

**TABLE 2.1**  
**GROUNDWATER ELEVATIONS**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

<b>Monitoring Well Designation</b>	<b>Ground Elevation (feet AMSL)</b>	<b>Reference Elevation (Top of Casing) (feet AMSL)</b>	<b>Monitored Interval Elevation (feet AMSL)</b>	<b>Groundwater Elevation (1/15/2001) (feet AMSL)</b>	<b>Groundwater Elevation (4/30/2001) (feet AMSL)</b>	<b>Groundwater Elevation (10/21/2002) (feet AMSL)</b>	<b>Groundwater Elevation (3/11/2003) (feet AMSL)</b>
MW-1	28.50	31.41	22.5 - 12.5	19.69	19.27	16.70	17.13
MW-2	35.50	38.39	25.5 - 15.5	22.62	22.75	19.87	20.76
MW-3	37.70	40.37	19.7 - 9.7	20.23	19.72	17.05	17.29
MW-4	56.60	59.76	44.6 - 34.6	47.65	47.68	46.05	45.50
MW-5	57.70	60.54	41.7 - 31.7	50.51	51.41	46.97	44.36
MW-6	67.70	70.61	47.7 - 37.7	56.43	57.66	56.03	54.48
MW-7	46.00	48.66	36.0 - 26.0	42.07	41.41	38.91	36.45
MW-8	63.79	63.37	49.3 - 39.3	NA	NA	56.16	54.96
MW-9	63.78	63.35	23.8 - 13.8	NA	NA	45.15	44.44
MW-10	65.07	64.59	48.1 - 38.1	NA	NA	45.89	52.86

## Notes:

feet AMSL - feet above mean sea level

NM - not measured

NA - not available

TABLE 2.2

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-2</b>	<b>BH-3</b>	<b>BH-3</b>	<b>BH-4</b>	<b>BH-5</b>	<b>BH-5</b>	<b>BH-5</b>	
		<b>4-6 ft BGS</b>	<b>6-8 ft BGS</b>	<b>6-8 ft BGS</b>					
		<b>S-03-16-98-SC-78</b>	<b>S-03-16-98-SC-87</b>	<b>S-03-16-98-SC-88</b>	<b>S-03-16-98-SC-66</b>	<b>S-03-16-98-SC-73</b>	<b>031698-S9</b>	<b>S-03-16-98-SC-74</b>	
		<b>3/16/1998</b>	<b>3/16/1998</b>	<b>3/16/1998</b>	<b>3/16/1998</b>	<b>3/16/1998</b>	<b>3/16/1998</b>	<b>3/16/1998</b>	
		<b>Original</b>	<b>Original</b>	<b>Duplicate</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	
	<b>Region IX Worker Screening Criteria <sup>(1)</sup></b>								
<b>Unit</b>									
<b>Volatile Organic Compounds</b>									
Benzene	µg/kg	1,300	--	--	--	--	--	--	
Ethylbenzene	µg/kg	20,000	--	--	--	--	550	1,100 J	
Tetrachloroethene	µg/kg	3,400	3.0 J	--	--	120	320	1,400 J	
Trichloroethene	µg/kg	110	--	--	--	10 J	63	--	

Notes:

(1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2002.

-- - Not detected.

- Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.2

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-5</b>	<b>BH-7</b>	<b>BH-7</b>	<b>BH-8</b>	<b>BH-12</b>	<b>BH-13</b>	<b>BH-13</b>
<b>Sample Location:</b>		<b>12-14 ft BGS</b>	<b>5-7 ft BGS</b>	<b>5-7 ft BGS</b>	<b>4-6 ft BGS</b>	<b>5-7 ft BGS</b>	<b>4-6 ft BGS</b>	<b>8-10 ft BGS</b>
<b>Sample Depth:</b>								
<b>Sample ID:</b>		<b>S-03-16-98-SC-76</b>	<b>S-03-17-98-SC-99</b>	<b>S-03-17-98-SC-100</b>	<b>S-03-17-98-SC-95</b>	<b>S-070198-SC-145</b>	<b>S-062998-SC-114</b>	<b>062998-S12</b>
<b>Sample Date:</b>		<b>3/16/1998</b>	<b>3/17/1998</b>	<b>3/17/1998</b>	<b>3/17/1998</b>	<b>7/01/1998</b>	<b>6/29/1998</b>	<b>6/29/1998</b>
		<b>Original</b>	<b>Original</b>	<b>Duplicate</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>
<b>Region IX Worker Screening Unit Criteria <sup>(1)</sup></b>								
<b>Volatile Organic Compounds</b>								
Benzene	µg/kg	1,300	--	--	--	--	--	--
Ethylbenzene	µg/kg	20,000	--	--	--	--	1 J	--
Tetrachloroethene	µg/kg	3,400	4,000	--	--	--	9 J	2,400
Trichloroethene	µg/kg	110	--	--	--	--	4 J	680

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TABLE 2.2

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-13</b>	<b>BH-13</b>	<b>BH-13</b>	<b>BH-14</b>	<b>BH-14</b>	<b>BH-14</b>	<b>BH-15</b>	<b>BH-15</b>
<b>Sample Location:</b>		<b>8-10 ft BGS</b>	<b>8-10 ft BGS</b>	<b>16-18 ft BGS</b>	<b>2-4 ft BGS</b>	<b>4-6 ft BGS</b>	<b>18-20 ft BGS</b>	<b>6-8 ft BGS</b>	<b>6-8 ft BGS</b>
<b>Sample Depth:</b>									
<b>Sample ID:</b>		<b>S-062998-SC-115</b>	<b>S-062998-SC-116</b>	<b>S-062998-SC-118</b>	<b>062998-S13</b>	<b>S-062998-SC-120</b>	<b>S-062998-SC-121</b>	<b>S-063098-SC-125</b>	<b>063098-S14</b>
<b>Sample Date:</b>		<b>6/29/1998</b>	<b>6/29/1998</b>	<b>6/29/1998</b>	<b>6/29/1998</b>	<b>6/29/1998</b>	<b>6/29/1998</b>	<b>6/30/1998</b>	<b>6/30/1998</b>
		<b>Original</b>	<b>Duplicate</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Duplicate</b>
<b>Region IX Worker Screening Criteria <sup>(1)</sup></b>									
<b>Unit</b>									
<b>Volatile Organic Compounds</b>									
Benzene	µg/kg	1,300	--	--	--	--	--	--	--
Ethylbenzene	µg/kg	20,000	76 J	--	--	11 J	--	11,000	9,900
Tetrachloroethene	µg/kg	3,400	2,500	3,000	--	15	10 J	--	--
Trichloroethene	µg/kg	110	440 J	700 J	--	14	26	--	--

Notes:

(1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2002.

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**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<i>BH-15</i>	<i>BH-15</i>	<i>BH-16</i>	<i>BH-16</i>	<i>BH-16</i>	<i>BH-17</i>	<i>BH-17</i>
<i>Sample Location:</i>		<i>12-14 ft BGS</i>	<i>18-20 ft BGS</i>	<i>6-8 ft BGS</i>	<i>10-12 ft BGS</i>	<i>18-20 ft BGS</i>	<i>2-4 ft BGS</i>	<i>2-4 ft BGS</i>
<i>Sample Depth:</i>		<i>S-063098-SC-126</i>	<i>S-063098-SC-127</i>	<i>S-063098-SC-133</i>	<i>S-063098-SC-134</i>	<i>S-063098-SC-135</i>	<i>S-063098-SC-129</i>	<i>S-063098-SC-130</i>
<i>Sample ID:</i>		<i>6/30/1998</i>						
<i>Sample Date:</i>		<i>Original</i>	<i>Original</i>	<i>Original</i>	<i>Original</i>	<i>Original</i>	<i>Original</i>	<i>Duplicate</i>
<i>Region IX Worker Screening Criteria <sup>(1)</sup></i>								
<i>Unit</i>								
<b><i>Volatile Organic Compounds</i></b>								
Benzene	µg/kg	1,300	--	--	--	--	--	--
Ethylbenzene	µg/kg	20,000	11,000	19,000	3,400 J	--	12,000	4,700
Tetrachloroethene	µg/kg	3,400	190,000	--	50,000	12 J	--	--
Trichloroethene	µg/kg	110	28,000	--	8,000	--	--	--

Notes:

(1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2002.

-- - Not detected.

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TABLE 2.2

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

			<i>BH-17</i>	<i>BH-17</i>	<i>BH-18</i>	<i>BH-18</i>	<i>BH-18</i>	<i>BH-19</i>	<i>BH-19</i>	
	<i>Sample Location:</i>		<i>10-12 ft BGS</i>	<i>18-20 ft BGS</i>	<i>4-6 ft BGS</i>	<i>10-12 ft BGS</i>	<i>18-20 ft BGS</i>	<i>6-8 ft BGS</i>	<i>12-14 ft BGS</i>	
	<i>Sample Depth:</i>									
	<i>Sample ID:</i>		<i>S-063098-SC-131</i>	<i>S-063098-SC-132</i>	<i>S-063098-SC-136</i>	<i>S-063098-SC-137</i>	<i>S-063098-SC-138</i>	<i>S-063098-SC-139</i>	<i>S-063098-SC-140</i>	
	<i>Sample Date:</i>		<i>6/30/1998</i>							
			<i>Original</i>							
	<i>Region IX Worker Screening Criteria <sup>(1)</sup></i>									
	<i>Unit</i>									
<b>Volatile Organic Compounds</b>										
Benzene	µg/kg	1,300	--	--	--	5 J	--	--	--	
Ethylbenzene	µg/kg	20,000	2,400 J	--	110	--	--	--	--	
Tetrachloroethene	µg/kg	3,400	220,000	5 J	--	--	--	8 J	--	
Trichloroethene	µg/kg	110	7,400 J	--	--	220	--	11 J	--	

Notes:

(1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2002.

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EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-19</b>	<b>BH-20</b>	<b>BH-20</b>	<b>BH-20</b>	<b>BH-20</b>	<b>BH-21</b>	<b>BH-21</b>
	<b>Sample Location:</b>							
	<b>Sample Depth:</b>	<b>18-20 ft BGS</b>	<b>4-6 ft BGS</b>	<b>4-6 ft BGS</b>	<b>12-14 ft BGS</b>	<b>18-20 ft BGS</b>	<b>4-6 ft BGS</b>	<b>10-12 ft BGS</b>
	<b>Sample ID:</b>	<b>S-063098-SC-141</b>	<b>S-070198-SC-149</b>	<b>S-070198-SC-150</b>	<b>S-070198-SC-148</b>	<b>S-070198-SC-151</b>	<b>S-070198-SC-152</b>	<b>S-070198-SC-153</b>
	<b>Sample Date:</b>	<b>6/30/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>
		<b>Original</b>	<b>Original</b>	<b>Duplicate</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>
	<b>Region IX Worker Screening Criteria <sup>(1)</sup></b>							
<b>Unit</b>								
<b>Volatile Organic Compounds</b>								
Benzene	µg/kg	1,300	--	--	--	--	--	--
Ethylbenzene	µg/kg	20,000	--	580 J	1,900 J	--	--	--
Tetrachloroethene	µg/kg	3,400	--	--	--	--	--	--
Trichloroethene	µg/kg	110	--	--	--	--	--	--

Notes:

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**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-21</b>	<b>BH-22</b>	<b>BH-22</b>	<b>BH-22</b>	<b>BH-22</b>	<b>BH-23</b>	<b>BH-23</b>
	<b>Sample Location:</b>	<b>18-20 ft BGS</b>	<b>2-4 ft BGS</b>	<b>2-4 ft BGS</b>	<b>4-6 ft BGS</b>	<b>4-6 ft BGS</b>	<b>4-6 ft BGS</b>	<b>10-12 ft BGS</b>
	<b>Sample Depth:</b>							
	<b>Sample ID:</b>	<b>S-070198-SC-154</b>	<b>070198-S18</b>	<b>S-070198-SC-156</b>	<b>S-070198-SC-157</b>	<b>S-070198-SC-158</b>	<b>S-070198-SC-160</b>	<b>S-070198-SC-161</b>
	<b>Sample Date:</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>	<b>7/1/1998</b>
		<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Duplicate</b>	<b>Original</b>	<b>Original</b>
	<b>Region IX Worker Screening Criteria <sup>(1)</sup></b>							
	<b>Unit</b>							
<b>Volatile Organic Compounds</b>								
Benzene	µg/kg	1,300	--	--	--	--	--	--
Ethylbenzene	µg/kg	20,000	--	--	--	--	--	--
Tetrachloroethene	µg/kg	3,400	--	3.9	20	11,000 J	7,800	--
Trichloroethene	µg/kg	110	--	18	48	890 J	380 J	--

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**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-23</b>	<b>BH-26</b>	<b>BH-28</b>	<b>BH-29</b>	<b>BH-41</b>	<b>BH-41</b>	<b>BH-41</b>
	<b>Sample Location:</b>							
	<b>Sample Depth:</b>	<b>18-20 ft BGS</b>	<b>4-6 ft BGS</b>	<b>6-8 ft BGS</b>	<b>4-6 ft BGS</b>	<b>5-7 ft BGS</b>	<b>10-13 ft BGS</b>	<b>10-13 ft BGS</b>
	<b>Sample ID:</b>	<b>S-070198-SC-162</b>	<b>S-120600-LH-13</b>	<b>S-120500-LH-06</b>	<b>S-120500-LH-09</b>	<b>S-031902-MJ-012</b>	<b>S-031902-MJ-013</b>	<b>S-031902-MJ-014</b>
	<b>Sample Date:</b>	<b>7/1/1998</b>	<b>12/6/2000</b>	<b>12/5/2000</b>	<b>12/5/2000</b>	<b>3/19/2002</b>	<b>3/19/2002</b>	<b>3/19/2002</b>
		<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Duplicate</b>
	<b>Region IX Worker Screening Unit Criteria <sup>(1)</sup></b>							
<b>Volatile Organic Compounds</b>								
Benzene	µg/kg	1,300	--	--	--	--	4.6 J	2.2 J
Ethylbenzene	µg/kg	20,000	--	--	--	--	--	--
Tetrachloroethene	µg/kg	3,400	--	--	--	--	--	--
Trichloroethene	µg/kg	110	--	--	--	--	--	--

Notes:

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EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Sample Location:</i>	<i>BH-50</i>		<i>BH-50</i>		<i>BH-50</i>		<i>BH-56</i>		<i>BH-56</i>		<i>BH-57</i>		<i>BH-57</i>	
	<i>Sample Depth:</i>	<i>4-6 ft BGS</i>	<i>10-12 ft BGS</i>	<i>14-16 ft BGS</i>	<i>4-6 ft BGS</i>	<i>10-12 ft BGS</i>								
<i>Sample ID:</i>	<i>S-100802-MG-019</i>	<i>S-100802-MG-019</i>	<i>S-100802-MG-020</i>	<i>S-100802-MG-021</i>	<i>S-100802-MG-034</i>	<i>S-100802-MG-035</i>	<i>S-100802-MG-036</i>	<i>S-100802-MG-037</i>	<i>S-100802-MG-038</i>	<i>S-100802-MG-039</i>	<i>S-100802-MG-040</i>	<i>S-100802-MG-041</i>	<i>S-100802-MG-042</i>	<i>S-100802-MG-043</i>
<i>Sample Date:</i>	<i>10/8/2002</i>													
<i>Region IX Worker Screening Criteria <sup>(1)</sup></i>	<i>Original</i>													
<i>Unit</i>														
<b>Volatile Organic Compounds</b>														
Benzene	µg/kg	1,300	480 J	7,900	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	µg/kg	20,000	430 J	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	µg/kg	3,400	590 J	61,000	--	1,300	4,100	1,400	--	--	--	--	--	--
Trichloroethene	µg/kg	110	--	8,600	--	730	3,800	--	1,200	--	--	--	--	--

Notes:

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EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-58</b>	<b>BH-58</b>	<b>BH-58</b>	<b>BH-59</b>	<b>BH-59</b>	<b>BH-59</b>	<b>BH-60</b>	
	<b>Sample Location:</b>	<b>4-6 ft BGS</b>	<b>8-10 ft BGS</b>	<b>8-10 ft BGS</b>	<b>4-6 ft BGS</b>	<b>10-12 ft BGS</b>	<b>12-14 ft BGS</b>	<b>4-6 ft BGS</b>	
	<b>Sample Depth:</b>								
	<b>Sample ID:</b>	<b>S-100802-MG-038</b>	<b>S-100802-MG-039</b>	<b>S-100802-MG-040</b>	<b>S-100802-MG-041</b>	<b>S-100802-MG-042</b>	<b>S-100802-MG-043</b>	<b>S-100802-MG-045</b>	
	<b>Sample Date:</b>	<b>10/8/2002</b>							
		<b>Original</b>	<b>Original</b>	<b>Duplicate</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	
	<b>Region IX Worker Screening Criteria <sup>(1)</sup></b>								
	<b>Unit</b>								
<b>Volatile Organic Compounds</b>									
Benzene	µg/kg	1,300	--	--	--	57 J	4,400	11	--
Ethylbenzene	µg/kg	20,000	--	--	--	1,100	3,000	--	--
Tetrachloroethene	µg/kg	3,400	920	2,800	2,300	--	,	--	--
Trichloroethene	µg/kg	110	59 J	270 J	260 J	--	--	--	--

## Notes:

(1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2002.

-- - Not detected.

 - Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.2

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<i>BH-60</i>	<i>BH-60</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-65</i>	
<i>Sample Location:</i>		<i>12-14 ft BGS</i>	<i>12-14 ft BGS</i>	<i>2-4 ft BGS</i>	<i>4-6 ft BGS</i>	<i>4-6 ft BGS</i>	<i>8-10 ft BGS</i>	<i>6-8 ft BGS</i>	
<i>Sample Depth:</i>									
<i>Sample ID:</i>		<i>S-100802-MG-046</i>	<i>S-100802-MG-047</i>	<i>S-100802-MG-052</i>	<i>S-100902-MG-054</i>	<i>S-100902-MG-055</i>	<i>S-100802-MG-053</i>	<i>S-100902-MG-061</i>	
<i>Sample Date:</i>		<i>10/8/2002</i>	<i>10/8/2002</i>	<i>10/8/2002</i>	<i>10/9/2002</i>	<i>10/9/2002</i>	<i>10/8/2002</i>	<i>10/9/2002</i>	
		<i>Original</i>	<i>Duplicate</i>	<i>Original</i>	<i>Original</i>	<i>Duplicate</i>	<i>Original</i>	<i>Original</i>	
<i>Region IX Worker Screening Criteria <sup>(1)</sup></i>									
<i>Unit</i>									
<b><i>Volatile Organic Compounds</i></b>									
Benzene	µg/kg	1,300	5,500	5,200 J	--	--	--	--	--
Ethylbenzene	µg/kg	20,000	--	--	42,000	4,000 J	53,000 J	520	--
Tetrachloroethene	µg/kg	3,400	--	--	--	--	--	--	--
Trichloroethene	µg/kg	110	--	--	--	--	--	--	--

## Notes:

(1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2002.

-- - Not detected.

--

 - Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.2

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-65</b>	<b>BH-66</b>	<b>BH-69</b>	<b>BH-69</b>	<b>BH-73</b>	<b>BH-73</b>	<b>BH-73</b>
	<b>Sample Location:</b>							
	<b>Sample Depth:</b>	<b>10-12 ft BGS</b>	<b>2-4 ft BGS</b>	<b>4-6 ft BGS</b>	<b>12-14 ft BGS</b>	<b>4-6 ft BGS</b>	<b>4-6 ft BGS</b>	<b>8-10 ft BGS</b>
	<b>Sample ID:</b>	<b>S-100902-MG-062</b>	<b>S-100902-MG-064</b>	<b>S-100902-MG-070</b>	<b>S-100902-MG-072</b>	<b>S-100902-MG-080</b>	<b>S-100902-MG-081</b>	<b>S-100902-MG-082</b>
	<b>Sample Date:</b>	<b>10/9/2002</b>						
		<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Duplicate</b>	<b>Original</b>
	<b>Region IX Worker Screening Criteria <sup>(1)</sup></b>							
<b>Unit</b>								
<b>Volatile Organic Compounds</b>								
Benzene	µg/kg	1,300	--	--	36	--	--	--
Ethylbenzene	µg/kg	20,000	210 J	--	--	--	--	--
Tetrachloroethene	µg/kg	3,400	--	--	--	--	--	--
Trichloroethene	µg/kg	110	--	240 J	--	--	--	--

## Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2002.  
 -- - Not detected.  
 - Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.2

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS PRE ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

			<b>Sample Location:</b>	<b>BH-74</b>	<b>BH-74</b>	<b>BH-94</b>	<b>BH-94</b>
			<b>Sample Depth:</b>	<b>2-4 ft BGS</b>	<b>6-8 ft BGS</b>	<b>2-4 ft BGS</b>	<b>6-8 ft BGS</b>
			<b>Sample ID:</b>	<b>S-100902-MG-083</b>	<b>S-100902-MG-084</b>	<b>S-101602-MJ-120</b>	<b>S-101602-MJ-121</b>
			<b>Sample Date:</b>	<b>10/9/2002</b>	<b>10/9/2002</b>	<b>10/16/2002</b>	<b>10/16/2002</b>
				<b>Original</b>	<b>Original</b>	<b>Original</b>	<b>Original</b>
			<b>Region IX Worker Screening Criteria <sup>(1)</sup></b>				
<b>Unit</b>							
<b>Volatile Organic Compounds</b>							
Benzene	µg/kg	1,300	--	--	--	--	--
Ethylbenzene	µg/kg	20,000	--	--	24,000 J	--	19,000 J
Tetrachloroethene	µg/kg	3,400	--	--	--	--	--
Trichloroethene	µg/kg	110	--	9.3 J	--	--	--

Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2002.  
 -- - Not detected.  
 - Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>	<i>BH-2</i>	<i>BH-4</i>	<i>BH-5</i>	<i>BH-5</i>	<i>BH-5</i>	<i>BH-7</i>	<i>BH-7</i>		
<i>Sample Name:</i>	<i>S-03-16-98-SC-78</i>	<i>S-03-16-98-SC-66</i>	<i>S-03-16-98-SC-73</i>	<i>S-020905-JW-005R</i>	<i>S-020905-JW-005S</i>	<i>S-03-17-98-SC-99</i>	<i>S-03-17-98-SC-100</i>		
<i>Sample Date:</i>	<i>1998/03/16</i>	<i>1998/03/16</i>	<i>1998/03/16</i>	<i>2/9/2005</i>	<i>2/9/2005</i>	<i>1998/03/17</i>	<i>1998/03/17</i>		
<i>Sample Depth:</i>	<i>4 - 6 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>8 - 10 ft bgs</i>	<i>12 - 14 ft bgs</i>	<i>5 - 7 ft BGS</i>	<i>5 - 7 ft BGS Duplicate</i>		
<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>									
<b><i>Volatile Organic Compounds</i></b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND (12)	ND (13)	ND (12)	ND(1200)	ND(11000)	ND (12)	ND (13)
Trichloroethene	µg/kg	110	ND (12)	ND (13)	10 J	310 J	3700 J	ND (12)	ND (13)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	3.0 J	ND (13)	120	1500	110000	ND (12)	ND (13) UJ
Vinyl chloride	µg/kg	750	ND (12)	ND (13)	ND (12)	ND(1200)	ND(11000)	ND (12)	4 J
Xylene (total)	µg/kg	420,000	ND (12)	ND (13)	140	53000	13000	ND (12)	3.0 J

Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.
- (2) - Modified in October 2004.
- - Not detected.
- Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>	<b>BH-8</b>		<b>BH-12</b>		<b>BH-13</b>		<b>BH-13</b>		<b>BH-13</b>		<b>BH-13</b>		<b>BH-13</b>	
<i>Sample Name:</i>	<b>S-03-17-98-SC-95</b>		<b>S-070198-SC-145</b>		<b>S-062998-SC-114</b>		<b>S-052405-JW-013</b>		<b>S-052405-JW-013A</b>		<b>S-052405-JW-013B</b>		<b>S-062998-SC-118</b>	
<i>Sample Date:</i>	<b>1998/03/17</b>		<b>1998/07/01</b>		<b>1998/06/29</b>		<b>5/24/2005</b>		<b>5/24/2005</b>		<b>5/24/2005</b>		<b>1998/06/29</b>	
<i>Sample Depth:</i>	<b>4 - 6 ft BGS</b>		<b>5 - 7 ft BGS</b>		<b>4 - 6 ft BGS</b>		<b>8 - 10 ft BGS</b>		<b>12 - 14 ft BGS</b>		<b>12 - 14 ft BGS</b>		<b>16 - 18 ft BGS</b>	
<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>														
<b>Volatile Organic Compounds</b>														
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND (12)	ND (12)	ND (11)	ND(2300)	ND(5000)	ND(5200)	ND (12)					
Trichloroethene	µg/kg	110	ND (12)	ND (12)	4 J	1800 J	2200 J	2000 J	ND (12)					
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND (12) UJ	ND (12)	9 J	8400	14000	12000	ND (12)					
Vinyl chloride	µg/kg	750	ND (12)	ND (12)	ND (11)	ND(2300)	ND(5000)	ND(5200)	ND (12)					
Xylene (total)	µg/kg	420,000	ND (12) UJ	ND (12)	7 J	4100	4100 J	7100	ND (12)					

## Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.  
(2) - Modified in October 2004.  
-- - Not detected.  
 - Exceeds USEPA Region IX PRGs for an industrial worker.

**TABLE 2.3**

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<b>Location Name:</b>	<b>BH-14</b>	<b>BH-14</b>	<b>BH-14</b>	<b>BH-15</b>	<b>BH-15</b>	<b>BH-15</b>	<b>BH-15</b>
<b>Sample Name:</b>	<b>062998-S13</b>	<b>S-062998-SC-120</b>	<b>S-062998-SC-121</b>	<b>S-020905-JW-015R</b>	<b>S-020905-JW-015S</b>	<b>S-020905-JW-015T</b>	<b>S-020905-JW-015U</b>
<b>Sample Date:</b>	<b>1998/06/29</b>	<b>1998/06/29</b>	<b>1998/06/29</b>	<b>2/9/2005</b>	<b>2/9/2005</b>	<b>2/9/2005</b>	<b>2/9/2005</b>
<b>Sample Depth:</b>	<b>2 - 4 ft BGS</b>	<b>4 - 6 ft BGS</b>	<b>18 - 20 ft BGS</b>	<b>8 - 10 ft bgs</b>	<b>10 - 12 ft bgs</b>	<b>12 - 14 ft bgs</b>	<b>12 - 14 ft bgs</b>
	<b>USEPA</b>						<b>Duplicate</b>
<b>Region IX Worker Screening Unit Criteria<sup>(1)</sup></b>							

**Volatile Organic Compounds**

Benzene	µg/kg	1,400 <sup>(2)</sup>	ND (5.7)	ND (12)	ND (12)	ND(4900)	ND(17000)	ND(1700)	ND(1600)
Trichloroethene	µg/kg	110	14	26	ND (12)	ND(4900)	ND(17000)	ND(1700)	ND(1600)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	15	10 J	ND (12)	1200 J	ND(17000)	ND(1700)	ND(1600)
Vinyl chloride	µg/kg	750	ND (11)	ND (12)	2 J	3500 J	2200 J	2800	3100
Xylene (total)	µg/kg	420,000	ND (5.7)	93	ND (12)	30000	610000	68000	76000

Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.
- (2) - Modified in October 2004.
- - Not detected.
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TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<i>BH-15</i>	<i>BH-16</i>	<i>BH-16</i>	<i>BH-16</i>	<i>BH-17</i>	<i>BH-17</i>	<i>BH-17</i>	
	<b>Location Name:</b>	<i>BH-15</i>	<i>BH-16</i>	<i>BH-16</i>	<i>BH-16</i>	<i>BH-17</i>	<i>BH-17</i>	<i>BH-17</i>	
	<b>Sample Name:</b>	<i>S-063098-SC-127</i>	<i>S-052405-JW-016</i>	<i>S-052405-JW-016A</i>	<i>S-063098-SC-135</i>	<i>S-020905-JW-017R</i>	<i>S-063098-SC-129</i>	<i>S-063098-SC-130</i>	
	<b>Sample Date:</b>	<i>1998/06/30</i>	<i>5/24/2005</i>	<i>5/24/2005</i>	<i>1998/06/30</i>	<i>2/9/2005</i>	<i>1998/06/30</i>	<i>1998/06/30</i>	
	<b>Sample Depth:</b>	<i>18 - 20 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>10 - 12 ft BGS</i>	<i>18 - 20 ft BGS</i>	<i>1 - 2 ft bgs</i>	<i>2 - 4 ft BGS</i>	<i>2 - 4 ft BGS Duplicate</i>	
	<b>Region IX Worker Screening Unit Criteria <sup>(1)</sup></b>								
<b>Volatile Organic Compounds</b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND (12)	ND(5000)	ND(500)UJ	ND (12)	ND(5300)	ND (1500)	ND (1600)
Trichloroethene	µg/kg	110	ND (12)	ND(5000)	200 J	ND (12)	ND(5300)	ND (1500)	ND (1600)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND (12)	ND(5000)	320 J	12 J	ND(5300)	ND (1500)	ND (1600)
Vinyl chloride	µg/kg	750	ND (12)	ND(5000)	410 J	2 J	690 J	ND (1500)	ND (1600)
Xylene (total)	µg/kg	420,000	ND (12)	210000	930	1 J	270000	76000	32000

## Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.  
(2) - Modified in October 2004.  
-- - Not detected.  
 - Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>	<i>BH-17</i>	<i>BH-17</i>	<i>BH-17</i>	<i>BH-17</i>	<i>BH-18</i>	<i>BH-18</i>	<i>BH-18</i>		
<i>Sample Name:</i>	<i>S-020905-JW-017S</i>	<i>S-020905-JW-017T</i>	<i>S-020905-JW-017U</i>	<i>S-063098-SC-132</i>	<i>S-063098-SC-136</i>	<i>S-020805-JW-018R</i>	<i>S-020805-JW-018S</i>		
<i>Sample Date:</i>	<i>2/9/2005</i>	<i>2/9/2005</i>	<i>2/9/2005</i>	<i>1998/06/30</i>	<i>1998/06/30</i>	<i>2/8/2005</i>	<i>2/8/2005</i>		
<i>Sample Depth:</i>	<i>8 - 10 ft bgs</i>	<i>10 - 12 ft bgs</i>	<i>12 - 14 ft bgs</i>	<i>18 - 20 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>8 - 10 ft bgs</i>	<i>12 - 14 ft bgs</i>		
<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>									
<b><i>Volatile Organic Compounds</i></b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND(690)	ND(4700)	ND(2000)	ND (11)	ND (16)	ND(500)	ND(10)
Trichloroethene	µg/kg	110	ND(690)	ND(4700)	1300 J	ND (11)	ND (16)	ND(500)	ND(10)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	170 J	820 J	3300	5 J	ND (16)	ND(500)	ND(10)UJ
Vinyl chloride	µg/kg	750	1300	810 J	470 J	ND (11)	ND (16)	ND(500)	300 J
Xylene (total)	µg/kg	420,000	3800	8700	ND(2000)	ND (11)	280	4900	ND(10)UJ

Notes:

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- (2) - Modified in October 2004.
- - Not detected.
- Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-18</b>	<b>BH-19</b>	<b>BH-19</b>	<b>BH-19</b>	<b>BH-20</b>	<b>BH-20</b>	<b>BH-20</b>	
<b>Location Name:</b>		<b>BH-18</b>	<b>BH-19</b>	<b>BH-19</b>	<b>BH-19</b>	<b>BH-20</b>	<b>BH-20</b>	<b>BH-20</b>	
<b>Sample Name:</b>		<b>S-063098-SC-138</b>	<b>S-063098-SC-139</b>	<b>S-063098-SC-140</b>	<b>S-063098-SC-141</b>	<b>S-070198-SC-149</b>	<b>S-070198-SC-150</b>	<b>S-070198-SC-148</b>	
<b>Sample Date:</b>		<b>1998/06/30</b>	<b>1998/06/30</b>	<b>1998/06/30</b>	<b>1998/06/30</b>	<b>1998/07/01</b>	<b>1998/07/01</b>	<b>1998/07/01</b>	
<b>Sample Depth:</b>		<b>18 - 20 ft BGS</b>	<b>6 - 8 ft BGS</b>	<b>12 - 14 ft BGS</b>	<b>18 - 20 ft BGS</b>	<b>4 - 6 ft BGS</b>	<b>4 - 6 ft BGS</b>	<b>12 - 14 ft BGS</b>	
							<b>Duplicate</b>		
	<b>Region IX Worker Screening Unit Criteria <sup>(1)</sup></b>								
<b>Volatile Organic Compounds</b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND (12)	ND (12)	ND (12)	ND (12)	ND (1500) UJ	ND (1500) UJ	ND (13)
Trichloroethene	µg/kg	110	ND (12)	11 J	ND (12)	ND (12)	ND (1500) UJ	ND (1500) UJ	ND (13)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND (12)	8 J	ND (12) UJ	ND (12)	ND (1500) UJ	ND (1500) UJ	ND (13)
Vinyl chloride	µg/kg	750	ND (12)	ND (12)	ND (12)	ND (12)	ND (1500) UJ	ND (1500) UJ	ND (13)
Xylene (total)	µg/kg	420,000	ND (12)	ND (12)	ND (12) UJ	ND (12)	25000 J	44000 J	ND (13)

## Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.  
(2) - Modified in October 2004.  
-- - Not detected.

- Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>	<i>BH-20</i>	<i>BH-21</i>	<i>BH-21</i>	<i>BH-21</i>	<i>BH-22</i>	<i>BH-22</i>	<i>BH-22</i>	
<i>Sample Name:</i>	<i>S-070198-SC-151</i>	<i>S-070198-SC-152</i>	<i>S-070198-SC-153</i>	<i>S-070198-SC-154</i>	<i>S-070198-SC-156</i>	<i>070198-S18</i>	<i>S-052405-JW-022</i>	
<i>Sample Date:</i>	<i>1998/07/01</i>	<i>1998/07/01</i>	<i>1998/07/01</i>	<i>1998/07/01</i>	<i>1998/07/01</i>	<i>1998/07/01</i>	<i>5/24/2005</i>	
<i>Sample Depth:</i>	<i>18 - 20 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>10 - 12 ft BGS</i>	<i>18 - 20 ft BGS</i>	<i>2 - 4 ft BGS</i>	<i>2 - 4 ft BGS</i>	<i>4 - 6 ft BGS</i>	
<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>						<i>Split USEPA</i>		
<b>Volatile Organic Compounds</b>								
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND (11)	ND (13)	ND (12)	ND (12)	ND (5.9)	ND(560)
Trichloroethene	µg/kg	110	ND (11)	ND (13)	ND (12)	ND (12)	48	18
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND (11)	ND (13)	ND (12)	ND (12)	20	3.9
Vinyl chloride	µg/kg	750	ND (11)	ND (13)	ND (12)	ND (12)	ND (12)	ND (12)
Xylene (total)	µg/kg	420,000	ND (11)	ND (13)	ND (12)	ND (12)	ND (12)	ND (5.9)

1100
9000

Notes:

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- - Not detected.
- Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>	<i>BH-22</i>	<i>BH-23</i>	<i>BH-23</i>	<i>BH-23</i>	<i>BH-50</i>	<i>BH-50</i>	<i>BH-50</i>		
<i>Sample Name:</i>	<i>S-052405-JW-022A</i>	<i>S-070198-SC-160</i>	<i>S-070198-SC-161</i>	<i>S-070198-SC-162</i>	<i>S-100802-MG-019</i>	<i>S-052405-JW-050</i>	<i>S-052405-JW-050A</i>		
<i>Sample Date:</i>	<i>5/24/2005</i>	<i>1998/07/01</i>	<i>1998/07/01</i>	<i>1998/07/01</i>	<i>2002/10/08</i>	<i>5/24/2005</i>	<i>5/24/2005</i>		
<i>Sample Depth:</i>	<i>10 - 12 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>10 - 12 ft BGS</i>	<i>18 - 20 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>8 - 10 ft BGS</i>	<i>10 - 12 ft BGS</i>		
<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>									
<b><i>Volatile Organic Compounds</i></b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND(2000)	ND (13)	ND (12)	ND (12) UJ	480 J	1200 J	ND(8500)
Trichloroethene	µg/kg	110	1600 J	ND (13)	ND (12)	ND (12) UJ	ND (900)	4900 J	5000 J
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	21000	ND (13)	ND (12) UJ	ND (12) UJ	590 J	110000	100000
Vinyl chloride	µg/kg	750	ND(2000)	ND (13)	ND (12)	ND (12) UJ	ND (900)	ND(6100)	ND(8500)
Xylene (total)	µg/kg	420,000	ND(2000)	ND (13)	ND (12) UJ	ND (12) UJ	ND (900)	ND(6100)	ND(8500)

## Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.  
(2) - Modified in October 2004.  
-- - Not detected.  
 - Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<b>Location Name:</b>		<b>BH-50</b>	<b>BH-50</b>	<b>BH-56</b>	<b>BH-56</b>	<b>BH-57</b>	<b>BH-57</b>	<b>BH-58</b>	
<b>Sample Name:</b>		<b>S-052405-JW-050B</b>	<b>S-100802-MG-021</b>	<b>S-020705-JW-056R</b>	<b>S-020705-JW-056S</b>	<b>S-020705-JW-057R</b>	<b>S-020705-JW-057S</b>	<b>S-020705-JW-058R</b>	
<b>Sample Date:</b>		<b>5/24/2005</b>	<b>2002/10/08</b>	<b>2/7/2005</b>	<b>2/7/2005</b>	<b>2/7/2005</b>	<b>2/7/2005</b>	<b>2/7/2005</b>	
<b>Sample Depth:</b>		<b>12 - 14 ft BGS</b>	<b>14 - 16 ft BGS</b>	<b>4 - 6 ft bgs</b>	<b>10 - 12 ft bgs</b>	<b>4 - 6 ft bgs</b>	<b>10 - 12 ft bgs</b>	<b>8 - 10 ft bgs</b>	
<b>Region IX Worker Screening Unit Criteria <sup>(1)</sup></b>									
<b>Volatile Organic Compounds</b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND(5100)	ND (11)	ND(520)	ND(520)UJ	ND(470)	ND(530)	ND(500)
Trichloroethene	µg/kg	110	1900 J	ND (11)	470 J	4200 J	ND(470)	1100	390 J
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	72000	ND (11)	710	170 J	1500	1400	3900
Vinyl chloride	µg/kg	750	ND(5100)	ND (11)	ND(520)	ND(520)UJ	ND(470)	ND(530)	ND(500)
Xylene (total)	µg/kg	420,000	ND(5100)	ND (11)	ND(520)	ND(520)UJ	ND(470)	ND(530)	ND(500)

## Notes:

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(2) - Modified in October 2004.  
-- - Not detected.  
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TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>	<i>BH-58</i>	<i>BH-59</i>	<i>BH-59</i>	<i>BH-59</i>	<i>BH-60</i>	<i>BH-60</i>	<i>BH-60</i>		
<i>Sample Name:</i>	<i>S-020705-JW-058S</i>	<i>S-100802-MG-041</i>	<i>S-052405-JW-059</i>	<i>S-052405-JW-059A</i>	<i>S-100802-MG-045</i>	<i>S-020805-JW-060R</i>	<i>S-020805-JW-060S</i>		
<i>Sample Date:</i>	<i>2/7/2005</i>	<i>2002/10/08</i>	<i>5/24/2005</i>	<i>5/24/2005</i>	<i>2002/10/08</i>	<i>2/8/2005</i>	<i>2/8/2005</i>		
<i>Sample Depth:</i>	<i>12 - 14 ft bgs</i>	<i>4 - 6 ft BGS</i>	<i>6 - 8 ft BGS</i>	<i>10 - 12 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>8 - 10 ft bgs</i>	<i>12 - 14 ft bgs</i>		
<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>									
<b><i>Volatile Organic Compounds</i></b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND(10)	57 J	12000	2700 J	ND (490)	38	29000
Trichloroethene	µg/kg	110	ND(10)	ND (520)	ND(1000)	ND(560)UJ	ND (490)	ND(9.9)	ND(2000)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND(10)	ND (520)	ND(1000)	ND(560)UJ	ND (490)	ND(9.9)UJ	ND(2000)
Vinyl chloride	µg/kg	750	1.2 J	ND (520)	ND(1000)	ND(560)UJ	ND (490)	ND(9.9)	ND(2000)
Xylene (total)	µg/kg	420,000	ND(10)	57 J	2000	630 J	ND (490)	1.8 J	ND(2000)

## Notes:

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TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<i>BH-60</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-65</i>	<i>BH-65</i>	
<b>Location Name:</b>		<i>BH-60</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-62</i>	<i>BH-65</i>	<i>BH-65</i>	
<b>Sample Name:</b>		<i>S-020805-JW-060T</i>	<i>S-020905-JW-062R</i>	<i>S-020905-JW-062S</i>	<i>S-020905-JW-062T</i>	<i>S-100802-MG-053</i>	<i>S-100902-MG-061</i>	<i>S-100902-MG-062</i>	
<b>Sample Date:</b>		<i>2/8/2005</i>	<i>2/9/2005</i>	<i>2/9/2005</i>	<i>2/9/2005</i>	<i>2002/10/08</i>	<i>2002/10/09</i>	<i>2002/10/09</i>	
<b>Sample Depth:</b>		<i>12 - 14 ft bgs</i>	<i>2 - 4 ft bgs</i>	<i>4 - 6 ft bgs</i>	<i>4 - 6 ft bgs</i>	<i>8 - 10 ft BGS</i>	<i>6 - 8 ft BGS</i>	<i>10 - 12 ft BGS</i>	
		<i>Duplicate</i>			<i>Duplicate</i>				
	<b>Region IX Worker Screening Unit Criteria <sup>(1)</sup></b>								
<b>Volatile Organic Compounds</b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	34000	ND(3000)	ND(5900)	ND(790)	ND (480)	ND (460)	ND (780)
Trichloroethene	µg/kg	110	ND(2000)	ND(3000)	ND(5900)	ND(790)	ND (480)	ND (460)	ND (780)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND(2000)	ND(3000)	ND(5900)	ND(790)	ND (480)	ND (460)	ND (780)
Vinyl chloride	µg/kg	750	ND(2000)	ND(3000)	ND(5900)	ND(790)	ND (480)	ND (460)	ND (780)
Xylene (total)	µg/kg	420,000	ND(2000)	120000	230000	26000	6800	600	730 J

## Notes:

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TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>	<i>BH-69</i>	<i>BH-73</i>	<i>BH-73</i>	<i>BH-73</i>	<i>BH-74</i>	<i>BH-74</i>	<i>BH-94</i>		
<i>Sample Name:</i>	<i>S-100902-MG-070</i>	<i>S-100902-MG-080</i>	<i>S-100902-MG-081</i>	<i>S-100902-MG-082</i>	<i>S-100902-MG-083</i>	<i>S-100902-MG-084</i>	<i>S-020805-JW-094R</i>		
<i>Sample Date:</i>	<i>2002/10/09</i>	<i>2002/10/09</i>	<i>2002/10/09</i>	<i>2002/10/09</i>	<i>2002/10/09</i>	<i>2002/10/09</i>	<i>2/8/2005</i>		
<i>Sample Depth:</i>	<i>4 - 6 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>8 - 10 ft BGS</i>	<i>2 - 4 ft BGS</i>	<i>6 - 8 ft BGS</i>	<i>2 - 4 ft bgs</i>		
<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>			<i>Duplicate</i>						
<b><i>Volatile Organic Compounds</i></b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND (1700) UJ	ND (490) UJ	ND (490)	ND (10)	ND (12)	ND (11)	ND(10)
Trichloroethene	µg/kg	110	ND (1700) UJ	ND (490) UJ	ND (490)	ND (10)	ND (12)	9.3 J	5.0 J
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND (1700) UJ	ND (490) UJ	ND (490)	ND (10)	ND (12)	ND (11)	110
Vinyl chloride	µg/kg	750	ND (1700) UJ	ND (490) UJ	ND (490)	ND (10)	ND (12)	ND (11)	ND(10)
Xylene (total)	µg/kg	420,000	ND (1700) UJ	81 J	200 J	ND (10)	ND (12)	ND (11)	ND(10)

## Notes:

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TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>	<i>BH-94</i>	<i>BH-102</i>	<i>BH-102</i>	<i>BH-103</i>	<i>BH-103</i>	<i>BH-104</i>	<i>BH-104</i>	<i>BH-104</i>	<i>BH-105</i>		
<i>Sample Name:</i>	<i>S-020805-JW-094S</i>										
<i>Sample Date:</i>	<i>2/8/2005</i>	<i>10/18/2004</i>	<i>11/10/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	
<i>Sample Depth:</i>	<i>8 - 10 ft bgs</i>	<i>6 - 8 ft BGS</i>	<i>14 - 16 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>10 - 12 ft BGS</i>	<i>3 - 5 ft BGS</i>	<i>13 - 15 ft BGS</i>	<i>13 - 15 ft BGS</i>	<i>13 - 15 ft BGS</i>	<i>4 - 6 ft BGS</i>	
<i>Region IX Worker Screening Unit</i>	<i>Criteria<sup>(1)</sup></i>								<i>Duplicate</i>		
<b><i>Volatile Organic Compounds</i></b>											
Benzene	µg/kg	1,400 <sup>(2)</sup>	17	ND(8.9)	ND(10)	ND(9.7)	ND(10)	ND(9.3)	ND(9.8)UJ	ND(9.9)	ND(10)
Trichloroethene	µg/kg	110	7.4 J	4.5 J	ND(10)	ND(9.7)	ND(10)	ND(9.3)	ND(9.8)UJ	ND(9.9)	ND(10)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND(10)UJ	ND(8.9)	ND(10)UJ	ND(9.7)	ND(10)UJ	ND(9.3)	ND(9.8)UJ	ND(9.9)UJ	ND(10)UJ
Vinyl chloride	µg/kg	750	3.2 J	ND(8.9)	ND(10)	ND(9.7)	ND(10)	ND(9.3)	ND(9.8)	ND(9.9)	ND(10)UJ
Xylene (total)	µg/kg	420,000	250 J	ND(8.9)	ND(10)UJ	ND(9.7)	ND(10)UJ	ND(9.3)	ND(9.8)UJ	ND(9.9)UJ	ND(10)

## Notes:

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(2) - Modified in October 2004.  
-- - Not detected.  
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TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<i>Location Name:</i>		<i>BH-105</i>	<i>BH-106</i>	<i>BH-106</i>	<i>BH-107</i>	<i>BH-107</i>	<i>BH-108</i>	<i>BH-108</i>	<i>BH-109</i>	<i>BH-109</i>	<i>BH-110</i>	
<i>Sample Name:</i>												
<i>Sample Date:</i>		<i>11/10/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>11/10/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	<i>10/19/2004</i>	
<i>Sample Depth:</i>		<i>13 - 15 ft BGS</i>	<i>6 - 8 ft BGS</i>	<i>14 - 16 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>18 - 20 ft BGS</i>	<i>8 - 10 ft BGS</i>	<i>12 - 14 ft BGS</i>	<i>4 - 6 ft BGS</i>	<i>16 - 18 ft BGS</i>	<i>6 - 8 ft BGS</i>	
<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>												
<b><i>Volatile Organic Compounds</i></b>												
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND(11)	ND(9.3)UJ	ND(11)UJ	ND(13)	ND(10)UJ	ND(9.3)UJ	ND(9.8)	ND(13)	ND(9.8)	1.9 J
Trichloroethene	µg/kg	110	ND(11)	ND(9.3)UJ	ND(11)UJ	ND(13)	ND(10)UJ	ND(9.3)UJ	ND(9.8)	ND(13)	ND(9.8)	ND(14)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND(11)UJ	ND(9.3)UJ	ND(11)UJ	ND(13)	ND(10)UJ	ND(9.3)UJ	ND(9.8)UJ	ND(13)UJ	ND(9.8)UJ	ND(14)UJ
Vinyl chloride	µg/kg	750	ND(11)	ND(9.3)	ND(11)UJ	ND(13)	ND(10)UJ	1.5 J	ND(9.8)	ND(13)	ND(9.8)	ND(14)
Xylene (total)	µg/kg	420,000	ND(11)UJ	ND(9.3)UJ	ND(11)UJ	ND(13)	ND(10)UJ	ND(9.3)UJ	ND(9.8)UJ	ND(13)UJ	ND(9.8)UJ	ND(14)UJ

## Notes:

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TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-110</b>	<b>BH-111</b>	<b>BH-111</b>	<b>BH-112</b>	<b>BH-112</b>	<b>BH-113</b>	<b>BH-113</b>	<b>BH-118</b>	
	<b>Location Name:</b>									
	<b>Sample Name:</b>						<b>S-102004-JW-113</b>	<b>S-102004-JW-113A</b>	<b>S-111004-MJ-010</b>	
	<b>Sample Date:</b>	<b>11/10/2004</b>	<b>10/19/2004</b>	<b>11/10/2004</b>	<b>10/20/2004</b>	<b>10/20/2004</b>	<b>10/20/2004</b>	<b>10/20/2004</b>	<b>11/10/2004</b>	
	<b>Sample Depth:</b>	<b>14 - 16 ft BGS</b>	<b>8 - 10 ft BGS</b>	<b>12 - 14 ft BGS</b>	<b>10 - 12 ft BGS</b>	<b>10 - 12 ft BGS</b>	<b>8 - 10 ft BGS</b>	<b>14 - 16 ft BGS</b>	<b>12 - 14 ft BGS</b>	
						<b>Duplicate</b>				
	<b>Region IX Worker Screening Unit Criteria <sup>(1)</sup></b>									
<b>Volatile Organic Compounds</b>										
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND(9.4)UJ	7.2 J	ND(10)UJ	1.1 J	5.0 J	91 J	34000	ND(9.4)UJ
Trichloroethene	µg/kg	110	ND(9.4)UJ	ND(9.9)UJ	ND(10)UJ	ND(9.0)	ND(9.7)	ND(10)	ND(2000)	ND(9.4)UJ
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND(9.4)UJ	ND(9.9)UJ	ND(10)UJ	ND(9.0)	ND(9.7)UJ	ND(10)UJ	ND(2000)	ND(9.4)UJ
Vinyl chloride	µg/kg	750	ND(9.4)	25	1.6 J	8.7 J	32	ND(10)	ND(2000)	ND(9.4)UJ
Xylene (total)	µg/kg	420,000	ND(9.4)UJ	ND(9.9)UJ	ND(10)UJ	ND(9.0)	ND(9.7)UJ	26 J	ND(2000)	ND(9.4)UJ

## Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.  
(2) - Modified in October 2004.  
-- - Not detected.  
 - Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

		<b>BH-118</b>	<b>BH-118</b>	<b>BH-119</b>	<b>BH-119</b>	<b>BH-119</b>	<b>BH-120</b>	<b>BH-120</b>	
<b>Location Name:</b>		<b>BH-118</b>	<b>BH-118</b>	<b>BH-119</b>	<b>BH-119</b>	<b>BH-119</b>	<b>BH-120</b>	<b>BH-120</b>	
<b>Sample Name:</b>		<b>S-111004-MJ-011</b>	<b>S-111004-MJ-012</b>	<b>S-111004-MJ-013</b>	<b>S-111004-MJ-014</b>	<b>S-111004-MJ-015</b>	<b>S-111004-MJ-016</b>	<b>S-111004-MJ-017</b>	
<b>Sample Date:</b>		<b>11/10/2004</b>							
<b>Sample Depth:</b>		<b>14 - 16 ft BGS</b>	<b>14 - 16 ft BGS</b>	<b>10 - 12 ft BGS</b>	<b>14 - 16 ft BGS</b>	<b>14 - 16 ft BGS</b>	<b>8 - 10 ft BGS</b>	<b>14 - 16 ft BGS</b>	
			<b>Duplicate</b>			<b>Duplicate</b>			
	<b>Region IX Worker Screening Unit Criteria <sup>(1)</sup></b>								
<b>Volatile Organic Compounds</b>									
Benzene	µg/kg	1,400 <sup>(2)</sup>	ND(9.8)UJ	ND(10)UJ	ND(9.6)UJ	ND(10)UJ	ND(11)UJ	0.98 J	ND(11)
Trichloroethene	µg/kg	110	ND(9.8)UJ	ND(10)UJ	ND(9.6)UJ	ND(10)UJ	ND(11)UJ	ND(9.7)UJ	ND(11)
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND(9.8)UJ	ND(10)UJ	ND(9.6)UJ	ND(10)UJ	ND(11)UJ	ND(9.7)UJ	ND(11)UJ
Vinyl chloride	µg/kg	750	ND(9.8)	ND(10)	ND(9.6)	ND(10)UJ	ND(11)UJ	ND(9.7)UJ	ND(11)
Xylene (total)	µg/kg	420,000	ND(9.8)UJ	ND(10)UJ	ND(9.6)UJ	ND(10)UJ	ND(11)UJ	ND(9.7)UJ	ND(11)UJ

## Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.  
(2) - Modified in October 2004.  
-- - Not detected.

- Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.3

**SUMMARY OF DETECTED VOCs IN SUBSURFACE SOILS POST ISCO PILOT STUDY  
EXCEEDING REGION IX PRGs FOR AN INDUSTRIAL WORKER  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

	<i>Location Name:</i>	<i>BH-121</i>	<i>BH-121</i>	
	<i>Sample Name:</i>	<i>S-111004-MJ-018</i>	<i>S-111004-MJ-019</i>	
	<i>Sample Date:</i>	<i>11/10/2004</i>	<i>11/10/2004</i>	
	<i>Sample Depth:</i>	<i>10 - 12 ft BGS</i>	<i>14 - 16 ft BGS</i>	
	<i>Region IX Worker Screening Unit Criteria <sup>(1)</sup></i>			
<b><i>Volatile Organic Compounds</i></b>				
Benzene	µg/kg	1,400 <sup>(2)</sup>	1.6 J	ND(9.6)UJ
Trichloroethene	µg/kg	110	ND(10)UJ	ND(9.6)UJ
Tetrachloroethene	µg/kg	1,300 <sup>(2)</sup>	ND(10)UJ	ND(9.6)UJ
Vinyl chloride	µg/kg	750	1.0 J	ND(9.6)UJ
Xylene (total)	µg/kg	420,000	2.3 J	ND(9.6)UJ

## Notes:

- (1) - Preliminary Remediation Goals (PRGs) for an Industrial Worker, USEPA Region IX, October 2004.  
(2) - Modified in October 2004.  
-- - Not detected.  
 - Exceeds USEPA Region IX PRGs for an industrial worker.

TABLE 2.4

**COMPARISON OF PRE- AND POST-ISCO PILOT STUDY  
SOIL CONCENTRATIONS FOR VOCs EXCEEDING REGION IX PRGs  
EE/CA**

**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

Location	Depth (ft bgs)	Concentration ( $\mu\text{g}/\text{kg}$ )										Grid Spacing	Effective
		PCE		TCE		Vinyl Chloride		Benzene		Xylenes (total)			
		Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO		
BH-5	4 - 6	120	--	10	--	ND	--	ND	--	140	--	4'	--
	6 - 8	1400	--	63	--	ND	--	ND	--	28000	--	4'	--
	8 - 10	--	1500	--	310	--	ND	--	ND	--	53000	4'	--
	12 - 14	4000	110000	ND	3700	ND	ND	ND	ND	2000	13000	4'	N
BH-13	4 - 6	9	--	4	--	ND	--	ND	--	7	--	4'	--
	8 - 10	3000	8400	700	1800	ND	ND	ND	ND	880	4100	4'	N
	12 - 14	--	14000	--	2200	--	ND	--	ND	--	7100	4'	--
	16 - 18	ND	--	ND	--	ND	--	ND	--	ND	--	4'	--
BH-15	6 - 8	ND	--	ND	--	670	--	ND	--	40000	--	3'	--
	8 - 10	--	1200	--	ND	--	3500	--	ND	--	30000	3'	--
	10 - 12	--	ND	--	ND	--	2200	--	ND	--	610000	3'	--
	12 - 14	190000	ND	28000	ND	ND	3100	ND	ND	44000	76000	3'	Y
	18 - 20	ND	--	ND	--	ND	--	ND	--	ND	--	3'	--
BH-16	4 - 6	--	ND	--	ND	--	ND	--	ND	--	210000	4'	--
	6 - 8	ND	--	ND	--	ND	--	ND	--	100000	--	4'	--
	10 - 12	50000	320	8000	200	ND	410	ND	ND	12000	930	4'	Y
	18 - 20	12	--	ND	--	2	--	ND	--	1	--	4'	--
BH-17	1 - 2	--	ND	--	ND	--	690	--	ND	--	270000	3'	--
	2 - 4	ND	--	ND	--	ND	--	ND	--	76000	--	3'	--
	8 - 10	--	170	--	ND	--	1300	--	ND	--	3800	3'	--
	10 - 12	220000	820	7400	ND	ND	810	ND	ND	9600	8700	3'	Y
	12 - 14	--	3300	--	1300	--	470	--	ND	--	ND	3'	--
	18 - 20	5	--	ND	--	ND	--	ND	--	ND	--	3'	--
BH-18	4 - 6	ND	--	ND	--	ND	--	ND	--	280	--	4'	--
	8 - 10	--	ND	--	ND	--	ND	--	ND	--	4900	4'	--
	10 - 12	ND	--	220	--	ND	--	5	--	6	--	4'	--
	12 - 14	--	ND	--	ND	--	300	--	ND	--	ND	4'	--
	18 - 20	ND	--	ND	--	ND	--	ND	--	ND	--	4'	--

**TABLE 2.4**  
**COMPARISON OF PRE- AND POST-ISCO PILOT STUDY**  
**SOIL CONCENTRATIONS FOR VOCs EXCEEDING REGION IX PRGs**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

Location	Depth (ft bgs)	Concentration (µg/kg)										Grid Spacing	Effective
		PCE		TCE		Vinyl Chloride		Benzene		Xylenes (total)			
		Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO		
BH-22	2 - 4	20	--	48	--	ND	--	ND	--	ND	--	4'	--
	4 - 6	11000	9000	890	1100	ND	ND	ND	ND	ND	ND	4'	N
	10 - 12	--	21000	--	1600	--	ND	--	ND	--	ND	4'	--
BH-50	4 - 6	590	--	ND	--	ND	--	480	--	ND	--	4'	--
	8 - 10	--	110000	--	4900	--	ND	--	1200	--	ND	4'	--
	10 - 12	61000	100000	8600	5000	ND	ND	7900	ND	ND	ND	4'	N
	12 - 14	--	72000	--	1900	--	ND	--	ND	--	ND	4'	--
	14 - 16	ND	--	ND	--	ND	--	ND	--	ND	--	4'	--
BH-56	4 - 6	1300	710	730	470	ND	ND	ND	ND	ND	ND	4'	N
	10 - 12	4100	170	3800	4200	ND	ND	ND	ND	ND	ND	4'	N
BH-57	4 - 6	1400	1500	ND	ND	ND	ND	ND	ND	ND	ND	4'	--
	10 - 12	ND	1400	1200	1100	ND	ND	ND	ND	ND	ND	4'	N
BH-58	4 - 6	920	--	59	--	ND	--	ND	--	ND	--	4'	--
	8 - 10	2800	3900	270	390	ND	ND	ND	ND	ND	ND	4'	N
	12 - 14	--	ND	--	ND	--	1.2	--	ND	--	ND	4'	--
BH-59	4 - 6	ND	--	ND	--	ND	--	57	--	57	--	4'	--
	6 - 8	--	ND	--	ND	--	ND	--	12000	--	2000	4'	--
	10 - 12	ND	ND	ND	ND	ND	ND	4400	2700	1500	630	4'	N
	12 - 14	ND	--	ND	--	ND	--	11	--	ND	--	4'	--
BH-60	4 - 6	ND	--	ND	--	ND	ND	ND	--	ND	--	4'	--
	8 - 10	--	ND	--	ND	ND	ND	--	38	--	1.8	4'	--
	12 - 14	ND	ND	ND	ND	ND	ND	5500	34000	ND	ND	4'	N
BH-62	2 - 4	ND	ND	ND	ND	ND	ND	ND	ND	300000	120000	3'	Y
	4 - 6	ND	ND	ND	ND	ND	ND	ND	ND	310000	230000	3'	Y
	8 - 10	ND	--	ND	--	ND	--	ND	--	6800	--	3'	--

**TABLE 2.4**  
**COMPARISON OF PRE- AND POST-ISCO PILOT STUDY**  
**SOIL CONCENTRATIONS FOR VOCs EXCEEDING REGION IX PRGs**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

Location	Depth (ft bgs)	Concentration (µg/kg)										Grid Spacing	Effective
		PCE		TCE		Vinyl Chloride		Benzene		Xylenes (total)			
		Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO	Pre-ISCO	Post-ISCO		
BH-94	2 - 4	ND	110	ND	5	ND	ND	ND	ND	150000	ND	3'	Y
	6 - 8	ND	--	ND	--	ND	--	ND	--	120000	--	3'	
	8 - 10	--	ND	--	7.4	--	3.2	--	17	--	250	3'	

Notes:

- Exceeds Region IX PRGs

Region IX Preliminary Remediation Goals (PRGs) for Industrial Worker, October 2004:

- Tetrachloroethene (PCE) 1300 ug/kg
- Trichloroethene (TCE) 110 ug/kg
- Vinyl Chloride (VC) 750 ug/kg
- Benzene 1400 ug/kg
- Xylenes (total) 420000 ug/kg

**TABLE 3.1**  
**SUMMARY OF POTENTIAL ARARs**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

POTENTIAL ARAR	REQUIREMENT/PURPOSE	APPLICABILITY
<b>CHEMICAL SPECIFIC</b>		
<b>Federal</b>		
CERCLA/SARA 42 USC 9601 et. seq	Appropriate chemical specific requirements under Section 121 of SARA	Relevant to both removal and remedial actions.
Federal Safe Drinking Water Maximum Concentration Limits (MCLs); 40 CFR 264.94	Maximum concentration limits of constituents from a regulated facility for groundwater protection.	Relevant to the effectiveness of remedial alternatives considered. No potable wells on site.
National Primary and Secondary Ambient Air Quality Standards; 40 CFR Part 50.6, 50.7	Defines levels of air quality adequate to protect the public health and welfare.	Relevant for remedial technologies which may release hazardous air pollutants.
National Pollutant Elimination Discharge System (NPDES); 40 CFR 122	Applicable regulations which set surface water quality based standards and ambient water quality based standards. Used to determine NPDES discharge limits.	Relevant to maintaining surface water quality during remediation activities.
USEPA Region IX Preliminary Remediation Goals (PRG)	Applicable screening levels to protect public health and welfare.	Relevant to remedial actions.
TSCA; 40 CFR Part 761.60-761.79	Specifies self-implementing cleanup chemical-specific requirements treatment, storage, and disposal options for PCBs based on their form and concentration.	Relevant to remedial actions.
<b>State</b>		
Water Quality Standards for Surface Water; NR 102, NR 103, NR 104, NR 105, NR 106, NR 207	Applicable regulations which set surface water quality based standards and ambient water quality based standards. Used to determine WPDES discharge limits.	Relevant to maintaining surface water quality during remediation activities.
Air Quality Standards; NR 445	Standards for toxic air emissions as a result of leachate, condensate, contaminated groundwater and landfill gas.	Relevant to maintaining air quality during remediation activities.
Groundwater Quality; NR 140 WAC	Establishes groundwater quality standards for substances detected in groundwater.	Relevant to the effectiveness of remedial alternatives considered.
Categories and Classes of Point Sources and Effluent Limitations; NR 220 WAC	Best available technology (BAT) requirements determined based on an evaluation of the stringency of the water quality based limits, and on an evaluation of projections of effluent quality and pollutant efficiencies.	Relevant to remedial alternatives which may result in the discharge of water to surface water.
List of Toxic Pollutants; NR 215	Regulations for the discharge of certain toxic pollutants.	Relevant to remedial alternatives which may result in the discharge of water to surface water.

**TABLE 3.1**  
**SUMMARY OF POTENTIAL ARARs**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

POTENTIAL ARAR	REQUIREMENT/PURPOSE	APPLICABILITY
Effluent Standards and Limitations; NR 217	Establishes effluent standards and limitations for pollutants in effluent discharged to surface water.	Relevant to remedial alternatives which may result in the discharge of water to surface water.
Environmental Protection - Hazardous Waste Management; NR 600 WAC rule series	Hazardous waste characterization, management, and disposal regulations.	Relevant to groundwater produced from an extraction system and any treatment system sludge or residuals.
<b>LOCATION SPECIFIC</b>		
<b>Federal</b>		
Endangered Species Act of 1973; 16 USC Section 1533; 50 CFR 17.11, 40 CFR 6.302 (h)	Action to conserve endangered species or threatened species, including activities by Department of the Interior.	Relevant, if construction of a remedial system is near a wetland.
Fish and Wildlife Coordination Act; 16 USC Sections 662-664; 33 CFR 323, 40 CFR 6.302 (g)	Requires protection of fish and wildlife resources if modification of any stream or water body.	Relevant, if construction of a remedial system is near a wetland.
Clean Water Act; 33 USC 1341, Section 401; 40 CFR 230-231	Discharge of dredged or fill material into wetlands without permit is prohibited.	Relevant, if construction of a remedial system is near a wetland.
Floodplain Management; 40 CFR 6.302 (b) and Appendix A	Facility must be designed, constructed, operated, and maintained to prevent washout.	Relevant, if remedial system is constructed in floodplain.
Executive Order on Floodplain Management; Executive Order 11988, Section 2; 40 CFR 6.302 (b)	Requires federal agencies to evaluate the potential effects of direct and indirect development of a floodplain.	Relevant, if remedial system is constructed in floodplain.
Executive Order Protecting Wetlands; Executive Order 11990, Section 2; 40 CFR 6.302 (a)	Requires federal agencies to minimize the destruction, loss, or degradation of wetlands.	Relevant to remediation activities taking place in and around wetlands.
Statement of Procedures on Floodplain Management and Wetlands Protection; 40 CFR Part 6, Appendix A	Procedures for USEPA to avoid impacts associated with the destruction of wetlands and the occupancy and modification of floodplains and wetlands.	Relevant to remediation activities taking place in and around wetlands and within floodplain.
Navigation and Navigable Waters; 33 CFR Parts 320-329	Requires permits for construction work that may affect navigable waters, and include wetlands.	Relevant to discharge of treated effluent which may impact nearby surface water bodies.
<b>State</b>		
Navigation and Navigable Waters; Wisconsin Statutes Chapter 30	Requires permits for construction work that may affect navigable waters, and include wetlands.	Relevant to discharge of treated effluent which may impact nearby surface water bodies.

**TABLE 3.1**  
**SUMMARY OF POTENTIAL ARARs**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

POTENTIAL ARAR	REQUIREMENT/PURPOSE	APPLICABILITY
<b>ACTION SPECIFIC</b>		
<b><i>Federal</i></b>		
Federal Safe Drinking Water Act Maximum Concentration Limits (MCLs) 40 CFR 264.94	Regulates drinking water quality (MCLs, MCLGs).	MCLs exceeded but no potable wells present.
CERCLA/SARA 42 USC 9601 et. seq	Action specific requirements of 40 CFR 300.68 (NCP) and 40 CFR 300.415 (NCP).	Relevant to both removal and remedial actions.
RCRA Subtitle D 40 CFR 257	Sets standards for land disposal facilities for non-hazardous waste.	Relevant to removal actions.
RCRA Subtitle C 40 CFR 260-267	Regulates the generation, transport, storage, treatment, and disposal of hazardous wastes generated in the course of remedial action. Regulates operations and closure of hazardous waste landfill.	Relevant to removal actions.
RCRA Land Disposal Restrictions 40 CFR 268	Prohibits land disposal for PCB soils greater than 50 ppm in RCRA Subtitle C facilities.	Relevant to removal actions.
National Pollutant Elimination Discharge System (NPDES); 40 CFR 122	Applicable regulations which set surface water quality based standards and ambient water quality based standards. Used to determine NPDES discharge limits.	Relevant to maintaining surface water quality during remediation activities.
Clean Air Act- Sections 107, 109, 110, 111, and 112	Air emission requirements.	Relevant to remedial action which may produce airborne pollutants.
National Primary and Secondary Ambient Air Quality Standards; 40 CFR 50.6, 50.7	For national primary and secondary ambient air quality standards.	Relevant to remedial action which may produce airborne pollutants.
National Primary and Secondary Ambient Air Quality Standards; 40 CFR 50 Appendices	Permit must demonstrate that air quality standards are achieved.	Relevant to remedial action which may produce airborne pollutants.
Worker Safety and Health Protection Occupational Safety and Health Association (OSHA)	Worker safety during remedial construction.	Always applicable.
<b><i>State</i></b>		
General Solid Waste Management Requirements; NR 500	Definitions and general information pertaining to solid waste facilities.	Relevant to source control measures.
Environmental Monitoring for Landfills; NR 507	Groundwater monitoring requirements.	Relevant to source control effectiveness.

**TABLE 3.1**  
**SUMMARY OF POTENTIAL ARARs**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

POTENTIAL ARAR	REQUIREMENT/PURPOSE	APPLICABILITY
Responses When a Groundwater Standard is Attained or Exceeded; NR 508	Groundwater monitoring and exceedence requirements.	Relevant to the effectiveness of remedial alternatives considered.
Remedial and Interim Action Design, Implementation, Operation, Maintenance and Monitoring Requirements; NR 724	Requirements for the design, implementation, operation, maintenance and monitoring of remedial actions.	Relevant to each active remedial alternative.
Groundwater Monitoring Well Requirements; NR 141	Standards for design, construction, installation, abandonment, and documentation of groundwater monitoring wells.	Relevant to modifications of the monitoring well network.
Identification and Listing of Hazardous Waste; NR 605	Regulations for the management, identification, and generators of hazardous wastes.	Relevant to on-site and off-site treatment storage or disposal of wastes or treatment residue.
Water Quality Standards for Surface Water; NR 102, NR 103, NR 104, NR 105, NR 106, NR 207	Applicable regulations which set surface water quality based standards and ambient water quality based standards for determining WPDES discharge limits.	Relevant to maintaining surface water quality during remediation activities.
Air Quality Standards; NR 445	Standards for toxic air emissions as a result of leachate, condensate, contaminated groundwater and landfill gas.	Relevant to maintaining air quality during remediation activities.
Control of Organic Compound Emissions; NR 419	Regulations for the emission of organic compounds.	Relevant to remedial alternatives which may result in the emission of organic compounds.
Categories and Classes of Point Sources and Effluent Limitations; NR 220	Best available technology (BAT) requirements determined based on an evaluation of the stringency of the water quality based limits, and on an evaluation of projections of effluent quality and pollutant efficiencies	Relevant to remedial alternatives which may result in the discharge of water.
List of Toxic Pollutants; NR 215	Regulations for the discharge of certain toxic pollutants.	Relevant to remedial alternatives which may result in the discharge of water.
Effluent Standards and Limitations; NR 217	Establishes effluent standards and limitations for pollutants in effluent discharged to surface water	Relevant to remedial alternatives which may result in the discharge of water to surface water.
Well Construction and Pump Installation; NR 812	Requirements on well construction and installation and maintenance on pumping and treatment equipment.	Relevant to the pump and treat systems.
Requirements for Environmental Insurance; Wis Statute Section 292.15 (2) (ae) 3m	Requirements on the purchase of environmental insurance.	Relevant to the monitored natural attenuation alternative.
General Requirements; NR 700	General requirements and definitions.	Relevant to all remedial alternatives.

**TABLE 3.1**  
**SUMMARY OF POTENTIAL ARARs**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

<b>POTENTIAL ARAR</b>	<b>REQUIREMENT/PURPOSE</b>	<b>APPLICABILITY</b>
Personnel Qualifications for Conducting Environmental Response Actions; NR 712	Minimum standards for experience and professional qualifications for persons providing services or scientific evaluations associated with specified environmental response actions.	Relevant to all remedial alternatives.
Public Information and Participation; NR 714	Required public information and participation for response actions.	Relevant to all remedial alternatives.
Management of Solid Wastes Excavated During Response Actions; NR 718	Standards for the storage, treatment, transportation and disposal of contaminated soil excavated during response actions.	Relevant to remedial alternatives which may result in the excavation of contaminated soil.
Standards for Selecting Remedial Actions; NR 722	Minimum standards for identifying and evaluating remedial action options and selecting remedial actions.	Relevant to all remedial alternatives.
Case Closure; NR 726	Minimum requirements and conditions for site closure.	Relevant to all remedial alternatives.

**TABLE 5.1**  
**REMOVAL ACTION ALTERNATIVE REVIEW**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

<b>Alternative</b>	<b>Preferred Technologies/ Process</b>	<b>Media/Contaminant of Concern</b>	
		<b>Soil - VOCs</b>	<b>Indoor Air - VOCs</b>
Alternative 1	<ul style="list-style-type: none"> <li>• No Action</li> </ul>	<ul style="list-style-type: none"> <li>• No Action</li> </ul>	<ul style="list-style-type: none"> <li>• No Action</li> </ul>
Alternative 2	<ul style="list-style-type: none"> <li>• Institutional Controls</li> <li>• Monitored Natural Attenuation</li> <li>• Drain Tile Depressurization Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Monitored natural attenuation of VOCs in soils by implementation of an MNA program</li> <li>• Establish deed restrictions and a Site Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to operate existing drain tile depressurization systems and implementation of VOC monitoring program until soils treatment is complete</li> </ul>
Alternative 3	<ul style="list-style-type: none"> <li>• Institutional Controls</li> <li>• Excavation/Off-Site Disposal</li> <li>• Drain Tile Depressurization Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Excavate VOC-impacted soils to a depth of 10 feet bgs</li> <li>• Establish deed restrictions and a Soils Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to operate existing drain tile depressurization systems and implementation of VOC monitoring program until soils are excavated</li> </ul>
Alternative 4	<ul style="list-style-type: none"> <li>• Institutional Controls</li> <li>• In situ Chemical Oxidation</li> <li>• Drain Tile Depressurization Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Perform ISCO treatment of VOC-impacted soils to a depth of 10 feet bgs</li> <li>• Establish deed restrictions and a Site Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to operate existing drain tile depressurization systems and implementation of VOC monitoring program until soils treatment is complete</li> </ul>

TABLE 5.2

**ALTERNATIVE 1 - NO ACTION  
COST ESTIMATE SUMMARY  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<b>Site:</b>	<b>Properties Immediately Adjacent to Marina Cliffs/Northwestern Barrel Site</b>	<b>Description:</b>	<b>Alternative 1 involves no action.</b>		
<b>Location:</b>	<b>South Milwaukee, Wisconsin</b>				
<b>Base Year:</b>	<b>2006</b>				
<b>Date:</b>	<b>July 2006</b>				

<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Unit Cost</i>	<i>Total</i>
<b>CAPITAL COSTS:</b>				
No Capital Costs	\$0	-	\$0	\$0
<b>O&amp;M COSTS:</b>				
No O&M Costs	\$0	-	\$0	\$0
<b>PERIODIC COSTS:</b>				
No Periodic Costs	\$0	-	\$0	\$0

**PRESENT VALUE ANALYSIS:**

<i>Cost Type</i>	<i>Year</i>	<i>Total Cost</i>	<i>Total Cost per Year</i>	<i>Discount Factor (7%)</i>	<i>Present Value</i>
Capital Cost	0	\$0	\$0	0	\$0
Annual O&M Cost	0	\$0	\$0	0	\$0
Periodic Cost	0	\$0	\$0	0	\$0

**TOTAL PRESENT VALUE OF ALTERNATIVE 1:**

\$0

TABLE 5.3

**ALTERNATIVE 2 - MONITORED NATURAL ATTENUATION,  
INSTITUTIONAL CONTROLS, AND DRAIN TILE DEPRESSURIZATION SYSTEMS  
COST ESTIMATE SUMMARY  
EE/CA**

**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<b>Site:</b>	<b>Properties Immediately Adjacent to Marina Cliffs/Northwestern Barrel Site</b>	<b>Description:</b>	<b>Alternative 2 involves institutional controls and monitored natural attenuation for soils. Continue to operate existing drain tile depressurization systems as a precautionary measure until soils treatment is complete.</b>
<b>Location:</b>	<b>South Milwaukee, Wisconsin</b>		
<b>Base Year:</b>	<b>2006</b>		
<b>Date:</b>	<b>July 2006</b>		

<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Unit Cost</i>	<i>Total</i>
<b>CAPITAL COSTS:</b>				
No Capital Costs	\$0	-	\$0	\$0
Professional Technical Services				
Project Management	-	L.S.	-	\$ 5,000
Engineering Design	-	L.S.	-	\$ 10,000
Deed Restrictions, Land Use Restrictions, Public Notification, Process Development	-	L.S.	-	\$ 15,000
SUBTOTAL CAPITAL COST				\$30,000
Contingency	-	10%	-	\$ 3,000
TOTAL CAPITAL COST				\$ 33,000

<b>O&amp;M COSTS:</b>				
Annual Indoor Air Monitoring	-	L.S.	-	\$ 10,000
Annual Summary Reports, Technical Activities, Disbursements	-	L.S.	-	\$ 10,000
Continued Operation of Drain Tile Depressurization Systems	-	L.S.	-	\$ 1,000
TOTAL ANNUAL O&M COSTS				\$ 21,000

<b>PERIODIC COSTS:</b>				
Participate in 5-year EPA Reviews (including reporting)	1	Ea.	\$ 25,000	\$ 25,000
Soil MNA Monitoring	-	L.S.	-	\$ 15,000
TOTAL PERIODIC COSTS				\$ 40,000

<b>PRESENT VALUE ANALYSIS:</b>					
<i>Cost Type</i>	<i>Year</i>	<i>Total Cost</i>	<i>Total Cost per Year</i>	<i>Discount Factor (7%)</i>	<i>Present Value</i>
Capital Cost	0	\$33,000	\$33,000	1	\$33,000
Annual O&M Cost	1 to 30	\$630,000	\$21,000	12.409	\$261,000
Periodic Cost	Every 5 years	\$200,000	\$40,000	2.1587	\$86,000
<b>TOTAL PRESENT VALUE OF ALTERNATIVE 1:</b>					<b>\$380,000</b>

TABLE 5.4

**ALTERNATIVE 3 - EXCAVATION/OFF-SITE DISPOSAL, INSTITUTIONAL CONTROLS,  
AND DRAIN TILE DEPRESSURIZATION SYSTEMS  
COST ESTIMATE SUMMARY  
EE/CA  
PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<b>Site:</b> Properties Immediately Adjacent to Marina Cliffs/Northwestern Barrel Site	<b>Description:</b> Alternative 3 involves excavation of VOC-impacted soils to a depth of 10 feet bgs and institutional controls to manage soils during potential future utility work. Continue to operate existing drain tile depressurization systems as a precautionary measure until soils excavation is completed.
<b>Location:</b> South Milwaukee, Wisconsin	
<b>Base Year:</b> 2006	
<b>Date:</b> July 2006	

<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Cost</i>	<i>Total</i>	
<b>CAPITAL COSTS:</b>					
Construction					
Administrative Requirements - insurance, mobilization, site superintendent	-	L.S.	-	\$ 80,000	
Health & Safety - development, implementation, and maintenance of HASP, incl. air monitoring	-	L.S.	-	\$ 50,000	
Temporary Facilities and Controls - field trailers/decon facilities, materials staging facility, etc.	-	L.S.	-	\$ 60,000	
Site Preparation - including relocation of garden shed between Units 1 and 2	-	L.S.	-	\$ 15,000	
Excavation - including shoring of footings	5,000	C.Y.	\$ 40	\$ 200,000	
Off-Site Transportation/Disposal of VOC-Impacted Soils - non-hazardous	4,000	tons	\$ 30	\$ 120,000	
Off-Site Transportation/Disposal of Wastewater - non-hazardous	50,000	gal.	\$ 0.40	\$ 20,000	
Grading & Restoration - including backfill, topsoil, sod, landscaping, curb and gutter, paving, etc.	-	L.S.	-	\$ 125,000	
Execution Requirements - demobilization and closeout including relocation of shed	-	L.S.	-	\$ 15,000	
<b>SUBTOTAL</b>				<b>\$ 685,000</b>	
Professional Technical Services					
Project Management	-	5%	-	\$ 34,000	
Engineering Design	-	5%	-	\$ 34,000	
Construction Management	-	10%	-	\$ 69,000	
Verification Soil Sampling	-	L.S.	-	\$ 10,000	
Indoor Air Monitoring During Excavation (2 events)	-	L.S.	-	\$ 5,000	
Continued Operation of Drain Tile Pressurization Systems During Excavation	-	L.S.	-	\$ 1,000	
Deed Restrictions, Public Notification, Process Development	-	L.S.	-	\$ 15,000	
<b>SUBTOTAL</b>				<b>\$ 168,000</b>	
<b>SUBTOTAL CAPITAL COST</b>				<b>\$ 853,000</b>	
Contingency	-	20%	-	\$ 171,000	
<b>TOTAL CAPITAL COST</b>				<b>\$ 1,024,000</b>	
<b>O&amp;M COSTS:</b>					
No O&M Costs	-	-	\$0	\$0	
<b>PERIODIC COSTS:</b>					
No Periodic Costs	-	-	\$0	\$0	
<b>PRESENT VALUE ANALYSIS:</b>					
<i>Cost Type</i>	<i>Year</i>	<i>Total Cost</i>	<i>Total Cost per Year</i>	<i>Discount Factor (7%)</i>	<i>Present Value</i>
Capital Cost	0	\$ 1,024,000	\$ 1,024,000	1.000	\$ 1,024,000
Annual O&M Cost	0	\$ -	\$ -	0	\$ -
Periodic Cost	0	\$ -	\$ -	0	\$ -
<b>TOTAL PRESENT VALUE OF ALTERNATIVE 3:</b>					<b>\$ 1,024,000</b>

TABLE 5.5

**ALTERNATIVE 4 - IN SITU CHEMICAL OXIDATION, INSTITUTIONAL CONTROLS,  
AND DRAIN TILE DEPRESSURIZATION SYSTEMS  
COST ESTIMATE SUMMARY**

EE/CA

**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE  
SOUTH MILWAUKEE, WISCONSIN**

<b>Site:</b> Properties Immediately Adjacent to Marina Cliffs/Northwestern Barrel Site	<b>Description:</b> Alternative 4 involves ISCO treatment of VOC-impacted soils to a depth of 10 feet bgs and institutional controls to manage soils during potential future utility work. Continue to operate the existing drain tile depressurization systems as a precautionary measure until soils treatment is completed.
<b>Location:</b> South Milwaukee, Wisconsin	
<b>Base Year:</b> 2006	
<b>Date:</b> July 2006	

<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Unit Cost</i>	<i>Total</i>
<b>CAPITAL COSTS:</b>				
Construction				
ISCO Treatment - chemical oxidation (1 application @ 3-foot centers), including HASP, etc.	1	Event	\$ 130,000	\$ 130,000
Site Restoration - landscaping, paving reimbursement, etc.	-	L.S.	-	\$ 30,000
SUBTOTAL				\$ 160,000
Professional Technical Services				
Project Management	-	15%	-	\$ 24,000
Engineering Design	-	5%	-	\$ 8,000
Construction Management	-	25%	-	\$ 40,000
Verification Soil Sampling	-	L.S.	-	\$ 15,000
Indoor Air Monitoring During ISCO Treatment	-	L.S.	-	\$ 5,000
Continued Operation of Drain Tile Depressurization Systems During ISCO Treatment	-	L.S.	-	\$ 1,000
Deed Restrictions, Public Notification, Process Development	-	L.S.	-	\$ 15,000
SUBTOTAL				\$ 108,000
SUBTOTAL CAPITAL COST				\$ 268,000
Contingency	-	20%	-	\$ 54,000
TOTAL CAPITAL COST				<b>\$ 322,000</b>

**O&M COSTS:**

No O&M Costs	-	-	\$0	\$0
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**PERIODIC COSTS:**

No Periodic Costs	-	-	\$0	\$0
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**PRESENT VALUE ANALYSIS:**

<i>Cost Type</i>	<i>Year</i>	<i>Total Cost</i>	<i>Total Cost per Year</i>	<i>Discount Factor (7%)</i>	<i>Present Value</i>
Capital Cost	0	\$ 322,000	\$ 322,000	1.000	\$ 322,000
Annual O&M Cost	0	\$ -	\$ -	0	\$ -
Periodic Cost	0	\$ -	\$ -	0	\$ -

**TOTAL PRESENT VALUE OF ALTERNATIVE 4:**

**\$ 322,000**

**TABLE 6.1**  
**COMPARATIVE EVALUATION OF REMOVAL ACTION ALTERNATIVES**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

<i><b>Response Action Alternative</b></i>	<i><b>Effectiveness</b></i>	<i><b>Implementability</b></i>	<i><b>Present Cost</b></i>	<i><b>Response Action Schedule</b></i>
Alternative 1 - No Action	<ul style="list-style-type: none"> <li>• no additional protection of human health or the environment,</li> <li>• potential risks will continue to exist in the short- and long-term</li> <li>• will not comply with potential chemical-specific ARARs</li> <li>• will reduce toxicity, mobility, or volume, by natural attenuation treatment</li> <li>• no short-term risks to the community, workers, or the environment</li> </ul>	<ul style="list-style-type: none"> <li>• easily implemented</li> <li>• no operation and maintenance, monitoring not applicable</li> </ul>	No Cost	30 plus years
Alternative 2 - Monitored Natural Attenuation, Institutional Controls, and Indoor Air Ventilation System	<ul style="list-style-type: none"> <li>• good protection of human health and the environment</li> <li>• potential risks will be reduced over time</li> <li>• meets potential chemical-specific ARARs over the long term, complies with action-specific and location-specific ARARs</li> <li>• will reduce toxicity, mobility, and volume of VOC-impacted soils by natural attenuation treatment</li> <li>• no short-term risk to the community, workers, or the environment</li> </ul>	<ul style="list-style-type: none"> <li>• USEPA, the public, and the state may accept</li> <li>• easily implemented</li> <li>• requires to be implemented</li> </ul>	\$380,000	30 plus years

**TABLE 6.1**  
**COMPARATIVE EVALUATION OF REMOVAL ACTION ALTERNATIVES**  
**EE/CA**  
**PROPERTIES IMMEDIATELY ADJACENT TO MARINA CLIFFS/NORTHWESTERN BARREL SITE**  
**SOUTH MILWAUKEE, WISCONSIN**

<i><b>Response Action Alternative</b></i>	<i><b>Effectiveness</b></i>	<i><b>Implementability</b></i>	<i><b>Present Cost</b></i>	<i><b>Response Action Schedule</b></i>
Alternative 3 - Excavation/ Off-Site Disposal, Institutional Controls, and Indoor Air Ventilation System	<ul style="list-style-type: none"> <li>• very good protection of human health and the environment</li> <li>• potential risks will be reduced in a short period of time</li> <li>• meets potential chemical-specific ARARs over a short period of time (3 months), complies with action-specific and location-specific ARARs</li> <li>• will reduce toxicity, mobility, and volume of VOC-impacted soils by removing from the Properties</li> <li>• high short-term risk to the community and workers during implementation</li> <li>• moderate short-term risk to the environment during implementation</li> </ul>	<ul style="list-style-type: none"> <li>• USEPA, the public, and the state may accept</li> <li>• very well developed technology</li> <li>• difficult to implement excavation to a depth of 10 feet bgs adjacent to buildings and within utilities</li> <li>• requires to be implemented</li> </ul>	\$1,024,000	3 months
Alternative 4 - In situ Chemical Oxidation, Institutional Controls, and Indoor Air Ventilation System	<ul style="list-style-type: none"> <li>• very good protection of human health and the environment</li> <li>• potential risks will be reduced in a short period of time</li> <li>• meets potential chemical-specific ARARs over a short period of time (3 months), complies with action-specific ARARs, complies with location-specific ARARs</li> <li>• will reduce toxicity, mobility, and volume of VOC-impacted soils through treatment</li> <li>• minimal short-term risk to the community and workers during implementation</li> <li>• minimal short-term risk to the environment during implementation</li> </ul>	<ul style="list-style-type: none"> <li>• USEPA, the public, and the state may accept</li> <li>• Site demonstrated/proven technology</li> <li>• easily implemented</li> <li>• requires to be implemented</li> </ul>	\$322,000	3 months