



**Field Colorimetry  
Data Form  
WATER SAMPLES**

Analyst: Pac  
 Date: 2 December 2002  
 Checked by: Pac  
 Site Name: Raytheon Wayland  
 Project Number: 143.78  
 Project Manager: Fiacco

Sample Name	Collection Date / Time	Preservative (Note)	Color	Measured (ppm)	Dilution (X factor)	Concentration (ppm)	Notes
MW-106	11/21/02	Ice only	Purple	29.6	20X	<b>532</b>	MnO <sub>2</sub> solids
MW-106M	11/21/02	Ice only	Purple	8.2	100X	<b>736</b>	
MW-212	11/21/02	Ice only	Purple	13.8	20X	<b>248</b>	
MW-212M	11/21/02	Ice only	Purple	19.2	10X	<b>172</b>	
MW-105	11/21/02	Ice only	Dk Rose	14.6	10X	<b>131</b>	MnO <sub>2</sub> solids
MW-105M	11/21/02	Ice only	Pink	10.2	1X	<b>9</b>	
MW-210	11/21/02	Ice only	Pink	14.2	1X	<b>13</b>	
MW-104	11/21/02	Ice only	Dk Purple	66.4	10X	<b>596</b>	
MW-43S	11/21/02	Ice only	Rose	70.7	1X	<b>63</b>	

Note:  
 All results reported as sodium permanganate.

Equations:  
 mg/L as NaMnO<sub>4</sub> = (0.898) x KMnO<sub>4</sub>  
 1% = 10,000 mg/l



**Field Colorimetry  
Data Form  
WATER SAMPLES**

Analyst: Pac  
 Date: 5 December 2002  
 Checked by: Pac  
 Site Name: Raytheon Wayland  
 Project Number: 143.78  
 Project Manager: Fiacco

Sample Name	Collection Date / Time	Preservative (Note)	Color	Measured (ppm)	Dilution (X factor)	Concentration (ppm)	Notes
MW-106	12/2/02	Ice only	Dk Purple	69.1	10X	<b>620</b>	
MW-106M	12/2/02	Ice only	Pink	26.3	1X	<b>24</b>	MnO <sub>2</sub> solids
MW-212	12/2/02	Ice only	Pink	77.8	1X	<b>70</b>	
MW-212M	12/2/02	Ice only	Lt Pink	6.9	1X	<b>6</b>	
MW-105M	12/2/02	Ice only	Dk Pink	19.2	10X	<b>172</b>	
MW-210	12/2/02	Ice only	Pink	63.0	1X	<b>57</b>	
MW-104	12/2/02	Ice only	Dk Purple	15.8	100X	<b>1,420</b>	
MW-43S	12/2/02	Ice only	Brown/Blk	0.4	1X	<b>&lt; 1</b>	MnO <sub>2</sub> solids
Note: All results reported as sodium permanganate.							

Equations:  
 mg/L as NaMnO<sub>4</sub> = (0.898) x KMnO<sub>4</sub>  
 1% = 10,000 mg/l



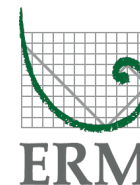
**Field Colorimetry  
Data Form  
WATER SAMPLES**

Analyst: Pac  
 Date: 18 December 2002  
 Checked by: Pac  
 Site Name: Raytheon Wayland  
 Project Number: 143.78  
 Project Manager: Fiacco

Sample Name	Collection Date / Time	Preservative (Note)	Color	Measured (ppm)	Dilution (X factor)	Concentration (ppm)	Notes
MW-106	12/11/02	Ice only	Pink	18.2	1X	<b>16</b>	MnO <sub>2</sub> solids
MW-212	12/11/02	Ice only	Dk Purple	23.4	100X	<b>2,100</b>	
MW-212M	12/11/02	Ice only	Purple	33.2	10X	<b>298</b>	
MW-105	12/11/02	Ice only	Lt Pink	13.5	1X	<b>12</b>	MnO <sub>2</sub> solids
MW-105M	12/11/02	Ice only	Dk Purple	40.3	100X	<b>3,620</b>	
MW-210	12/11/02	Ice only	Purple	51.0	10X	<b>458</b>	MnO <sub>2</sub> solids
MW-104	12/11/02	Ice only	Dk Purple	15.8	100X	<b>1,420</b>	
MW-43S	12/11/02	Ice only	Dk Purple	17.9	100X	<b>1,610</b>	

Note:  
 Measured concentrations in potassium permanganate (KMnO<sub>4</sub>)  
 All results reported as sodium permanganate (NaMnO<sub>4</sub>)

Equations:  
 mg/L as NaMnO<sub>4</sub> = (0.898) x KMnO<sub>4</sub>  
 1% = 10,000 mg/l



**Field Colorimetry  
Data Form  
WATER SAMPLES**

Analyst: Pac  
 Date: 20 December 2002  
 Checked by: Pac  
 Site Name: Raytheon Wayland  
 Project Number: 143.78  
 Project Manager: Fiacco

Sample Name	Collection Date / Time	Preservative (Note)	Color	Measured (ppm)	Dilution (X factor)	Concentration (ppm)	Notes
MW-106	12/19/02	Ice only	Purple	63.3	10X	<b>568</b>	
MW-106M	12/19/02	Ice only	Rose	71.8	1X	<b>64</b>	
MW-212	12/19/02	Ice only	Purple	39.2	10X	<b>352</b>	
MW-212M	12/19/02	Ice only	Dk Purple	16.3	100X	<b>1,460</b>	
MW-105	12/19/02	Ice only	Lt Pink	2.2	1X	<b>2</b>	
MW-105M	12/19/02	Ice only	Purple	102	10X	<b>916</b>	
MW-210	12/19/02	Ice only	Purple	41.7	10X	<b>374</b>	
MW-104	12/19/02	Ice only	Pink	19.5	1X	<b>18</b>	
MW-43S	12/19/02	Ice only	Dk Purple	16.9	100X	<b>1,520</b>	
Note: Measured concentrations in potassium permanganate (KMnO <sub>4</sub> ) All results reported as sodium permanganate (NaMnO <sub>4</sub> )							

Equations:

mg/L as NaMnO<sub>4</sub> = (0.898) x KMnO<sub>4</sub>

1% = 10,000 mg/l



**Field Colorimetry  
Data Form  
WATER SAMPLES**

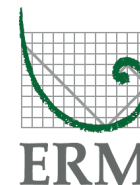
Analyst: Pac  
 Date: 6 January 2003  
 Checked by: Pac  
 Site Name: Raytheon Wayland  
 Project Number: 143.78  
 Project Manager: Fiacco

Sample Name	Collection Date / Time	Preservative (Note)	Color	Measured (ppm)	Dilution (X factor)	Concentration (ppm)	Notes
MW-106	1/2/03	Ice only	Lt pink	11.8	1X	<b>11</b>	
MW-106M	1/2/03	Ice only	Purple	73.9	10X	<b>664</b>	
MW-212	1/2/03	Ice only	Clear	0.3	1X	<b>&lt; 1</b>	
MW-212M	1/2/03	Ice only	Purple	39.1	10X	<b>351</b>	
MW-105	1/2/03	Ice only	Lt Pink	3.2	1X	<b>3</b>	
MW-105M	1/2/03	Ice only	Lt Pink	4.9	1X	<b>4</b>	
MW-210	1/2/03	Ice only	Purple	12.3	100X	<b>1,105</b>	
MW-104	1/2/03	Ice only	Purple	65.8	10X	<b>591</b>	
MW-43S	1/2/03	Ice only	Dk Purple	23.6	100X	<b>2,120</b>	
Note: Measured concentrations in potassium permanganate (KMnO <sub>4</sub> ) All results reported as sodium permanganate (NaMnO <sub>4</sub> )							

Equations:

$$\text{mg/L as NaMnO}_4 = (0.898) \times \text{KMnO}_4$$

$$1\% = 10,000 \text{ mg/l}$$



**Field Colorimetry  
Data Form  
SOIL SAMPLES**

Analyst: Pac  
 Date: 6 December 2002  
 Checked by: Pac  
 Site Name: Raytheon Wayland  
 Project Number: 143.78  
 Project Manager: Fiacco

Sample Name	Collection Date / Time	Preservative (Note)	Color	Measured (ppm)	Dilution (X factor)	Concentration (ppm)	Notes
B-1 20-24'	11/23/02	None	Dk purple	30.9	100X	<b>2,770</b>	
B-2 22-25'	11/23/02	None	Cloudy	5.9	1X	<b>5</b>	Turbid even after filtering
B-3 10-15'	11/23/02	None	Cloudy	26.8	1X	<b>24</b>	Turbid even after filtering
B-3 20-25'	11/23/02	None	Dk purple	16.7	1000X	<b>15,000</b>	
B-4 15-20'	11/23/02	None	Dk purple	43.1	100X	<b>3,870</b>	
B-4 20-24'	11/23/02	None	Dk purple	53.8	1000X	<b>48,300</b>	
B-4 28-30'	11/23/02	None	Dk purple	12.6	1000X	<b>11,300</b>	

Note:

Added aliquots of distilled water to selected soil samples. Supernatant removed and analyzed as indication of soil / pore water permanganate concentrations.

All results reported as sodium permanganate.

Equations:

$$\text{mg/L as NaMnO}_4 = (0.898) \times \text{KMnO}_4$$

$$1\% = 10,000 \text{ mg/l}$$