Life Cycle	Number of Periods	Total PV
1. Replace ALD	100,000	1	100,000	15	5	169,589
2. Maint on system (BAMR already did some)	2,500	1	2,500	15	5	4,240
3. Replace MN Bed	2,300	1	2,300	15	5	3,901
4.	0	0	0	0	0	0
5.	0	0	0	0	0	0
6.	0	0	0	0	0	0
7.	0	0	0	0	0	0
8.	0	0	0	0	0	0
9.	0	0	0	0	0	0
10.	0	0	0	0	0	0
11.	0	0	0	0	0	0
12.	0	0	0	0	0	0
13.	0	0	0	0	0	0
14.	0	0	0	0	0	0
15.	0	0	0	0	0	0
16.	0	0	0	0	0	0
17.	0	0	0	0	0	0
18.	0	0	0	0	0	0
19.	0	0	0	0	0	0
20.	0	0	0	0	0	0

Total Capital Cost \$ PV Grand Total \$