Title 11: Mississippi Department of Environmental Quality

Part 3: Hazardous Waste Management Regulations

Part 3, Chapter 1: Mississippi Commission on Environmental Quality Hazardous Waste Management Regulations (Last Amended October 22, 2015)

TABLE OF CONTENTS

Rule 1.1 General

Rule 1.2 Identification and Listing of Hazardous Waste

Rule 1.3 Standards Applicable to Generators of Hazardous Waste

Rule 1.4 Annual Reporting for Generators of Hazardous Waste

Rule 1.5 Standards Applicable to Transporters of Hazardous Waste

Rule 1.6 Annual Reporting for Transporters of Hazardous Waste

Rule 1.7 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

Rule 1.8 Annual Reporting for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities

Rule 1.9 Location Standards for the Establishment or Expansion of Hazardous Waste Management Facilities

Rule 1.10 Financial Capability, Commercial Hazardous Waste Management Facilities

Rule 1.11 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

Rule 1.12 Annual Reporting for Owners or Operators of Interim Status facility for Treatment, Storage, Recycling , or Disposal

Rule 1.13 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

Rule 1.14 Standards for Owners and Operators of Hazardous Waste Facilities Operating under a Standardized Permit

Rule 1.15 Schedule for Land Disposal Restrictions

Rule 1.16 Hazardous Waste Permitting Program

Rule 1.17 Contents of Part B: Additional General Requirements

Rule 1.18 Financial Capability, Commercial Hazardous Waste Management Facilities

Rule 1.19 Disclosure Regulations, Commercial Hazardous Waste Management Facilities

Rule 1.20 Permit Transfer

Rule 1.21 Standards for Universal Waste Management

Rule 1.22 Recycled Used Oil Management Standards

Rule 1.23 Procedures for Decision Making

Rule 1.24 Penalties, Notification, Effective Date and Certification

---

Rule 1.1 General.

The definition of terms found in Part 3, Chapter 1 shall have the meaning as defined in the EPA Hazardous Waste Regulations 40 CFR 260; 45 FR 12724, February 26, 1980, Effective August 26, 1980; 45 FR 33073, May 19, 1980, Effective November 19, 1980; 45 FR 72028, October 30, 1980; 45 FR 76075, November 17, 1980; 45 FR 76630, November 19, 1980; 45 FR 86968, December 31, 1980; 45 FR 2348, January 9, 1981; 46 FR 27476, May 20, 1981; 46 FR 35247, July 7, 1981; 47 FR 32349, July 26, 1982; 48 FR 2511, January 19, 1983; 48 FR 14153, April 1, 1983; 49 FR 47391, December 4, 1984; 49 FR 10500, March 20, 1984, Effective September 20, 1984; 50 FR 661, January 4, 1985; 50 FR 14219, April 11, 1985; 50 FR 18374, April 30, 1985; 50 FR 28742, July 15, 1985; 51 FR 10174, March 24, 1986, Effective September 22, 1986; 51 FR 16443, May 2, 1986, Effective October 29, 1986; 51 FR 25470, July 14, 1986, Effective January 12, 1987; 51 FR 28682, August 8, 1986, Effective November 8, 1986; 51 FR 40636, November 17, 1986, Effective November 8, 1986; 52 FR 8073, March 16, 1987; 52 FR 41295, October 27,1987; 52 FR 46963, December 10, 1987, Effective January 11, 1988; 53 FR 27301, July 19, 1988, 53 FR 34086, September 2, 1988; 54 FR 26198, June 22, 1989; 54 FR 27116, June 27, 1989; 54 FR 40266 September 29, 1989, Effective October 30, 1989; 55 FR 2322, January 23, 1990, Effective July 23, 1990; 55 FR 8948, March 9, 1990; 55 FR 25454, June 21, 1990, Effective December 21, 1990; ; 55 FR 50482, December 6,1990, Effective January 1,1994; 55 FR 7134, February 21, 1991, Effective August 21, 1991; 56 FR 32688, July 17, 1991, Effective August 21, 1991; 56 FR 66368, December 23 1991, Effective June 23, 1992; 57 FR 3486, January 29, 1992, Effective July 29, 1992; 57 FR 37262, August 18, 1992, Effective November 16, 1992; 57 FR 38558, August 25, 1992, Effective August 11, 1992; 57 FR 39275, August 28, 1992; 57 FR 41173, September 9, 1992; 57 FR 41611, September 10, 1992, Effective March 8, 1993; 57 FR 54452, November 18, 1992, Effective May 18, 1993; 58 FR 8682, February 16, 1993, Effective April 19, 1993; 58 FR 38816, July 20, 1993, Effective August 19,

1993; 58 FR 46040, August 31, 1993; 59 FR 468, January 4, 1994; 59 FR 28484, June 2, 1994; 59 FR 47982, September 19, 1994, Effective December 19, 1994 except Section 266.100 and Appendix VIII are Effective September 19, 1994; 59 FR 62926, December 6, 1994, Effective June 5, 1995; 60 FR 3095, January 13, 1995; 60 FR 17004, April 4, 1995; 60 FR 25540, May 11, 1995; 60 FR 35452, July 7, 1995; 61 FR 16290, April 12,1996, Effective July 11, 1996; 62 FR 6650, February 12, 1997, Effective August 12, 1997; 62 FR 32462, June 13, 1997, 63 FR 65874, November 30, 1998, 64 FR 36466, July 6, 1999, 64 FR 52828, September 30, 1999, 67 FR 2962, January 22, 2002; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 34538, June 14, 2005, Effective July 14, 2005; 70 FR 45508, August 5, 2005; 70 FR 53420, September 8, 2005, Effective October 11, 2005; 70 FR 59402, October 12, 2005, Effective December 12, 2005; 71 FR 16862, April 4, 2006, Effective May 4, 2006; 71 FR 40254, July 14, 2006; 71 FR 42928, July 28, 2006, Effective January 29, 2007; and 73 FR 57, January 2, 2008, Effective February 1, 2008; 73 FR 64668, October 30, 2008, Effective December 29, 2008; 79 FR 350, January 3, 2014, Effective March 4, 2014; 79 FR 7518, February 7, 2014, Effective August 6, 2014; and 79 FR 36220, June 26, 2014, Effective December 26, 2014, except those like terms defined differently in the Mississippi Code, Section 17-17-3. Wherever the term Administrator or Regional Administrator is used in the EPA regulation, the term shall have the meaning of Executive Director of the Mississippi Department of Environmental Quality, except at 40 CFR 268.5, 268.6, 268.42(b), 268.44, 262.53, 263.53(b), 262.54(g)(1), 262.54(i), 262.55, 262.56(a), 262.57(b), and 263.20(g)(4).

For the purpose of these regulations, the following definitions also apply:

A. Perpetual Care Period - that period of time following the post-closure period.

B. Commercial Hazardous Waste Landfill - any hazardous waste landfill disposing of more than one type of hazardous waste from more than one site.

C. Commercial Hazardous Waste Management Facility - any facility engaged in the storage, treatment, recovery, or disposal of hazardous waste for a fee and which accepts hazardous waste from more than one (1) generator

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.2 Identification and Listing of Hazardous Waste.

Hazardous waste is identified and listed in this regulation as is found in Part 261 of the EPA Hazardous Waste Regulations 40 CFR 261; 45 FR 33119, May 19, 1980, Effective November 19, 1980; 45 FR 47833, July 16, 1980; 45 FR 72028, 72037, 72039, 72041, October 30, 1980; 45 FR 74890, November 12, 1980; 45 FR 76620, 76623, November 19, 1980; 45 FR 78529, 78531, 78541, November 25, 1980; 45 FR 80287, December 4, 1980; 46 FR 4617, January 16, 1981; 46 FR 27476, May 20, 1981; 45 FR 29708, June 3, 1981; 46 FR 34587, July 2, 1981; 46 FR 35247, July 7, 1981; 46 FR 44972, September 8, 1981; 46 FR 47429, September 25, 1981; 46 FR 56588, November 17, 1981; 47 FR 36097, August 18, 1982; 48 FR 2532, January 20, 1983; 48 FR 14153, April 1, 1983; 48 FR 15256, April 8, 1983; 48 FR 30115, June 30, 1983; 49 FR 5313, February 10, 1984; 49 FR 19923, May 10, 1984; 49 FR 23287, June 5, 1984; 49 FR 44980,

November 13, 1984; 50 FR 661, January 4, 1985; 50 FR 1999, January 14, 1985; 50 FR 14219, April 11, 1985; 50 FR 20238, May 15, 1985; 50 FR 28742, July 15, 1985; 50 FR 33541, August 20, 1985; 50 FR 42942, October 23, 1985; 50 FR 49202, November 29, 1985, Effective March 31, 1986; 50 FR 53319, December 31, 1985, Effective January 30, 1986; 51 FR 2702, January 21, 1986; 51 FR 5330, February 13, 1986, Effective August 13, 1986; 51 FR 6541, February 25, 1986, Effective August 25, 1986; 51 FR 10174, March 24, 1986, Effective September 22, 1986; 51 FR 19322, May 28, 1986; 51 FR 25471, July 14, 1986; 51 FR 28297, August 6, 1986; 51 FR 28682, August 8, 1986, Effective November 8, 1986; 51 FR 33612, September 22, 1986; 51 FR 37728, October 24, 1986; 51 FR 40636, November 7, 1986, Effective November 8, 1986; 52 FR 11821, April 13, 1987; 52 FR 21306, June 5, 1987; 52 FR 26012, July 10, 1987; 52 FR 28698, August 3, 1987, Effective September 2, 1987; 53 FR 13382, April 22, 1988; 53 FR 27163, July 19, 1988; 53 FR 27301, July 19, 1988; 53 FR 35420, September 13, 1988; 53 FR 43878, October 31, 1988; 54 FR 36592, September 1, 1989, Effective March 1, 1990; 54 FR 40266, September 29, 1989, Effective October 30, 1989; 55 FR 2322, January 23, 1990, Effective July 23, 1990; 55 FR 5340, February 14, 1990; 55 FR 8948, March 9, 1990; 55 FR 11798, March 29, 1990, Effective September 25, 1990; 55 FR 18496, May 2, 1990, Effective November 2, 1990; 55 FR 18726, May 4, 1990; 55 FR 22520, June 1, 1990; 55 FR 23634, June 11, 1990; 55 FR 25454, June 21, 1990, Effective December 21, 1990; 55 FR 26986, June 29, 1990, Effective September 25, 1990; 55 FR 31387, August 2, 1990; 55 FR 32733, August 10, 1990; 55 FR 39409, September 27, 1990; 55 FR 40834, October 5, 1990; 55 FR 46354, November 2, 1990, Effective May 2, 1991; 55 FR 50482, December 6, 1990, Effective January 1, 1994; 55 FR 51707, December 17, 1990; 56 FR 3864, January 31, 1991; 56 FR 5910, February 13, 1991; 56 FR 7134, February 21, 1991, Effective August 21, 1991; 56 FR 7567, February 25, 1991; 56 FR 13411, April 2, 1991, Effective March 25, 1991; 56 FR 19951, May 1, 1991; 56 FR 21955, May 13, 1991; 56 FR 27318, June 13, 1991, Effective July 15, 1991; 56 FR 30195, July 1, 1991, Effective January 1, 1994; 56 FR 32688, July 17, 1991, Effective August 21, 1991; 56 FR 41176, August 19, 1991, Effective August 8, 1991; 56 FR 42504, August 27, 1991, Effective August 21, 1991; 57 FR 12, January 2, 1992, Effective January 13, 1992; 57 FR 7632, March 3 1992, Effective February 18, 1992; 57 FR 21532, May 20, 1992, Effective June 19, 1992; 57 FR 23062, June 1, 1992; 57 FR 27880, June 22, 1992; 57 FR 29220, July 1, 1992; 57 FR 30657, July 10, 1992; 57 FR 37262, August 18, 1992, Effective November 16, 1992; 57 FR 37305, August 18, 1992, Effective February 18, 1993; 57 FR 38558, August 25, 1992, Effective August 11, 1992; 57 FR 39275, August 28, 1992; 57 FR 41173, September 9, 1992; 57 FR 41611, September 10, 1992, Effective March 8, 1993; 57 FR 47385, October 15, 1992, Effective April 15, 1993; 57 FR 49278, October 30, 1992; 57 FR 55117, November 24, 1992; 57 FR 61502, December 24, 1992, Effective January 1, 1994; 58 FR 6854, February 2, 1993; 58 FR 26424, May 3, 1993, Effective March 8, 1993; 58 FR 46040, August 31, 1993; 59 FR 468, January 4, 1994; 59 FR 8365, February 18, 1994; 59 FR 31551, June 20, 1994; 59 FR 38545, July 28, 1994; 59 FR 47982, September 19, 1994, Effective December 19, 1994 except Section 266.100 and Appendix VIII are Effective September 19, 1994; 60 FR 7848, February 9, 1995, Effective August 9, 1995; 60 FR 19165, April 17, 1995; 60 FR 25540, May 11, 1995; 60 FR 25620, May 12, 1995, Effective August 9, 1995; 60 FR 33913, June 29, 1995; 61 FR 13106, March 26, 1996, Effective May 28, 1996; 61 FR 16290, April 12, 1996, Effective July 11, 1996; 61 FR 34278 , July 1, 1996, Effective January 1, 1998; 61 FR 59950, November 25, 1996; 62 FR 6650, February 12, 1997, Effective August 12, 1997; 62 FR 25998, May 12, 1997; 62 FR 32977, June 17, 1997; 63 FR 24596, May 4, 1998; 63 FR 24963, May 6, 1998; 63 FR 28556, May 26, 1998,

Effective August 24, 1998; 63 FR 33782, June 19, 1998; 63 FR 42110, August 6, 1998; 63 FR 64372, November 19, 1998; 63 FR 65874, November 30, 1998, Effective June 1, 1999; 64 FR 6806, February 11, 1999; Effective February 5, 1999; 64 FR 6806, February 11, 1999; 64 FR 25408, May 11, 1999; 64 FR 31986, June 15, 1999; 64 FR 36466, July 6, 1999; 64 FR 52828, September 30, 1999; 64 FR 56469, October 20, 1999; 64 FR 63209, November 19, 1999; 65 FR 14472, March 17, 2000; 65 FR 32214, May 22, 2000; 65 FR 36365, June 8, 2000; 65 FR 42292, July 10, 2000; 65 FR 67067, November 8, 2000; 66 FR 27218, May 16, 2001; 66 FR 27266, May 16, 2001, Effective August 14, 2001; 66 FR 50332, October 3, 2001; 66 FR 58258, November 20, 2001; 66 FR 60153, December 3, 2001; 67 FR 11251, March 13, 2002; 67 FR 16263, April 4, 2002; 67 FR 48393, July 24, 2002; 68 FR 44659, July 30, 2003; 70 FR 9138, February 24, 2005; 70 FR 10776, March 4, 2005, Effective August 23, 2005; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 34538, June 14, 2005, Effective July 14, 2005; 70 FR 35032, June 16, 2005, Effective August 23, 2005; 70 FR 44150, August 1, 2005, 70 FR 45508, August 5, 2005, 70 FR 53420, September 8, 2005, Effective October 11, 2005; 70 FR 57769, October 4, 2005, Effective November 3, 2005; 71 FR 16862, April 4, 2006, Effective May 4, 2006; 71 FR 40254, July 14, 2006; 71 FR 42928, July 28, 2006, Effective January 29, 2007; 73 FR 57, January 2, 2008, Effective February 1, 2008; 73 FR 31756, June 4, 2008, Effective July 7, 2008; 73 FR 64668, October 30, 2008, Effective December 29, 2008; 73 FR 72912, December 1, 2008, Effective December 31, 2008; 77 FR 22229, April 13, 2012, Effective May 14, 2012; 79 FR 350, January 3, 2014, Effective March 4, 2014; 79 FR 36220, June 26, 2014, Effective December 26, 2014, and all subsequent amendments to this part.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.3 Standards Applicable to Generators of Hazardous Waste.

Generators of hazardous waste in Mississippi shall meet the requirements of Part 262 as published in the EPA Hazardous Waste Regulations 40 CFR 262; 45 FR 12732, February 26, 1980, Effective August 26, 1980; 45 FR 33142, May 19, 1980, Effective November 19, 1980; 45 FR 76624, 76626, November 19, 1980; 45 FR 78529, November 25, 1980; 45 FR 86970, 86973, December 31, 1980; 46 FR 8395, January 26, 1981; 47 FR 1251, January 11, 1982; 47 FR 7841, February 23, 1982; 47 FR 44938, October 12, 1982; 48 FR 3981, January 28, 1983; 48 FR 13027, March 29, 1983; 48 FR 14293, April 1, 1983; 49 FR 10500, March 20, 1984, Effective September 20, 1984; 49 FR 49571, December 20, 1984; 50 FR 28742, July 15, 1985; 51 FR 10175, March 24, 1986, Effective September 22, 1986; 51 FR 25472, July 14, 1986, Effective January 12, 1987; 51 FR 28682, August 8, 1986, Effective November 8, 1986; 51 FR 35192, October 1, 1986, Effective September 22, 1986; 51 FR 40637, November 7, 1986, Effective November 8, 1986; 52 FR 25787, July 8, 1987; 52 FR 35898, September 23, 1987; 53 FR 27164, July 19, 1988; 53 FR 37583, September 27, 1988; 53 FR 45089, November 8, 1988; 54 FR 7036, February 16, 1989; 55 FR 2322, January 23, 1990, Effective July 23, 1990; 55 FR 22520, June 1, 1990; 55 FR 50482, December 6, 1990, Effective January 1, 1994; 56 FR 30195, July 1, 1991; 56 FR 43704, September 4, 1991; 57 FR 37262, August 18, 1992, Effective June 20, 1992; 57 FR 39275, August 28, 1992; 57 FR 41173, September 9, 1992; 59 FR 62926, December 6, 1994, Effective June 5, 1995; 60 FR 25540, May 11, 1995; 60 FR 35452, July 7, 1995; 61 FR 4911, February 9, 1996, Effective June 6, 1996; 61 FR 16290, April 12, 1996, Effective July 11, 1996; 61 FR 59950, November 25, 1996; 62 FR 6650, February 12, 1997,

Effective August 12, 1997; 64 FR 3382, January 21, 1999; 64 FR 25408, May 11, 1999; 64 FR 52828, September 30, 1999; 64 FR 56469, October 20, 1999; 65 FR 12378, March 8, 2000; 69 FR 21737, April 22, 2004; 69 FR 62217, October 25, 2004; 70 FR 10776, March 4, 2005, Effective September 6, 2005, 70 FR 35034, June 16, 2005, Effective September 6, 2005; 71 FR 40254, July 14, 2006; 73 FR 72912, December 1, 2008, Effective December 31, 2008; 79 FR 7518, February 7, 2014, and Effective August 6, 2014.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.4 Annual Reporting for Generators of Hazardous Waste.

Each generator of greater than two hundred twenty (220) pounds of hazardous waste in any calendar month during the previous calendar year shall report annually by March 1 of each calendar year to the Department, on forms provided by the Department, the type and amount of hazardous waste generated during the preceding calendar year.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.5 Standards Applicable to Transporters of Hazardous Waste.

Transporters of hazardous waste in and through Mississippi shall meet all the requirements of Part 263 of the EPA Hazardous Waste Regulations 40 CFR 263; 45 FR 12743, February 26, 1980, Effective August 26, 1980; 45 FR 33151, May 19, 1980, Effective November 19, 1980; 45 FR 85022, December 24, 1980; 45 FR 86968, 86973, December 31, 1980; 48 FR 14153, April 1, 1983; 51 FR 10176, March 24, 1986, Effective September 22, 1986; 61 FR 16~~309~~290, April 12, 1996, Effective July 11, 1996; 51 FR 28685, August 8, 1986, Effective November 8, 1986; 51 FR 40637, November 7, 1986, Effective November 8, 1986; 62 FR 6650, February 12, 1997, Effective August 12, 1997; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 79 FR 7518, February 7, 2014, Effective August 6, 2014, and all other applicable requirements of the Mississippi Public Service Commission and the U. S. Department of Transportation.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.6 Annual Reporting for Transporters of Hazardous Waste.

Each transporter of hazardous waste shall report annually by March 1 of each calendar year to the Department, on forms provided by the Department, the transporter's location, mailing address, and contact person.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.7 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.

Owners and operators of hazardous waste treatment, storage, and disposal facilities in Mississippi shall design, construct, operate, close, and maintain such facilities in accordance with

the requirements found in Part 264 of the EPA Hazardous Waste Regulations 40 CFR 264; 45 FR 33221, May 19, 1980, Effective November 19, 1980; 45 FR 76075, November 17, 1980; 45 FR 76630, November 19, 1980; 45 FR 86968, 86970, 86973, December 31, 1980; 46 FR 2847, January 12, 1981; 46 FR 7670, January 23, 1981; 46 FR 8395, January 26, 1981; 46 FR 18025, March 23, 1981; 46 FR 27476, May 20, 1981; 46 FR 35247, July 7, 1981; 46 FR 55112, November 6, 1981; 46 FR 57285, November 23, 1981; ; 47 FR 7841, February 23, 1982; 47 FR 8306, February 25, 1982; 47 FR 10006, March 9, 1982; 47 FR 15032, April 7, 1982; 47 FR 16544, April 16, 1982; 47 FR 17989, April 27, 1982; 47 FR 19995, May 10, 1982; 47 FR 27531, June 24, 1982; 47 FR 32349, July 26, 1982; 47 FR 44938, October 12, 1982; 48 FR 2511, January 19, 1983; 48 FR 3981, January 28, 1983; 48 FR 14293, April 1, 1983; 48 FR 30115, June 30, 1983; 50 FR 661, January 4, 1985; 50 FR 1999, January 14, 1985; 50 FR 18374, April 30, 1985; 50 FR 28742, July 15, 1985; 50 FR 49203, November 29, 1985, Effective March 31, 1986; 51 FR 16443, May 2, 1986, Effective October 29, 1986; 51 FR 25354, July 11, 1986, Effective September 9, 1986; 51 FR 25472, July 14, 1986, Effective January 12, 1987; 51 FR 28556, August 8, 1986; 51 FR 29430, August 15, 1986; 51 FR 40637, November 7, 1986, Effective November 8, 1986; 52 FR 21016, June 4, 1987; 52 FR 25787, July 8, 1987; 52 FR 25946, July 9, 1987, Effective September 28, 1987; 52 FR 44320, November 18, 1987, Effective December 18, 1987; 52 FR 45798, December 1, 1987; 52 FR 46963, December 10, 1987, Effective January 11, 1988; 53 FR 7740, March 10, 1988; 53 FR 27164, July 19, 1988; 53 FR 31211, August 17, 1988; 53 FR 34086, September 2, 1988; 53 FR 37934, September 28, 1988; 53 FR 39728, October 11, 1988; 54 FR 26198, June 22, 1989; 54 FR 26647, June 23, 1989; 54 FR 33393, August 14, 1989; 55 FR 11798, March 29, 1990, Effective September 25, 1990, 55 FR 19262, May 9, 1990; 55 FR 22520, June 1, 1990; 55 FR 25454, June 21, 1990, Effective December 21, 1990; 55 FR 25978, June 26, 1990; 55 FR 26986, June 29, 1990, Effective September 25, 1990; 55 FR 31387, August 2, 1990; 55 FR 32733, August 10, 1990; 55 FR 39409, September 27, 1990, Effective September 25, 1990; 53 FR 37934, September 28, 1988; 53 FR 37934, September 28, 1988; 55 FR 50482, December 6, 1990, Effective January 1, 1994; 56 FR 7134, February 21, 1991, Effective August 21, 1991; 56 FR 19290, April 26, 1991, Effective December 21, 1990; 56 FR 30195, July 1, 1991; 56 FR 32688, July 17, 1991, Effective August 21, 1991; 56 FR 30200, July 1, 1991; 57 FR 3486, January 29, 1992, Effective July 29 1992; 57 FR 8088, March 6, 1992; 57 FR 37262, August 18, 1992, Effective February 18, 1993; 57 FR 38558, August 25, 1992, Effective August 11, 1992; 57 FR 39275, August 28, 1992; 57 FR 41173, September 9, 1992; 57 FR 42835, September 16, 1992; 57 FR 54452, November 18, 1992, Effective May 18, 1993; 57 FR 61502, December 24, 1992, Effective January 1, 1994; 58 FR 8682, February 16, 1993, Effective April 19, 1993; 58 FR 26424, May 3, 1993, Effective March 8, 1993; 58 FR 29884, May 24, 1993, Effective May 10, 1993; 58 FR 46040, August 31, 1993; 59 FR 13891, March 24, 1994; 59 FR 29959, June 10, 1994, Effective August 9, 1994; 59 FR 47982, September 19, 1994, Effective December 19, 1994 except Section 266.100 and Appendix VIII are Effective September 19, 1994; 59 FR 62926, December 6, 1994, Effective June 5, 1995; 60 FR 25540, May 11, 1995; 60 FR 26828, May 19, 1995, Effective December 6, 1995; 60 FR 35452, July 7, 1995; 60 FR 35705, July 11, 1995, Effective September 11, 1995; 60 FR 50428, September 29, 1995, Effective December 6, 1995; 61 FR 4911, February 9, 1996, Effective June 6, 1996; 61 FR 16290, April 12, 1996, Effective July 11,1996; 61 FR 59950, November 25, 1996; 62 FR 6650, February 12, 1997, Effective August 12, 1997; 62 FR 32462, June 13, 1997; 62 FR 64656, December 8, 1997; 63 FR 56710, October 22, 1998; 63 FR 65874, November 30, 1998, Effective June 1, 1999; 64 FR 3382, January 21, 1999; 64 FR 36466, July

6, 1999; 64 FR 52828, September 30, 1999; 66 FR 35087, July 3, 2001, Effective October 16, 2001; 67 FR 2962, January 22, 2002; 67 FR 6792, February 13, 2002; 69 FR 22602, April 26, 2004, Effective June 25, 2004; 70 CFR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 34538, June 14, 2005, Effective July 14, 2005; 70 FR 35034, June 16, 2005, Effective September 6, 2005; 70 FR 44150, August 1, 2005; 70 FR 45508, August 5, 2005; 70 FR 59402, October 12, 2005, Effective December 12, 2005, 71 FR 16862, April 4, 2006, Effective May 4, 2006; 71 FR 40254, July 14, 2006; 73 FR 18970, April 8, 2008; 79 FR 7518, February 7, 2014, Effective August 6, 2014; and all conditions of any additional siting requirements stated in this part.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.8 Annual Reporting for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities.

The owner or operator of any facility for the treatment, storage, recycling, or disposal of hazardous waste shall report by March 1 of each calendar year to the Department, on forms provided by the Department, the types and amounts of hazardous waste treated, stored, recycled, and/or disposed during the preceding calendar year.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.9 Location Standards for the Establishment or Expansion of Hazardous Waste Management Facilities

A. Applicability. These regulations shall apply to (1) hazardous waste permit applications pending before the Mississippi Department of Environmental Quality on the effective date of these regulations and (2) hazardous waste permit applications submitted to the Mississippi Department of Environmental Quality after the effective date of these regulations.

B. Definitions. For purposes of this Rule 1.9, all words and phrases not defined herein shall have the meanings ascribed to them in Section 17-17-3 of the Mississippi Code unless the context clearly indicates otherwise. Terms not defined either herein or in Section 17-17-3 of the Mississippi Code shall have their ordinary meanings unless such terms have a specialized meaning within the hazardous waste field. Terms having such a specialized meaning are to be given that specialized meaning unless otherwise defined herein or in Section 17-17-3 of the Mississippi Code.

(1) "Active portion of the facility" means that portion of the facility where treatment, storage, or disposal operations are being or have been conducted and which is not a closed portion.

(2) "Airport" means a public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

(3) "Aquifer" means a geological formation, group of formations, or portion of a formation capable of yielding significant quantities of groundwater to wells or springs.

(4) "Areas susceptible to mass movement" means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the unit, because of slope stability or other natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluction, block sliding, and rock fall.

(5) "Closed portion" means that portion of a facility which has closed in accordance with the facility closure plan and all applicable closure requirements.

(6) "Department" means the Mississippi Department of Environmental Quality.

(7) "Displacement" means the relative movement of any two sides of a fault measured in any direction.

(8) "Endangered or threatened species" means any species listed as such pursuant to the Federal Endangered Species Act of 1973, as amended, or as defined by Section 49-5-105, Mississippi Code of 1972.

(9) "Facility" means all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).

(10) "Fault" means a fracture or a zone of rock fractures in material along which strata on one side have been displaced with respect to those on the other side.

(11) "Holocene" means the most recent geologic epoch of the Quaternary Period, from the end of the Pleistocene Epoch to the present.

(12) "Horizontal ground acceleration" means the maximum change in velocity over time relative to horizontal movement of the earth's surface as measured at a particular point during an earthquake.

(13) "Incinerator" means any enclosed device that:

(a) Uses controlled flame combustion and neither meets the criteria of classification as a boiler, sludge dryer, or carbon regeneration unit, nor is listed as an industrial furnace as these terms are defined in 40 CFR 260.10; or

(b) Meets the definition of infrared incinerator or plasma arc incinerator established in 40 CFR 260.10.

(14) "Karst Terranes" means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

(15) "Lake or reservoir" means a body of water, not owned by the applicant, having greater than ten (10) acres of surface area at such time as the spillway overflows and the primary purpose of which is not for wastewater storage or treatment.

(16) "Land-Based Unit" means a unit subject to Rule 1.7 (40 CFR, Subpart F) of these regulations, including landfills, surface impoundments, waste piles, land treatment units, and certain hazardous waste management units subject to Rule 1.7 (40 CFR, Subpart F) of these regulations, Land based unit also means a tank that closes under Rule 1.7 (40 CFR, 264.197(b)) of these regulations, leaving contaminated soils in place.

(17) "Mass movement" means any downslope unit movement of earth materials, including, but not necessarily restricted to, landslides, avalanches, debris slides and flows, creep, solifluction, blocksliding, rock falls, and slump.

(18) "Nonattainment area" means an area which is shown by monitored data or which is calculated by air quality modeling to exceed any national ambient air quality standard.

(19) "Non-Land Based Unit" means any hazardous waste management unit not subject to Part F of Part 264.

(20) "100-year-flood" means a flood that has a 1-percent or greater chance of recurring in any given year or a flood of a magnitude equaled or exceeded once in 100 years on the average over a significantly long period.

(21) "100-year floodplain" means any land area which is subject to a one percent or greater chance of flooding in any given year from any source.

(22) "Ordinary waste" means "garbage" as that term is defined in Section 17-17-3 of the Mississippi Code.

(23) "Outcrop" means that part of a geologic formation or structure that appears at the surface of the earth; also, bedrock that is covered only by surficial deposits such as alluvium.

(24) “Permit Board" means the Mississippi Environmental Quality Permit Board.

(25) "Poor foundation conditions" means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of a land-based or non-land-based unit.

(26) "Seismic impact zone" means an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material will equal or exceed 0.10g (expressed as a fraction of the earth's gravitational pull (g)) in 250 years.

(27) "7Q10 flow" means the average streamflow rate over seven (7) consecutive days that may be expected to be reached as an annual minimum no more frequently than one (1) year in ten (10).

(28) "Stream or river" means a flowing body of water with a 7Q10 flow greater than zero.

(29) "Structural integrity" means the ability of a unit to withstand physical forces exerted upon designed components, ancillary devices, and containment structures of the unit.

(30) "Surficial deposit" means unconsolidated and residual, alluvial, or glacial deposits, lying on bedrock or occurring on or near the earth's surface.

(31) "Unstable area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the structural integrity of a commercial hazardous waste management facility constructed at the location. Unstable areas can include, but are not limited to, areas exhibiting poor foundation conditions, areas susceptible to mass movement, and Karst terranes.

(32) "Water well or special purpose hole" means a well or hole including but not necessarily limited to, a potable well, agricultural well, monitoring well, observation well, saline or brackish water withdrawal well, contaminant recovery well, heat pump water supply hole, vertical closed-loop system hole, industrial supply well, or a rig supply well.

(33) "Zone of deformation" means the area adjacent to and surrounding a fault which is subject to structural deformation as a result of movement along the fault. Geologic features that may occur in a zone of deformation may include, but are not limited to, splay or satellite faults, gouge zones, en echelon fault clusters, and deformed strata.

C. Hydrological and Geological Factors

(1) Floodplains.

No commercial hazardous waste management facility shall be established or expanded in a 100-year floodplain unless the permit applicant can demonstrate to the satisfaction of the Permit Board that the proposed facility will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of hazardous waste so as to pose a hazard to human health or the environment.

(2) Seismic Considerations.

(a) No commercial hazardous waste management facility shall be established or expanded such that it would be located closer than 200 feet to any fault along which displacement has occurred during the Holocene epoch unless a site-specific demonstration is made showing that any movement along the Holocene fault and in the adjacent zone of deformation will not disrupt the contents of any unit or damage the structural integrity of any unit, or in any way threaten human health or the environment. The owner or operator may be required to perform site and regional studies to demonstrate that the zone of deformation associated with the fault is smaller than 200 feet.

(b) No commercial hazardous waste management land-based unit shall be established or expanded such that it would be located in a seismic impact zone.

(c) No commercial hazardous waste management facility shall be established or expanded such that it would be located in areas susceptible to damage caused by any ground shaking, liquefaction, or seismic wave motion based on approved seismic risk maps or methods, unless it can be demonstrated that appropriate engineering measures will be applied to ensure unit structural integrity and to mitigate the threats posed to human health and the environment by any ground shaking, liquefaction, or seismic wave motion.

(3) Unstable Areas. No commercial hazardous waste management facility shall be established or expanded such that it would be located in an unstable area unless the applicant can demonstrate to the Permit Board that the facility will be designed so that the structural integrity of the facility will be maintained. The applicant for a permit to establish or expand a commercial hazardous waste management facility must consider the following factors, at a minimum, in determining whether an area is unstable:

(a) On-site or local soil conditions that may result in significant differential settling;

(b) On-site or local geologic or geomorphologic features; and

(c) On-site or local human-made features or events (both surface and subsurface).

(4) Geologic Barrier Thickness and Permeability. No land-based commercial hazardous waste management unit shall be established or expanded such that it would be located in an area where a geologic barrier material of soils or rock formations with low permeability is not present between the unit and the upper most aquifer. This barrier shall be at least 150 feet thick. The upper 50 feet of the geologic barrier material shall have a saturated hydraulic conductivity averaging no greater than $1x10^{-7}$ cm/sec, including consideration of any significant discontinuities or lithologic changes. Hydraulic conductivity values averaging no greater than 1×10^{-6} cm/sec. will be acceptable in the material comprising the remainder of the geologic barrier below the 50 foot section exhibiting the 1×10^{-7} cm/sec hydraulic conductivity values.

(5) Presence of Hydrocarbon Test Wells and Water Wells.

(a) No commercial hazardous waste management facility shall be established or expanded such that an active, inactive, or abandoned hydrocarbon well would be present within or beneath the active portion of the facility.

(b) No commercial hazardous waste management facility shall be established or expanded such that an active, inactive, or abandoned water well or other special purpose hole would be present within or beneath the active portion of the facility, unless it can be demonstrated to the satisfaction of the Permit Board that such well or hole has been abandoned according to all applicable State abandonment procedures and regulations. Exceptions to this criterion include any wells or other special purpose holes the Permit Board determines to be necessary for the detection or removal of contaminants within the active portion of the facility.

(6) Sole Source Aquifers and Aquifer Outcrop Areas.

(a) No land-based commercial hazardous waste management facility shall be established or expanded such that it would be located in the outcrop area of a sole source aquifer designated by the U.S. Environmental Protection Agency on the date the permit application is submitted to the Department.

(b) No land-based commercial hazardous waste management facility shall be established or expanded such that it would be located in the outcrop area of a freshwater aquifer which has use as a present or potential source of water for a community water system as defined in 40 CFR 141.2 of the National Primary Drinking Water Regulations.

(7) Surface and Subsurface Mineral Interests. No commercial hazardous waste management facility shall be established or expanded on any property for which the permit applicant does not own the mineral rights within the boundary of the proposed facility.

D. Protection of Natural Resources**.**

(1) Wetlands*.* No commercial hazardous waste management facility shall be established or expanded in wetlands unless the permit applicant obtains formal written approval regarding the operation from the U.S. Army Corps of Engineers. Additionally, no such facility shall be established or expanded in coastal wetlands unless the applicant obtains formal written concurrence, as required by Mississippi law, from the Bureau of Marine Resources of the Mississippi Department of Wildlife, Fisheries, and Parks.

(2) Endangered or Threatened Species. No commercial hazardous waste management facility shall be established or expanded unless in compliance with all statutes, rules, and regulations concerning protection of endangered or threatened species within the jurisdiction of the U. S. Fish and Wildlife Service and the Mississippi Department of Wildlife, Fisheries, and Parks.

(3) Significant Historical and Archaeological Areas. No commercial hazardous waste management facility shall be established or expanded in such a manner as to impact significantly and adversely cultural resources listed in or eligible for listing in the National Register of Historic Places, unless impact to those cultural resources may be appropriately mitigated.

(4) Parks and Recreational Areas.

(a) No commercial hazardous waste management facility shall be established or expanded such that it would be, on the date the application is submitted to the Department, located within 0.5 miles of any of the following areas, without the specific written consent of the agency responsible for managing such area:

(1) A national, state, or city designated park; or

(2) An outdoor recreational area, such as a golf course or swimming pool, owned by a city, county, or other public agency.

(b) A greater setback distance may be established by the Permit Board on a site specific basis.

(5) Forests, Wilderness Areas, Wildlife Management Areas, and Natural Areas.

(a) No commercial hazardous waste management facility shall be established or expanded such that it would be, on the date the permit application is submitted to the Department, located within any of the following areas, without the specific written consent of the person responsible for managing such area:

(1) National forest land, national wilderness areas, and national wildlife refuge areas, as designated by the appropriate federal agency; or

(2) State wildlife management areas, state game management areas, and state natural areas, as designated by the Mississippi Department of Wildlife, Fisheries and Parks.

(b) A setback distance may be established by the Permit Board on a site specific basis.

(6) Surface Waters.

(a) No commercial hazardous waste management facility shall be established or expanded such that the active portion of the facility would be located within 0.5 mile of the banks of any section of a river, stream, lake, or coastal waters classified by the Commission on Environmental Quality as recreational or shellfish harvesting on the date the permit application is submitted to the Department.

(b) No commercial hazardous waste management facility shall be established or expanded such that the active portion of the facility would be located closer than five hundred (500) feet from the banks of a stream, river, lake, reservoir, or coastal waters.

(7) Air Quality. An applicant for a permit to establish or expand a commercial hazardous waste management facility shall comply with the State of Mississippi Guidelines for Review of Siting Criteria in Applications for Air and Water Pollution Control Permits (Title 11, Part 2, Chapter 2 and Title 11, Part 6, Chapter 1), as amended.

(8) Protection of Agriculture, Aquaculture, Forestry, Fish, and Wildlife. No commercial hazardous waste incinerator or landfill shall be located such that operations of the facility would have a significant adverse impact on agriculture, aquaculture, forests, fish, or wildlife. The applicant must provide to the Department a documented report, predicting any impacts of the proposed facility on agriculture, aquaculture, forests, fish, and wildlife within a five-mile radius of the site.

E. Local Land Use and Proximity to Public Water Supplies, Airports, and Certain Structures and Institutions.

(1) Local Land Use and Local Zoning.

No commercial hazardous waste management facility shall be established or expanded if, on the date the permit application is submitted to the Department, the site would be in conflict with lawful regulations or ordinances of state agencies, local governments.

(2) Proximity to Residences.

(a) No commercial hazardous waste management facility shall be established or expanded such that the active portion of the facility would be located less than 1000 feet from any residence in existence on the date the permit application is submitted to the Department.

(b) No commercial hazardous waste management facility shall be established or expanded such that the active portion of the facility would be located within one mile of a residential area in existence on the date the permit application is submitted to the Department, unless the proposed facility would be located in an established industrial park, in which case the active portion of the facility shall not be located less than 1000 feet from any residential area in existence on the date the permit application is submitted to the Department.

(c) For purposes of this rule,

(1) "residential area" means a group or cluster of 10 or more single family dwelling units on contiguous property and having an average density of two or more units per acre, and

(2) "single family dwelling unit" means either (a) a conventional single family detached dwelling or mobile home, or (b) a unit within a multi-family residential complex (townhouses, condominiums, or apartments).

(3) Proximity to Public Water Supply Sources.

(a) No commercial hazardous waste management land-based unit shall be established or expanded such that the active portion of the facility would be, on the date the permit application is submitted to the Department, within one mile of any well supplying water to a community water system as defined in 40 CFR 141.2 of the National Primary Drinking Water Regulations.

(b) No commercial hazardous waste management facility shall be established or expanded such that the active portion of the facility would be, on the date the permit application is submitted to the Department, within one mile from a surface water intake for a public water supply. If the runoff from the facility would enter the water body upgradient of the intake structure, this distance shall be increased to at least twenty (20) miles.

(4) Proximity to Airports. No commercial hazardous waste management facility shall be established or expanded such that it would adversely affect operations or safety at any airport in existence on the date the permit application is submitted to the Department.

(5) Proximity to Buildings Housing Multiple Relatively Immobile Occupants. No commercial hazardous waste management facility shall be established or expanded such that the active portion of the facility would be, on the date the permit application is submitted to the Department, located within one (1) mile of any existing hospital, nursing home, school, or other multi-occupant institution, the purpose and function of which is to provide services to immobile populations.

(6) Proximity to Churches. No commercial hazardous waste management facility shall be established or expanded such that the active portion of the facility would be, on the date the permit application is submitted to the Department, located within one thousand (1,000) feet of any existing church.

(7) Proximity to Municipalities. No commercial hazardous waste incinerator or land-based unit shall be established or expanded such that the active portion of the facility would be, on the date the permit application is submitted to the Department, located within one-half (1/2) mile of the incorporated limits of any existing municipality.

(8) Proximity to Existing or Abandoned Ordinary Waste Disposal Sites. No commercial hazardous waste landfill shall be established or expanded such that the active portion of the facility would be, on the date the permit application is submitted to the Department, located on the same site or within one thousand (1,000) feet of an existing or abandoned ordinary waste disposal site, unless the hazardous waste to be disposed of in said commercial hazardous waste landfill is specifically approved as exempted from this prohibition by the Department.

F. Transportation Factors. The applicant for a permit to establish or expand a commercial hazardous waste management facility must demonstrate to the Permit Board that the anticipated additional traffic along the primary route to the facility would not significantly increase the safety risk within a ten (10) mile radius of the active portion of the facility. The demonstration shall address at least the following factors:

(1) the primary route(s) that the applicant expects will be used for the transportation of hazardous waste to the facility within a ten (10) mile radius of the active portion of the facility;

(2) an estimate of the number and types of vehicles routinely traveling on the primary route(s) within said ten (10) mile radius;

(3) an estimate of the number and types of vehicles expected by the applicant to transport hazardous waste to the facility via the primary route(s) within said ten (10) mile radius;

(4) an estimate of the loaded weight of each type of vehicle expected to transport hazardous waste to the facility via the primary route(s) within the ten (10) mile radius; and

(5) proximity to waste generators.

The Permit Board may require such reasonable restrictions and limitations as it deems appropriate regarding the primary transportation route(s) to the facility if it should determine that the primary route(s) of transportation to the facility by hazardous waste hauling vehicles would significantly increase the safety risks within the ten (10) mile radius.

G. Aesthetic Factors.

(1) Visibility and Appearance of the Facility.

(a) No commercial hazardous waste management facility shall be established or expanded such that, on the date the permit application is submitted to the Department, the active portion of the facility would be less than 1000 feet from the edge of the right-of-way of any interstate or primary highway, as designated by the State Highway Commission, except the following:

(1) those locations which will be screened by natural objects, planting, fences, or other appropriate means so as not to be visible from the main-traveled highway system, or otherwise removed from sight;

(2) those locations which are within areas zoned for industrial use under authority of law;

(3) those locations which have been determined by the State Highway Commission as acceptable, pursuant to Mississippi Code Annotated Section 49-25-7; or

(4) those locations which will not be visible from the main-traveled highway system.

(b) The Permit Board may, at its discretion, apply the requirements of G.l.a. in relation to any public road other than an interstate or primary highway.

(2) Noise.

No commercial hazardous waste management facility shall be established or expanded unless the applicant for a permit for the facility can demonstrate to the Permit Board that the facility shall be located, configured, designed, constructed, and operated such that the noise level at the facility boundary caused by normal waste management operations of the facility but not by vehicular movement into or out of the facility will not exceed an eight-hour time weighted average (TWA) of 65 decibels between the hours of 7 a.m. and 7 p.m. or an eight-hour TWA of 55 decibels between the hours of 7 p.m. and 7 a.m.

H. Buffer Zones.

The Permit Board may establish buffer zone requirements in addition to or more stringent than the minimums prescribed in this section for new or expanding commercial hazardous waste management facilities, and all buffer zone requirements around all other new or expanding hazardous waste management facilities, all as may be required for protection of the public health or environment or because of the proximity of such things as individual residences, roadways, waterways, commercial establishments, existing or abandoned solid or hazardous waste facilities or other natural or man-made structures, on a case-by-case basis using good engineering judgment.

I. Notice to Landowners.

Within sixty (60) days after the date on which an application for a permit to establish or expand a commercial hazardous waste landfill is filed with the Department, the applicant shall give notice of the filing to all landowners within one-half (1/2) mile of the property line of the proposed facility.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.10 Financial Capability, Commercial Hazardous Waste Management Facilities.

A. For the purposes of this Rule 1.10, the following definitions shall apply:

(1) "Incinerator" means any enclosed device that:

(a) Uses controlled flame combustion and neither meets the criteria of classification as a boiler, sludge dryer, or carbon regeneration unit, nor is

listed as an industrial furnace as these terms are defined in 40 CFR 260.10; or

(b) Meets the definition of infrared incinerator or plasma arc incinerator established in 40 CFR 260.10.

(2) "Land disposal facility" means a facility with any unit subject to the requirements of 40 CFR Part 264 Subpart F.

B. Annually, the owner and operator of a commercial hazardous waste management incinerator or land disposal facility must provide to the Mississippi Department of Environmental Quality documentation of a current actual or implied (hypothetical) rating no lower than BB (Standard and Poor's Corporation) or Ba (Moody's Investor Service) or equivalent on senior unsecured debt obligations from a Nationally Recognized Statistical Rating Organization as established by the Federal Securities and Exchange Commission. This rating must be for the owner and operator named in the permit application.

C. Annually, the owner and operator of any kind of commercial hazardous waste management facility other than an incinerator or land disposal facility must provide to the Mississippi Department of Environmental Quality documentation of a current actual or implied (hypothetical) rating no lower than B (Standard and Poor's Corporation) or B (Moody's Investor Service) or equivalent on senior unsecured debt obligations from a Nationally Recognized Statistical Rating Organization as established by the Federal Securities and Exchange Commission. This rating must be for the owner and operator named in the permit application.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.11 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.

Owners and operators of hazardous waste treatment, storage, and disposal facilities in Mississippi that have fully complied with the requirements for interim status shall meet the requirements in Part 265 of the EPA Hazardous Waste Regulations 40 CFR 265; 45 FR 33232, May 19, 1980, Effective November 19, 1980; 45 FR 72040, October 30, 1980, 45 FR 76075, November 17, 1980, 45 FR 76630, November 19, 1980; 45 FR 78529, November 25, 1980; 45 FR 86968, 86970, 86973, December 31, 1980; 46 FR 2847, January 12, 1981; 46 FR 7678, January 23, 1981; 46 FR 8395, January 26, 1981; 46 FR 13494, February 20, 1981; 46 FR 18025, March 23, 1981; 46 FR 27467, May 20, 1981; 46 FR 33507, June 29, 1981; 46 FR 35247, July 7, 1981; 46 FR 56596, November 17, 1981; 47 FR 1255, January 11, 1982; 47 FR 2316, January 15, 1982; 47 FR 7841, February 23, 1982; 47 FR 8306, February 25, 1982; 47 FR 10006, March 9, 1982; 47 FR 12316, March 22, 1982; 47 FR 15032, April 7, 1982; 47 FR 16544, April 16, 1982; 47 FR 17989, April 27, 1982; 47 FR 19995, May 10, 1982; 47 FR 27531, June 24, 1982; 47 FR 32349, July 26, 1982; 47 FR 44938, October 12, 1982; 48 FR 2511, January 19, 1983; 48 FR 3981, January 28, 1983; 48 FR 14153, April 1, 1983; 48 FR 30115,

June 30, 1983; 48 FR 52720, November 22, 1983; 49 FR 46095, November 21, 1984; 50 FR 661, January 4, 1985; 50 FR 1999, January 14, 1985; 50 FR 16048, April 23, 1985; 50 FR 18374, April 30, 1985; 50 FR 28742, July 15, 1985; 50 FR 49203, November 29, 1985, Effective March 31, 1986; 51 FR 16451, May 2, 1986, Effective October 29, 1986; 51 FR 19177, May 28, 1986; 51 FR 25355, July 11, 1986, Effective September 9, 1986; 51 FR 25478, July 14, 1986, Effective January 12, 1987; 51 FR 28556, August 8, 1986; 51 FR 29430, August 15, 1986; 51 FR 40637, November 7, 1986, Effective November 8, 1986; 52 FR 8704, March 19, 1987, Effective September 15, 1987; 52 FR 21016, June 4, 1987; 52 FR 25787, July 8, 1987; 52 FR 44321, November 18, 1987, Effective December 18, 1987; 52 FR 45798, December 1, 1987, Effective December 31, 1987; 53 FR 7740, March 10, 1988; 53 FR 27164, July 19, 1988; 53 FR 31211, August 17, 1988; 53 FR 34086, September 2, 1988; 53 FR 37934, September 28, 1988; 54 FR 26647, June 23, 1989; 54 FR 33393, August 14, 1989; 55 FR 11798, March 29, 1990, Effective September 25, 1990; 55 FR 22520, June 1, 1990; 55 FR 25454, June 21, 1990, Effective December 21, 1990; 55 FR 25978, June 26, 1990; 55 FR 26986, June 29, 1990, Effective September 25, 1990; 55 FR 31387, August 2, 1990; 55 FR 32733, August 10, 1990; 55 FR 39409, September 27, 1990, Effective September 25, 1990; 55 FR 50482, December 6, 1990, Effective January 1, 1994; 56 FR 7134, February 21, 1991, Effective August 21, 1991; 56 FR 19290, April 26, 1991, Effective December 21, 1990; 56 FR 30195, July 1, 1991; 56 FR 32688, July 17, 1991, Effective August 21, 1991; 56 FR 42504, August 27, 1991, Effective August 21, 1991; 56 FR 46912, September 23, 1991; 56 FR 66368, December 23, 1991, Effective June 23, 1992; 57 FR 3486, January 29, 1992, Effective July 29, 1992; 57 FR 8088, March 6, 1992; 57 FR 37262, August 18, 1992, Effective February 18, 1993; 57 FR 38558, August 25, 1992, Effective August 11, 1992; 57 FR 39275, August 28, 1992; 57 FR 41173, September 9, 1992; 57 FR 42835, September 16, 1992; 57 FR 54452, November 18, 1992, Effective May 18, 1993; 57 FR 61502, December 24, 1992, Effective January 1, 1994; 58 FR 8682, February 16, 1993, Effective April 19, 1993; 58 FR 26424, May 3, 1993, Effective March 8, 1993; 58 FR 29884, May 24, 1993, Effective May 10, 1993; 58 FR 46040, August 31, 1993; 59 FR 13891, March 24, 1994; 59 FR 47982, September 19, 1994, Effective December 19, 1994 except Section 266.100 and Appendix VIII are Effective September 19, 1994; 59 FR 62926, December 6, 1994, Effective June 5, 1995; 60 FR 25540, May 11, 1995; 60 FR 26828, May 19, 1995, Effective December 6, 1995; 60 FR 35452, July 7, 1995; 60 FR 35705, July 11, 1995, Effective September 11, 1995; 60 FR 50428, September 29, 1995, Effective December 6, 1995; 61 FR 4911, February 9, 1996, Effective June 6, 1996; 61 FR 16309, April 12, 1996, Effective July 11, 1996; 61 FR 59950, November 25, 1996; 62 FR 6650, February 12, 1997, Effective August 12, 1997; 62 FR 32462, June 13, 1997; 62 FR 64656, December 8, 1997; 63 FR 56710, October 22, 1998; 63 FR 65874, November 30, 1998, Effective June 1, 1999; 64 FR 3382, January 21, 1999; 64 FR 36466, July 6, 1999; 64 FR 52828, September 30, 1999; 67 FR 6792, February 13, 2002; 69 FR 22602, April 26, 2004, Effective June 25, 2004; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 34538, June 14, 2005, Effective July 14, 2005; 70 FR 35034, June 16, 2005, Effective September 6, 2005; 70 FR 45508, August 5, 2005, 70 FR 59402, October 12, 2005, Effective December 12, 2005; 71 FR 16862, April 4, 2006, Effective May 4, 2006; 71 FR 40254, July 14, 2006; and 79 FR 7518, February 7, 2014, Effective August 6, 2014;.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.12 Annual Reporting for Owners or Operators of Interim Status Facility Treatment, Storage, Recycling, or Disposal.

The owner or operator of any interim status facility for the treatment, storage, recycling, or disposal of hazardous waste shall report by March 1 of each calendar year to the Department, on forms provided by the Department, the types and amounts of hazardous waste treated, stored, recycled, and/or disposed during the preceding calendar year.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.13 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities.

Generators, transporters and treatment, storage and disposal facilities conducting activities identified in Part 266 of the EPA Hazardous Waste Regulations shall comply with the requirements of Part 266 of the EPA Hazardous Waste Regulations 40 CFR 266; 50 FR 661, January 4, 1985; 50 FR 14219, April 11, 1985; 50 FR 28742, July 15, 1985; 50 FR 33541, August 20, 1985; 50 FR 49204, November 29, 1985, Effective March 31, 1986; 52 FR 11821, April 13, 1987; 52 FR 21306, June 5, 1987; 53 FR 31211, August 17, 1988; 54 FR 26647, June 23, 1989; 55 FR 32733, August 10, 1990; 56 FR 7134, February 27, 1991, Effective August 21, 1991; 56 FR 32688, July 17, 1991, Effective August 21, 1991; 56 FR 42504, August 27, 1991, Effective August 21, 1991; 56 FR 43874, September 5, 1991, Effective August 21, 1991; 57 FR 27880, June 22, 1992; 57 FR 38558, August 25, 1992, Effective August 11, 1992; 57 FR 41611, September 10, 1992, Effective March 8, 1993; 57 FR 44999, September 30, 1992; 58 FR 38816, July 20, 1993, Effective August 19, 1993; 58 FR 59598, November 9, 1993, Effective October 15, 1993; 59 FR 38545, July 28, 1994; 59 FR 43499, August 24, 1994, Effective February 24, 1995; 59 FR 47982, September 19, 1994, Effective December 19, 1994 except Section 266.100 and Appendix VIII are Effective September 19, 1994; 60 FR 25540, May 11, 1995; 60 FR 33913, June 29, 1995; 61 FR 16309, April 12, 1996, Effective July 11, 1996; 61 FR 56631, November 4, 1996; 62 FR 6650, February 12, 1997, Effective August 12, 1997; 62 FR 32462, June 13, 1997; 63 FR 28556, May 26, 1998, Effective August 24, 1998; 63 FR 42110, August 6, 1998; 63 FR 54356, October 9, 1998; 63 FR 71225, December 24, 1998; 64 FR 52828, September 30, 1999; 64 FR 63209, November 19, 1999; 66 FR 27218, May 16, 2001, Effective November 13, 2001; 67 FR 6792, February 13, 2002; 67 FR 6968, February 14, 2002; 67 FR 48393, July 24, 2002; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 34538, June 14, 2005, Effective July 14, 2005, and 70 FR 59402, October 12, 2005, Effective December 12, 2005; 71 FR 16862, April 4, 2006, Effective May 4, 2006; 71 FR 40254, July 14, 2006; and 73 FR 18970, April 8, 2008; and 77 FR 22229, April 13, 2012, Effective May 14, 2012.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.14 Standards for Owners and Operators of Hazardous Waste Facilities Operating under a Standardized Permit.

Owners and operators of hazardous waste treatment, storage, and disposal facilities in Mississippi under a 40 CFR Subpart J standardized permit shall meet all the requirements of Part

267 of the EPA Hazardous Waste Regulations 40 CFR 267: 70 CFR 53420, September 8, 2005, Effective October 11, 2005; and 71 FR 40254, July 14, 2006.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.15 Schedule for Land Disposal Restrictions.

Generators, transporters, and owners and operators of hazardous waste treatment, storage, and disposal facilities in Mississippi shall meet all the requirements of Part 268 of the EPA Hazardous Waste Regulations 40 CFR 268; 51 FR 19300, May 28, 1986, Effective June 27, 1986; 51 FR 40638, November 7, 1986, Effective November 8, 1986, except for the provisions in Sections 268.30(b) and 268.31(a), which will become effective on November 8, 1988; 52 FR 21016, June 4, 1987; 52 FR 25788, July 8, 1987; 52 FR 41296, October 27, 1987; 53 FR 27164, July 19, 1988; 53 FR 31211, August 17, 1988; 54 FR 4021, January 27, 1989, Revoked; 54 FR 8266 February 27, 1989; 54 FR 18837, May 2, 1989; 54 FR 26647, June 23, 1989; 54 FR 36970, September 6, 1989; 55 FR 11798, March 29, 1990, Effective September 25, 1990; 55 FR 22520, June 1, 1990; 55 FR 23935, June 13, 1990; 55 FR 26986, June 29, 1990, Effective September 25, 1990; 55 FR 31387, August 2, 1990; 55 FR 39409, September 27, 1990, Effective September 25, 1990; 55 FR 3864, January 31, 1991; 56 FR 41176, August 19, 1991, Effective August 8, 1991; 57 FR 8088, March 6, 1992; 57 FR 20770, May 15, 1992, Effective May 8, 1992; 57 FR 28632, June 26, 1992, Effective June 5, 1992; 57 FR 37262, August 18, 1992, Effective November 16, 1992; 57 FR 39275, August 28, 1992; 57 FR 41173, September 9, 1992; 57 FR 47772, October 20, 1992; 58 FR 8682, February 16, 1993, Effective April 19, 1993; 58 FR 14319, March 17, 1993, Effective March 17, 1993; 58 FR 29884, 58 FR 28506, May 14, 1993, Effective May 8, 1993; May 24, 1993, Effective May 10, 1993; 58 FR 460490, August 31, 1993; 59 FR 31551, June 20, 1994; 59 FR 43499, August 24, 1994, Effective February 24, 1995; 59 FR 47980, September 19, 1994, Effective August 31, 1993; 59 FR 47982, September 19, 1994, Effective December 19, 1994 except Section 266.100 and Appendix VIII are Effective September 19, 1994; 60 FR 244, January 3, 1995, Effective December 19, 1994; 60 FR 25540, May 11, 1995; 61 FR 15596 April 8, 1996; 61 FR 19117, April 30, 1996; 61 FR 33682 June 28, 1996; 61 FR 36419, July 10, 1996; 61 FR 43927, August 26, 1996; 62 FR 1997, January 14, 1997, Effective January 8, 1997; 62 FR 7504, February 19, 1997; 62 FR 25990, May 12, 1997, 62 FR 32977, June 17, 1997; 62 FR 37699, July 14, 1997; 62 FR 45572, August 28, 1997, 63 FR 24596, May 4, 1998, 63 FR 28556, May 26, 1998, Effective August 24, 1998; 63 FR 31266, June 8, 1998; 63 FR 35147, June 29, 1998; 63 FR 42110, August 6, 1998; 63 FR 46332, August 31, 1998; 63 FR 47410, September 4, 1998; 63 FR 48124, September 9, 1998; 63 FR 51254, September 24, 1998; 63 FR 54356, October 9, 1998; 63 FR 65874, November 30, 1998, Effective June 1, 1999; 64 FR 25408, May 11, 1999; 64 FR 36466, July 6, 1999; 64 FR 56469, October 20, 1999; 65 FR 14472, March 17, 2000; 65 FR 36365, June 8, 2000; 65 FR 67067, November 8, 2000; 65 FR 81373, December 26, 2000; 66 FR 27266, May 16, 2001, Effective August 14, 2001; 66 FR 27266, May 16, 2001, Effective August 14, 2001; 66 FR 58258, November 20, 2001; 67 FR 16263, April 4, 2002; 67 FR 17119, April 9, 2002;67 FR 48393, July 24, 2002; 67 FR 62618, October 7, 2002, Effective November 21, 2002; 70 FR 9138, February 24, 2005, Effective August 23, 2005; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 34538, June 14, 2005, Effective July 14, 2005; 70 FR 35032, June 16, 2005, Effective August 23, 2005; 70 FR 45508, August 5, 2005; 71 FR 16862, April 4, 2006, Effective May 4, 2006; and 71 FR 40254, July 14, 2006.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.16 Hazardous Waste Permitting Program.

Owners and operators of hazardous waste treatment, storage and disposal facilities in Mississippi shall meet the requirements of Part 270 of the EPA Hazardous Waste Regulations 40 CFR 270; 48 FR 14153, April 1, 1983; 48 FR 30113, June 30, 1983; 48 FR 39619, September 1, 1983; 49 FR 17718, April 24, 1984; 50 FR 661, January 4, 1985; 50 FR 1999, January 14, 1985; 50 FR 18374, April 30, 1985; 50 FR 28702, July 15, 1985; 51 FR 10176, March 24, 1986, Effective September 22, 1986; 51 FR 16458, May 2, 1986; 51 FR 25486, July 14, 1986, Effective January 12, 1987; 51 FR 29431, August 15, 1986; 51 FR 40653, November 7, 1986, Effective November 8, 1986; 52 FR 8073, March 16, 1987; 52 FR 23450, June 22, 1987; 52 FR 25791, July 8, 1987; 52 FR 25953, July 9, 1987, Effective September 28, 1987; 52 FR 33936, September 9, 1987; 52 FR 45798, December 1, 1987, Effective December 31, 1987, Revoke Parts 270.41(a)(3), 270.41(a)(3)(i), 270.41(a)(3)(ii), and 270.41(a)(3)(iii); 52 FR 46965, December 10, 1987, Effective January 11, 1988; 53 FR 7740, March 10, 1988; 53 FR 27164, July 19, 1988; 53 FR 34086, September 2, 1988; 53 FR 37934, September 28, 1988; 53 FR 41649, October 24, 1988; 54 FR 615, January 9, 1989; 54 FR 4286, January 30, 1989; 54 FR 9596, March 7, 1989; 53 FR 37934; 54 FR 26198, June 22, 1989; 54 FR 33393, August 14, 1989; 55 FR 22520, June 1, 1990; 55 FR 25454, June 21, 1990, Effective December 21, 1990; 55 FR 50482, December 6, 1990, Effective January 1, 1994; 55 FR 3864, January 31, 1991; 56 FR 7134, February 21, 1991, Effective August 21, 1991; 56 FR 19290, April 26, 1991, Effective December 21, 1990; 56 FR 30195, July 1, 1991; 56 FR 32688, July 17, 1991, Effective August 21, 1991; 57 FR 3486, January 29, 1992, Effective July 29, 1992; 57 FR 37262, August 18, 1992, Effective February 18, 1993; 57 FR 39275, August 28, 1992; 57 FR 41173, September 9, 1992; 58 FR 8682, February 16, 1993, Effective April 19, 1993; 58 FR 29884, May 24, 1993, Effective May 10, 1993; 58 FR 46040, August 31, 1993; 59 FR 62926, December 6, 1994, Effective June 5, 1995; 60 FR 25540, May 11, 1995; 60 FR 26828, May 19, 1995, Effective December 6, 1995; 60 FR 33913, June 29, 1995; 60 FR 35452, July 7, 1995; 60 FR 63431, December 11, 1995, Effective June 11, 1996; 61 FR 4911, February 9, 1996, Effective June 6, 1996; 61 FR 59950, November 25, 1996; 62 FR 6650, February 12, 1997, Effective August 12, 1997; 62 FR 64656, December 8, 1997; 63 FR 33782, June 19, 1998; 63 FR 56710, October 22, 1998; 63 FR 65874, November 30, 1998, Effective June 1, 1999; 64 FR 36466, July 6, 1999; 64 FR 52828, September 30, 1999; 65 FR 30886, May 15, 2000, Effective June 14, 2000; 65 FR 42292, July 10, 2000; 66 FR 24270, May 14, 2001; 67 FR 2962, January 22, 2002; 67 FR 6792, February 13, 2002; 67 FR 6968, February 14, 2002; 67 FR 77687, December 19, 2002; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 34538, June 14, 2005, Effective July 14, 2005; 70 FR 45508, August 5, 2005; 70 FR 53420,September 8, 2005, Effective October 11, 2005, and 70 FR 59402, October 12, 2005, Effective December 12, 2005; 71 FR 16862, April 4, 2006, Effective May 4, 2006; 71 FR 40254, July 14, 2006; and all permit conditions specified by the State permitting authority in accordance with applicable laws and regulation.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.17 Contents of Part B: Additional General Requirements.

A. Commercial Hazardous Waste Landfill Perpetual Care

(1) At the time an application for a permit for a commercial hazardous waste landfill is made, the owner/operator shall prepare and submit to the Department for approval a plan stating provisions for converting the site to its suitable perpetual use, its use restrictions, and a maintenance schedule that will, when carried out, maintain the integrity of the site through perpetuity. The plan shall include the operations and estimated annual cost necessary to maintain the site. This annual cost estimate shall be revised and submitted to the Department annually until final closure is completed.

(2) At the time an application for a commercial hazardous waste landfill permit is made the owner/operator shall submit a copy of the property deed showing an easement authorizing the appropriate entity access to the property to monitor, inspect or conduct any activity necessary to maintain the integrity of the site and shall record this deed along with the easement in the proper county record. In addition to the easement, the property owner shall include in the property record the land use restriction shown in the perpetual care plan and a description of the facility and the characteristics of its content.

B. Applicant's Financial Capabilities and Past Compliance Record for all Applicants except Commercial Hazardous Waste Management Facilities.

As part of or during review of the application for a permit to either construct or operate any treatment, storage, or disposal facility except a commercial hazardous waste management facility the applicant shall submit, for the applicant and any other individual or entity designated to own or operate the proposed facility, the following information:

(1) information to demonstrate the availability of adequate financial resources to comply with the terms and conditions of the permit;

(2) information on compliance history sufficient to provide reasonable assurance that terms and conditions of the permit will be complied with.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.18 Financial Capability, Commercial Hazardous Waste Management Facilities

A. For purposes of this Rule 1.18, the following definitions shall apply:

(1) "Incinerator" means any enclosed device that:

(a) Uses controlled flame combustion and neither meets the criteria of classification as a boiler, sludge dryer, or carbon regeneration unit, nor is

listed as an industrial furnace as these terms are defined in 40 CFR 260.10; or

(b) Meets the definition of infrared incinerator or plasma arc incinerator established in 40 CFR 260.10.

(2) "Land disposal facility" means a facility with any unit subject to the requirements of 40 CFR 264 Subpart F.

B. An applicant for a permit to establish or expand a commercial hazardous waste management incinerator or land disposal facility must provide to the Mississippi Department of Environmental Quality documentation of an actual or implied (hypothetical) rating no lower than BB (Standard and Poor's Corporation) or Ba (Moody's Investor Service) or equivalent on senior unsecured debt obligations from a Nationally Recognized Statistical Rating Organization as established by the Federal Securities and Exchange Commission. This rating must be for the applicant as named in the permit application.

C. An applicant for a permit to establish or expand any kind of hazardous waste management facility other than an incinerator or land disposal facility must provide to the Mississippi Department of Environmental Quality documentation of an actual or implied (hypothetical) rating no lower than B (Standard and Poor's Corporation) or B (Moody's Investor Service) or equivalent on senior unsecured debt obligations from a Nationally Recognized Statistical Rating Organization as established by the Federal Securities and Exchange Commission. This rating must be for the applicant as named in the permit application.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.19 Disclosure Regulations, Commercial Hazardous Waste Management Facilities.

Every applicant for issuance, reissuance, or transfer of a permit for a commercial hazardous waste management facility must comply with the Mississippi Commission on Environmental Quality Hazardous and Nonhazardous Solid Waste Applicant Disclosure Regulations, promulgated pursuant to Mississippi Code Annotated Section 17-17-501 (Supp. 1991), et. seq. [Miss. Laws, 1991, ch. 583], Mississippi Code Annotated Section 17-17-27 (Supp. 1991), and Mississippi Code Annotated Section 49-17-17 (Supp. 1991).

Source: Miss. Code Ann. *§§ 17-17-1, et seq., 17-17-27, 17-17-501, et seq., 49-2-9(1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.20 Permit Transfer.

"Transfer" shall mean any sale, conveyance, or assignment of the rights held by the applicant in any permit issued pursuant to these Regulations. Any change of more than 50 percent of the equity ownership of the permit holder over a sustained period which results in a new majority

owner shall constitute a transfer. A new majority owner for purposes of this provision shall be an individual, partnership, company, or group of affiliated companies.

Source: Miss. Code Ann. *§§ 17-17-1, et seq., 49-2-9(1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.21 Standards for Universal Waste Management.

Generators of hazardous waste in Mississippi shall meet the requirements of Part 273 of the EPA Hazardous Waste Regulations 40 CFR Part 273; 60 FR 25540, May 11, 1995; 61 FR 16309, April 12, 1996, Effective July 11, 1996; 63 FR 71225, December 24, 1998; 64 FR 36466, July 6, 1999; 70 FR 45508, August 5, 2005; 71 FR 40254, July 14, 2006; and 72 FR 35666, June 29, 2007.

Source: Miss. Code Ann. *§§ 17-17-1, et seq., 49-2-9(1)(b), 49-17-17, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.22 Recycled Used Oil Management Standards.

Used oil generators, transporters, processors, re-refiners, burners, and marketers of recycled used oil shall meet the requirements of Part 279 of the EPA Hazardous Waste Regulations 40 CFR Part 279; 57 FR 41611, September 10, 1992, Effective March 8, 1993; 58 FR 26424, May 3, 1993, Effective March 8, 1993; 58 FR 33342, June 17, 1993; 59 FR 10559, March 4, 1994, Effective January 1, 1995; 63 FR 24963, May 6, 1998; 68 FR 44659, July 30, 2003; 70 FR 10776, March 4, 2005, Effective September 6, 2005; 70 FR 34538, June 14, 2005, Effective July 14, 2005; and 71 FR 40254, July 14, 2006.

Source: Miss. Code Ann. *§§ 17-17-1, et seq., 49-2-9(1)(b), 49-17-17, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.23 Procedures for Decision Making.

The State permitting authority shall conform to the procedures found in Subparts A and B of Part 124 of the EPA Hazardous Waste Regulations 40 CFR 124; 45 FR 33484, May 19, 1980, Effective July 18, 1980; 45 FR 52729, August 4, 1980; 45 FR 68391, October 15, 1980; 46 FR 22584, April 20, 1981; 46 FR 36706, July 15, 1981; 47 FR 15304, April 8, 1982; 48 FR 14146, April 1, 1983; 48 FR 30115, June 30, 1983; 48 FR 39619, September 1, 1983; 49 FR 17718, April 24, 1984; 53 FR 28118, July 26, 1988; 53 FR 37396, September 26, 1988; 54 FR 246, January 4, 1989; 60 FR 63431, December 11, 1995, Effective June 11, 1996, 65 FR 30886, May 15, 2000, Effective June 14, 2000 and those administrative procedures as required under State law.

Source: Miss. Code Ann. *§§ 17-17-1, et seq., 49-2-9(1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 1.24 Penalties, Notification, Effective Date and Certification.

Any person violating any provision of the Mississippi Solid Waste Disposal Law, as amended, any rule or regulation made pursuant hereto or violating any order or permit condition issued by the Department shall be punished in accordance with Section 17-17-29 of the Mississippi Code of 1972, as amended.

Under Rule 1.2 identifying by its characteristics or listing any substances as hazardous waste subject to this regulation, any person generating or transporting such substances or owning or operating a facility for treatment, storage or disposal of such substance shall file with the Environmental Protection Agency Administrator, through the State permitting authority, and shall receive from the Administrator of EPA an identification number.

Source: Miss. Code Ann. *§§ 17-17-1, et seq. 49-2-9(1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Part 3, Chapter 2: Mississippi Commission on Environmental Quality Final Regulations Governing Brownfield Voluntary Cleanup and Redevelopment in Mississippi (Adopted May 27, 1999, Last Amended February 28, 2002)

TABLE OF CONTENTS

SUBCHAPTER 1.

Rule 2.1.1. General Requirements

A. Purpose

B. Authority

C. Definitions

D. Acronyms

E. Applicability

Rule 2.1.2 Brownfield Application Requirements

A. General Requirements

B. Procedural Requirements

C. Brownfield Consulting Firm Requirements

Rule 2.1.3 Brownfield Agreement Requirements and Procedures

A. General Requirements

B. Risk-based Remediation Requirements and Land-use Restrictions

Rule 2.1.4 Public Notice Requirements

Rule 2.1.5 Decisions on Brownfield Agreement

A. Decision on Brownfield Agreement

B Filing of Notice of Brownfield Agreement

C. Notice by Brownfield Party of Conveyance of Brownfield Property

D. Prospective Purchases Notice

E. Executive Direction Authority

Rule 2.1.6 Modification of Brownfield Agreement

A. Conditions for Modification

Rule 2.1.7 Liability Protection and no Further Action Letter

A. Liability Protection

B. No Further Action Letter

Rule 2.1.8 Cancellation of Notice of Brownfield Agreement

A. Cancellation

Rule 2.1.9 Fees and Trust Fund.

A. Fees

B. Brownfield Cleanup and Redevelopment Trust Fund

Rule 2.1.10 Hearings and Enforcement

A. Hearings

B. Enforcement and Agency Reporting

SUBCHAPTER 2. RISK EVALUATION PROCEDURES

Rule 2.2.1 General

A. Introduction

Rule 2.2.2 Brownfield Site Evaluation

A. Conceptual Exposure Model (SCEM)

B. Criteria for Completing the SCEMs

C. Site Characterization

D. Site Ecological Checklist

Rule 2.2.3 Tier 1 Evaluation

A. Tier 1 Evaluation Target Risk Level

Rule 2.2.4 Tier 2 Evaluation

A. Tier 2 Evaluation Target Risk Level

Rule 2.2.5 Tier 3 Evaluation

A. Tier 3 Evaluation Target Risk Level

B. Tier 3 Evaluation (Risk Assessment) Procedures

C. Tier 3 Ecological Risk Evaluation Procedures

D. Tier 3 Risk Assessment Data Requirements

Rule 2.2.6 Risk-Based Remediation

A. Risk-Based Remediation Goals

Rule 2.2.7 Petroleum Hydrocarbons

A. Introduction

B. Petroleum Hydrocarbon Evaluation Procedures

C. Tier 1 Petroleum Hydrocarbon Evaluation

D. Tier 2 Petroleum Hydrocarbon Evaluation - TPH Fractioning

E. Tier 3 Petroleum Hydrocarbon Evaluation

Rule 2.1.1 General Requirements.

A. Purpose

The purpose of these regulations is to promote the voluntary remediation of contaminated sites in Mississippi. The regulations establish remediation requirements that are based on public health and environmental risks specific to the Brownfield Agreement Site. The formats and procedures set forth in these regulations are designed to advise a person, prior to submitting an application, of the information necessary to achieve the adequate and cost-effective characterization and remediation of a Brownfield Agreement Site. All information requirements may not be applicable for all Brownfield Agreement Sites as long as the Applicant provides written justification.

B. Authority

Mississippi Department of Environmental Quality (MDEQ) and the Mississippi Commission on Environmental Quality (MCEQ) are authorized to administer the requirements of the Act and the regulations promulgated there under as set forth in Mississippi Code Annotated Section 49-35-1 through 27.

C. Definitions

As used in these regulations, the following terms have the specified meaning, except where otherwise indicated.

(1) *Absorption factors* mean the chemical-specific values that represent the fraction of the chemical from an environmental medium such as soil that can pass across the exchange boundaries of the organism (e.g., skin, lungs, gut) for absorption. The relevant absorption factors for chemicals into humans will be those published by EPA (e.g., the EPA's Dermal Exposure Assessment: Principles and Applications [EPA/600/8-91/011B), EPA Region 4's Supplemental Guidance to Risk Assessment Guidance to Superfund [RAGS]), those published in peer-reviewed literature, or other appropriate values as approved by MCEQ.

(2) *Act* means the Mississippi Brownfields Voluntary Cleanup and Redevelopment Act, Miss. Code Ann. Sections 49-35-1 through 27.

(3) *AIHC* means American Industrial Health Council.

(4) *Application* means forms prescribed by MCEQ or MDEQ, the accompanying information specified in the forms, and other additional information requested by the MCEQ or the MDEQ pursuant to Section 49-35-7 of the Act.

(5) *Applicant or "Brownfield Applicant"* means the person(s) who has applied to become a Brownfield Party.

(6) *Aqueous Solubility* means the solubility of a pure substance in water. It is the maximum amount of a chemical that will dissolve in pure water at a temperature of 30 degrees Celsius.

(7) *Assessment endpoint* means the explicit expressions of the actual environmental value that is to be protected. See also the definition for measurement endpoint.

(8) *ASTM* means the American Society for Testing and Materials.

(9) *Background chemical* means a substance which is: (a) consistently present in the environment at and in the vicinity of the Brownfield Agreement Site; and (b) attributable to geologic or natural conditions.

(10) *Bioconcentration* means the uptake and accumulation or concentration of a chemical in an individual organism.

(11) *Biomagnification* means the accumulation of a chemical (that has the property to bioconcentrate) in humans or an animal through the food chain, i.e., from the ingestion of organisms or other animals tainted with the chemical.

(12) *Brownfield Agreement or "Agreement"* means an agreement between the Applicant and MCEQ for the remediation of a Brownfield Agreement Site.

(13) *Brownfield Agreement Order or "Agreement Order"* means an Order issued by the Commission which embodies a Brownfield Agreement.

(14) *Brownfield Agreement Site* or *"site"* means Brownfield Property that is remediated under a Brownfield Agreement. The Site shall consist of the Brownfield Property that is the subject of the application and any other Brownfield Property:

(a) for which the source of contamination is environmental contamination or activities on or under the Brownfield Property that is the subject of the application, and

(b) concerning which the MCEQ determines that remediation is necessary.

(15) *Brownfield Party* means any person who desires to execute and implement a Brownfield Agreement.

(16) *Brownfield Property* means any property where use is limited by actual or potential environmental contamination, or the perception of environmental contamination, and that is or may be subject to remediation under any state environmental law, regulation or program or under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended,

42 USCS 9601 et seq. (1997)(CERCLA), but does not include any of the following:

(a) sites proposed by the United States Environmental Protection Agency for the National Priorities List (NPL) but not listed on the NPL or sites listed on the NPL, except those NPL sites for which the United States Environmental Protection Agency has issued certificates of completion of the remediation set forth in the records of decision for those sites or concerning which EPA has subsequently determined that listing is inappropriate;

(b) sites for which an administrative or judicial order is issued which is still in effect or enforcement action commenced under CERCLA or Sections 001(b)(3)(B)(iv.), 3008(h), 3013(a) or 7003(c) of the Resource Conservation and Recovery Act of 1976, as amended, 42 USCS 6901 et seq. (1994 and Supp. 1997) (RCRA); or

(c) sites undergoing corrective action under RCRA Section 3004(u), 3004(v) or 3008(h), except those sites that the United States Environmental Protection Agency determines have completed corrective action.

(17) *Brownfields Corrective Action Plan (CAP)* means a document or a set of documents that outlines remedial objectives, scope of the design investigation, conceptual designs, pre-construction design specifications, construction management and schedules, quality control, and operation and maintenance in connection with remedial actions conducted pursuant to the Act and these regulations. The content and format of the CAP is provided in MDEQ's "Brownfields Corrective Action Plan Format," which may be required as part of the application.

(18) *Brownfields Corrective Action Report* means a document or a set of documents that provide information supporting the remediation of human health and environmental risks specific to the Brownfield Agreement Site to levels appropriate for the land-use of the Site.

(19) *Brownfields Site Characterization Report* means a document or a set of documents that provides information supporting the delineation of the vertical and horizontal extent of contamination on or under a Site in order to develop remediation requirements for the Site or to determine that remediation is necessary. The contents and format of the Brownfield Site Characterization Report is provided in MDEQ's "Brownfields Site Characterization Report Format," which shall be required as part of the application.

(20) *Carcinogen* means any substance which may cause cancer as identified by the U.S. Environmental Protection Agency (EPA).

(21) *Carcinogenic risk* or *upperbound excess lifetime carcinogenic risk* means the likelihood of developing cancer or tumor incidence for an individual from lifetime exposure to a carcinogen, not including exposure to cancer causing background chemicals.

(22) *CERCLA* means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) (Public Law 96-510), as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. 9601 et seq..

(23) *Chemical of Concern (CoC)* means a contaminant or a chemical that poses public health and environmental risks specific to the Brownfield Agreement Site.

(24) *Complete Application* means a Brownfield Agreement Application which the MDEQ determines contains information addressing each application requirement of the Act and these regulations and contains all information necessary to initiate formal processing of the application, as determined by MCEQ. Only a complete application constitutes an application for the purposes of Section 49-35-7(2).

(25) *Cost effective*, when applied to remediation requirements, use restrictions, or engineering controls, means that these measures are economically and technically feasible and practicable in protecting human health or the environment for the intended use of a Brownfield Agreement Site.

(26) *Cumulative excess cancer risk* means the upper bound on the estimated cancer risk above the background risk associated with exposure to multiple hazardous substances or multiple exposure pathways.

(27) *Cumulative site risk* means the summation of risks to a human receptor or ecological receptor from one or more hazardous substances. The cumulative site risk for noncarcinogens is the site's hazard index. The cumulative site risk for carcinogens is the cumulative excess cancer risk.

(28) *DAF* means a Dilution-Attenuation Factor approved for use in the Brownfields Program by MDEQ.

(29) *Deterministic risk assessment* means the traditional approach to estimating a site's potential risk by solving the risk algorithm (intake multiplied by the dose-response) analytically by the assignment of average or high-end values in the algorithm to calculate the risk (dependent variable) posed by independent variables (such as exposure factors and exposure point concentrations that produce the intake).

(30) *DNAPL* means dense non-aqueous phase liquid.

(31) *Ecological receptor of concern* means specific ecological communities, populations, or individual organisms protected by federal or state laws and/or

regulations, or those local populations which provide important natural or economic resources, functions and values.

(32) *Ecosystem* means an integrated, self-functioning system consisting of interactions among both the biotic community and abiotic environment within a specified location in space and time.

(33) *Effective Solubility* means the solubility of a compound that will dissolve from a chemical mixture (e.g., gasoline). The effective solubility of a compound from a chemical mixture is less than its aqueous solubility.

(34) *Engineering control* means an existing condition or modification to a Brownfield Agreement Site that reduces or eliminates the potential for exposure to contaminants. These conditions or modifications may include, but are not limited to, physical or hydraulic control measures (such as groundwater recovery trenches and leachate collection systems), groundwater treatment systems, engineered caps, liner systems, slurry walls, or permanent structures, but shall not include the exclusive use of security fencing.

(35) *Environmental contamination* means the presence of hazardous substances or constituents that pose unacceptable risks to the environment, humans, or ecological receptors.

(36) *EPA* means the United States Environmental Protection Agency.

(37) *Executive Director* means the Executive Director of the Mississippi Department of Environmental Quality.

(38) *Exposure* means contact of an organism with a chemical or physical agent. Exposure is quantified by exposure point concentration in an exposure medium (such as soil, sediment, air, groundwater, and surface water) and the intake of the medium (expressed as the amount of the medium taken into the body by the organism per unit body weight per day).

(39) *Exposure factors* means values used to estimate exposure in risk assessment, such as the number of days per year, number of years that exposure is expected to occur, the amount of contaminated media that a person or an organism might contact per day, the extent of uptake or absorption of the medium contacted, and the body weight.

(40) *Exposure pathway* means the manner by which a person or an organism may be exposed to a chemical of concern or contaminant. A complete exposure pathway consists of a source, a release from a source, a migration and transport mechanism, an exposure medium (e.g., air) or media (in cases of intermediate transfer), an exposure point, and an exposure route.

(41) *Exposure point concentration (EPC)* is the amount of CoC available at the exchange boundaries of the organism (e.g., skin, lungs, gut) for absorption by humans.

(42) *Exposure route* means the portal of entry which results in the intake of a contaminated medium into the human body or an organism (e.g., ingestion, dermal contact, and inhalation).

(43) *Fate and Transport* means the behavior and movement of a chemical through an environmental media. The movement is affected by many factors such as sunlight (UV radiation), wind-blown or wave actions, microbial activity, groundwater and surface water flow, chemical properties (e.g., solubility, density), physical-chemical properties of the medium (e.g., grain size, porosity, permeability, and organic carbon content), and presence of solubility-enhancing solvents or buried piping and utilities.

(44) *Free product* means a discharged hazardous substance or environmental pollutant that is present in the environment as a floating or sinking non-aqueous phase liquid. Free Product is considered present if:

(a) measurable using best available technologies, or

(b) for groundwater, the concentration of the chemical of concern is at or above the aqueous solubility limit for that pure compound or the effective solubility limit for that compound in a chemical mixture, or

(c) for soils, the concentration of the chemical of concern is at or above the soil saturation limit for that compound for all chemicals with a melting point less than 30 degrees Celsius.

(45) *Groundwater quality standard* means the chemical-specific numerical value published by EPA as Maximum Contaminant Level (MCL). Where the groundwater intersects surface water, ambient water quality criteria values identified in the "Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters" or other values determined by the MDEQ to be protective will be applicable.

(46) *Habitat* means the area or type of environment to which an organism or biological population is indigenous.

(47) *Hazard index* means the sum of the hazard quotients for multiple substances and/or multiple exposure pathways.

(48) *Hazard quotient* means the value which quantifies non-carcinogenic hazard for a single chemical for an individual receptor over a specified exposure period. The hazard quotient is equal to the ratio of an intake of a chemical to the chemical's

reference dose. Hazard quotient shall be based on similar-acting non-carcinogens, i.e., systemic toxicants that act on the same organ or organ system.

(49) *Hazardous substance* mean any substance which is a hazardous substance as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and any substance which is designated as a hazardous substance under Section 102 of such Act.

(50) *Integrated Risk Information System (IRIS)* means the database system of that name developed and maintained by EPA.

(51) *Land-use restriction or institutional control* means the limitation on use of or access to a Brownfield Agreement Site to reduce or eliminate the potential for exposure to contaminants. These restrictions may include, but are not limited to, deed restrictions, use restrictions, restrictive covenants, or restrictive zoning.

(52) *Legal and Equitable Interest Owners* mean persons who have a legal or equitable interest in the Brownfield Agreement Site and may include, but are not limited to, property owners, tenants, or lending institutions.

(53) *LNAPL* means light non-aqueous phase liquid.

(54) *Local government* means a county or municipality within the State of Mississippi.

(55) *MCL* means maximum contaminant level published by EPA under the Safe Drinking Water Act (42 United States Code 300f, et seq.).

(56) *MCEQ* means the Mississippi Commission on Environmental Quality.

(57) *MDEQ* means the Mississippi Department of Environmental Quality.

(58) *Measurement endpoint* means the measurable responses to chemicals or physical changes in the environment that are related to the valued characteristics chosen as the assessment endpoint.

(59) *mg/Kg* means milligram per kilogram.

(60) *mg/L* means milligram per Liter.

(61) *Monitored Natural Attenuation* means remediation by natural attenuation that is monitored to determine achievement of remediation goals over a specified time period.

(62) *Natural Attenuation* means the reduction in the concentration or mass of a substance and its breakdown products in an environmental medium (such as groundwater), due to naturally occurring physical, chemical, and biological processes without human intervention or enhancement. These processes include,

but are not limited to, dispersion, diffusion, sorption and retardation, and degradation processes such as biodegradation, abiotic degradation and radioactive decay.

(63) *NAPL* means non-aqueous phase liquid, which can be heavier or lighter than water. NAPL that is lighter than water is called light non-aqueous phase liquid (LNAPL) or a floater. NAPL that is heavier than water is called dense non-aqueous phase liquid (DNAPL) or a sinker.

(64) *NPL* means the National Priorities List published by EPA pursuant to CERCLA Section 105.

(65) *Person* means any person as defined in Section 17-17-3 of the Mississippi Code Annotated.

(66) *Potentially responsible party* means a person who is or may be liable for remediation under any state or federal law, regulation, or program.

(67) *Previously unknown contaminant* means any chemical or contaminant that has not been delineated in the Brownfields Site Characterization Report and/or remediated to a risk-level appropriate for the land-use of the Site as described in the Brownfields Corrective Action Report.

(68) *PRG* means the Preliminary Remediation Goal developed by EPA Region 9 for a specific chemical.

(69) *Principal threat chemical* means a CoC, by itself or with other CoCs, which has been shown to contribute a substantial part (majority) of the total Site risk based on a Tier 3 site-specific risk assessment.

(70) *Probabilistic risk assessment* means a site-specific risk assessment performed using a statistical sampling technique that produces a probabilistic approximation of the potential risk from the site-specific risk assessment algorithm or model.

(71) *Property boundary or site boundary* means the boundary of the Brownfield Agreement Site.

(72) *Quality Assurance Project Plan (QAPP)* means a document or set of documents that integrates all technical and quality aspects of a project, including planning, implementation, and assessment. The purpose of the QAPP is to document planning results for environmental data operations and to provide a project-specific "blueprint" for obtaining the type and quality of environmental data needed for a specific decision or use.

(73) *Quality Management Plan (QMP)* means a document or set of documents that describes how an organization structures its quality system and describes its

quality policies and procedures, criteria for and areas of application, and roles, responsibilities, and authorities. It also describes an organization's policies and procedures for implementing and assessing the effectiveness of the quality system.

(74) *Quantitation limit* means the lowest concentration for an analytical test method and sample matrix at which the quantity of a particular substance can be routinely measured with a stated degree of confidence. The quantitation limit for a particular sample analysis and analytical method is called the sample quantitation limit (SQL) or reporting limit.

(75) *Radioactive material* means a radionuclide or substance that spontaneously emits ionizing radiation or particles.

(76) *RBC* means the risk-based concentration developed by utilizing equations developed by EPA Region III for a specific chemical.

(77) *RBSL* means risk-based screening levels developed by ASTM in the Emergency Standard Guide (ES 38-94) and in the Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites (ASTM E 1739-95), 1995.

(78) *RCRA* means the Resource Conservation and Recovery Act of 1976, 42 USC 6901 et seq..

(79) *Readily apparent harm* means the observations of stressed biota and/or their habitat.

(80) *Receptor* means environmental resources, including but not limited to, plant and animal species, humans, sensitive environments and habitats, water supply wells, and locations that have the potential to be, or have actually been, exposed to contamination.

(81) *Reference concentration (RfC)* means a value representing a daily exposure level for the human population, including sensitive subpopulations, that is not likely to cause deleterious and non-reversible adverse noncancer health effects during a chronic or subchronic exposure period. Reference concentration is generally expressed in the unit of milligram per cubic meter (mg/m3).

(82) *Reference dose (RfD)* means a value representing a daily exposure level for the human population, including sensitive subpopulations, that is not likely to cause deleterious and non-reversible adverse noncancer health effects during a chronic or subchronic exposure period. Reference dose is generally expressed in the unit of milligram per kilogram body weight (mg/Kg/day).

(83) *Regionally Prevalent Chemical* means a substance found throughout a substantial geographic region, as approved by MDEQ (e.g., Delta region), that can be

attributed to conditions, as approved by MDEQ, such as atmospheric deposition and aerial application.

(84) *Remediation* means action to cleanup, mitigate, correct, abate, minimize, eliminate, control, treat, remove, or to implement institutional and/or engineering controls in order to prevent the spreading, migration, leaking, leaching, volatilization, spilling, transport, exposure, or further release of a contaminant to the environment in order to protect public health or the environment.

(85) *Remediation goal (RG)* means the target cleanup level or objective that is cost-effective, implementable, and protective of human health and the environment. The RG can be quantitative, i.e., numerical cleanup level (generally expressed in mg/kg [soil or sediment] or mg/L [water]) or can be qualitative (e.g., basis for an engineered barrier, to prevent/minimize exposure). Fencing alone cannot be the RG.

(86) *Restricted site* means a Brownfield Agreement Site where access to the general public is limited and/or controlled. The restrictions may include, but are not limited to, deed restrictions, use restrictions, restrictive covenants, or restrictive zoning.

(87) *Risk* means the likelihood or probability that a hazardous substance, when released to the environment, will cause adverse effects in exposed humans or other biological receptors. Risk is further classified as carcinogenic (from exposure to carcinogens) or noncarcinogenic (from exposure to noncarcinogens, i.e., systemic toxicants).

(88) *Risk assessment or "site-specific risk assessment"* means a site-specific characterization of the current or potential threats that may be posed to human health and the environment by contamination migrating to or in groundwater or surface water, discharging to the air, leaching through or remaining in soil, bioaccumulating in the food chain, or other complete and significant exposure pathways identified in the Site Conceptual Exposure Model (SCEM). Key components of a risk assessment are the identification of hazard (i.e., identifying site-related chemicals and their concentrations in the exposure media), exposure assessment (identifying complete and significant exposure pathways and quantifying intake), toxicity assessment (identifying the toxic effects and dose-response [toxicity value]), risk characterization, and discussion of uncertainties. For the purposes of these regulations, a Tier 3 Risk Assessment is considered a "site-specific risk assessment."

(89) *Risk-based remediation requirements* means remediation requirements based on public health and environmental risks specific to a Brownfield Agreement Site.

(90) *Risk Management* means the evaluation of options or measures to reduce risk, including, but not limited to, such options as no further action, monitoring only, or gathering additional data before making a decision.

(91) *Sediment* means particles in surface waters or wetlands or on the bottom of surface waters or wetlands that are derived from the erosion of rock, minerals, soils and biological materials, as well as chemical precipitation from the water column. Sediment particles are transported by, suspended in or deposited by water.

(92) *Sensitive environment* means an area of exceptional environmental value, where a discharge or release could pose a greater threat than a discharge to other areas, including but not limited to: wetlands; habitat used by state or federally designated endangered or threatened species; national or state fish and wildlife refuges and fish and wildlife management areas; and state and federal designated wild and scenic rivers.

(93) *Site Conceptual Exposure Model (SCEM)* means a graphical presentation of actual or hypothetical conditions, based on current data and understanding of the Site, under which the chemicals of concern or contaminants from a Brownfield Agreement Site may be released from a source, moved (migration/transport) in the environment, present in the exposure media, and absorbed by the receptor through the exposure routes. The SCEM will be used to identify data needs to assess risk and may be modified to consider new data in determining whether an exposure pathway is incomplete or complete. The SCEM is used in the development of remediation goals and identification of remedial options.

(94) *Slope factor* means the upperbound estimate of probability in the occurrence of excess cancer risk (increase in cancer risk over the background risk) associated with a specific carcinogen for an individual who is exposed to a unit of intake over lifetime. The unit for a slope factor is the probability per unit intake, i.e., the inverse of milligram per kilogram body weight $(mg/Kg/day)^{-1}$.

(95) *SPLP* means Synthetic Precipitation Leaching Procedure, an EPA analytical method (Method 1312) published in SW-846.

(96) *SSL* means a soil screening level developed by EPA in the Soil Screening Guidance: Technical Background Document (EPA/540/R-95/128).

(97) *Stakeholders* mean persons or parties who have a legitimate interest in the remediation and redevelopment of the Brownfield Agreement Site. These persons include, but are not limited to, the property owners adjoining the Brownfield Agreement Site property and local governments.

(98) *SW-846* means Test Methods for Evaluating Solid Waste - Physical/Chemical Methods published by the U.S. Environmental Protection Agency, Office of Solid Waste on November 1986, and its updates.

(99) *Systemic Toxicant* means a substance or agent that may enter the body, injure an organ or organ system, or have an effect other than causing cancer. The toxicity value used for risk characterization of the chronic effect for a systemic toxicant is the reference dose (RfD).

(100) *Target remediation goals (TRGs)* mean risk-based media concentrations utilized in the Tier 1 evaluation of human health and environmental impacts in these regulations. Soil TRGs are soil concentrations developed by MDEQ for individual chemicals to address the soil ingestion and inhalation exposure pathways and environmental risks. Groundwater TRGs are either the groundwater quality standards (current MCLs published by EPA) or risk-based remediation goals derived by MDEQ. Soil and groundwater TRGs are provided in MDEQ's Risk Evaluation Procedures developed for these regulations. Surface water TRGs are the water quality criteria published by the MDEQ. TRGs are to be compared with the exposure point concentrations. TRGs alone do not always trigger the need for response actions or define unacceptable levels of contaminants in soil or groundwater. The Tier 1 TRGs may either be used as "default" remediation goals or as screening values that will initiate a Tier 2 Evaluation or Tier 3 Evaluation.

(101) *Target risk* means a de minimis or insignificant risk to humans below which further action (remediation, institutional control, monitoring, etc.) is not warranted.

(102) *Technical Impracticability* or *"Technically impracticable"* means the inability to achieve certain remediation requirements and is based on engineering feasibility and reliability, cost-effectiveness, and risk-based considerations. For the purposes of these regulations, EPA's OSWER Directive 9234.2-25: "Guidance for Evaluating the Technical Impracticability of Groundwater Restoration," dated September 1993 may be utilized in developing a demonstration of technical impracticability with regard to groundwater and soil remediation, free product removal, and other site-specific conditions approved by MDEQ.

(103) *Tier 1 Evaluation* means a comparison of CoC exposure point concentrations in soil or sediment with chemical-specific TRGs for the evaluation of human health and environmental impacts and an evaluation of ecological impacts through completion of an Ecological Checklist. Ecological evaluations are used to determine whether ecological receptors of concern are present and may include, but are not limited to, the collection of field observation data for any readily apparent harm on the ecological receptors of concern.

(104) *Tier 2 Evaluation* means a more in-depth evaluation of site-specific conditions beyond the Tier 1 Evaluation methodology. The Tier 2 Evaluation may include, but is not limited to, an evaluation of site-specific conditions by (1) comparing the UCL of the Mean for a CoC applying statistical methods to the Tier 1 TRGs, (2) comparing EPCs to calculated background chemical concentrations, (3) comparing EPCs to calculated regionally prevalent chemical concentrations, (4) utilizing site-specific variables (i.e., exposure frequency, exposure duration, etc.) to calculate site-specific RGs, (5) eliminating/minimizing exposure routes, (6) conducting an analysis of Petroleum Hydrocarbons using TPH Fractioning, or (7) other methods approved by MDEQ.

(105) *Tier 3 Evaluation* means a site-specific risk assessment (Risk Assessment). The Tier 3 human health risk evaluation is the characterization of the risks of cancer and adverse non-cancer health effects in humans in accordance with EPA's Risk Assessment Guidance for Superfund (RAGS) and other risk assessment guidance published by EPA including, but not limited to, the Adult Lead Model and the Integrated Exposure Uptake Biokinetic Model (IEUBK) for lead. The Tier 3 ecological risk evaluation is the characterization of environmental effects qualitatively or quantitatively in accordance with the EPA's Framework for Ecological Risk Assessment guidance, as amended.

(106) *Treatability study* means the testing and documentation activities to evaluate the effectiveness of a proposed remediation method (remedial action) prior to full scale design and implementation. Treatability study includes, but is not limited to, bench scale studies and pilot scale studies, and may be required by the Corrective Action Plan if the remediation method has not been evaluated by EPA or an independent consultant or trade association to be capable of treating the medium (or medium of similar physical and chemical characteristics) at the Brownfield Agreement Site.

(107) *Unacceptable risks* mean that the carcinogenic risks, non-carcinogenic hazards, or ecological risks posed by the CoCs at the point of exposure, according to a Tier 1, Tier 2, or Tier 3 Evaluation, have exceeded established target risk levels for humans or ecological receptors. The term can also be applied qualitatively if there is a sufficient basis to conclude that the likelihood of impact to the ecological receptors of concern or the sensitive environment is high based on findings of an ecological risk assessment.

(108) *Unrestricted site, relevant to a Brownfield Agreement Site,* means that the use of the property is not restricted by an applicable Brownfield Agreement.

(109) *Volatile Compounds* means those compounds with a Henry's Law Constant greater than 1 x 10-5 and a molecular weight less than 200 g/mole, for all media.

(110) *Wetlands* means those areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation, and which have soils indicative of wet (hydrid) conditions.

D. Acronyms

(1)	CAP	Corrective Action Plan
(2)	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) (Public Law 96-510), as amended by the Superfund Amendments and Reauthorization Act of 1986
(3)	CoC	Chemical of Concern
(4)	EPA	United States Environmental Protection Agency
(5)	MCEQ	Mississippi Commission on Environmental Quality
(6)	MCL	Maximum Contaminant Level
(7)	MDEQ	Mississippi Department of Environmental Quality
(8)	NPL	EPA's National Priorities List
(9)	OSWER	EPA's Office of Solid Waste and Emergency Response
(10)	QAPP	Quality Assurance Project Plan
(11)	QMP	Quality Management Plan
(12)	QA/QC	Quality Assurance/Quality Control
(13)	RBCs	Risk-Based Concentrations
(14)	RCRA	Resource Conservation and Recovery Act of 1976, as amended, 42 USC 6901, et seq.
(15)	RG	Remediation Goal
(16)	SCEM	Site Conceptual Exposure Model
(17)	TPH	Total Petroleum Hydrocarbon
(18)	TRGs	Target Remediation Goals
(19)	VEP	Mississippi Uncontrolled Site Voluntary Evaluation Program
(20)	UCL	Upper Confidence Level

E. Applicability.

(1) The following sites are not eligible for inclusion in a Brownfield Agreement Site:

(a) Sites proposed by the EPA for the National Priorities List (NPL) but not listed on the NPL or those sites listed on the NPL, except those NPL sites for which the United States Environmental Protection Agency (EPA) has issued certificates of completion of the remediation set forth in the records of decision for those sites or concerning which EPA has subsequently determined that listing is inappropriate.

(b) Sites for which an administrative or judicial order is issued which is still in effect or enforcement action commenced under CERCLA or Sections 3001(b)(3)(B)(iv), 3008(h), 3013(a) or 7003(c) of the Resource Conservation and Recovery Act of 1976, as amended, 42 USCS 6901, et seq. (1994 and Supp. 1997) (RCRA) and which is still in effect; and

(c) Sites undergoing corrective action under RCRA Section 3004(u), 3004(v) or 3008(h), except those sites that the United States Environmental Protection Agency determines have completed corrective action.

(2) The MCEQ may exclude properties that pose an imminent and substantial threat to human health and the environment and require immediate remedial and/or cleanup action.

(3) The MCEQ may exclude properties that are under an existing MCEQ agreement or order.

(4) Sites that are participating in the Uncontrolled Site Voluntary Evaluation Program (VEP) pursuant to Mississippi Code Annotated Section 17-17-54 prior to the effective date of these regulations shall not be required to pay the initial $2000.00 application fee under these regulations if the Applicant is current on any payments due MDEQ under the VEP.

(5) In order to be eligible for the Brownfield Program, an Applicant must satisfy the requirements regarding financial resources, technical resources, managerial resources, and compliance history set forth in these regulations.

(6) Only Brownfield Properties which require remediation may be included in a Brownfield Agreement.

(7) The Brownfield Party shall comply with all applicable federal and state laws and regulations.

(8) Nothing in the Brownfield Agreement or these regulations shall be construed to convey or determine any interest in property.

(9) Nothing in the Brownfield Agreement or these regulations shall be construed to be an allocation of costs or an indemnification by the State, MDEQ, and/or MCEQ.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 17-17-54, 49-2-9 (1)(b), 49-17-17, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.1.2 Brownfield Application Requirements.

A. General Requirements.

(1) Brownfield Agreement applications must be filed in the format prescribed by MDEQ. Prior to approval, the application must be complete and must contain all of the information required by MDEQ, including, but not limited to, information necessary to demonstrate the following:

(a) That as a result of the proposed remediation, the Brownfield Property will be suitable for the use or uses specified in the application while fully protecting public health and the environment;

(b) That the Brownfield Party has or can obtain the financial, managerial, and technical resources to implement fully and complete the proposed remediation and to assure the safe use of the Brownfield Property;

(c) That the current owners of all surface interests (including legal and equitable) in the Brownfield Properties that are the subject of the application have given written approval for inclusion of their property interest in the Brownfield Agreement Site. This approval shall be provided on the form prescribed by MDEQ;

(d) That the Brownfield Party will comply with all applicable procedural requirements; and

(e) That all items contained in the application form have been addressed by either providing the required information or stating that the item is not applicable. In the event that an item is considered not applicable, the Brownfield Party must include a written justification in the application that demonstrates to the satisfaction of MDEQ that the item is not applicable to the application.

(2) If the Brownfield Applicant has demonstrated to the satisfaction of MDEQ that activities on or under the Brownfield Agreement Site involving the use, extraction, or production of mineral interests will not increase the level of risk to the public health or the environment beyond the level that forms the basis for the risk-based remediation requirements in the Brownfield Agreement, then the current owners and lessees of those mineral interests (including legal and equitable) in or under the Brownfield Properties that are the subject of the application are not required to give written approval for the submission of the application and the inclusion of their property interest in the Brownfield Agreement Site. All owners and lessees of a legal or equitable interest in the surface and/or mineral estates of the Brownfield Properties that are the subject of the application who do not give written approval for execution of the Brownfield Agreement shall be subject to Rule 2.1.7.A.(5)(c) of these regulations. Otherwise, written approval of the mineral interest owner(s) for inclusion of the Brownfield Property in the Brownfield Agreement site must be provided on the form prescribed by MDEQ;

(3) As part of the application, the Applicant shall submit a title certificate prepared by an attorney who is licensed to practice law in the State of Mississippi identifying the following:

(a) The legal description of the Brownfield Property;

(b) The names and addresses of all persons who have an interest in the Brownfield Properties that are the subject of the application as defined in Rule 2.1.2.A(1) and (2) of these regulations; and

(c) The names and addresses of all surface-interest property owners contiguous to the Brownfield Property.

(4) As part of the application, the Applicant shall submit a copy of any local zoning requirements, classifications, statutes or ordinances, comprehensive zoning plan designations, and/or any current land use approvals obtained regarding the Brownfield Property and the property contiguous to the Brownfield Property.

(5) At the time a Brownfield Agreement application is filed, the Applicant shall submit $2000.00 in the form of a check or money order made payable to MDEQ as advance costs for the costs described in paragraph (6).

(6) At the time a Brownfield Agreement application is filed, the Applicant must execute a statement in the form required by MDEQ that provides that the Applicant agrees to pay all direct and indirect costs of MDEQ associated with the processing of the Brownfield Agreement application and administration of the Brownfield Agreement.

(7) As part of the application, the Applicant shall submit a schedule which sets forth its estimate of the amount of time it expects will be required to complete the Brownfield Agreement.

(8) With regard to financial resources, the applicant shall be required to file with MDEQ, as part of its application, an estimate of the costs of performance of all requirements of the Brownfield Agreement including corrective action, operation and maintenance, monitoring, post-closure activities, and contingency actions. The cost estimate shall be based on a professional third party's cost of performing all of the requirements of the Brownfield Agreement. These cost estimates must be submitted to MDEQ for its concurrence. The applicant shall provide MDEQ proof of financial resources in an amount equal to the cost estimates for performance of all requirements of the Brownfield Agreement including corrective action, operation and maintenance, monitoring, closure, post-closure activities, and contingency actions. Proof of financial resources, if applicable, may include the following financial instruments: insurance, escrow accounts; surety bonds, including performance or financial guarantee bonds; irrevocable letters of credit; certificates of deposit; securities; and/or other documents approved by MDEQ. The financial instruments shall be issued by a surety company or financial institution licensed to do business in the State of Mississippi. MDEQ may, in its discretion, exempt an applicant from these financial resource requirements based on the applicant's demonstration of financial resources submitted to MDEQ in another MDEQ program and/or such other factors deems appropriate. In the event the cost estimates to complete all requirements in the Brownfield Agreement increase or decrease, MDEQ may require the Brownfield Party to submit additional and/or amended financial instruments.

(9) With regard to technical resources, the applicant shall be required to file with the MDEQ, as part of the application on a form prescribed by the MDEQ, a statement certifying that the Applicant shall utilize a consulting firm listed on the approved list of Brownfield Consulting Firms or the staff of the MDEQ.

(10) With regard to managerial resources, the applicant shall be required to file with MDEQ, as part of its application on a form prescribed by MDEQ, a statement of key personnel considered essential to the work being performed under the Brownfield Agreement. Prior to removing, replacing, or diverting any of the specified individuals, the Brownfield Party shall notify MDEQ in advance and shall submit justification, including proposed substitutions, in sufficient detail to demonstrate that the substitutions have sufficient qualifications to manage all assignments associated with the Brownfield Agreement Site.

(11) With regard to compliance history, the MDEQ may require the applicant to submit the following:

(a) A statement of whether the applicant has had a federal or state environmental permit revoked in the five years preceding the date of submission of the Brownfield Agreement application. If any revocation has occurred, the applicant will be required to submit a brief explanation of the facts involving the revocation including: identification of the authority that revoked the permit and the stated reasons; the date, location and type of any administrative or judicial proceedings initiated concerning the revocation; and the current status of the proceedings.

(b) A list of all orders, citations, and notices of violation issued against the Applicant during the five years preceding the date of submission of the application for any violations or alleged violations of environmental permits, laws and/or regulations. For each document listed, the Applicant shall include a brief description of the particular violation alleged, the terms of the order, including any required action and penalty, and the current status of the proceeding.

(c) MDEQ may require the Applicant to submit additional information with regard to compliance history.

(12) The applicant shall submit all other information required by MDEQ.

B. Procedural Requirements.

(1) Within thirty (30) days after the date an application is submitted to MDEQ, MDEQ shall review the application to determine whether the application is a complete application and forward a letter to the Applicant advising either:

(a) that the application is complete or;

(b) that the application is incomplete and listing the specific sections that must be submitted or supplemented to make the application complete.

(2) Within thirty (30) days after the date that MDEQ forwards a letter to the Applicant advising that the application is complete, MCEQ shall issue an order which sets forth a schedule for:

(a) the identification of other Brownfield Property that has been impacted by activities on or under the Brownfield Property that is the subject of the application;

(b) MDEQ's technical review of the application; and

(c) the Brownfield Party's submission of additional information required by MDEQ.

(3) The Applicant shall promptly update and/or correct information previously submitted as part of the application whenever the Applicant discovers that this information is incomplete or inaccurate.

(4) If Brownfield Property other than that property which is the subject of the original application is identified as necessary for inclusion in the Brownfield Agreement Site, the Brownfield Party shall obtain written approval, on the form prescribed by the MDEQ, from all persons who have an interest in the additional Brownfield Property for inclusion of that Brownfield Property in the Brownfield Agreement Site, in accordance with Rule 2.1.2.A(1)(c) and (2) of these regulations.

(5) If MDEQ's technical review indicates that no remediation is required at the Site, MDEQ will issue a letter so stating.

C. Brownfield Consulting Firm Requirements.

(1) In order to be listed on the approved list of Brownfield Consulting Firms, a firm must, at a minimum,

(a) Submit an application to MCEQ for its approval, in a format prescribed by MDEQ;

(b) Have as an employee either a Professional Engineer or a Professional Geologist, registered in the State of Mississippi, with at least four (4) years experience in hazardous site characterization and remediation of which one year must be within five (5) years preceding the date of the application;

(c) Have either as an employee or as a subcontractor a Professional Engineer or a Professional Geologist (whichever Professional designation is not satisfied by Rule 2.1.2.C(1)(b) of these regulations), registered in the State of Mississippi, with:

(1) at least four (4) years experience in hazardous site characterization and remediation of which one year must be within five (5) years preceding the date of the application and

(2) a current certificate of comprehensive general liability insurance (or other insurance acceptable to MDEQ) of at least $1,000,000.00 or greater as required by MDEQ;

(d) Submit a Quality Management Plan to MDEQ for its approval, in a format prescribed by MDEQ;

(e) Supply a current certificate of comprehensive general liability insurance (or other insurance acceptable to MDEQ) of at least $1,000,000.00 or greater as required by MDEQ; and

(f) Supply such other information as required by MDEQ.

(2) An approved Brownfield Consulting Firm must notify MDEQ within 10 days of any modification in the information previously submitted, and must submit updated information within 30 days of the modification. If the modification renders the firm unable to remain on the list of approved Brownfield Consulting Firms, then MCEQ may remove the firm from that list. MDEQ or MCEQ may require the Brownfield Party to certify its retention of an approved Brownfield Consulting Firm within 30 days of a determination that the Party's consultant no longer is an approved Brownfield Consulting Firm.

(3) All key personnel of an approved Brownfield Consulting Firm must attend MDEQ-approved continuing education, as required by MDEQ.

(4) An approved Brownfield Consulting Firm may be removed from the approved list for a period of time specified by the MCEQ for any of the following:

(a) Submission of false information;

(b) Failure to submit an updated application upon modification of material information, as required by Rule 2.1.2.C(2) of these regulations;

(c) Failure to perform in a responsible manner with respect to matters including, but not limited to, responsiveness, technical competence, workmanship, or any other matter essential to the efficient and effective completion of the Brownfield Agreement, as determined by MCEQ;

(d) Failure of key personnel to attend MDEQ-approved continuing education, as required by MDEQ;

(e) Failure to meet any of the requirements of this rule; and

(f) Such other good cause as determined by MCEQ.

(5) Any interested party may request a hearing before MCEQ as provided in Sections 49-17-31, 49-17-33, 49-17-35, 49-17-37, 49-17-41 or other applicable provisions of law regarding any of the provisions of this rule, including but not limited to:

(a) Listing of a firm on the approved list of Brownfield Consulting Firms;

(b) Removal of a firm on the approved list of Brownfield Consulting Firms; and

(c) Denial of an application for listing of a firm on the approved list of Brownfield Consulting Firms.

6. The listing of a Brownfield Consulting Firm does not authorize any individual to perform work from which it is restricted by any state or federal law or regulation.

7. MDEQ may, itself, conduct those activities necessary to delineate or remediate Brownfield Property.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 49-2-9 (1)(b), 49-17-17, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.1.3 Brownfield Agreement Requirements And Procedures.

A. General Requirements

(1) Once MDEQ has completed its review of the application and any other information required to be submitted by the Applicant, MDEQ shall prepare a proposed Brownfield Agreement.

(2) The Brownfield Agreement shall contain the following:

(a) A description of the Brownfield Agreement Site sufficient to serve as a legal description of that Site,

(b) A description of all remediation to be conducted on or under the Brownfield Agreement Site, including:

(1) A description of specific areas where remediation is to be conducted;

(2) The remediation method or methods to be employed;

(3) The financial, technical and managerial resources that the Brownfield Party will make available;

(4) A schedule of remediation activities;

(5) Remediation requirements that are based on public health and environmental risks specific to the Brownfield Agreement Site;

(6) A schedule for implementation and completion of the remediation;

(7) Any land-use restrictions or engineering controls constituting any part of the remediation required by MCEQ;

(8) A requirement that the Brownfield Party shall notify MDEQ at least fourteen (14) days prior to the date scheduled for any field work to provide MDEQ an opportunity to observe, inspect, and/or collect split samples; and

(9) A plat which identifies any part of the Brownfield Property for which use is restricted.

(c) The proposed uses of the Brownfield Agreement Site after all remediation required by MCEQ is complete.

(d) A schedule for administration of the Brownfield Agreement by MDEQ.

(e) Requirements, as deemed appropriate by MCEQ, for reporting on the progress of remediation conducted on or under the Brownfield Agreement Site.

(f) Requirements as deemed appropriate by MCEQ for reporting on the status of the Brownfield Agreement Site following completion of all remediation including the status of the institutional controls, engineering controls and monitoring.

(g) Any other provisions deemed necessary by MCEQ to implement the Brownfield Agreement.

(3) Prior to approval of the Brownfield Agreement by the Commission, the Brownfield Party shall submit to MDEQ, on a form prescribed by MDEQ, a statement of consent signed by all owner(s) of interests in the Brownfield Property (other than the Brownfield Party) stating that such owners have read and understand the Brownfield Agreement and that they consent to the inclusion of their property interest in the Brownfield Agreement Site.

(4) Prior to execution of the Brownfield Agreement, and with thirty days written prior notice to MDEQ, the applicant may withdraw the Brownfield Agreement application. The applicant shall be required to pay all costs associated with the processing of the Brownfield Agreement application prior to the effective date of withdrawal. Failure to pay all accrued costs shall subject the Brownfield Party to remedies contained in Mississippi Code Annotated Section 49-17-43. In addition, MCEQ may proceed with any and all remedies available to it with regard to the Brownfield Property and/or Brownfield Applicant.

B. Risk-based Remediation Requirements and Land-use Restrictions.

(1) A Brownfield Agreement shall establish remediation requirements that are based on public health and environmental risks specific to the Brownfield Agreement Site and in accordance with Mississippi Code Annotated Section 49-35-7. In establishing the risk-based remediation requirements in a Brownfield Agreement, MCEQ shall consider the use of appropriate land-use restrictions and/or engineering controls proposed by the Brownfield Party. MCEQ may determine that permanent engineering controls in conjunction with appropriate land-use restrictions satisfy the remediation required by MCEQ in the Brownfield Agreement. These risk-based remediation requirements may include contaminant-specific, state-specific, site-specific and/or likelihood-of-risk methodologies for the implementation of these risk-based remediation requirements. Any party to a Brownfield Agreement who complies with the requirements of a Brownfield Agreement may rely on these risk-based remediation requirements, land-use restrictions and engineering controls as governing the extent of remediation required to be performed by the Brownfield Party on or under the Brownfield Agreement Site for all purposes of the Act. Any risk-based remediation requirements, land-use restrictions and engineering controls implemented under a Brownfield Agreement shall be conducted in a cost-effective manner, consistent with projected future uses of the Brownfield Agreement Site.

(2) Remediation options include, but are not limited to, the use of appropriate land-use restrictions, engineering controls, monitored on-site containment, excavation, monitored natural attenuation, soil vapor extraction, dual-phase extraction, pump & treat, phytoremediation, landfarming, and/or any other remediation option or combinations thereof approved by MCEQ.

(3) The three procedures for determining risk-based remediation requirements follow:

(a) Tier 1 Evaluation

(1) The Tier 1 human health and environmental evaluation consists of comparing the maximum or high-end concentrations or Minimum Quantitation Limits (MQLs) (if results are presented as not detected [ND]) of site-related chemicals (Chemicals of Concern [CoCs]) in soil or sediment (and groundwater or leachate, as necessary) with chemical-specific Target Remediation Goals (TRGs) for the assessment of potential risks to humans. Human health TRGs, except for surface water TRGs, are presented in MDEQ's Risk Evaluation Procedures developed for use with these regulations. The Tier 1 TRGs may either be used as "default" remediation goals or may be used as a screening tool that will trigger a Tier 2 Evaluation.

(2) The Tier 1 ecological risk screen is performed to determine whether ecological receptors of concern are present and potentially impacted. If they are present and potentially impacted, a Tier 3

assessment of ecological risk shall be performed to assess the potential ecological impact. A Tier 1 Evaluation is applicable for Sites with no known ecological receptors of concern present.

(b) Tier 2 Evaluation

(1) A Tier 2 Evaluation is a more in-depth evaluation of site-specific conditions beyond the Tier 1 Evaluation methodology. The Tier 2 Evaluation may include, but is not limited to, an evaluation of site-specific conditions by:

(i) comparing the UCL of the Mean for a CoC utilizing statistical methods to the Tier 1 TRGs,

(ii) comparing EPCs to calculated background chemical concentrations,

(iii) comparing EPCs to calculated regionally prevalent chemical concentrations,

(iv) utilizing site-specific variables (i.e., exposure frequency, exposure duration, etc.) to calculate site-specific RGs,

(v) eliminating or minimizing exposure to contaminants,

(vi) conducting an analysis of Petroleum Hydrocarbons using TPH Fractioning, or

(vii) other methods approved by MDEQ.

(2) **Statistical Methods** - If the Brownfield Applicant can demonstrate to the satisfaction of MDEQ that the Upper Confidence Level (UCL) of the Mean for a CoC utilizing statistical methods is less than the Tier 1 TRG for that CoC, then the Brownfield Applicant shall have the option of using the UCL of the Mean instead of the highest concentration on-site using Tier 1 Methodologies. The Brownfield Applicant must demonstrate to the satisfaction of MDEQ that the data are statistically normal or can be statistically normalized.

(3) **Site Background** - CoC concentrations may be compared to site background chemical concentrations to evaluate appropriate remedial actions at the Brownfield Agreement Site in accordance with MDEQ's Risk Evaluation Procedures. To establish background chemical concentrations, the Brownfield Applicant may collect samples from locations outside of the influence of known contaminated areas and regionally prevalent chemicals and

must analyze these samples using the same analytical methods as the CoC analyses. Sites where the concentrations of CoCs are at or below background chemical concentrations are subject to Rule 2.1.1(E)(5) and Rule 2.1.2(B)(5) of these Regulations.

(4) **Regionally Prevalent Chemicals** - CoC concentrations may be compared to regionally prevalent chemical concentrations to evaluate appropriate remedial actions at the Brownfield Agreement Site in accordance with MDEQ's Risk Evaluation Procedures. To establish regionally prevalent chemical concentrations, the Brownfield Applicant may collect samples from locations throughout a substantial geographic region and outside the influence of known contaminated areas and must analyze these samples using the same analytical methods as the CoC analyses. Sites where the concentrations of CoCs are at or below regionally prevalent chemical concentrations are subject to Rule 2.1.1(E)(5) and Rule 2.1.2(B)(5) of these Regulations.

(5) **Site-Specific Variables** - If the Brownfield Applicant can demonstrate to the satisfaction of MDEQ that site-specific variables (i.e., exposure duration, exposure frequency, moisture content, etc.) are more representative of site conditions than the default variables utilized in the development of the Tier 1 TRGs, the Brownfield Applicant may utilize site-specific variables to develop RGs for the CoCs.

(6) **Eliminate/Minimize Exposure Routes** - If the Brownfield Applicant can demonstrate to the satisfaction of MDEQ that land-use restrictions and engineering controls at the site will eliminate all complete exposure pathways or will minimize contamination exposure to levels that will be protective of human health and the environment, MDEQ may determine that further remediation is not required. The Commission considers the presence of free product to be an unacceptable potential risk to public health and the environment because it is considered to be a continuing source of contamination that may increase the level of risk that is the basis for the remediation requirements, may reduce the margin of safety provided by the remediation design, or may jeopardize the permanence of the Brownfield Agreement. Therefore, free product must be removed unless it can be demonstrated to the satisfaction of MDEQ that removal of the free product is technically impracticable. The Applicant must also demonstrate to the satisfaction of MDEQ that the contamination is confined and will remain confined within the site boundaries. Any monitoring plan must be approved by MDEQ.

(7) **Tier 2 TPH Fractioning** – For sites that do not meet the Tier 1 TPH TRGs, the Brownfield Party may either

(i) conduct a more detailed evaluation of petroleum hydrocarbons using the methodology outlined in MDEQ's Risk Evaluation Procedures or

(ii) conduct another TPH risk evaluation of approved by MDEQ.

(8) **Other Approved Methods** - MDEQ may approve other risk evaluation methodologies under Tier 2.

(c) Tier 3 Evaluation

(1) A Tier 3 Evaluation is a site-specific assessment of the baseline risk of the Site (risk posed by the Site without remediation) based on current EPA risk assessment guidance, specifically those published by the Office of Emergency and Remedial Response (Superfund program), the Risk Assessment Forum, and selected EPA Regional Offices. In this evaluation, an assessment of risk for all completed exposure pathways to humans and/or ecological receptors must be calculated.

(i) Human Health Evaluation - For human health, the remediation goal (RG) for each individual contaminant which is a carcinogen must be calculated to attain a Risk Level of 10-6 (i.e.,1 in a million). For a systemic toxicant, the remediation goal must be calculated to attain a total hazard quotient of not more than 1, except with regard to a background chemical concentration or a regionally prevalent chemical concentration. In cases where contaminants with corrective action concentrations established through federal and/or state programs (i.e., Safe Drinking Water Act maximum contaminant levels (MCLs)) are present, the MDEQ will determine the appropriate corrective action concentration on a contaminant-by-contaminant basis. MDEQ may consider an alternative quantitative or qualitative remediation goal (RG) for each individual contaminant, provided the Applicant can demonstrate to the satisfaction of MDEQ that the attainment of a Risk Level of 10-6 for each individual carcinogenic contaminant or a total hazard quotient of not more than 1 for each individual systemic toxicant is technically impracticable, except with regard to a background chemical concentration or a regionally

prevalent chemical concentration. In no event, except with regard to background chemical concentrations, may either the cumulative (total) site carcinogenic risk exceed 1 x 10-4 for carcinogenic CoCs or the site hazard index (summation of hazard quotients) exceed 3 for non-carcinogenic CoCs affecting the same organ or organ system.

(ii) Ecological Evaluation - For the assessment of ecological risk, the maximum or high-end soil, sediment, or surface water data must be compared with threshold or benchmark values for the protection of the ecological receptors of concern. The Brownfield Applicant must demonstrate either that the concentration of the affected media is below the threshold or benchmark values or that the hazard quotient for the individual CoCs is below 1 utilizing the quotient method.

(2) **Risk-based remediation goal** - The risk-based remediation goal (RG) may be qualitative or quantitative. A qualitative RG involves the exclusion of exposure pathways by engineering controls. A quantitative RG involves calculating the maximum numerical CoC(s) concentration in a medium which would not exceed the acceptable baseline risk at the exposure point. The numerical risk-based RG may be adjusted upward or downward depending on risk management considerations as approved by the MDEQ.

(3) **Free Product** - Free Product refers to the presence of a hazardous substance or an environmental pollutant in the environment as a floating or sinking non-aqueous phase liquid. Free Product is considered present if measurable using best available technologies or if the concentration of the chemicals of concern in groundwater or soils is at or above the solubility limit for all chemicals or soil saturation limit for all chemicals with a melting point less than 30 degrees Celsius. On a site-specific basis, MDEQ may require either the effective solubility or the aqueous solubility to be utilized. Free product must be removed from the Brownfield Agreement Site, unless it can be demonstrated to the satisfaction of MDEQ that removal of the free product is:

(i) technically impracticable and that

(ii) the contamination is confined and will remain confined within the site boundaries.

(4) **Historical data** - Historical data approved by MDEQ may be

submitted in lieu of collecting new data provided the Site characterization data requirements are summarized and presented in accordance with the Site Characterization Work Plan and Report Formats and the data was collected in a manner consistent with appropriate sampling protocols. All detailed information must be referenced in the reports including sampling protocols. In any event, relevant historical Site characterization reports shall be submitted with the application.

(5) **Site Conceptual Exposure Model (SCEM)** - The Brownfields Applicant must complete a BASELINE SCEM and a REMEDIAL SCEM on the forms prescribed by MDEQ as described in MDEQ's Risk Evaluation Procedures.

(6) **Petroleum Hydrocarbons** - Brownfield Agreement Sites impacted with petroleum compounds must assess the area(s) and media of impact for petroleum hydrocarbon compounds (e.g., benzene, toluene, ethylbenzene, total xylenes, and polynuclear aromatic hydrocarbons). In areas where the concentration of these constituents cannot be determined due to dilution, and/or interference, the Brownfield Applicant may either;

(i) use the petroleum hydrocarbon methodologies as established in MDEQ's Risk Evaluation Procedures or

(ii) another TPH risk evaluation methodology approved by MDEQ.

(7) **Land-Use Restrictions** - Before conducting the risk-based evaluation and/or corrective action, if applicable, land-use for the Brownfield Agreement Site shall be proposed by the Applicant, in consultation with MDEQ, as either restricted or unrestricted.

(i) Unrestricted land-use - The unrestricted land-use designation is available to property with contaminant concentrations at or below the Tier 1 table concentrations (provided in MDEQ's Risk Evaluation Procedures) for unrestricted land-use.

(ii) Restricted land-use - Brownfield Property that has contaminant concentrations that exceed the unrestricted contaminant concentration values in the Tier 1 table provided in MDEQ's Risk Evaluation Procedures are classified as restricted. A Brownfield Agreement regarding restricted property

must require the creation of a land use restriction referenced in the Brownfield Agreement and in the deed notice, entitled the Notice of Brownfield Agreement Site. The Brownfield Agreement, any required Consent Forms, and the Notice of Brownfield Agreement Site must be filed by the Brownfield Party in the appropriate county courthouse. The Notice of Brownfield Agreement Site must identify the contaminant(s) present at the Site above the Tier 1 table for unrestricted land-use, the media affected, and delineate the vertical and horizontal extent of the contaminant(s) on the Brownfield Property. If the contaminant(s) concentration is at or below the Tier 1 table concentration for restricted land-use, or at or below the site-specific Tier 2 or Tier 3 calculated concentration for restricted land-use, specific restrictions including, but not limited to, property access, property use, or property activities (with an acceptable human exposure duration) shall be stated in the Notice of Brownfield Agreement Site. In addition, the description, location, and maintenance, if applicable, of any engineering controls shall be included in the Notice of Brownfield Agreement Site.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 49-2-9 (1)(b), 49-17-17, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.1.4 Public Notice Requirements.

A. Public Notice Requirements

(1) Public Notice by the MCEQ:

(a) At least forty-five days (45) before the date MCEQ considers the proposed Brownfield Agreement, MDEQ shall publish a public notice in a newspaper of general circulation in the county or counties in which the Brownfield Agreement Site is located. The public notice shall:

(1) describe the proposed Brownfield Agreement, including the proposed Brownfield Agreement Site;

(2) request public comment on the proposed agreement within thirty (30) days after the date of publication of the notice; and

(3) provide the date and location of MCEQ's consideration of the proposed Brownfield Agreement.

(b) At the time it forwards the notice for publication, MDEQ shall mail or deliver to the governing authorities of the local governments in which the proposed Site is located, including but not limited to the local zoning authorities, a copy of the public notice.

(c) A copy of the proposed Brownfield Agreement shall be filed for public inspection in the office of the chancery clerk of the county or counties in which the proposed Brownfield Agreement Site is located.

(2) Public Notice by the Applicant

(a) At the time of publication of the public notice under paragraph (a) of this subsection, an Applicant Brownfield Party shall notify by certified mail, return receipt requested, each record surface owner of property contiguous to the Brownfield Agreement Site (at the address contained in the county records, if available) identified by the Brownfield Party after examination of the land records of the county or counties in which the Brownfield Agreement Site is located.

(b) The Brownfield Party shall submit to the MDEQ copies of all letters forwarded to contiguous property owners and copies of the completed return receipts within thirty days after mailing.

(3) Notice of Brownfield Agreement Site

(a) A Brownfield Party entering into a Brownfield Agreement shall submit to MDEQ for its approval a proposed Notice of Brownfield Agreement Site before execution of the Brownfield Agreement as provided in Rule 2.1.5 of these regulations.

(b) A Notice of-Brownfield Agreement Site:

(1) Shall be titled "Notice of Brownfield Agreement Site";

(2) Shall include a survey plat of the Brownfield Agreement Site prepared and certified by a professional land surveyor registered in the State of Mississippi which contains a legal description of the Brownfield Agreement Site and identifies the following:

(i) The location and dimensions of the areas of potential environmental contamination with respect to permanently surveyed benchmarks;

(ii) The type, location, and quantity of contaminants known to exist on or under the Brownfield Agreement Site;

(iii) All land-use restrictions to be applied to the current or future use of the Brownfield Agreement Site. These land-use restrictions may apply to activities on or under the Brownfield Agreement Site, including, but not limited to, use of groundwater, building, filling, grading, excavating, and mining;

(iv) All engineering controls included in the Brownfield Agreement; and

(v) Names and addresses of all persons who have an interest in the Brownfield Property;

(3) Shall be signed by the Applicant and all persons who have an interest in the Brownfield Agreement Site; and

(4) Shall contain a statement that all parties who have an interest in the Brownfield Agreement Site agree to the land-use restrictions, if applicable.

(4) Public Hearing Regarding Brownfields Agreement

(a) MDEQ may conduct a public hearing on the proposed Brownfield Agreement in the county in which the majority of the proposed Brownfield Agreement Site is located, or in any other location in the local area of the proposed Brownfield Agreement Site that is convenient to the members of the public who may have an interest in the proposed Brownfield Agreement.

(b) MDEQ shall publish a notice of the hearing in a newspaper of general circulation in the county or counties in which the proposed Brownfield Agreement Site is located.

(5) MDEQ shall provide to MCEQ for review before its consideration of the proposed Brownfield Agreement all public comments and the transcript of any public hearing on the proposed Brownfield Agreement.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 49-2-9 (1)(b), 49-17-17, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.1.5 Decision on Brownfield Agreement.

A. Decision on Brownfield Agreement

(1) The approval of a Brownfield Agreement shall be based on a complete application which MDEQ determines to contain all information required under the Act or these regulations. If MCEQ finds that the proposed Brownfield Agreement complies with the Act and these regulations, the MCEQ, by order, shall approve the proposed Brownfield Agreement. After approval of the Brownfield Agreement, the Executive Director and the Brownfield Party shall execute the Brownfield Agreement.

(2) MCEQ may consider an Applicant's financial resources, technical resources, managerial resources and compliance history in determining whether or not to approve a Brownfield Agreement.

(3) Prior to approval of the Brownfield Agreement, MCEQ may require the applicant to demonstrate to the satisfaction of MCEQ that contamination (the source of which is not environmental contamination or activities on or under the Brownfield Property that is the subject of the application but which is contributing or potentially contributing to contamination on or under the Brownfield Property that is the subject of the application) will not migrate onto the Brownfield Property or otherwise compromise the level of remediation of the Brownfield Property required by the Brownfield Agreement. This demonstration may include institutional controls, engineering controls or other preventive measures. In the event information is presented to MCEQ that migration of contamination has occurred or the level of remediation required under the Brownfield Agreement is being compromised, MCEQ may reopen the Brownfield Agreement.

(4) MDEQ shall consider all environmental contamination on or under the Brownfield Property that is the subject of the application to be attributed to activities on or under said Property, unless the Brownfield Applicant can demonstrate to the satisfaction of MDEQ that:

(a) the source of environmental contamination is off-site and

(b) that conditions on or under said Property have not and will not exacerbate or contribute to the contamination.

MCEQ may, as it deems appropriate, inspect or require inspections; investigate or require investigations; evaluate or require evaluations; and/or issue orders regarding properties which are a source of contamination on or under the Brownfield Agreement Site.

(5) MCEQ may enter into a Brownfield Agreement as proposed by MDEQ or may modify that agreement before entering into it. MCEQ subsequently may modify any Brownfield Agreement by entry of an order. The MCEQ orders issued under this Act shall be reviewable as provided in Section 49-17-41.

(6) MCEQ may disapprove a proposed Brownfield Agreement or decline to enter into a Brownfield Agreement by entry of an order. In the order, MCEQ shall state the reasons for disapproval of the agreement or declining to enter into the agreement.

B. Filing of Notice of Brownfield Agreement

(1) Within fifteen (15) days after the Brownfield Agreement is executed, the Brownfield Party shall file a certified copy of the Brownfield Agreement and a Notice of the Brownfield Agreement Site in the office of the chancery clerk of the county in which the Site is located. The chancery clerk shall record and enter the Notice of the Brownfield Agreement Site and the Brownfield Agreement in the land records in accordance with Section 89-5-33 and collect the fees provided in Section 25-7-9. Any subsequent deed or other instrument conveying an interest in Brownfield Property shall state in the deed or instrument that the property is Brownfield Property and subject to a Brownfield Agreement, unless the notice is canceled under Rule 2.1.8 of these regulations.

(2) If the notice has not been canceled under Rule 2.1.8 of these regulations, the seller of Brownfield Property shall disclose in the contract for the purchase of the Brownfield Property that the property is Brownfield Property and subject to a Brownfield Agreement.

C. Notice by Brownfield Party of Conveyance of Brownfield Property

Until the Executive Director issues a "no further action" letter under Rule 2.1.7.B. of these regulations, the Brownfield Party shall submit written notice to MCEQ at least thirty days prior to any sale, conveyance or other change in surface ownership of any portion of the Brownfield Agreement Site. Approval from MCEQ shall be required for any sale, conveyance or other change in surface ownership of any portion of the Brownfield Agreement Site owned by the Brownfield Party desiring to make the change in ownership, if the new surface owner will be required to or will assume an obligation to perform any obligations under the Brownfield Agreement. In that case, the Brownfield Party and the new surface owner jointly shall provide information satisfactory to MCEQ that the new surface owner has the financial, managerial and technical resources to complete performance of the Brownfield Agreement obligations to be transferred and that the new surface owner agrees to complete this performance. The new surface owner shall also submit a statement to MDEQ on a form prescribed by MDEQ which sets forth the requirements of the Brownfield Agreement for which it accepts responsibility. The Brownfield Party shall remain responsible for the payment of all reasonable direct and indirect costs of MDEQ associated with administration of the Brownfield Agreement until MDEQ receives a form from the new surface owner by which the new surface owner accepts responsibility for the payment of such costs. If MCEQ determines that the new surface owner has the necessary financial, managerial and technical resources, and an appropriate compliance history, to complete the performance of the Brownfield Agreement and that the new owner has agreed to do so, the MCEQ shall issue an order approving the transfer.

D. Prospective Purchaser Notice

The Brownfield Party shall provide written notice of the Brownfield Agreement Site's status as Brownfield Property to any prospective purchaser of any interest in the Brownfield Agreement Site.

E. Executive Director Authority

Except for orders issued under Rule 2.1.5.A(2), 2.1.5.A(3) and Rule 2.1.10.B(3) of these regulations, MCEQ, under any conditions it may prescribe, may authorize the Executive Director to issue any orders required under this Act. A decision by the Executive Director shall be a decision of MCEQ and shall be reviewable as provided under Section 49-17-41.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq., 49-17-1, et seq. and 89-5-33.*

Rule 2.1.6 Modification of Brownfield Agreement.

A. Conditions for Modification

(1) A Brownfields Agreement may be modified by order of MCEQ, if:

(a) MCEQ receives new information demonstrating that a contaminant on or under the Brownfield Agreement Site poses less risk than the risk that formed a basis for the remediation requirements. Public notice as designated in Rule 2.1.4 is required prior to any modification under this subparagraph (1)(a);

(b) The Brownfield Party provides or has provided to MCEQ false information or fails to disclose to MCEQ relevant information about environmental contamination on or under the Brownfield Agreement Site that forms a basis for the Brownfield Agreement or that is offered to demonstrate compliance with the Brownfield Agreement;

(c) New information becomes available after execution of the Brownfield Agreement indicating the existence of previously unknown contaminants or an area of previously unknown environmental contamination that has not been remediated to standards required by applicable federal or state law other than this Act. The Brownfield Agreement may be amended to include remediation of any previously unknown contaminants and any additional areas in the same Brownfield Agreement Site;

(d) The level of risk to public health or the environment resulting from the Brownfield Agreement Site is increased beyond the level that forms a

basis for the risk-based remediation requirements in the Brownfield Agreement due to changes in exposure conditions, including:

(1) A change in land-use at the Site or contiguous to the Site that increases the probability of exposure to contaminants on or under the Brownfield Agreement Site or

(2) The failure of remediation to mitigate risks to the extent required to make the Brownfield Agreement Site fully protective of public health and the environment as provided in the Brownfield Agreement; or

(3) The receipt by MDEQ of new information after execution of the Brownfield Agreement about a contaminant on or under the Brownfield Agreement Site that increases the risk to public health or the environment on or under the Brownfield Agreement Site beyond the level that is the basis for the risk-based remediation requirements in the Brownfield Agreement and in a manner or to a degree not anticipated in the Brownfield Agreement.

(2) Minor modifications are not required to comply with the public notice requirements set forth in Rule 2.1.4. All other modifications are required to go through public notice. Minor modifications include:

(a) Typographical errors;

(b) Equipment replacement or upgrade with functionally equivalent components;

(c) Changes in the frequency of or procedures for monitoring, reporting, sampling or maintenance activities;

(d) Changes in interim compliance dates;

(e) Changes to waste sampling or analysis methods to conform with MDEQ or EPA guidance or regulations;

(f) Changes in name, address, or phone number of contacts;

(g) Changes in groundwater sampling or analysis procedures; or

(h) Such other changes determined by MDEQ not significantly to change or have the reasonable potential significantly to change the Brownfield Agreement.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.1.7 Liability Protection and No Further Action Letter.

A. Liability Protection

(1) Except as provided under Rule 2.1.7(A)(5) and Rule 2.1.10(B)(3) of these regulations, a Brownfield Party who executes a Brownfield Agreement shall be relieved of liability to all persons other than the United States for:

(a) remediation of the Brownfield Agreement Site other than the remediation required by the Brownfield Agreement; and

(b) all costs reasonably related to the remediation other than the remediation and costs required by the Brownfield Agreement or these regulations.

However, these regulations shall not affect the right of any person to seek relief against any party to the Brownfield Agreement who may have liability with respect to a Brownfield Agreement Site, except as provided in this section.

(2) The liability protection provided under and as limited by this section applies to the following persons to the same extent as to a Brownfield Party:

(a) Any person under the direction or control of the Brownfield Party who directs or contracts for remediation or redevelopment of the Brownfield Agreement Site;

(b) Any current owner and any future owner of the Brownfield Agreement Site;

(c) Any person who develops, redevelops or lawfully occupies the Brownfield Agreement Site;

(d) Any successor or assign of any person to whom the liability protection provided under this section applies; and

(e) Any lender or fiduciary that provided financing for remediation or redevelopment of the Brownfield Agreement Site.

(3) A person who conducts an environmental assessment on a Brownfield Agreement Site and who is not otherwise a potentially responsible party shall not become a potentially responsible party as a result of conducting the environmental assessment, unless that person increases the risk of harm to public health or the environment by failing to exercise due diligence and reasonable care in performing the environmental assessment.

(4) The liability protection provided pursuant to this section shall become effective upon execution of a Brownfield Agreement by MCEQ and shall remain effective unless MCEQ removes the liability protection pursuant to Rule 2.1.10(B)(3).

(5) A Brownfield Party who satisfactorily completes the remediation required under a Brownfield Agreement, and any other person who receives liability protection under this section, shall not be required to perform additional remediation on or under the Brownfield Agreement Site unless:

(a) The Brownfield Party provides to MCEQ false information or fails to disclose to MCEQ relevant information about environmental contamination on or under the Brownfield Agreement Site that forms a basis for the Brownfield Agreement, that is offered to demonstrate compliance with the Brownfield Agreement;

(b) New information becomes available after execution of the Brownfield Agreement indicating the existence of previously unknown contaminants or an area of previously unknown environmental contamination that has not been remediated to standards required applicable federal or state law other than these regulations. The Brownfield Agreement may be amended to include remediation of any previously unknown contaminants and any additional areas in the same Brownfield Agreement Site;

(c) The level of risk to public health or the environment resulting from the Brownfield Agreement Site is increased beyond the level that forms a basis for the risk-based remediation requirements in the Brownfield Agreement due to changes in exposure conditions, including:

(1) A change in land-use at the Site or contiguous to the Site that increases the probability of exposure to contaminants on or under the Brownfield Agreement Site; or

(2) The failure of remediation to mitigate risks to the extent required to make the Brownfield Agreement Site fully protective of public health and the environment as provided in the Brownfield Agreement.

(d) MDEQ receives new information after execution of the Brownfield Agreement about a contaminant on or under the Brownfield Agreement Site that increases the risk to public health or the environment on or under the Brownfield Agreement Site beyond the level that is the basis for the risk-based remediation requirements in the Brownfield Agreement and in a manner or to a degree not anticipated in the Brownfield Agreement; or

(e) Brownfield Party fails to file a timely and proper Notice of Brownfield Agreement Site under Rule 2.1.4(A)(3) of these regulations.

B. No Further Action Letter

Upon completion of the Brownfield Agreement, the Brownfield Party may petition MCEQ to determine that the Brownfield Party has completed performance of the Brownfield Agreement. If MCEQ determines after conducting an inspection of the Brownfield Agreement Site that the Brownfield Party has completed the Brownfield Agreement, MCEQ shall issue an order stating MCEQ's conclusion. Following issuance of an order by MCEQ, the Executive Director shall issue a "no further action" letter. The letter shall include the following statement: "Based upon the information provided by [Brownfield Party] concerning property located at [location], it is the opinion of the Commission on Environmental Quality that [Brownfield Party] has successfully and satisfactorily implemented and completed the approved Brownfield Agreement. No further action is required to assure that the remediation required under the Brownfield Agreement is protective of public health and the environment in accordance with the existing and proposed uses of this property."

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.1.8 Cancellation of Notice of Brownfield Agreement.

A. Cancellation.

If a Brownfield Party remediates a Brownfield Agreement Site to a risk level of unrestricted use, the Brownfield Party may petition MCEQ to cancel the Notice of Brownfield Agreement Site. If MCEQ issues an order canceling the notice, the current owner of the Brownfield Agreement Site shall file a statement issued by the Executive Director in accordance with MCEQ's order canceling the notice in the office of the chancery clerk in any county in which the Brownfield Agreement Site is located. The Executive Director's statement shall contain the names of the owners of the Brownfield Agreement Site as shown in the Notice of Brownfield Agreement Site and reference the book and page where the notice is recorded. After collecting the proper fee fixed in Section 25-7-9, the chancery clerk shall record the Executive Director's statement as provided in Rule 2.1.7.A. The chancery clerk shall make a marginal entry on the Notice of Brownfield Agreement Site showing the date of cancellation and the book and page where the Executive Director's statement is recorded, and the chancery clerk shall sign the entry.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.1.9 Fees and Trust Fund.

A. Fees

(1) The Brownfield Party who submits a Brownfield Agreement application shall pay all reasonable direct and indirect costs of MDEQ associated with the processing

of the Brownfield Agreement application and administration of the Brownfield Agreement less the advance costs required in Rule 2.1.9(A)(2) of this rule, unless another funding source (e.g., EPA Cooperative Agreement) is available, acceptable, and approved by MDEQ.

(2) A Brownfield Party who submits a Brownfield Agreement application for review by MDEQ shall pay advance costs of Two Thousand Dollars ($2,000.00) at the time the application is submitted to MDEQ. MDEQ will apply the Two Thousand Dollar ($2,000.00) advance costs to the final invoice as determined by MDEQ.

(3) MCEQ shall set by order a schedule of costs for the processing of the Brownfield Agreement applications and the administration of Brownfield Agreements by MDEQ.

(4) Reasonable direct and indirect costs shall include the cost of MDEQ's utilization of the services of an independent contractor and/or contractual worker to evaluate information associated with the processing of the Brownfield Agreement application and administration of the Brownfield Agreement less the advance costs required in Rule 2.1.9(A)(2) of this rule.

(5) MCEQ may delegate to MDEQ responsibility for the collection of costs in Rule 2.1.9(A)(1) and (2).

(6) All costs under Rule 2.1.9(A)(1) shall be due before a date specified by MDEQ, which shall be no less than thirty (30) days following the invoice date. If any part of the costs that are imposed is not paid within thirty (30) days after the due date, a penalty of up to twenty-five percent (25%) of the amount due may be imposed and added to that amount. Any penalty collected under this section shall be deposited into the Brownfields Cleanup and Redevelopment Trust Fund created by Miss. Code Ann. Section 49-35-25(4). If MDEQ pursues legal action to collect costs incurred, reasonable attorney's fees and costs may be assessed against the delinquent party pursuant to Miss. Code Ann. Section 49-35-25(7).

(7) Any person required to pay costs under this section who disagrees with the calculation or applicability of the costs may petition MCEQ for a hearing in accordance with Section 49-17-35.

(8) Costs collected under this section shall not supplant or reduce in any way the general fund appropriation to the MDEQ for the administration of this program, pursuant to Miss. Code Ann. Section 49-35-25(9).

(9) MDEQ shall suspend any activities or actions related to the processing of the Brownfield Agreement application or administration of a Brownfield Agreement, if the Brownfield Party or Parties fails to pay any required costs or penalties imposed under this section. In addition, the MCEQ shall issue an order in accordance with Rule 2.1.10(B)(2) requiring the Brownfield Party to pay the

required costs within a certain time. Failure to comply with the order may subject the Brownfield Party to remedies set forth Mississippi Code Annotated Section 49-17-43 and removal of liability protection set forth in Rule 2.1.7(A).

(10) MDEQ shall submit a final invoice to the Brownfield Party within sixty (60) days of the issuance of a “No Further Action Letter” for Sites that do not require post-closure activities or compliance monitoring. For those Sites that require post-closure activities or compliance monitoring, MDEQ and the Brownfield Party shall agree upon reasonable direct and indirect costs associated with the administration of post-closure activities or compliance monitoring as outlined in the Brownfield Agreement.

(11) Nothing in this section affects any existing program at MDEQ or affects any authority of MCEQ or MDEQ to take any action authorized by law.

B. Brownfields Cleanup and Redevelopment Trust Fund

(1) Pursuant to Miss. Code Ann. Section 49-35-25(4), there is created in the State Treasury a fund to be designated as the "Brownfields Cleanup and Redevelopment Trust Fund," referred to in this section as "fund," to be administered by the Executive Director.

(2) Monies in the fund shall be utilized to pay reasonable direct and indirect costs associated with the processing of the Brownfield Agreement applications and the administration of Brownfield Agreements.

(3) Expenditures may be made from the fund upon requisition by the Executive Director.

(4) The fund shall be treated as a special trust fund. Interest earned on the principal shall be credited by the Treasurer to the fund.

(5) The fund may receive monies from any available public or private source, including, but not limited to, collection of costs, interest, grants, taxes, public and private donations, judicial actions and appropriated funds.

(6) Monies in the fund at the end of the fiscal year shall be retained in the fund for use in the next succeeding fiscal year.

(7) All monies collected under this section shall be deposited into the fund.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.1.10 Hearings and Enforcement.

A. Hearings

Any person or interested party aggrieved by any order of MCEQ pursuant to the Act or these regulations may file a request for hearing or notice of appeal pursuant to Miss. Code Ann. Section 49-17-41. Any person who disagrees with any other action of MCEQ pursuant to the Act or these regulations may file a petition with MCEQ for a hearing pursuant to Miss. Code Ann. Section 49-17-35.

B. Enforcement and Agency Reporting

(1) Any material failure of a Brownfield Party or the agents or employees of a Brownfield Party to comply with the Brownfield Agreement constitutes a violation of this rule by the Brownfield Party. If a Brownfield Party violates this section, MCEQ may issue an order requiring the Brownfield Party to correct the violation in an appropriate time period established by the order.

(2) If the Brownfield Party fails to comply with an order issued under Rule 2.1.10(B)(2) or provides false information to MCEQ or MDEQ during the application process or in reports required by the Brownfield Agreement or by state or federal law, MCEQ may remove the liability protection afforded by the Brownfield Agreement under Rule 2.1.7.A., require additional remediation, and/or assess civil penalties pursuant to Miss. Code Ann. Section 49-17-43.

(3) This section shall not create a defense against the imposition of criminal or civil penalties or other administrative remedies authorized by law for violations of law caused by the Brownfield Party while implementing or failing to implement the Brownfield Agreement.

(4) Any land-use restriction or engineering control in a Brownfield Agreement and in a Notice of Brownfield Agreement Site filed under this section may be enforced by MCEQ by initiating an administrative proceeding or by filing a civil action without first having exhausted all available administrative remedies.

(5) A land-use restriction or engineering control shall not be declared unenforceable due to lack of privity of estate or contract, due to lack of benefit to particular land, or due to lack of any property interest in particular Brownfield Property within the Brownfield Agreement Site. Any person who owns or leases Brownfield Property within the Brownfield Agreement Site subject to a land-use restriction or engineering control under this section shall abide by the land-use restriction or engineering control.

(6) MCEQ may terminate a Brownfield Agreement by order issued pursuant to Rule 2.1.10.B(3). The order shall direct the executive director to issue a notice of cancellation of Brownfield Agreement. Any order to terminate shall provide that all liability protection provided by the Brownfield Agreement has been removed.

The statement issued by the executive director shall direct the chancery clerk to make a marginal entry of termination on the Notice of Brownfield Agreement Site and the Brownfield Agreement. In the event a Brownfield Agreement is terminated, the Brownfield Party shall be responsible for notifying the following parties of the termination:

(a) All owners of interest in the Brownfield Agreement Site;

(b) All persons who own property contiguous to the Brownfield Agreement Site;

(c) All local governments that were originally notified of the Brownfield Agreement

(7) Additionally, upon termination the Brownfield Party shall:

(a) Publish a notice of cancellation in a local newspaper;

(b) Record all instruments of cancellation in the office of the chancery clerk in each county in which the Brownfield Agreement Site is located;

(c) Pay all costs for the foregoing; and

(d) Forward to MDEQ documentation evidencing the accomplishment of the foregoing.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 49-17-35, 49-17-41, 49-17-43, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

SUBCHAPTER 2. RISK EVALUATION PROCEDURES

Rule 2.2.1 General.

A. Introduction

(1) The Mississippi Brownfields Voluntary Cleanup and Redevelopment Program (Brownfields Program) utilizes risk-based criteria for Site evaluation and remediation. The risk-based procedures and rationale for evaluating environmental contamination on or under a Site are presented in this Subchapter II. This evaluation is necessary to develop remediation requirements that are protective of human health and the environment. All remediation and/or corrective actions must be approved by MDEQ.

(2) In considering the risk-based evaluation of conditions on or under a Site, the following must be addressed:

(a) complete the Site Conceptual Exposure Model (SCEM) to evaluate site-specific risk and exposure conditions before and after remediation;

(b) conduct a Site Characterization to delineate the nature and extent (vertically and horizontally) of contamination found on or under the Site;

(c) complete the Site Ecological Checklist to determine whether an ecological risk assessment is necessary; and

(d) conduct a Risk-Based Evaluation of the Site utilizing the Brownfields Program three-tiered approach.

(3) The cornerstone of the Brownfields Program is a three-tiered risk-based process for evaluating human health and environmental risks. These tiers are referred to as Tier 1, Tier 2, and Tier 3. These tiers are designed to allow the Applicant to evaluate and determine appropriate remedial options for site specific conditions. A description of each tier is discussed below.

(a) A Tier 1 Evaluation is the comparison of site-specific data to a "look-up" table of chemical-specific target remediation goals (TRGs). Specific TRG concentrations have been determined to be protective of human health and the environment for restricted use and unrestricted use of a Site. The Tier 1 TRG Table is presented in Appendix A.

(b) A Tier 2 Evaluation provides the Applicant the option of performing a more in-depth evaluation of site-specific conditions to develop site-specific Remediation Goals (RG) and/or to better define site-specific data to be used for a Tier 1 Evaluation.

(c) A Tier 3 Evaluation is a site-specific risk assessment to evaluate the potential human health and ecological risks at the Site that will result in the development of site-specific Remediation Goals (RGs).

(4) Land use plays an integral role in the three-tiered approach and in the development of the SCEM. Land-use restrictions may reduce or eliminate the potential for exposure to contaminants and risk.

(5) Specific criteria for evaluating Sites impacted with petroleum hydrocarbons is contained in Rule 2.2.7 of this Subchapter.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.2.2 Brownfield Site Evaluation

A. Conceptual Exposure Model (SCEM)

(1) The SCEM is a graphical representation of actual and potential Site conditions based on available data and an understanding of those Site conditions. A BASELINE and a REMEDIAL SCEM must be completed and are provided in forms prescribed by MDEQ. The BASELINE SCEM represents the risk and exposure conditions that exist prior to the implementation of remediation. The REMEDIAL SCEM represents the risk and exposure conditions that exist or are expected to exist after the implementation of remediation. Items to be identified in the SCEM include the following:

(a) chemical of concern (CoC) sources;

(b) CoC movement (migration/transport);

(c) the actual or potential exposure pathways; and

(d) the actual or potential receptor populations.

(2) Based on the results of the completed BASELINE SCEM, exposure point concentrations (EPCs) must be identified for CoC(s) with completed and potentially completed exposure pathways. EPCs are the concentrations of site-related compounds in a specific media that a human or environmental receptor will contact (Complete) or may potentially contact (Potentially Complete) through ingestion or inhalation at the point of exposure.

(3) All four elements identified in the SCEM must be complete for exposure to occur. It is important to note that the BASELINE SCEM should be developed early in the process (i.e., Brownfield Application and/or work plan stage) and identified as "draft" if additional information is pending. The BASELINE SCEM can be updated and modified as the site investigation progresses and more site-specific information becomes available. BASELINE SCEM should be identified as "final" once the Site Characterization is complete.

(4) If additional issues of concern pertaining to exposure at the site (additional pathways, media, sources, transport mechanisms, receptors, etc.) are not specifically addressed in the SCEMs, the Applicant should provide an attachment(s) to the appropriate SCEM discussing the additional issues.

(5) The BASELINE and REMEDIAL SCEM worksheets must be included as part of the Site Characterization Report and the Corrective Action Report.

(6) The procedures for completing the SCEMs follow:

(a) Identify the Primary Sources (on-site and off-site) of contamination that exist or are believed to have existed.

(b) Identify the Secondary Sources. Mark the media (soils, groundwater, sediments, or surface water) that have been impacted (Complete) or could potentially be impacted (Potentially Complete) by a release from a primary source.

(c) Identify the Transport Mechanisms by which the contaminants may move through the environment.

(d) Identify the Exposure Pathway that is the medium (soil, groundwater, air, sediments, or surface water) that a receptor will contact (Complete) or may contact (Potentially Complete).

(e) Identify the Actual (Complete) and the Future (Potentially Complete) Receptors for restricted and unrestricted land-use.

B. Criteria For Completing The SCEMs

(1) BASELINE SCEM - The following sections describe the criteria for evaluating the completeness and potential completeness of contaminant exposure for the Site. All potential exposure pathways should be evaluated for completeness, as identified in the SCEM worksheets. The Applicant should provide as much detail as possible. Indicate all sources, transport mechanisms, pathways and receptors that are complete or potentially complete. If information is not available to support a pathway as incomplete then that pathway should be considered to be potentially complete and should be identified for evaluation until such information becomes available. A description of each of the BASELINE SCEM criteria is provided in the following sections.

(a) Sources can be defined as either Primary Sources or Secondary Sources. Primary Sources are those present or past storage units (i.e., tanks, impoundments, piles), distribution systems (i.e., piping, manifolds, lines, pumps), operations (i.e., wash areas, repair bays, water treatment, blending tanks, formulation areas), waste management units (i.e., burn pits, disposal units, dumps) and other on-site and off-site sources of actual or potential contamination that have or may have leaked, leached, spilled, or otherwise been released and may have impacted the Site. Several categories of potential primary sources are included on the SCEM worksheet and can be identified by filling in the appropriate boxes on the worksheet. If the sources listed do not pertain to the Site, then use "Other". The Applicant should be as specific as possible about the source of contamination. Supporting documentation (i.e., analytical results, product storage/transmission information, tank information, etc.) of the primary source of contamination should be provided in the appropriate section(s) of the Work Plan and/or Site Characterization Report.

Secondary Sources are defined as transport media (i.e., surficial soils, subsurface soils, groundwater, sediments, or surface water) that have been impacted or potentially impacted by the primary (release) source. Identify all media that may serve as secondary sources of contamination. For the purposes of this Subchapter 2 surficial soil is defined as extending to 6 ft. below ground surface (bgs). The presence of CoCs that cannot be attributed to background should be identified as "complete," and any secondary source that is potentially affected by an on-site or off-site primary source should be identified as potentially complete." The Applicant must provide adequate documentation to demonstrate that a secondary source has not been affected in order to remove that medium from further consideration. If such documentation has not yet been gathered to support the exclusion of a secondary source, then that medium must be identified as "potentially complete" until such time as such information becomes available. The BASELINE SCEM can be updated as additional site-specific data are gathered.

(b) Transport Mechanisms are means by which the CoC release can migrate from the identified secondary sources and result in actual or potential human exposure. A variety of potential transport mechanisms are generally applicable to a site. Indicate on the BASELINE SCEM Worksheet those transport mechanisms that are applicable or potentially applicable to the site. Those transport mechanisms identified as applicable or potentially applicable should be marked "complete" or "potentially complete," respectively.

(1) **Surficial Soils -** If surficial soil has been identified as a secondary source, then the following transport mechanisms must be identified as "complete" or "potentially complete":

(i) Wind Erosion and Atmospheric Dispersion (For Non-Volatile Compound Only)

(ii) Volatilization and Atmospheric Dispersion (For Volatile Compounds Only)

(iii) Volatilization and Enclosed-Space Accumulation (For Volatile Compounds Only)

(iv) Leaching and Groundwater Transport

Note: The Soil Exposure Pathway must also be identified as "complete" or "potentially complete" if surficial soil has been identified as a secondary source.

(2) **Subsurface Soils -** If subsurface soil has been identified as a secondary source, then the following transport mechanisms must be identified as "complete" or "potentially complete":

(i) Volatilization and Enclosed-Space Accumulation (For Volatile Compounds Only)

(ii) Leaching and Groundwater Transport

(3) **Groundwater** – If groundwater has been identified as a secondary source, then the following transport mechanisms must be identified as “complete” or “potentially complete”:

(i) Volatilization and Enclosed-Space Accumulation (For Volatile Compounds Only)

(ii) Leaching and Groundwater Transport

(4) **Sediments or Surface Water -** If sediment or surface water has been identified as a secondary source, then Surface Water Runoff or Surface Water Transport must be identified as "complete" or "potentially complete."

(c) Exposure Pathways are the processes by which human uptake or exposure to site-related compounds may occur. Identify all "complete" or potentially complete" exposure pathways at the Site that may provide a means for human exposure. All exposure pathways should be identified as potentially complete if supporting information for the exclusion of the pathway is not currently available.

(1) **Soil -** If surficial soils are affected, then direct exposure through incidental ingestion must be indicated as complete or potentially complete. Contamination in surface and subsurface soils may be available for exposure through direct contact during intrusive activities, such as construction. The future use of the site and any plans for construction should be considered when evaluating the completeness of direct contact to subsurface soils.

(2) **Air -** Contamination of surface soil provides the potential for human uptake or exposure through inhalation of vapor from volatile compounds and through inhalation of non-volatile compounds that have adsorbed to surface soil particulates. Contamination of subsurface soil provides the potential for human uptake or exposure through inhalation of vapor from volatile compounds (i.e., migration into basements or during intrusive

activities such as construction) and through inhalation of non-volatile compounds that have adsorbed to subsurface soil particulates during intrusive activities, such as construction. In addition, the presence of volatile compounds in groundwater at the site produces the potential for volatilization into air (i.e., migration into basements, depth to groundwater is less than six (6) feet or intrusive activities).

(3) **Groundwater -** Contamination of groundwater requires that the Groundwater Exposure Pathway be marked as "complete" in the BASELINE SCEM. Surface and subsurface soils capable of leaching into groundwater at levels above the Groundwater TRG require that the Groundwater Exposure Pathway be marked as "complete" in the BASELINE SCEM. The presence of CoCs in surface and subsurface soils requires that the Groundwater Exposure Pathway be marked as "potentially complete" in the BASELINE SCEM. The Applicant must provide adequate documentation to demonstrate that CoCs in surface and subsurface soils will not leach into groundwater in order to remove that medium from further consideration. If documentation has not been gathered to support the exclusion of exposure pathway, that pathway must be identified as "potentially complete." The BASELINE SCEM can be updated as additional site-specific data are gathered.

(4) **Surface Water** - The exposure pathways applicable to surface water are included in the SCEM Worksheet in order to protect surface water bodies that may be used for domestic or recreational purposes. The presence of site-related compounds in soils, sediments, surface water, or groundwater provides the potential for migration or discharge to either on-site or off-site surface water bodies that may be used for recreational purposes, for a potable water supply, or for livestock watering. If contaminants are present in onsite media and such a surface water body is present within 500 ft. of the Site boundary, the pathway should indicate "potentially complete." Provide documentation in the Work Plan and/or the Site Characterization Report that a water body is not associated with or affected by the Site.

(d) The identification of **Potential Receptor** populations at the site is an important part of the completion of the BASELINE SCEM. It is important to know as much about the current and potential future use of the site and receptor populations, as possible. The receptor populations and the planned future use of the site are integral in supporting the remedial options at the site. Any and all potential receptor populations that could be

exposed to site-related compounds should be identified on the BASELINE SCEM.

(2) REMEDIAL SCEM - Once the BASELINE SCEM has been completed, remedial options (i.e., institutional controls, engineering controls, or active cleanup) for the Site that can "shut off" or eliminate exposure to contamination should be evaluated. Those complete and potentially complete exposure routes linking sources to receptor populations must be remediated using one or a combination of options. Free product must be remediated in a manner consistent with Rule 2.2.6(A)(4)(d). The REMEDIAL SCEM includes shut-off valves to graphically depict "open" or "closed" pathways between contaminated media and the receptor population. Shut-off valves are marked (shut) to indicate the remedial action that has been taken or proposed for the Site. A description of the types of remedial actions follow:

(a) **Institutional Controls** - The use of institutional controls (land use restrictions and agreed order with MDEQ) can serve as barriers in preventing future contact with subsurface soils and groundwater. Site land-use may be "unrestricted" or "restricted" that relates generally to residential and industrial/commercial, respectively. The potential to restrict the future use of the site (example: use of the site to a defined industrial use only, or the limitations of future construction activities, prohibiting groundwater use) can be considered in the remediation of the Site. If no restrictions for future use will be placed on the property by the Applicant, the identified remediation goals will be based on the future unrestricted (residential) use of the Site. Documentation of the institutional controls must be provided to support the proposed site remediation. A land use restriction and agreed order with MDEQ shall be used for "restricting" the Site. Institutional controls are to be used to "shut off" exposure to contamination. The Site Characterization Report and/or Corrective Action Plan must document the appropriate restrictions to be implemented. The Institutional Control Shut-off Valve on the REMEDIAL SCEM should be marked to reflect this option. An institutional control by itself cannot be used if there is further migration and/or Expansion of the contamination.

(b) **Engineering Controls** - The use of engineering controls can reduce or eliminate the potential for exposure to contaminants through containment. Engineering Controls may include, but are not limited to, physical or hydraulic control measures (such as groundwater recovery trenches and leachate collection systems), groundwater treatment systems, engineered caps, liner systems, slurry walls or permanent structures, but shall not include the exclusive use of security fencing. Ingestion and dermal contact of soil contamination that exists under a building may be considered "shut off" provided the institutional control restricts contamination via ingestion or dermal contact. If an engineering control is used to "shut-

off" exposure to contamination, the Site Characterization Report and/or Corrective Action Plan must document the appropriate engineering control and/or institutional control to be implemented. The Engineering Control Shut-off Valve on the REMEDIAL SCEM should be marked to reflect this option. An institutional control must be coupled with the engineering control to ensure the engineering control is maintained until the site is remediated to an unrestricted level.

(c) **Active Cleanup** - The active cleanup (i.e., removal, treatment) of contamination to levels that are protective of human health and the environment can reduce or eliminate the potential for exposure to contaminants. If active cleanup is used to "shut off" exposure to contamination, the Site Characterization Report and/or Corrective Action Plan must document the active cleanup activities and/or institutional control to be implemented. The Active Cleanup Shut-off Valve on the REMEDIAL SCEM should be marked to reflect this option. An institutional control may be necessary, depending upon the projected length of the cleanup, particularly if groundwater has been impacted (e.g., pump and treat system has been installed and projected to continue for 30 years).

C. Site Characterization

(1) A Site Characterization must be conducted to delineate the nature and extent (vertically and horizontally) of contamination on and under the Site. Site characterization data should be collected and presented in accordance with the Quality Assurance Project Plan (QAPP) and Site Characterization Report formats. In general, the Applicant must demonstrate that the data are representative of the actual and/or potential contamination conditions at the Site. Collected data must include information describing and delineating the contaminant source area. Information pertaining to the characteristics of the CoCs, including the chemical and physical properties as well as the potential of the CoCs to migrate and transport to receptor locations through or in the affected media, must also be provided.

(2) The degree of contamination in surface and subsurface soil should be determined by performing soil boring(s) down to the depth of groundwater in the saturated zone. Surface soil is defined as the soil located at the surface and extending to a depth of six (6) feet below the ground surface. The subsurface soil depth is any depth beyond six feet. The Applicant must address ingestion, potential dermal contact, and inhalation (through volatilization and particulates) of hazardous chemicals present in the surface soil. In addition, CoCs in the surface soil may be transported off-site through precipitation runoff.

(3) The Applicant must demonstrate that groundwater is not impacted by the site-related contaminant; or that if groundwater is impacted, the impacted groundwater

is confined and will remain confined within the Site. Groundwater contaminant concentrations should be determined by collecting groundwater samples.

(4) Measured data are those data collected from temporary or permanent (monitoring) wells. The Applicant should install wells, as necessary, to delineate the vertical and horizontal extent of groundwater impact and to determine flow direction and groundwater quality. Wells must be installed, developed, purged, and sampled in a manner consistent with EPA Region IV, Science and Ecological Support Division, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996, as amended, or other procedures approved by MDEQ. Measured groundwater data must be based on unfiltered groundwater samples.

(5) The site characterization data should be collected in accordance with data quality objectives (DQOs) stipulated in the QAPP. The DQOs shall, at a minimum, identify the number of field and quality control samples, quantitation limits, analytical methods, and sample collection, preservation, and handling methods. Matrix interferences shall be minimized to the extent feasible by modified sample extraction and preparation methods in accordance with EPA or MDEQ approved analytical methodologies.

(6) The data collection strategy should be based on the Site Conceptual Exposure Model (SCEM) that hypothesizes or describes how the source chemicals or CoCs are released, transported, and exposed to the receptors.

(7) The Applicant must demonstrate that the analytical laboratory data have been reviewed for compliance with the DQOs. In the Site Characterization Report, the Applicant shall data that meet DQOs.

(8) To establish background chemical concentrations, the Applicant may collect samples from locations, as approved by MDEQ, outside of the influence of known contaminated areas and regionally prevalent chemicals and must analyze these samples using the same analytical methods as the CoC analyses.

(9) To establish regionally prevalent chemical concentrations, the Applicant may collect samples from locations, as approved by MDEQ, throughout a substantial geographic region and outside the influence of known contaminated areas and must analyze these samples using the same analytical methods as the CoC analyses.

(10) Historical data approved by MDEQ may be submitted in lieu of collecting new data provided that:

(a) the Site characterization data requirements are summarized and presented in accordance with the Quality Assurance Project Plan and Site Characterization Report Formats; and

(b) the data was collected in a manner consistent with appropriate sampling protocols, as approved by MDEQ.

All detailed information must be referenced in the reports including sampling protocols. In any event, relevant previous site characterization reports should be submitted along with the application. Deviations from the required methodologies in the Quality Assurance Project Plan, Site Characterization Report, for Corrective Action Plan formats must be presented to and approved by MDEQ.

D. Site Ecological Checklist

The Ecological Checklist is used to determine if ecological receptors of concern are present and potentially impacted (See Appendix D). If such receptors are present, MDEQ will make a determination as to whether a Tier 3 assessment of ecological risk should be performed to assess the potential ecological impact. Tier 1 and Tier 2 Evaluations are applicable for Sites with no known ecological receptors of concern.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.2.3 Tier 1 Evaluation

A. Tier 1 Evaluation Target Risk Level

The TRGs presented in the Tier 1 TRG table, Appendix A, are based on either:

(1) a 1x10-6 target risk level for each carcinogenic chemical,

(2) a hazard index not to exceed 1 for each systemic toxicant, or

(3) constituent TRG concentrations established through federal/state programs (i.e., Safe Drinking Water Act). The values presented in the Tier 1 TRG table will be modified periodically based on EPA updates of toxicity values obtained from the sources presented in Rule 2.2.5(B)(3)(b) of this Subchapter 2.

B. Tier 1 Evaluation Procedures

(1) The basic methodology for a Tier 1 Evaluation shall be the comparison of the highest concentration of each contaminant in each media to the TRGs provided in the Tier 1 TRG table. Results of the comparison will be used to determine if the site specific data are:

(a) at or below the unrestricted risk value;

(b) above the unrestricted risk value, but at or below the restricted risk value; or

(c) above the restricted risk value.

(2) Sites that do not require an ecological evaluation beyond the Site Ecological Checklist and that exhibit chemical concentrations that are at or below the unrestricted TRGs do not require further evaluation or action. Such sites are not eligible for the Brownfields Program since remediation is not necessary as required in Section 49-5-5(b) of Mississippi Code Annotated, as amended.

(3) Sites with chemical concentrations in soils that are greater than the unrestricted TRGs but below the restricted TRGs may:

(a) clean-up and/or remove the affected media to a value at or below the unrestricted TRG values resulting in an unrestricted land-use site;

(b) implement appropriate institutional controls (i.e., land use restriction and agreed order with MDEQ) resulting in a restricted land use site; or

(c) perform a Tier 2 Evaluation.

(4) Sites with chemical concentrations in soils that exceed the restricted TRGs may:

(a) clean-up and/or remove the affected media to a value at or below the unrestricted TRG values resulting in an unrestricted land use site;

(b) clean-up and/or remove the affected media to a value at or below the restricted TRG values but above the unrestricted TRG values resulting in a restricted land use site and implement appropriate institutional controls (i.e., land use restriction and agreed order with MDEQ); or

(c) perform a Tier 2 Evaluation.

(5) Sites with chemical concentrations in groundwater that are greater than the unrestricted TRGs may:

(a) clean-up the affected media to a value at or below the unrestricted TRG values resulting in an unrestricted land-use site;

(b) implement appropriate institutional controls (i.e., land use restriction and agreed order with MDEQ) resulting in a restricted land use site; or

(c) perform a Tier 2 Evaluation.

(6) MDEQ may consider utilizing the Method Detection Limit (MDL) in place of the Target Remediation Goal (TRG) on a case by case basis.

(7) In areas of a site where chemical concentrations of petroleum hydrocarbon indicator compounds (e.g., BTEX, PAHs, MTBE) are not quantifiable to the Tier 1 TRGs (e.g., dilution and/or matrix interference) may:

(a) use the Tier 1 TRGs for TPH-GRO/DRO for performing a Tier 1 Evaluation; or

(b) perform a Tier 2 TPH Fractioning Evaluation.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.2.4 Tier 2 Evaluation.

A. Tier 2 Evaluation Target Risk Level

For human health, the remediation goal (RG) for each individual contaminant which is (1) a carcinogen must be calculated to attain a Risk Level of 10-6 (i.e.,1 in a million) and (2) a systemic toxicant must be calculated to attain a total hazard quotient of not more than 1 except with regard to a background chemical concentration or a regionally prevalent chemical concentration. In cases where contaminants with corrective action concentrations established through federal and/or state programs (i.e., Safe Drinking Water Act maximum contaminant levels (MCLs)) are present, the MDEQ will determine the appropriate corrective action concentration on a contaminant by contaminant basis. In no event, except with regard to a background chemical concentration, may either (1) the cumulative (total) site carcinogenic risk exceed 1 x 10-4 for carcinogenic CoCs or (2) the site hazard index (summation of hazard quotients) exceed 3 for non-carcinogenic CoCs affecting the same organ or organ system without the use of both an engineering control and an institutional control.

B. Tier 2 Evaluation Options

(1) Tier 2 Evaluation is a more in-depth evaluation of site-specific conditions beyond the Tier 1 Evaluation methodology. The Tier 2 Evaluation may include, but is not limited to, an evaluation of site-specific conditions by:

(a) determining the Upper Confidence Limit (UCL) of the Mean for a CoC utilizing statistical methods and comparing the UCL to the Tier 1 TRGs,

(b) comparing EPCs to calculated background chemical concentrations,

(c) comparing EPCs to calculated regionally prevalent chemical

concentrations,

(d) utilizing site-specific variables (i.e., exposure frequency, exposure duration, etc.) to calculate site-specific RGs,

(e) eliminating or minimizing exposure to contaminants,

(e) conducting an analysis of Petroleum Hydrocarbons using TPH Fractioning, or

(f) utilizing other methods approved by MDEQ.

(1) **Statistical Methods** - If the Applicant can demonstrate to the satisfaction of MDEQ that the UCL of the Mean for a CoC utilizing statistical methods is less than the Tier 1 TRG for that CoC, this calculated value may be used instead of the highest CoC concentration. The UCL of the Mean is then compared to the Tier 1 TRG to evaluate remedial options. The Applicant must demonstrate to the satisfaction of MDEQ that the data are statistically normal or can be statistically normalized

(i) The methodology used to determine the UCL of the Mean should be conducted in accordance with the EPA's Supplemental Guidance to RAGS: Calculating the Concentration Term (EPA, 992a), or another method approved by MDEQ.

(2) **Site Background** - CoC concentrations may be compared to site background chemical concentrations to evaluate appropriate remedial actions at the Site.

(i) To establish background chemical concentrations, the Brownfield Applicant may collect samples from locations outside of the influence of known contaminated areas and regionally prevalent chemicals (both vertically and horizontally), as approved by MDEQ and must analyze these samples using the same analytical methods as the CoC analyses.

(ii) If the Applicant can establish that the background chemical concentration of a CoC is higher than the Tier 1 TRG concentration for that CoC listed in Appendix A, the Applicant shall have the option of using the background chemical concentration as the Remedial Goal (RG).

(iii) Remediation of a CoC above its established background

chemical concentration will not be necessary.

(iv) The methodology used to determine background chemical concentrations in soil shall be conducted in accordance with EPA's Engineering Forum Issue: Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites (EPA/540/S-96/500), December 1995, or another method approved by MDEQ.

(v) The methodology used to determine background chemical concentrations in groundwater shall be conducted in accordance with EPA's Guidance Document on the Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities (EPA/530/SW-89/026), April 1989, or another method approved by MDEQ.

(3) **Regionally Prevalent Chemicals -** CoC concentrations may be compared to regionally prevalent chemical concentrations to evaluate appropriate remedial actions at the Site.

(i) To establish regionally prevalent chemical concentrations, the Brownfield Applicant may collect samples from locations throughout a substantial geographic region and outside the influence of known contaminated areas, as approved by MDEQ, and must analyze these samples using the same analytical methods as the CoC analyses.

(ii) If the Applicant can establish that the concentration of a CoC is higher than the concentration of a regionally prevalent chemical, the Applicant shall have the option of using the concentration of the regionally prevalent chemical as the Remedial Goal (RG) provided

(a) the cumulative (total) site carcinogenic risk does not exceed 1 x 10-4 for all on-site carcinogenic CoCs and

(b) the site hazard index (summation of hazard quotients) does not exceed 3 for all on-site non-carcinogenic CoCs that affect the same organ or organ system.

(iii) The methodology used to determine regionally prevalent chemical concentrations in soil shall be conducted in accordance with EPA's Engineering Forum Issue: Determination of Background Concentrations of Inorganics

in Soils and Sediments at Hazardous Waste Sites (EPA/540/S-96/500), December 1995, or another method approved by MDEQ.

(iv) The methodology used to determine regionally prevalent chemical concentrations in groundwater shall be conducted in accordance with EPA's Guidance Document on the Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities (EPA/530/SW-89/026), April 1989, or another method approved by MDEQ.

(4) **Site-Specific Variables** - If the Applicant can demonstrate to the satisfaction of MDEQ that site-specific variables (i.e., exposure duration, exposure frequency, moisture content, etc.) are more representative of site conditions than the default variables utilized in the development of the Tier 1 TRGs, the Applicant may modify site-specific variables in the risk calculation to develop RGs for the CoCs. Chemical-specific values (i.e., Henry's law constant, diffusivity in water, etc.) must be taken from EPA's Soil Screening Guidance: Technical Background Document (EPA/540/R-95/128), May 1996, unless otherwise approved by MDEQ. The Applicant shall not adjust the following variables in the development of site-specific RGs in Tier 2:

(i) Oral cancer slope factor;

(ii) Inhalation cancer slope factor;

(iii) Oral chronic reference dose;

(iv) Inhalation chronic reference dose;

(v) Target excess individual lifetime cancer risk;

(vi) Target hazard index;

(vii) Body weight, adult; or

(viii) Body weight, child.

(5) **Eliminate/Minimize Exposure Routes** - If the Applicant can demonstrate to the satisfaction of MDEQ that land-use restrictions and engineering controls at the site will eliminate all complete exposure pathways or will minimize contamination exposure to levels that will be protective of human health and the environment, MDEQ may determine that further remediation is not required. The

Commission considers the presence of free product to be an unacceptable potential risk to public health and the environment because it is considered to be a continuing source of contamination that may increase the level of risk that is the basis for the remediation requirements, may reduce the margin of safety provided by the remediation design, or may jeopardize the permanence of the Brownfield Agreement. Therefore, free product must be removed unless it can be demonstrated to the satisfaction of MDEQ that removal of the free product is technically impracticable. The Applicant must also demonstrate to the satisfaction of MDEQ that the contamination is confined and will remain confined within the site boundaries. Any monitoring plan must be approved by MDEQ.

(6) **TPH Fractioning -** In areas where concentrations of Tier 1 petroleum hydrocarbon indicator compounds are not quantifiable to the Tier 1 TRGs and where the concentrations of TPH exceed the Tier 1 TRG for TPH-GRO/DRO, the Brownfield Applicant may either (1) conduct a more detailed evaluation of petroleum Hydrocarbons using the methodology outlined in Rule 2.2.7 of this Subchapter or (2) conduct an evaluation of TPH utilizing another methodology approved by MDEQ.

(7) **Other Approved Methods -** MDEQ may approve other risk evaluation methodologies or combinations thereof under Tier 2.

(2) MDEQ may consider utilizing the Method Detection Limit (MDL) as the site-specific Remediation Goal (RG) on a case by case basis.

(3) References for any fate and transport models used for the exposure point calculations (EPA-approved model or models that have been peer reviewed by experts in the modeling field) and all input values and assumptions for the models must be provided to and approved by MDEQ.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.2.5 Tier 3 Evaluation

A. Tier 3 Evaluation Target Risk Level

(1) <u>Human Health</u>

(a) The remediation goal (RG) for each individual contaminant which is a carcinogen must be calculated to attain a Risk Level of 10^{-6} (i.e., 1 in a million) or which is a systemic toxicant must be calculated to attain a total

hazard quotient of not more than 1, except with regard to a background chemical concentration or a regionally prevalent chemical concentration. In cases where contaminants with corrective action concentrations established through federal and/or state programs (i.e., Safe Drinking Water Act maximum contaminant levels (MCLs)) are present, the MDEQ will determine the appropriate corrective action concentration on a contaminant by contaminant basis. In no event, except with regard to a background chemical concentration, may either:

(1) the cumulative (total) site carcinogenic risk exceed 1×10^{-4} for carcinogenic CoCs or

(2) the site hazard index (summation of hazard quotients) exceed 3 for non-carcinogenic CoCs affecting the same organ or organ system.

(b) The MDEQ may consider an alternative quantitative or qualitative remediation goal (RG) for each individual contaminant, provided the Applicant can demonstrate to the satisfaction of MDEQ that the attainment of (1) a Risk Level of 10^{-6} for each individual carcinogenic contaminant or a total hazard quotient of not more than 1 for each individual systemic toxicant is technically impracticable, except with regard to a background chemical concentration or a regionally prevalent chemical concentration.

(c) The Site risk levels shall be based on high-end exposure (use of high-end values for the exposure point concentration and exposure duration parameters) in the intake calculation of a deterministic risk assessment or 90th percentile of the risk presented in the probabilistic risk assessment. The Site hazard indices and/or quotients shall be based on high-end exposure in a deterministic risk assessment or 90th percentile of the exposure presented in the probabilistic risk assessment.

(2) <u>Ecological</u>

(a) For a Tier 3 Ecological Evaluation, one of the following must be satisfied:

(1) High-end CoC concentrations in the impacted media must be below their respective threshold concentrations or regulatory values that are protective of the ecological receptors of concern or the valued resources to be protected;

(2) Findings from a field survey indicate that there is no readily apparent harm at the site or notable difference (at 95% confidence level) between the site and the potentially impacted ecological

receptors;

(3) Individual hazard quotients estimated for the ecological receptors of concern, valued natural resources, or their surrogate species are below unity (1) for each CoC; or

(4) Additional ecological risk evaluations performed under the MDEQ approved work plan conclude that the potential ecological risk is insignificant or readily recoverable.

B. Tier 3 Evaluation (Risk Assessment) Procedures

(1) The Applicant may choose to conduct a site-specific risk assessment (Tier 3), develop and meet site-specific RGs, and have the site-specific RGs approved by MDEQ. This Tier 3 option may entail additional costs to the applicant for MDEQ to subcontract the review of the toxicological and/or risk assessment evaluation. These additional costs shall be paid by the Applicant.

(2) For a human health evaluation of the site or areas within the site (if the site characterization data support such area delineations), the Applicant shall perform risk characterization and present information on risk assessment uncertainty in accordance with the following options:

(a) Deterministic risk assessment according to RAGS - Part A methodology (high-end risk and hazard).

(b) Deterministic risk assessment according to RAGS - Part A (high-end and average risk and hazard).

(c) Probabilistic risk assessment according to EPA's Guiding Principles for Monte Carlo Analysis (EPA/630/R-97/001) or RAGS - Part E methodology to provide probability density function [PDF] for identifying and 90th percentile risk and hazard.

(d) Population cancer risk characterization based on the product of average site carcinogenic risk for an individual and the projected number of exposed individuals. Population non-cancer hazard characterization will be based on the projected number of individuals who are likely to be exposed resulting in the hazard index for each specified systemic effect exceeding one (1).

(3) The human health evaluation report shall include, at a minimum, four components: hazard identification, toxicity assessment, exposure assessment, and characterization of risk and uncertainty.

(a) Hazard identification - This component presents the site history, area(s) where releases have occurred, and the identified site-related chemicals (i.e., CoCs). Site data shall be compiled at the 95% UCL of the mean and compared with the 95% UCL of the mean background data to establish whether the concentration for a detected chemical is above or below background level.

(b) Toxicity assessment - This component requires the identification of CoCs as carcinogenic, non-carcinogenic (causing systemic effects), or both. Toxicity values used in the risk assessment are slope factors and reference doses and must be obtained
from:

(1) EPA's Integrated Risk Information System (IRIS),

(2) Health Effects and Assessment Summary Tables (HEAST),

(3) Toxicological Profiles prepared by the Agency for Toxic Substances and Disease Registry (ATSDR), and

(4) Other peer-reviewed reference sources or literature approved by MDEQ.

(c) Exposure Assessment - This component estimates the type and magnitude of exposures to the CoCs that are present at or migrating from the Site. The results of the exposure assessment are combined with chemical-specific toxicity information to characterize potential risks. The general procedure for conducting an exposure assessment is outlined in Chapter 6 of RAGS.

(d) Characterization of Risk and Uncertainty - This section describes the final step of the health risk assessment process. In this step, the toxicity and exposure assessments are summarized and integrated into quantitative and qualitative expressions of risk. Major assumptions, scientific judgments, and, to the extent possible, estimates of the uncertainties embodied in the assessment are also presented.

(4) Non-carcinogens that act on the same organ systems can be identified in Table 2, EPA's Soil Screening Guidance: Technical Background Document (EPA/540/R-95/128) or Appendix A, Tables E, Title 35 Illinois Administrative Code Part 742, as amended. The Applicant must identify the uncertainty associated with each toxicity value. Toxicity values with a high degree of uncertainty should not be used in the risk assessment.

(5) The Applicant shall provide information on the CoC exposure point concentrations (EPCs), activities, and exposure routes that lead to exposure. Site-

specific information in combination with relevant information found in EPA's Exposure Factors Handbook (Volumes I, II, and III, EPA's National Center for Environmental Assessment, March 1998), AIHC's Exposure Factors Sourcebook, or other peer-reviewed literature approved by MDEQ may be used to assess exposure. At a minimum, the exposure assessment shall include:

(a) a SCEM to provide the basis for determining which exposure pathways are complete; and

(b) specific input values and their basis (references) for exposure parameters such as the exposure frequency (days per year), duration (number of years), and absorption factors.

(6) Carcinogenic risk and non-carcinogenic hazard posed by the CoCs shall be estimated for the Site or areas within the Site where past releases have occurred. Risks from all complete exposure pathways (i.e., incidental ingestion, dermal contact, inhalation of volatiles or particulates), and contaminated on-site food sources (indirect exposure) shall be characterized, as identified in the SCEM.

(a) Carcinogenic risks from individual CoCs for all complete exposure pathways shall be summed to provide the total site carcinogenic risk (cumulative excess lifetime cancer risk to an individual).

(b) Non-carcinogenic hazards (hazard quotients) from individual CoCs that act on the same organ or organ system for all complete exposure pathways shall be summed to provide the site hazard indices.

(7) The following risk assessment protocols shall be followed for assessing special chemicals or categories of chemicals, unless otherwise approved by MDEQ:

(a) Chlorinated dioxins and dibenzofurans - The evaluation of chlorinated dioxins and dibenzofurans must be consistent with EPA Region IV's Human Health Risk Assessment Bulletins: Supplement to RAGS (http://www.epa.gov/region04/waste/ots/healtbul.htm).

(b) Lead and lead-based compounds - For the assessment of risk to children (if such receptors are reasonably anticipated to be present under the current and future use scenarios), the EPA's Integrated Exposure Uptake Biokinetic Model (IEUBK) (EPA/540/R-93/081) shall be used. If adults are the receptors, the Adult Lead Model published in the "Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil" (December 1996) by the EPA Technical Review Workgroup (TRW) shall be used to assess the hazard of lead exposure.

(c) Polycyclic aromatic hydrocarbons (PAHs) - The evaluation of PAHs must

be consistent with EPA Region IV's Human Health Risk Assessment Bulletins: Supplement to RAGS (http://www.epa.gov/region04/waste/ots/healtbul.htm).

(d) Polychlorinated biphenyls (PCBs) – A slope factor of 7.7 (mg/kg/day)-1 shall be used for total PCBs. If congener-specific or group-specific (mono- through deca-chlorinated) biphenyls are analyzed and quantified using Modified EPA Method 1668, the slope factor to be used will be 2.0 (mg/kg/day)-1 for tri-, tetra-, penta-, hexa-, and hepta-chlorinated PCBs. Slope factors lower than 2.0 (mg/kg/day)-1may be used if there are low concentrations of 2,3,7,8-substituted PCBs). The lowestslope factor of 0.4 (mg/kg/day)-1 can be used if 2,3,7,8-substituted PCBs are not present. The Applicant shall bear the burden of providing documentation to MDEQ to justify using slope factors lower than 7.7 $(mg/kg/day)^{-1}$ in the risk assessment report.

(e) Radioactive materials or radionuclides - The risk assessment of radioactive materials shall be in accordance with Chapter 10 of RAGS - Part A. Other methodologies (e.g., dose reconstruction for exposure assessment) shall be approved by MDEQ on a case-by-case basis.

C. Tier 3 Ecological Risk Evaluation Procedures

(1) For the entire Site or areas within the Site (if the site physical characteristics support delineations of different ecosystems), the Applicant shall perform screening and/or more in-depth ecological risk evaluations and present uncertainty associated with the evaluations in accordance with the following options:

(a) Identify the ecological receptors of concern and compare CoC concentrations in the potentially impacted media with their respective benchmark or threshold values that are protective of the receptors of ecological concern. The initial screening levels and procedures are available in the EPA Region 4 Ecological Risk Assessment Bulletins—Supplement to RAGS (http://www.epa.gov/region04/waste/ots/ecolbul.htm).

(b) Additional ecological benchmark values are available from EPA (e.g., Office of Technical Services Supplemental Guidance to RAGs: Region IV), U.S. Fish and Wildlife Service, the National Atmospheric and Oceanic Administration, or other values in peer-reviewed literature, as appropriate.

(c) Conduct biological field surveys for species diversity and abundance in the potentially impacted area and a reference (background) area and compare both survey results to determine whether there are significant

differences at 95% level of confidence.

(d) Identify assessment and measurement endpoints and perform a deterministic risk evaluation on the receptors of ecological concern or their indicator species by the hazard quotient method.

(e) Perform additional ecological risk evaluations based on an MDEQ-approved work plan submitted by the Applicant that is consistent with the EPA's Framework for Ecological Risk Assessment guidance and its subsequent update.

(2) A deterministic risk evaluation shall include a minimum of four components: problem formulation, ecological effects assessment, exposure assessment, and characterization of risk and uncertainty.

(a) Problem formulation - This component presents the site history (including documented incidents of readily apparent harm), physical characteristics, area(s) where releases have occurred, and identified site-related chemicals (i.e., CoCs).This component also proposes and provides the rationale for identifying any ecological receptors of concern and valued resources present on site that may be impacted by the CoCs. The basis for assessment and measurement endpoint(s) selection should be provided to MDEQ.

(b) Ecological effects assessment - This component requires the identification of potential or known acute and chronic toxic effects of the CoCs on the ecological receptors of concern, valued resources, and any surrogate species proposed as the measurement endpoints. Dose-response data shall be obtained from EPA data bases or other federal/state databases approved by MDEQ.

(c) Exposure assessment - This component presents the SCEM and explains how the CoCs are released, transported, bioconcentrated or biomagnified in organisms, and exposed to the ecological receptors of concern or valued resources to be protected. Where appropriate, behavior patterns or reasonable assumptions should be used to estimate daily intake of the CoCs.

(d) Characterization of risk and uncertainty - This component shall present the risk assessment results and the underlying uncertainty associated with the assessment method employed. If a quotient method is used, the hazard quotients shall be estimated for the ecological receptors of concern or their surrogates. Risk may be characterized qualitatively by the weight-of-evidence approach based on professional judgment. This component should identify types and magnitude of potential effects anticipated, the

spatial and temporal extent of the effects, significance of the effects on the ecosystems, and recovery potential.

(3) A Tier 3 ecological risk evaluation shall be presented in the following report format: problem formulation, approach and rationale, and presentation of results, uncertainties, and recommendations. In interpreting these evaluation findings, the Applicant should consider the effects of natural succession, non-site related impacts (e.g., farm or urban runoff), and seasonal changes on the data or observations collected. The report format may vary based on MDEQ requirements of the ecological risk evaluation work plan.

D. Tier 3 Risk Assessment Data Requirements

(1) The basic procedure for the assessment of human health and ecological receptors of concern for a Tier 3 risk assessment shall be to obtain representative site characterization data in order to perform a screening or more in-depth risk assessment. Specific requirements for performing a Tier 3 risk assessment include, but are not limited to, the following:

(a) Site characterization data shall be obtained in accordance with the MDEQ-approved Quality Assurance Project Plan (QAPP). The Applicant must demonstrate that the Site has been adequately characterized to delineate the nature and extent of contamination. The scope of the site investigation shall be based on the considerations set forth below.

(1) Previous field investigations should be used to define the SCEM and identify data gaps or uncertainty for the nature and extent of the site characterization under this site investigation phase.

(2) Field analytical data may be used to identify areas of contamination and to supplement fixed-laboratory analyses if the Applicant can demonstrate that the field analytical data are comparable to fixed laboratory data by regression or co-relational analyses and meet DQO requirements for precision, accuracy, and reproducibility. A minimum of 10% of the collected samples shall be fixed-laboratory data to demonstrate correlation. Samples must be collected from the areas exhibiting the highest field concentrations and analyzed at a fixed laboratory.

(3) Areas with distinct high concentrations of site-related chemicals shall be segregated from other areas for data compilation purposes. Additional field characterization of high-concentration areas or areas with buried wastes is necessary to support remedial design.

(4) The RAGS procedure for the selection of CoCs shall be followed to properly characterize the Site. The Applicant should exclude

background chemicals, laboratory and field contaminants or artifacts, and chemicals that are essential nutrients present at or below the recommended daily allowance intake levels.

(5) All reported data shall be in compliance with the DQOs established in the QAPP. In addition to data review, the data will be validated by a qualified technical individual, familiar with data validation, at the rate of at least 10% or as otherwise specified by MDEQ. The Applicant shall provide data review and validation summaries in the Site Characterization Report.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.2.6 Risk-Based Remediation.

A. Risk-Based Remediation Goals

(1) Risk-based remediation goals (RGs) may be quantitative for chemical-specific RGs or qualitative for remedial action-specific RGs. The methodology for quantifying the chemical-specific RGs involves solving for the concentration term given a defined risk level in a deterministic or probabilistic risk assessment and shall be proposed for the principal threat chemicals or all CoCs if the principal threat chemicals cannot be identified. The chemical-specific RG may be modified upward or downward based on risk management considerations by MDEQ. A qualitative RG is established by describing the objectives for engineering controls that reduce site risk to an acceptable level. Risk-based remediation goals shall accompany the proposed remedial action(s) in the Site Characterization Report and/or the Corrective Action Plan (CAP).

(2) Quantitative RG - Site-specific information that is relevant to the future use of the Site shall be used in the risk methodology.

(a) The derived value shall not be higher than the soil saturation limit (Csat) for the soil or sediment RG for a CoC with a melting point less than 30 degrees Celsius. The derived value shall not be higher than the solubility limit (Csol) for the groundwater RG for groundwater. At sites where a mixture of contaminants is present (e.g., gasoline), the effective solubility limit may be used if required by MDEQ. Values for Csat and Csol may be found or derived from equations in EPA's Soil Screening Guidance: Technical Background Document (EPA/540/R-95/128), May 1996 or other reference approved by MDEQ.

(b) The derived chemical-specific RG for a carcinogen for the protection of human health shall be:

(1) the MCL value,

(2) a value derived using the acceptable carcinogenic risk level of $1x10^{-6}$, or

(3) a value defined in state/federal programs and approved by MDEQ.

(c) The derived chemical-specific RG for a non-carcinogen for the protection of human health shall be:

(1) the MCL value,

(2) a value derived using the acceptable hazard quotient level of unity (1), or a value defined in state/federal programs and approved by MDEQ.

(d) The MDEQ may consider an alternative quantitative or qualitative remediation goal (RG) for each individual contaminant, provided the Applicant can demonstrate to the satisfaction of MDEQ that the attainment of (1) a Risk Level of 10^{-6} for each individual carcinogenic contaminant or (2) a total hazard quotient of not more than 1 for each individual systemic toxicant is technically impracticable except with regard to a background chemical concentration or a regionally prevalent chemical. In no event, except with regard to a background chemical concentration, may either (1) the cumulative (total) site carcinogenic risk exceed $1x10^{-4}$ for carcinogenic CoCs or (2) the site hazard index (summation of hazard quotients) exceed 3 for non-carcinogenic CoCs affecting the same organ or organ system.

(e) Any of the following methods may be used to derive chemical-specific quantitative RGs in soil or sediment to protect human health:

(1) algorithms or methodology employed by MDEQ in deriving the TRGs in appendix A of this Subpart II;

(2) algorithms or methodology employed by EPA Region III (Technical and Program Support Branch, 3HW70) to derive the Risk-Based Concentrations (RBCs);

(3) algorithms or methodology employed by EPA (Office of Solid Waste and Emergency Response) to derive the SSLs using EPA's Soil Screening Guidance: Technical Background Document (EPA/540/R-95/128), May 1996;

(4) algorithms or methodology employed by the American Society of

Testing and Materials (ASTM) to derive the Risk-Based Screening Levels (RBSLs) (Emergency Standard Guide ES 38-94); or

(5) other EPA published or peer-reviewed methodologies that have been reviewed and approved by MDEQ.

Note: All input/default values must be approved by MDEQ prior to employing any of the above methodologies.

(f) Fate and transport modeling and/or the use of a dilution-attenuation factor (DAF) to determine migration-to-groundwater soil RGs approved by MDEQ may be used to demonstrate that the concentrations of CoCs at the source area provide adequate protection of human health and the environment at the Site boundary, except when it appears that free product is present.

(g) The acceptable level of a CoC in groundwater at the Site boundary is its groundwater RG or if the boundary is a surface water body, the water quality criteria published by MDEQ, whichever is lower.

(h) Any of the following methods may be used to derive chemical-specific quantitative RGs in groundwater:

(1) algorithms or methodology employed by MDEQ in deriving the TRGs in Appendix A of this Subchapter II;

(2) algorithms or methodology employed by EPA Region IX (Technical Support Team, DFD-8-B) to derive the Preliminary Remediation Goals (PRGs); or

(3) other EPA published or peer-reviewed methodologies that have been reviewed and approved by MDEQ.

(i) The quotient method may be used to derive quantitative RGs for the protection of an ecological receptor of concern.

(j) The following methods may be used to derive chemical-specific quantitative RGs in soil and sediment for protection of an ecological receptor of concern:

(1) algorithms or methodology described in the Risk Assessment Handbook, Volume 2 - Environmental Evaluation (EM 200-1-4) developed by the U.S. Army Corps of Engineers; or

(2) other EPA published or peer-reviewed methodologies that have been reviewed and approved by MDEQ.

(3) Qualitative RG - A qualitative RG shall define objectives and describe how land-use restrictions and/or engineering controls are expected to reduce site risk to an acceptable level. The following information shall be presented:

(a) complete exposure pathway that contribute to human health or environmental risk;

(b) the CoC or principal threat chemical and its background concentrations;

(c) physical, chemical, and fate and transport properties of the CoC or principal threat chemical (including the potential for adsorption and monitored natural attenuation);

(d) presence of any man-made or natural conveyances, conduits, or transport routes from the source to the receptor location;

(e) Potential engineering controls that will exclude the exposure pathway based on treatability study data and/or practical experience may also be considered. Engineering controls may include physical or hydraulic control measures, but shall not include the exclusive use of security fencing. Typical engineering controls are presented below and the Applicant may propose alternative controls for MDEQ approval.

(1) groundwater recovery trenches and leachate collection systems;

(2) groundwater extraction (pumpage) and treatment systems;

(3) engineered caps with or without liner systems;

(4) slurry walls, funnel-and-gate barrier walls, bio-polymer walls, or any modifications thereof; and

(5) permanent structures such as building, driveways, and paved roads.

(4) No further action at the Site shall be based on obtaining either the quantitative or qualitative RGs, or both, and/or other terms and conditions stipulated by MDEQ (i.e., Brownfield Agreement, Corrective Action Plan). The Applicant has the option to propose either type of RGs or a combination of the two for delineated areas of the Site, depending on the site-specific factors, chemical data, and risk management considerations approved by the MDEQ. The following criteria shall be met for this determination:

(a) The remedial action has achieved the chemical-specific RGs based on verification sampling and analyses at the point of exposure or at the contaminated source area. The 95% UCL of the normalized verification

sample data must be less that the chemical-specific RG.

(b) The engineered control measures proposed by the Applicant and approved by MDEQ completed.

(c) The groundwater quality at the Site boundary shall not exceed MCLs or risk-based TRGs for groundwater identified in Appendix A. The Point of Compliance is the Site Boundary.

(d) Free product must be removed from the Site, unless it can be demonstrated to the satisfaction of MDEQ that removal of the free product is technically impracticable and that the contamination is confined and will remain confined within the Site boundaries. Free product is considered to exist if:

(1) concentrations in soil exceed Csat for CoCs with a melting point of less than 30 degrees Celsius;

(2) concentrations in groundwater exceed Csol for any CoC or the effective Csol or

(3) measurable using best available technologies.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 2.2.7 Petroleum Hydrocarbons

A. Introduction

(1) Specific procedures and evaluation criteria have been developed for sites with petroleum hydrocarbon contamination. This criteria has been developed to simplify the contaminant analyses required to characterize the site and to establish site-specific remediation goals (RGs). Petroleum hydrocarbon indicator compounds (i.e., Benzene, Toluene, PAHs, etc.) may not be quantifiable at the Tier 1 TRG Table concentrations because high petroleum hydrocarbon concentrations in the sample may cause analytical interferences resulting in either of the following:

(a) Dilution of the extract, which would cause elevated detection limits and useless surrogate recovery data; and/or

(b) Inaccurate compound identification and quantification, due to a poor peak separation or an elevated baseline during chromatography.

(2) In addition, of the 250 individual compounds identified in petroleum, only 95

have toxicity data. Of these 95 compounds with toxicity data, only 25 have sufficient data to develop toxicity criteria. The interactive effects of all compounds present in TPH cannot be determined by data on 25 individual compounds. Therefore, to account for these unknowns, as well as to account for instances as described in Rule 2.2.7(A)(1), these procedures have been developed.

(3) To evaluate human health and environmental risks specific to a Site under the circumstances in Rule 2.2.7(A)(1)(a) and (b), MDEQ has developed procedures for petroleum hydrocarbon contaminated Sites.

B. Petroleum Hydrocarbon Evaluation Procedures

(1) The Applicant shall utilize the procedures presented herein for the evaluation of potential human health and environmental risks from petroleum hydrocarbons in soil and groundwater.

(2) A Tier 1 Evaluation of indicator compounds of petroleum hydrocarbons and TPH is required to establish the vertical and horizontal extent of indicator compound concentrations and TPH below the unrestricted values of the Tier 1 TRG Table.

(3) A Site Ecological Checklist must be completed.

(4) Petroleum-impacted soil and groundwater shall be assessed using the petroleum hydrocarbon indicator compounds, TPH-GRO, and TPH-DRO as presented in Appendix B, Table 1. Petroleum hydrocarbon categories presented in Appendix B, Table 1 represent typical hydrocarbon products. The Applicant shall correlate the site-specific hydrocarbon release and/or knowledge of the released hydrocarbon product to the appropriate category listed in Appendix B, Table 1. If the specific product that has been released is unknown, then a complete analytical evaluation must be conducted.

(5) The Applicant shall perform soil and groundwater laboratory testing for the following indicator compounds:

(a) Volatile Organic Compounds, **<u>including MTBE</u>** by SW-846 Method 8260B, or other Method approved by MDEQ.[1]

(b) Polycyclic Aromatic Hydrocarbons (PAHs) by Method 8310, with appropriate sample extraction, clean-up and instrumental finish. Analysis to be conducted for the PAHs listed in Appendix B, Table 1, or other Method approved by MDEQ.

(c) Metals[2] by SW-846 Method 6010, 6020, or the appropriate 7000 series, or other Method approved by MDEQ.

(d) Methyl ethyl ketone[2] by SW-846 Method 8260B, or other Method

approved by MDEQ.

(e) Methyl isobutyl ketone[2] by SW-846 Method 8260B, or other Method approved by MDEQ.

Note: [1]All soil samples collected for VOC analysis must be collected in a manner consistent with MDEQ's Guidance for Collecting Volatile Organic Compounds in Soil, unless otherwise approved by MDEQ.
[2]When suspected to be present.

(6) Although lead (organic and inorganic) has not been used as a gasoline additive for some time (since the late 1970's to early 1980's), there may be sites where lead (organic and inorganic) may be present due to historical activities on the Site. At sites where lead is suspected to be present as a potential site-related compound, inorganic lead and organic lead (specifically tetraethyl lead) must be identified as target analytes by appropriate analytical methods approved by MDEQ.

C. Tier 1 Petroleum Hydrocarbon Evaluation

(1) A Tier 1 Evaluation of indicator compounds of petroleum hydrocarbons, TPH-GRO, and TPH-DRO is required to establish the extent of indicator compound concentrations and TPH-GRO/DRO below the Tier 1 TRG Table.

(2) Results of the indicator compound analysis, TPH-GRO, and TPH-DRO shall be compared with the TRGs presented in the Tier 1 TRG Table in Appendix A utilizing the Tier 1 Evaluation Procedures outlined in Rule 2.2.3.B of this Subchapter 2.

(3) The Applicant shall address a hydrocarbon release using TPH analyses using SW-846 Method 8015B or other Method approved by MDEQ and by analyzing the indicator compounds as described in Rule 2.2.7.A.

(4) In areas of the site where the indicator compounds cannot be quantified to the Tier 1 Target Remedial Goal concentrations, the Applicant has the option of either:

(a) conducting a Tier 1 Evaluation utilizing the Tier 1 Evaluation Procedures outlined in Rule 2.2.3.B of this Subchapter 2 for TPH-GRO and TPH-DRO;

(b) conducting a Tier 2 Evaluation using TPH Fractioning; or

(c) conducting a Tier 3 Evaluation using methods approved by MDEQ.

D. Tier 2 Petroleum Hydrocarbon Evaluation - TPH Fractioning

(1) A Tier 2 Petroleum Hydrocarbon Evaluation is primarily utilized in cases as

described in Rule 2.2.7.A of this Subchapter 2 where indicator compound concentrations cannot be determined due to dilution and interference and where the concentrations of TPH-GRO/DRO exceed the restricted Tier 1 TRG levels for TPH-GRO/DRO. Along with the required comparison of indicator compounds as described in 2.2.7.C(2) of this Subchapter 2, the Applicant shall have the option of utilizing the TPH Carbon Fraction TRGs in Table 2 of Appendix B.

(2) Massachusetts Method

(a) The Massachusetts Department of Environmental Protection (MADEP) VPH/EPH Approach may be utilized to evaluate petroleum hydrocarbons under Tier 2. This method quantifies the total petroleum hydrocarbon fractions into collective aliphatic and aromatic ranges. To account for the hydrocarbon ranges present in contaminated media, MADEP's Volatile Petroleum Hydrocarbon (VPH) method and Extractible Petroleum Hydrocarbon (EPH) method have been developed. A detailed description of the MADEP VPH/EPH Approach may be found on the MADEP Web Site at (http://www.state.ma.us/dep/bwsc/vph_eph.htm).

(b) The following principles form the basis for this approach:

(1) Petroleum products are comprised mainly of aliphatic/alicyclic and aromatic hydrocarbon compounds.

(2) Aromatic hydrocarbons appear to be more toxic than aliphatic compounds.

(3) The toxicity of aliphatic compounds appear to be related to their carbon number/molecular weight.

(c) Under this approach, the non-cancer toxicity of petroleum contaminated soil or water has been established by

(1) determining the collective concentrations of specified ranges of aliphatic and aromatic hydrocarbons, and

(2) assigning a toxicity value to each range. Well-characterized compounds within specified ranges have been selected as "surrogate" indicators to define the toxicity of the entire range.

Toxicological Approach for Non-Carcinogens				
Hydrocarbon Fraction	Analytical Fraction	Analytical Method	Surrogate Compound	Reference Dose (mg/kg/d)
C_5-C_8	C_5-C_8	VPH	n-Hexane	0.06

Aliphatics				
C_9-C_{18} Aliphatics	C_9-C_{12} C_9-C_{18}	VPH EPH	n-Nonane n-Nonane	0.06 0.06
C_{19}-C_{36} Aliphatics	C_{19}-C_{36}	EPH	Eicosane	6.0
C_9-C_{22} Aromatics	C_9-C_{10} C_{11}-C_{22}	VPH EPH	Pyrene Pyrene	0.03 0.03

(d) Carcinogenic and additional non-carcinogenic effects must be evaluated for the indicator constituents listed in Table 1 of Appendix B.

(e) The EPH method separates the TPH Carbon Ranges (Fractions) into 3 sub-fractions and indicator PAH compounds. The VPH method separates the GRO Carbon Ranges (Fractions) into 3 sub-fractions and indicator compounds (i.e., BTEX, MTBE and naphthalene).

(f) The VPH Method is a Purge and Trap, GC/PID/FID procedure and the EPH Method is a solvent extraction/fractionation GC/FID procedure.

(g) The unrestricted TRGs listed in Table 2 of Appendix B have been adopted by MDEQ and correlate with the GW-1 groundwater zone the S-1 soil zone as defined by MADEP.

(h) The restricted TRGs listed in Table 2 of Appendix B have been adopted by MDEQ and correlate to the GW-1 groundwater zone and the S-3 soil zone as defined by MADEP.

(i) The Applicant must ensure and provide documentation to MDEQ that the Laboratory conducting the MADEP VPH/EPH Methodology is equipped to so do and will utilize appropriate Standard Operating Procedures (SOPs) as required by this methodology.

(3) MDEQ may approve other TPH risk evaluation methodologies (e.g., TPHWG Methodology) or combinations thereof under Tier 2.

E. Tier 3 Petroleum Hydrocarbon Evaluation

(1) Alternative petroleum hydrocarbon Remedial Goals (RGs) may be established using a Tier 3 Risk Assessment approach. The alternative RGs shall be reviewed and approved or disapproved by MDEQ on a case-by-case basis.

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

References

American Society for Testing and Materials (ASTM), Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites (ASTM E 1739-95), 1995.

Agency for Toxic Substances and Disease Registry (ATSDR), Toxicological Profile for Mineral Oil Hydraulic Fluids, Organophosphate Ester Hydraulic Fluids, and Polyalphaolefin Hydraulic Fluids, 1994.

Massachusetts Department of Environmental Protection, Characterizing Risk posed by Petroleum Contaminated Sites: Implementation of MADEP VPH/EPH Approach, 1996.

Louisiana Department of Environmental Quality, April 1998, Risk Evaluation/Corrective Action Program (Proposed), April 1998.

U.S. Environmental Protection Agency (EPA), Handbook of RCRA Ground-Water Monitoring Constituents, Chemical and Physical Properties, 40 CFR Part 264, Appendix 9. September 1992.

U.S. Environmental Protection Agency (EPA), Soil Screening Guidance: Technical Background Document (EPA/540/R-95/128), May 1996.

U.S. Environmental Protection Agency (EPA), Supplemental Guidance to RAGS: Calculating the Concentration Term, EPA 1992, 9285.7-081 (EPA, 1992a).

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

APPENDIX A

TIER 1 TARGET REMEDIAL GOAL TABLE

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TIER 1 TRG TABLE

CHEMICAL	CAS No.	Groundwater				Soil							
						Restricted				Unrestricted			
		ug/l		Notes		mg/kg		Notes		mg/kg		Notes	
ACENAPHTHENE	83329	3.65E+02	N	R		1.23E+05	N	Ing		4.69E+03	N	Ing	
ACENAPHTHYLENE	208968	2.19E+03	N			1.23E+05	N	Ing		4.69E+03	N	Ing	
ACEPHATE	30560191	7.70E+00	C			6.58E+02	C	Ing		7.34E+01	C	Ing	
ACETALDEHYDE	75070	1.63E+00	C	R		2.34E+01	C	Inh	1	1.53E+01	C	Inh	1
ACETOCHLOR	34256821	7.30E+02	N			4.09E+04	N	Ing		1.56E+03	N	Ing	
ACETONE (DIMETHYL KETONE)	67641	6.08E+02	N	R		1.04E+05		Csat		7.82E+03	N	Ing	
ACETONITRILE (CYANOMETHANE)	75058	1.25E+02	N	R		1.11E+02	N	Inh	1	1.11E+02	N	Inh	1
ACETOPHENONE	98862	4.16E-02	N	R		2.63E+03		Csat		2.63E+03		Csat	
ACROLEIN	107028	4.16E-02	N	R		4.09E+04	N	Ing		1.56E+03	N	Ing	
ACRYLAMIDE	79061	1.49E-02	C			1.27E+00	C	Ing		1.42E-01	C	Ing	
ACRYLONITRILE	107131	3.67E-02	C			1.06E+01	C	Ing		1.18E+00	C	Ing	
ALACHLOR	15972608	2.00E+00		MCL		7.15E+01	C	Ing		7.98E+00	C	Ing	
ALAR	1596845	5.48E+03	N			3.07E+05	N	Ing		1.17E+04	N	Ing	
ALDICARB	116063	3.65E+01	N	R		2.04E+02	N	Ing		7.82E+01	N	Ing	
ALDICARB SULFONE	1646884	3.65E+01	N			2.04E+03	N	Ing		7.82E+01	N	Ing	
ALDRIN	309002	3.94E-03	C	R		3.37E-01	C	Ing		3.76E-02	C	Ing	
ALUMINUM	7429905	3.65E+04	N			2.04E+06	N	Ing		7.82E+04	N	Ing	
AMINODINITROTOLUENES		2.19E+00	N			1.23E+02	N	Ing		4.69E+00	N	Ing	
4-AMINOPYRIDINE	504245	7.30E-01	N			4.09E+01	N	Ing		1.56E+00	N	Ing	
AMMONIA	7664417	2.09E+02	N										
ANILINE	62533	1.17E+01	C			1.00E+03	C	Ing		1.12E+02	C	Ing	
ANTHRACENE	120127	4.34E+01		Csol		6.13E+05	N	Ing		2.35E+04	N	Ing	
ANTIMONY	7440360	6.00E+00		MCL		8.17E+01	N	Ing		3.13E+01	N	Ing	
ANTIMONY PENTOXIDE	1314609	1.83E+01	N			1.02E+02	N	Ing		3.91E+01	N	Ing	
ANTIMONY TETROXIDE	1332816	1.46E+01	N			8.17E+01	N	Ing		3.13E+01	N	Ing	
ANTIMONY TRIOXIDE	1309644	1.46E+01	N			8.17E+01	N	Ing		3.13E+01	N	Ing	
ARSENIC	7440382	5.00E+01		MCL		3.82E+00	C	Ing		4.26E-01	C	Ing	
ARSINE	7784421	1.92E-01	N										
ASSURE	76578148	3.29E+02	N			1.84E+04	N	Ing		7.04E+02	N	Ing	
ATRAZINE	1912249	3.00E+00		MCL		2.58E+01	C	Ing		2.88E+00	C	Ing	
AZOBENZENE	103333	8.09E-01	C			5.20E+01	C	Ing		5.81E+00	C	Ing	
BARIUM	7440393	2.00E+03		MCL		1.43E+04	N	Ing		5.48E+03	N	Ing	
BAYGON	114261	1.46E+02	N			8.18E+03	N	Ing		3.13E+02	N	Ing	
BAYTHROID	68359375	9.13E+02	N			5.11E+04	N	Ing		1.96E+03	N	Ing	
BENTAZON	25057890	1.10E+03	N			6.13E+04	N	Ing		2.35E+03	N	Ing	
BENZ(A)ANTHRACENE	56553	9.17E-02	C	R		7.84E+00	C	Ing		8.75E-01	C	Ing	
BENZALDEHYDE	100527	3.65E+03	N			2.04E+05	N	Ing		7.82E+03	N	Ing	
BENZENE	71432	5.00E+00		MCL		1.36E+00	C	Inh	1	8.87E-01	C	Inh	1
BENZENETHIOL	108985	6.08E-02	N			2.04E+01	N	Ing		7.82E-01	N	Ing	
BENZIDINE	92875	2.91E-04	C			2.49E-02	C	Ing		2.78E-03	C	Ing	
BENZOIC ACID	65850	1.46E+05	N	R		8.17E+05	N	Ing		3.13E+05	N	Ing	
BENZO(A)PYRENE	50328	2.00E-01		MCL		7.84E-01	C	Ing		8.75E-02	C	Ing	
BENZO(B)FLUORANTHENE	205992	9.17E-02	C	R		7.84E+00	C	Ing		8.75E-01	C	Ing	
BENZO(G,H,I)PERYLENE	191242	1.10E+03	N			6.13E+04	N	Ing		2.35E+03	N	Ing	
BENZO(K)FLUORANTHENE	207089	9.17E-01	C	R		7.84E+01	C	Ing		8.75E+00	C	Ing	
BENZYL ALCOHOL	100516	1.10E+04	N			2.04E+05	N	Ing		2.35E+04	N	Ing	
BENZYL CHLORIDE (CHLOROMETHYLBENZENE)	100447	6.21E-02	C	R		3.37E+01	C	Ing		3.76E+00	C	Ing	
BERYLLIUM	7440417	4.00E+00		MCL		1.02E+03	N	Ing		1.56E+02	N	Ing	
BIPHENYL	92524	3.04E+02	N	R		1.02E+04	N	Ing		3.91E+03	N	Ing	
BIS(2-CHLOROETHYL)ETHER	111444	9.20E-03	C	R		4.19E-01	C	Inh	1	2.73E-01	C	Inh	1
BIS(2-CHLOROISOPROPYL)ETHER	108601	2.60E-01	C	R		9.08E+00	C	Inh	1	5.93E+00	C	Inh	1
BIS(CHLOROMETHYL)ETHER	542881	4.80E-05	C			2.60E-02	C	Ing		2.90E-03	C	Ing	
BIS(2-ETHYLHEXYL)PHTHALATE	117817	6.00E+00		MCL		4.09E+02	C	Ing		4.56E+01	C	Ing	
BORON	7440428	3.29E+03	N			4.08E+03	N	Ing		4.08E+03	N	Ing	
BROMODICHLOROMETHANE (DICHLOROBROMOMETHANE)	75274	1.88E-01	C	R		1.89E+00	C	Inh	1	1.24E+00	C	Inh	1
BROMOETHENE (VINYL BROMIDE)	593602	1.12E-01	C	R		1.26E-01	N	Inh	1	1.26E-01	N	Inh	1
BROMOFORM (METHYL TRIBROMIDE)	75252	8.48E+00	C	R		9.01E+01	C	Inh	1	5.88E+01	C	Inh	1
BROMOMETHANE (METHYL BROMIDE)	74839	8.52E+00	N	R		2.97E+00	N	Inh	1	2.97E+00	N	Inh	1
BROMOPHOS	2104963	1.83E+02	N			1.02E+04	N	Ing		3.91E+02	N	Ing	
1,3-BUTADIENE	106990	6.88E-03	C										
1-BUTANOL	71363	3.65E+03	N	R		1.05E+04		Csat		7.82E+03	N	Ing	
2-BUTANONE (METHYL ETHYL KETONE)	78933	1.91E+03	N	R		8.45E+01	N	Inh	1	8.45E+01	N	Inh	1
BUTYLBENZYLPHTHALATE	85687	2.69E+03		Csol		9.28E+02		Csat		9.28E+02		Csat	
BUTYLATE	2008415	1.83E+03	N			1.02E+04	N	Ing		3.91E+03	N	Ing	
N-BUTYLBENZENE	104518	2.43E+02	N			8.18E+04	N	Ing		3.13E+03	N	Ing	
SEC-BUTYLBENZENE	135988	2.43E+02	N			8.18E+04	N	Ing		3.13E+03	N	Ing	
TERT-BUTYLBENZENE	98066	2.43E+02	N			8.18E+04	N	Ing		3.13E+03	N	Ing	
CADMIUM	7440439	5.00E+00		MCL		1.02E+03	N	Ing		3.91E+01	N	Ing	
CALCIUM CYANIDE	592018	1.46E+03	N			8.17E+03	N	Ing		3.13E+03	N	Ing	

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TIER 1 TRG TABLE

CHEMICAL	CAS No.	Groundwater				Soil							
						Restricted				Unrestricted			
		ug/l		Notes		mg/kg		Notes		mg/kg		Notes	
CAPROLACTAM	105602	1.83E+04	N			1.02E+05	N	Ing		3.91E+04	N	Ing	
CARBARYL	63252	3.65E+03	N			2.04E+04	N	Ing		7.82E+03	N	Ing	
CARBAZOLE	86748	3.35E+00	C	R		2.86E+02	C	Ing		3.19E+01	C	Ing	
CARBOFURAN	1563662	4.00E+01		MCL		1.02E+03	N	Ing		3.91E+02	N	Ing	
CARBON CHLORIDE (CARBON TETRACHLORIDE)	56235	5.00E+00		MCL		5.69E-01	C	Inh	1	3.71E-01	C	Inh	1
CARBON DISULFIDE	75150	1.04E+03	N	R		7.97E+00	N	Inh	1	7.97E+00	N	Inh	1
CARBON TETRACHLORIDE (CARBON CHLORIDE)	56235	5.00E+00		MCL		5.69E-01	C	Inh	1	3.71E-01	C	Inh	1
CARBOSULFAN	55285148	3.65E+02	N			2.04E+04	N	Ing		7.82E+02	N	Ing	
CHLORAL HYDRATE	302170	3.65E+03	N			4.08E+03	N	Ing		4.08E+03	N	Ing	
CHLORANIL	118752	1.86E-01	C			1.42E+01	C	Ing		1.56E+00	C	Ing	
CHLORDANE	57749	2.00E+00		MCL		1.23E+01	N	Ing		1.82E+00	C	Ing	
CHLORINE	7782505	4.16E-01	N			2.04E+05	N	Ing		7.82E+03	N	Ing	
CHLORINE DIOXIDE	10049044	4.17E-01	N			6.13E+04	N	Ing		2.35E+03	N	Ing	
CHLORITE	7758192	1.10E+03	N			6.13E+04	N	Ing		2.35E+03	N	Ing	
CHLOROACETIC ACID	79118	7.30E+01	N			4.08E+03	N	Ing		1.56E+02	N	Ing	
4-CHLOROANILINE	106478	1.46E+02	N	R		8.17E+02	N	Ing		3.13E+02	N	Ing	
CHLOROBENZENE (MONOCHLOROBENZENE)	108907	1.00E+02		MCL		1.19E+00	N	Inh	1	1.19E+00	N	Inh	1
CHLOROBENZILATE	510156	2.48E-01	C			2.12E+01	C	Ing		2.37E+00	C	Ing	
P-CHLOROBENZOIC ACID	74113	7.30E+03	N			4.08E+05	N	Ing		1.56E+04	N	Ing	
CHLORO-1,3-BUTADIENE	126998	1.43E+01	N			4.08E+03	N	Ing		1.56E+03	N	Ing	
1-CHLOROBUTANE	109693	2.43E+03	N			1.84E+05	N	Ing		3.13E+04	N	Ing	
CHLORODIBROMOMETHANE (DIBROMOCHLOROMETHANE)	124481	1.26E-01	C	R		6.81E+01	C	Ing		7.60E+00	C	Ing	
1-CHLORO-1,1-DIFLUOROETHANE	75683	1.02E+05	N										
CHLORODIFLUOROMETHANE (DIFLUOROCHLOROMETHANE)	75456	1.02E+05	N										
CHLOROETHANE	75003	3.64E+00	C			1.97E+03	C	Ing		2.20E+02	C	Ing	
CHLOROETHENE (VINYL CHLORIDE)	75014	2.00E+00		MCL		9.39E-01	C	Inh	1	4.26E-01	C	Ing	
CHLOROFORM (METHANE TRICHLORIDE)	67663	1.55E-01	C	R		4.78E-01	C	Inh	1	3.12E-01	C	Inh	1
CHLOROMETHANE (METHYL CHLORIDE)	74873	1.43E+00	C			4.40E+02	C	Ing		4.91E+01	C	Ing	
4-CHLORO-2-METHYLANILINE	95692	1.15E-01	C			9.87E+00	C	Ing		1.10E+00	C	Ing	
CHLOROMETHYLBENZENE (BENZYL CHLORIDE)	100447	6.21E-02	C	R		3.37E+01	C	Ing		3.76E+00	C	Ing	
4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)	59507	7.30E+04	N	R		4.08E+05	N	Ing		1.56E+05	N	Ing	
BETA-CHLORONAPHTHALENE	91587	4.87E+02	N			1.84E+05	N	Ing		6.26E+03	N	Ing	
O-CHLORONITROBENZENE	88733	4.22E-01	C			2.29E+02	C	Ing		2.55E+01	C	Ing	
P-CHLORONITROBENZENE	100005	5.88E-01	C			3.18E+02	C	Ing		3.55E+01	C	Ing	
2-CHLOROPHENOL	95578	3.04E+01	N	R		1.02E+04	N	Ing		3.91E+02	N	Ing	
2-CHLOROPROPANE	75296	2.12E+02	N										
O-CHLOROTOLUENE	95498	1.22E+02	N			4.08E+04	N	Ing		1.56E+03	N	Ing	
CHLORPYRIFOS	2921882	1.10E+02	N			6.13E+02	N	Ing		2.35E+02	N	Ing	
CHLORPYRIFOS-METHYL	5598130	3.65E+02	N			2.04E+03	N	Ing		7.82E+02	N	Ing	
CHROMIUM III	16065831	5.48E+04	N			3.07E+06	N	Ing		1.17E+05	N	Ing	
CHROMIUM VI	18540299	1.00E+02		MCL		3.81E+02	C	Inh	2	2.27E+02	C	Inh	2
CHRYSENE	218019	9.17E+00	C	R		7.84E+02	C	Ing		8.75E+01	C	Ing	
COBALT	7440484	2.19E+03	N			1.23E+04	N	Ing		4.69E+03	N	Ing	
COKE OVEN EMISSIONS (COAL TAR)	8007452	5.69E-03	C										
COPPER	7440508	1.30E+03		MCL		8.17E+03	N	Ing		3.13E+03	N	Ing	
COPPER CYANIDE	544923	1.83E+02	N			1.02E+04	N	Ing		3.91E+02	N	Ing	
o-CRESOL (2-METHLYPHENOL)	95487	1.83E+03	N			1.02E+05	N	Ing		3.91E+03	N	Ing	
m-CRESOL (3-METHYLPHENOL)	108394	1.83E+03	N			1.02E+05	N	Ing		3.91E+03	N	Ing	
p-CRESOL (4-METHYLPHENOL)	106445	1.83E+02	N			1.02E+04	N	Ing		3.91E+02	N	Ing	
CROTONALDEHYDE	123739	5.58E-03	C			3.01E+00	C	Ing		3.36E-01	C	Ing	
CUMENE (ISOPROPYL BENZENE)	98828	6.79E+02	N	R		9.43E+00	N	Inh	1	9.43E+00	N	Inh	1
CYANAZINE	21725462	7.97E-02	C			6.81E+00	C	Ing		7.60E-01	C	Ing	
CYANIDE (FREE)	57125	2.00E+02		MCL		4.08E+03	N	Ing		1.56E+03	N	Ing	
CALCIUM CYANIDE	592018	1.46E+03	N			8.17E+03	N	Ing		3.13E+03	N	Ing	
COPPER CYANIDE	544923	1.83E+02	N			1.02E+04	N	Ing		3.91E+02	N	Ing	
CYANAZINE	21725462	7.97E-02	C			6.81E+00	C	Ing		7.60E-01	C	Ing	
CYANOGEN	460195	2.43E+02	N			8.18E+04	N	Ing		3.13E+03	N	Ing	
CYANOGEN BROMIDE	506683	3.29E+03	N			1.84E+05	N	Ing		7.04E+03	N	Ing	
CYANOGEN CHLORIDE	506774	1.83E+03	N			1.02E+05	N	Ing		3.91E+03	N	Ing	
HYDROGEN CYANIDE	74908	6.22E+00	N			4.09E+04	N	Ing		1.56E+03	N	Ing	
POTASSIUM CYANIDE	151508	1.83E+03	N			1.02E+04	N	Ing		3.91E+03	N	Ing	
POTASSIUM SILVER CYANIDE	506616	7.30E+03	N			4.08E+04	N	Ing		1.56E+04	N	Ing	
SILVER CYANIDE	506649	3.65E+03	N			2.04E+04	N	Ing		7.82E+03	N	Ing	
SODIUM CYANIDE	143339	1.46E+03	N			8.17E+03	N	Ing		3.13E+03	N	Ing	
THIOCYANATE		1.83E+03	N			1.02E+05	N	Ing		3.91E+03	N	Ing	
ZINC CYANIDE	557211	1.83E+03	N			1.02E+04	N	Ing		3.91E+03	N	Ing	
CYANOMETHANE (ACETONITRILE)	75058	1.25E+02	N	R		1.11E+02	N	Inh	1	1.11E+02	N	Inh	1
CYCLOHEXANONE	108941	1.83E+05	N			1.02E+07	N	Ing		3.91E+05	N	Ing	
CYCLONITE (RDX)	121824	6.09E-01	C			5.20E+01	C	Ing		5.81E+00	C	Ing	

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TIER 1 TRG TABLE

CHEMICAL	CAS No.	Groundwater				Soil							
						Restricted				Unrestricted			
		ug/l		Notes		mg/kg		Notes		mg/kg		Notes	
CYHALOTHRIN/KARATE	68085858	1.83E+02	N			1.02E+04	N	Ing		3.91E+02	N	Ing	
CYPERMETHRIN	52315078	3.65E+02	N			2.04E+04	N	Ing		7.82E+02	N	Ing	
DACTHAL	1861321	3.65E+02	N			2.04E+04	N	Ing		7.82E+02	N	Ing	
DALAPON	75990	2.00E+02		MCL		6.13E+03	N	Ing		2.35E+03	N	Ing	
DDD	72548	2.79E-01	C	R		2.38E+01	C	Ing		2.66E+00	C	Ing	
DDE	72559	1.97E-01	C	R		1.68E+01	C	Ing		1.88E+00	C	Ing	
DDT	50293	1.97E-01	C	R		1.68E+01	C	Ing		1.88E+00	C	Ing	
DIAZINON	333415	3.29E+01	N			1.84E+03	N	Ing		7.04E+01	N	Ing	
DIBENZOFURAN	132649	2.43E+01	N			8.18E+03	N	Ing		3.13E+02	N	Ing	
DIBENZ[AH]ANTHRACENE	53703	9.17E-03	C	R		7.84E-01	C	Ing		8.75E-02	C	Ing	
1,4-DIBROMOBENZENE	106376	3.65E+02	N			2.04E+04	N	Ing		7.82E+02	N	Ing	
DIBROMOCHLOROMETHANE (CHLORODIBROMOMETHANE)	124481	1.26E-01	C	R		6.81E+01	C	Ing		7.60E+00	C	Ing	
1,2-DIBROMO-3-CHLOROPROPANE	96128	2.00E-01		MCL		9.99E-02	N	Inh	1	9.99E-02	N	Inh	1
DIBROMOMETHANE (METHYLENE BROMIDE)	74953	6.08E+01	N			2.04E+04	N	Ing		7.82E+02	N	Ing	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	106934	5.00E-02		MCL		6.73E-02	C	Ing		7.51E-03	C	Ing	
DI-N-BUTYLPHTHALATE	84742	3.65E+03	N	R		2.28E+03		Csat		2.28E+03		Csat	
DICAMBA	1918009	1.10E+03	N			6.13E+04	N	Ing		2.35E+03	N	Ing	
1,2-DICHLOROBENZENE	95501	6.00E+02		MCL		2.79E+02	N	Inh	1	2.79E+02	N	Inh	1
1,3-DICHLOROBENZENE	541731	5.48E+00	N			1.84E+03	N	Ing		7.04E+01	N	Ing	
1,4-DICHLOROBENZENE	106467	7.50E+01		MCL		2.38E+02	C	Ing		2.66E+01	C	Ing	
3,3'-DICHLOROBENZIDINE	91941	1.48E-01	C	R		1.27E+01	C	Ing		1.42E+00	C	Ing	
DICHLOROBROMOMETHANE (BROMODICHLOROMETHANE)	75274	1.68E-01	C	R		1.89E+00	C	Inh	1	1.24E+00	C	Inh	1
1,4-DICHLORO-2-BUTENE	764410	1.35E-03	C										
DICHLORODIFLUOROMETHANE	75718	3.48E+02	N			4.09E+05	N	Ing		1.56E+04	N	Ing	
1,1-DICHLOROETHANE	75343	7.98E+02	N	R		1.16E+02	N	Inh	1	1.16E+02	N	Inh	1
1,2-DICHLOROETHANE (ETHYLENE DICHLORIDE)	107062	5.00E+00		MCL		6.21E-01	C	Inh	1	4.09E-01	C	Inh	1
1,1-DICHLOROETHENE (1,1 - DCE)	75354	7.00E+00		MCL		1.18E-01	C	Inh	1	7.72E-02	C	Inh	1
CIS-1,2-DICHLOROETHENE	156592	7.00E+01		MCL		1.21E+03		Csat		7.82E+02	N	Ing	
TRANS-1,2-DICHLOROETHENE	156605	1.00E+02		MCL		3.07E+03		Csat		1.56E+03	N	Ing	
DICHLOROMETHANE (METHYLENE CHLORIDE)	75092	5.00E+00		MCL		2.19E+01	C	Inh	1	1.43E+01	C	Inh	1
2,4-DICHLOROPHENOL	120832	1.10E+02	N	R		6.13E+02	N	Ing		2.35E+02	N	Ing	
2,4-DICHLOROPHENOXYACETIC ACID (2,4-D)	94757	7.00E+01		MCL		2.04E+03	N	Ing		7.82E+02	N	Ing	
4-(2,4-DICHLOROPHENOXY)BUTYRIC ACID	94826	2.92E+02	N			1.64E+04	N	Ing		6.26E+02	N	Ing	
1,2-DICHLOROPROPANE	78875	5.00E+00		MCL		4.45E-01	N	Inh	1	4.45E-01	N	Inh	1
2,3-DICHLOROPROPANOL	616239	1.10E+02	N			6.13E+03	N	Ing		2.35E+02	N	Ing	
1,3-DICHLOROPROPENE (1,3-DICHLOROPROPYLENE, CIS + TRANS)	542756	8.42E-02	C	R		3.52E-01	N	Inh	1	3.52E-01	N	Inh	1
DICHLORVOS	62737	2.31E-01	C			1.97E+01	C	Ing		2.20E+00	C	Ing	
DICOFOL	115322	1.52E-01	C			1.30E+01	C	Ing		1.45E+00	C	Ing	
DICYCLOPENTADIENE	77736	4.38E-01	N			6.13E+04	N	Ing		2.35E+03	N	Ing	
DIELDRIN	60571	4.19E-03	C	R		3.58E-01	C	Ing		3.99E-02	C	Ing	
DIETHYLPHTHALATE	84662	2.92E+04	N	R		1.97E+03		Csat		1.97E+03		Csat	
DIETHYLENE GLYCOL, MONOETHYL ETHER	111900	7.30E+04	N			4.09E+06	N	Ing		1.56E+05	N	Ing	
DI(2-ETHYLHEXYL)ADIPATE	103231	4.00E+02		MCL		4.77E+03	C	Ing		5.32E+02	C	Ing	
DIETHYLSTILBESTROL	56531	1.42E-05	C			1.22E-03	C	Ing		1.36E-04	C	Ing	
DIFENZOQUAT (AVENGE)	43222486	2.92E+03	N			1.64E+05	N	Ing		6.26E+03	N	Ing	
DIFLUOROCHLOROMETHANE (CHLORODIFLUOROMETHANE)	75456	1.02E+05	N										
1,1-DIFLUOROETHANE	75376	8.03E+04	N										
DIISOPROPYL METHYLPHOSPHONATE (DIMP)	1445756	2.92E+03	N			1.64E+05	N	Ing		6.26E+03	N	Ing	
3,3'-DIMETHOXYBENZIDINE	119904	4.78E+00	C			4.09E+02	C	Ing		4.55E+01	C	Ing	
2,4-DIMETHYLANILINE HYDROCHLORIDE	21436964	1.15E-01	C			9.87E+00	C	Ing		1.10E+00	C	Ing	
2,4-DIMETHYLANILINE	95681	6.93E-02	C			7.63E+00	C	Ing		8.52E-01	C	Ing	
N,N-DIMETHYLANILINE	121697	7.30E+01	N			4.08E+03	N	Ing		1.56E+02	N	Ing	
3,3'-DIMETHYLBENZIDINE	119937	7.28E-03	C			5.22E-01	C	Ing		6.94E-02	C	Ing	
1,1-DIMETHYLHYDRAZINE	57147	2.58E-02	C			2.20E+00	C	Ing		2.46E-01	C	Ing	
1,2-DIMETHYLHYDRAZINE	540738	1.81E-03	C			1.55E-01	C	Ing		1.73E-02	C	Ing	
DIMETHYL KETONE (ACETONE)	67641	6.08E+02	N	R		1.04E+05		Csat		7.82E+03	N	Ing	
2,4-DIMETHYLPHENOL	105679	7.30E+02	N	R		4.08E+04	N	Ing		1.56E+03	N	Ing	
2,6-DIMETHYLPHENOL	576261	2.19E+01	N			1.23E+03	N	Ing		4.69E+01	N	Ing	
3,4-DIMETHYLPHENOL	95658	3.65E+01	N			2.04E+03	N	Ing		7.82E+01	N	Ing	
DIMETHYLPHTHALATE	131113	3.65E+05	N			2.04E+07	N	Ing		7.82E+05	N	Ing	
1,2-DINITROBENZENE	528290	1.46E+01	N			8.17E+02	N	Ing		3.13E+01	N	Ing	
1,3-DINITROBENZENE	99650	3.65E+00	N			2.04E+02	N	Ing		7.82E+00	N	Ing	
1,4-DINITROBENZENE	100254	1.46E+01	N			8.17E+02	N	Ing		3.13E+01	N	Ing	
4,6-DINITRO-O-CYCLOHEXYL PHENOL	131895	7.30E+01	N			4.08E+03	N	Ing		1.56E+02	N	Ing	
4,6-DINITRO-2-METHYLPHENOL	534521	3.65E+00	N			2.04E+02	N	Ing		7.82E+00	N	Ing	
2,4-DINITROPHENOL	51285	7.30E+01	N	R		4.08E+02	N	Ing		1.56E+02	N	Ing	
DINITROTOLUENE MIXTURE		9.85E-02	C			8.42E+00	C	Ing	3	9.39E-01	C	Ing	3
2,4-DINITROTOLUENE	121142	7.30E+01	N	R		4.08E+02	N	Ing	3	1.56E+02	N	Ing	3
2,6-DINITROTOLUENE	606202	3.65E+01	N	R		2.04E+03	N	Ing	3	7.82E+01	N	Ing	3

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TIER 1 TRG TABLE

CHEMICAL	CAS No.	Groundwater			Soil							
					Restricted				Unrestricted			
		ug/l		Notes	mg/kg		Notes		mg/kg		Notes	
DINOSEB	88857	7.00E+00		MCL	2.04E+02	N	Ing		7.82E+01	N	Ing	
DIN-OCTYLPHTHALATE	117840	2.00E+01		Csat	4.08E+03	N	Ing		1.56E+03	N	Ing	
1,4-DIOXANE	123911	6.09E+00	C		5.20E+02	C	Ing		5.81E+01	C	Ing	
DIOXATHION	78342	5.48E+01	N		3.07E+03	N	Ing		1.17E+02	N	Ing	
DIOXINS & FURANS												
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD)	1746016	3.00E-05		MCL	3.82E-05	C	Ing		4.26E-06	C	Ing	
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (HpCDD)	35822469	4.46E-05	C		3.82E-03	C	Ing		4.26E-04	C	Ing	
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN (HxCDD)	39227286	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (HxCDD)	57653857	1.08E-05	C		9.23E-04	C	Ing		1.03E-04	C	Ing	
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN (HxCDD)	19408743	1.08E-05	C		9.23E-04	C	Ing		1.03E-04	C	Ing	
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN (OCDD)	3268879	4.46E-04	C		3.82E-02	C	Ing		4.26E-03	C	Ing	
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (PeCDD)	40321764	8.93E-07	C		7.63E-05	C	Ing		8.52E-06	C	Ing	
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (HpCDF)	67562394	4.46E-05	C		3.82E-03	C	Ing		4.26E-04	C	Ing	
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN (HpCDF)	55673897	4.46E-05	C		3.82E-03	C	Ing		4.26E-04	C	Ing	
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (HxCDF)	70648269	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (HxCDF)	57117449	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (HxCDF)	72918219	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (HxCDF)	60851345	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN (OCDF)	39001020	4.46E-04	C		3.82E-02	C	Ing		4.26E-03	C	Ing	
1,2,3,7,8-PENTACHLORODIBENZOFURAN (PeCDF)	57117416	8.93E-06	C		7.63E-04	C	Ing		8.52E-05	C	Ing	
2,3,4,7,8-PENTACHLORODIBENZOFURAN (PeCDF)	57117314	8.93E-07	C		7.63E-05	C	Ing		8.52E-06	C	Ing	
2,3,7,8-TETRACHLORODIBENZOFURAN (TCDF)	51207319	4.46E-05	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
DIPHENYLAMINE	122394	9.13E+02	N		5.10E+03	N	Ing		1.96E+03	N	Ing	
1,2-DIPHENYLHYDRAZINE	122667	8.37E-02	C		7.15E+00	C	Ing		7.98E-01	C	Ing	
DIQUAT	85007	2.00E+01		MCL	4.50E+03	N	Ing		1.72E+02	N	Ing	
DISULFOTON	298044	1.46E+00	N		8.17E+00	N	Ing		3.13E+00	N	Ing	
1,4-DITHIANE	505293	3.65E+02	N		2.04E+04	N	Ing		7.82E+02	N	Ing	
DIURON	330541	7.30E+01	N		4.09E+03	N	Ing		1.56E+02	N	Ing	
ENDOSULFAN	115297	2.19E+02	N	R	1.23E+03	N	Ing		4.69E+02	N	Ing	
ENDRIN	72208	2.00E+00		MCL	6.13E+01	N	Ing		2.35E+01	N	Ing	
EPICHLOROHYDRIN	106898	2.03E+00	N		4.08E+02	N	Ing		6.45E+01	C	Ing	
ETHION	563122	1.83E+01	N		1.02E+03	N	Ing		3.91E+01	N	Ing	
2-ETHOXYETHANOL	110805	1.46E+04	N		1.02E+05	N	Ing		3.13E+04	N	Ing	
ETHYL ACETATE	141786	5.48E+03	N		1.84E+06	N	Ing		7.04E+04	N	Ing	
ETHYLBENZENE	100414	7.00E+02		MCL	3.95E+02		Csat		3.95E+02		Csat	
ETHYLENE DIAMINE	107153	7.30E+02	N		4.08E+03	N	Ing		1.56E+03	N	Ing	
ETHYLENE DIBROMIDE (1,2-DIBROMOETHANE)	106934	5.00E-02		MCL	6.73E-02	C	Ing		7.51E-03	C	Ing	
ETHYLENE DICHLORIDE (1,2-DICHLOROETHANE)	107062	5.00E+00		MCL	6.21E-01	C	Inh	1	4.06E-01	C	Inh	1
ETHYLENE GLYCOL	107211	7.30E+04	N		4.08E+05	N	Ing		1.56E+05	N	Ing	
ETHYLENE GLYCOL MONOBUTYL ETHER (2-BUTOXYETHANOL)	111762	1.09E+04	N		1.02E+06	N	Ing		3.91E+04	N	Ing	
ETHYLENE OXIDE	75218	2.32E-02	C		5.51E+00	C	Ing		6.26E-01	C	Ing	
ETHYLENE THIOUREA	96457	6.09E-01	C		1.63E+01	N	Ing		5.81E+00	C	Ing	
ETHYL ETHER	60297	1.22E+03	N		4.08E+05	N	Ing		1.56E+04	N	Ing	
ETHYL METHACRYLATE	97632	5.48E+02	N		1.84E+04	N	Ing		7.04E+03	N	Ing	
FENAMIPHOS	22224926	9.13E+00	N		5.11E+02	N	Ing		1.96E+01	N	Ing	
FLUOMETURON	2164172	4.75E+02	N		2.66E+04	N	Ing		1.02E+03	N	Ing	
FLUORANTHENE	206440	1.46E+03	N	R	8.17E+04	N	Ing		3.13E+03	N	Ing	
FLUORENE	86737	2.43E+02	N	R	8.17E+04	N	Ing		3.13E+03	N	Ing	
FLUORINE (SOLUBLE FLUORIDE)	7782414	4.00E+03		MCL	1.23E+04	N	Ing		4.69E+03	N	Ing	
FONESAFEN	72178020	3.52E-01	C		3.01E+01	C	Ing		3.86E+00	C	Ing	
FONOFOS	944229	7.30E+01	N		4.09E+03	N	Ing		1.56E+02	N	Ing	
FORMALDEHYDE	50000	7.30E+03	N		4.08E+04	N	Ing		1.56E+04	N	Ing	
FORMIC ACID	64186	7.30E+04	N		4.08E+05	N	Ing		1.56E+05	N	Ing	
FURAN	110009	6.09E+00	N		2.04E+03	N	Ing		7.82E+01	N	Ing	
FURAZOLIDONE	67458	1.78E-02	C		1.51E+00	C	Ing		1.88E-01	C	Ing	
FURFURAL	98011	1.10E+02	N		6.13E+03	N	Ing		2.35E+02	N	Ing	
GLYCIDALDEHYDE	765344	1.46E+01	N		8.17E+02	N	Ing		3.13E+01	N	Ing	
GLYPHOSATE	1071836	7.00E+02		MCL	2.04E+05	N	Ing		7.82E+03	N	Ing	
HEPTACHLOR	76448	4.00E-01		MCL	1.95E-01	C	Inh	1	1.27E-01	C	Inh	1
HEPTACHLOR EPOXIDE	1024573	2.00E-01		MCL	6.29E-01	C	Ing		7.02E-02	C	Ing	
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (HpCDF)	67562394	4.46E-05	C		3.82E-03	C	Ing		4.26E-04	C	Ing	
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN (HpCDF)	55673897	4.46E-05	C		3.82E-03	C	Ing		4.26E-04	C	Ing	
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (HpCDD)	35822469	4.46E-05	C		3.82E-03	C	Ing		4.26E-04	C	Ing	
HEXABROMOBENZENE	87821	7.30E+01	N		4.08E+03	N	Ing		1.56E+02	N	Ing	
HEXACHLOROBENZENE	118741	1.00E+00		MCL	1.65E+00	C	Inh	1	3.99E-01	C	Ing	
HEXACHLOROBUTADIENE	87683	8.59E-01	C	R	1.35E-01	C	Inh	1	8.82E-02	C	Inh	1
ALPHA-HCH	319846	1.06E-02	C	R	9.08E-01	C	Ing		1.01E-01	C	Ing	
BETA-HCH	319857	3.72E-02	C	R	3.18E+00	C	Ing		3.55E-01	C	Ing	
GAMMA-HCH (LINDANE)	58899	2.00E-01		MCL	4.40E+00	C	Ing		4.91E-01	C	Ing	
TECHNICAL HCH	608731	3.72E-02	C		3.18E+00	C	Ing		3.55E-01	C	Ing	

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TIER 1 TRG TABLE

CHEMICAL	CAS No.	Groundwater			Soil						
					Restricted				Unrestricted		
		ug/l	Notes		mg/kg	Notes			mg/kg	Notes	
HEXACHLOROCYCLOPENTADIENE	77474	5.00E+01		MCL	9.51E-01	N	Inh	1	9.51E-01	N	Inh	1
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (HxCDF)	70648269	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (HxCDF)	57117449	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (HxCDF)	72918219	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (HxCDF)	60851345	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN (HxCDD)	39227286	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (HxCDD)	57653857	1.08E-05	C		9.23E-04	C	Ing		1.03E-04	C	Ing	
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN (HxCDD)	19408743	1.08E-05	C		9.23E-04	C	Ing		1.03E-04	C	Ing	
HEXACHLOROETHANE	67721	4.78E+00	C	R	9.33E+01	C	Inh	1	4.66E+01	C	Ing	
HEXACHLOROPHENE	70304	1.10E+01	N		6.13E+02	N	Ing		2.35E+01	N	Ing	
1,6-HEXAMETHYLENE DIISOCYANATE	822060	2.09E-02	N			C				N		
HEXANE	110543	3.50E+02	N	R	1.60E+00	N	Inh	1	1.60E+00	N	Inh	-1
2-HEXANONE	591786	1.46E+03	N		8.18E+04	N	Ing		3.13E+03	N	Ing	
HEXAZINONE	51235042	1.20E+03	N		6.75E+04	N	Ing		2.58E+03	N	Ing	
I-MX	2691410	1.83E+03	N		1.02E+05	N	Ing		3.91E+03	N	Ing	
HYDRAZINE	302012	2.23E-02	C		1.91E+00	C	Ing		2.13E-01	C	Ing	
HYDROGEN CYANIDE	74908	6.22E+00	N		4.09E+04	N	Ing		1.56E+03	N	Ing	
HYDROGEN SULFIDE	7783064	1.10E+02	N		6.13E+03	N	Ing		2.35E+02	N	Ing	
HYDROQUINONE	123319	1.46E+03	N		8.17E+04	N	Ing		3.13E+03	N	Ing	
INDENO[1,2,3-C,D]PYRENE	193395	9.17E-02	C	R	7.84E+00	C	Ing		8.75E-01	C	Ing	
IRON	7439896	1.10E+04	N		6.13E+05	N	Ing		2.35E+04	N	Ing	
ISOBUTANOL	78831	1.83E+03	N		6.13E+05	N	Ing		2.35E+04	N	Ing	
ISOPHORONE	78591	7.05E+01	C	R	4.57E+03		Csat		6.72E+02	C	Ing	
ISOPROPALIN	33820530	5.48E+02	N		3.06E+04	N	Ing		1.17E+03	N	Ing	
ISOPROPYL BENZENE (CUMENE)	98828	6.79E+02	N	R	9.43E+00	N	Inh	1	9.43E+00	N	Inh	-1
ISOPROPYL METHYL PHOSPHONIC ACID	1832548	3.65E+03	N		2.04E+05	N	Ing		7.82E+03	N	Ing	
LEAD	7439921	1.50E+01		MCL	1.70E+03	C	Ing		4.00E+02	C	Ing	-4
LEAD (TETRAETHYL LEAD)	78002	3.65E-03	N		2.04E-01	N	Ing		7.82E-03	N	Ing	
LINDANE (GAMMAHCH)	58899	2.00E-01		MCL	4.40E+00	C	Ing		4.91E-01	C	Ing	
LITHIUM	7439932	7.30E+02	N		4.09E+04	N	Ing		1.56E+03	N	Ing	
MALATHION	121755	7.30E+02	N		4.08E+03	N	Ing		1.56E+03	N	Ing	
MALEIC ANHYDRIDE	108316	3.65E+03	N		2.04E+04	N	Ing		7.82E+03	N	Ing	
MANGANESE	7439965	7.30E+02	N		4.08E+03	N	Ing		1.56E+03	N	Ing	-5
MEPHOSFOLAN	950107	3.29E+00	N		1.84E+02	N	Ing		7.04E+00	N	Ing	
MEPIQUAT CHLORIDE	24307264	1.10E+03	N		6.13E+04	N	Ing		2.35E+03	N	Ing	
MERCURIC CHLORIDE	7487947	1.10E+01	N		6.13E+01	N	Ing		2.35E+01	N	Ing	
MERCURY (INORGANIC)	7439976	2.00E+00		MCL	6.13E+01	N	Ing		1.00E+01	N	Inh	2
METHYLMERCURY	22967926	3.65E+00	N		2.04E+02	N	Ing		7.82E+00	N	Ing	
METHACRYLONITRILE	126987	1.04E+00	N		2.04E+02	N	Ing		7.82E+00	N	Ing	
METHANE TRICHLORIDE (CHLOROFORM)	67663	#VALUE!	C	R	4.76E-01	C	Inh	1	3.12E-01	C	Inh	-4
METHANOL	67561	1.83E+04	N		1.02E+06	N	Ing		3.91E+04	N	Ing	
METHIDATHION	950378	3.65E+01	N		2.04E+03	N	Ing		7.82E+01	N	Ing	
METHOXYCHLOR	72435	4.00E+01		MCL	1.02E+03	N	Ing		3.91E+02	N	Ing	
METHYL ACETATE	79209	6.08E+03	N		2.04E+06	N	Ing		7.82E+04	N	Ing	
METHYL ACRYLATE	96333	1.83E+02	N		6.13E+03	N	Ing		2.35E+03	N	Ing	
METHYL BROMIDE (BROMOMETHANE)	74839	8.52E+00	N	R	2.97E+00	N	Inh	1	2.97E+00	N	Inh	-1
METHYL CHLORIDE (CHLOROMETHANE)	74873	1.43E+00	C		4.40E+02	C	Ing		4.91E+01	C	Ing	
2-METHYLANILINE	95534	2.78E-01	C		2.38E+01	C	Ing		2.66E+00	C	Ing	
4-(2-METHYL-4-CHLOROPHENOXY) BUTYRIC ACID	94815	3.65E+02	N		2.04E+04	N	Ing		7.82E+02	N	Ing	
2-METHYL-4-CHLOROPHENOXYACETIC ACID (MCPA)	94746	1.83E+01	N		1.02E+03	N	Ing		3.91E+01	N	Ing	
2-(2-METHYL-4-CHLOROPHENOXY)PROPIONIC ACID (MCPP)	93652	3.65E+01	N		2.04E+03	N	Ing		7.82E+01	N	Ing	
METHYLENE BROMIDE (DIBROMOMETHANE)	74953	6.08E+01	N		2.04E+04	N	Ing		7.82E+02	N	Ing	
METHYLENE CHLORIDE (DICHLOROMETHANE)	75092	5.00E+00		MCL	2.19E+01	C	Inh	1	1.43E+01	C	Inh	-1
4,4'-METHYLENE BIS(2-CHLOROANILINE)	101144	5.15E-01	C		4.40E+01	C	Ing		4.91E+00	C	Ing	
4,4'-METHYLENE BIS(N,N'-DIMETHYL)ANILINE	101611	1.46E+00	C		1.24E+02	C	Ing		1.39E+01	C	Ing	
METHYL ETHYL KETONE (2-BUTANONE)	78933	1.91E+03	N	R	8.45E+01	N	Inh	1	8.45E+01	N	Inh	1
METHYL HYDRAZINE	60344	6.09E-02	C		5.20E+00	C	Ing		5.81E-01	C	Ing	
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	108101	1.39E+02	N		1.63E+05	N	Ing		6.26E+03	N	Ing	
METHYL METHACRYLATE	80626	1.42E+03	N		1.63E+04	N	Ing		1.63E+04	N	Ing	
2-METHYLNAPHTHALENE	91576	1.22E+02	N		4.09E+04	N	Ing		1.56E+03	N	Ing	
2-METHYL-5-NITROANILINE	99558	2.03E+00	C		1.73E+02	C	Ing		1.94E+01	C	Ing	
METHYL PARATHION	298000	9.13E+00	N		4.08E+02	N	Ing		1.96E+01	N	Ing	
2-METHYLPHENOL (o-CRESOL)	95487	1.83E+03	N		1.02E+05	N	Ing		3.91E+03	N	Ing	
3-METHYLPHENOL (m-CRESOL)	108394	1.83E+03	N		1.02E+05	N	Ing		3.91E+03	N	Ing	
4-METHYLPHENOL (p-CRESOL)	106445	1.83E+02	N		1.02E+04	N	Ing		3.91E+02	N	Ing	
METHYLSTYRENE MIX	25013154	5.48E+01	N		1.23E+03	N	Ing		4.69E+02	N	Ing	
ALPHA-METHYLSTYRENE	98839	4.26E+02	N		1.43E+05	N	Ing		5.48E+03	N	Ing	
METHYL TERT BUTYL ETHER (MTBE)	1634044	4.00E+01		H	8.74E+03		Csat		3.91E+03	N	Ing	
METHYL TRIBROMIDE (BROMOFORM)	75252	8.48E+00	C	R	9.01E+01	C	Inh	1	5.88E+01	C	Inh	1

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TIER 1 TRG TABLE

CHEMICAL	CAS No.	Groundwater			Soil							
					Restricted				Unrestricted			
		ug/l	Notes		mg/kg	Notes			mg/kg	Notes		
METOLACHLOR (DUAL)	51218452	5.48E+03	N		3.06E+04	N	Ing		1.17E+04	N	Ing	
MIREX	2385855	7.30E+00	N		4.08E+01	N	Ing		1.56E+01	N	Ing	
MOLYBDENUM	7439987	1.83E+02	N		1.02E+03	N	Ing		3.91E+02	N	Ing	
MONOCHLORAMINE	10599903	3.65E+03	N		2.04E+04	N	Ing		7.82E+03	N	Ing	
MONOCHLOROBENZENE (CHLOROBENZENE)	108907	1.00E+02		MCL	1.19E+00	N	Inh	1	1.19E+00	N	Inh	1
NALED	300765	7.30E+01	N		4.09E+03	N	Ing		1.56E+02	N	Ing	
NAPHTHALENE	91203	6.20E+00	N	R	2.47E+02	N	Inh	1	1.94E+02	N	Inh	1
NICKEL	7440020	7.30E+02	N		4.08E+03	N	Ing	6	1.56E+03	N	Ing	6
NITRATE	14797558	1.00E+04		MCL	3.27E+05	N	Ing		1.25E+05	N	Ing	
NITRIC OXIDE	10102439	6.08E+02	N		2.04E+05	N	Ing		7.82E+03	N	Ing	
NITRITE	14797650	1.00E+03		MCL	2.04E+04	N	Ing		7.82E+03	N	Ing	
2-NITROANILINE	88744	4.17E-01	N	R	4.92E-01	N	Inh	1	4.92E-01	N	Inh	1
NITROBENZENE	98953	3.53E+00	N	R	8.41E+00	N	Inh	1	8.41E+00	N	Inh	1
NITROFURANTOIN	67209	2.56E+03	N		1.43E+05	N	Ing		5.48E+03	N	Ing	
NITROFURAZONE	59870	4.46E-02	C		3.82E+00	C	Ing		4.26E-01	C	Ing	
NITROGEN DIOXIDE	10102440	6.08E+03	N		2.04E+06	N	Ing		7.82E+04	N	Ing	
NITROGLYCERIN	55630	4.78E+00	C		4.09E+02	C	Ing		4.56E+01	C	Ing	
2-NITROPHENOL	88755	4.18E-01	N	R								
4-NITROPHENOL	100027	2.92E+02	N		1.64E+04	N	Ing		6.26E+02	N	Ing	
2-NITROPROPANE	79469	1.33E-03	C	R	2.38E-02	C	Inh	1	1.55E-02	C	Inh	1
N-NITROSO-DI-N-BUTYLAMINE	924163	1.89E-03	C		1.06E+00	C	Ing		1.18E-01	C	Ing	
N-NITROSODIETHANOLAMINE	1116547	2.39E-02	C		2.04E+00	C	Ing		2.28E-01	C	Ing	
N-NITROSODIETHYLAMINE	55185	4.46E-04	C		3.82E-02	C	Ing		4.26E-03	C	Ing	
N-NITROSODIMETHYLAMINE	62759	1.31E-03	C		1.12E-01	C	Ing		1.25E-02	C	Ing	
N-NITROSODIPHENYLAMINE	86306	1.37E+01	C	R	1.17E+03	C	Ing		1.30E+02	C	Ing	
N-NITROSODIPROPYLAMINE	621647	9.57E-03	C	R	8.18E-01	C	Ing		9.12E-02	C	Ing	
N-NITROSO-N-ETHYLUREA	759739	4.78E-04	C		4.09E-02	C	Ing		4.56E-03	C	Ing	
N-NITROSO-N-METHYLETHYLAMINE	10595956	3.04E-03	C		2.60E-01	C	Ing		2.90E-02	C	Ing	
N-NITROSOPYRROLIDINE	930552	3.19E-02	C		2.73E+00	C	Ing		3.04E-01	C	Ing	
M-NITROTOLUENE	99081	6.08E+01	N		2.04E+04	N	Ing		7.82E+02	N	Ing	
O-NITROTOLUENE	88722	6.08E+01	N		2.04E+04	N	Ing		7.82E+02	N	Ing	
P-NITROTOLUENE	99990	6.08E+01	N		2.04E+04	N	Ing		7.82E+02	N	Ing	
NUSTAR	85509199	2.58E+01	N		1.43E+03	N	Ing		5.48E+01	N	Ing	
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN (OCDF)	39001020	4.46E-04	C		3.82E-02	C	Ing		4.26E-03	C	Ing	
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN (OCDD)	3268879	4.46E-04	C		3.82E-02	C	Ing		4.26E-03	C	Ing	
ORYZALIN	19044883	1.83E+03	N		1.02E+05	N	Ing		3.91E+03	N	Ing	
OXADIAZON	19666309	1.83E+02	N		1.02E+04	N	Ing		3.91E+02	N	Ing	
OXAMYL	23135220	2.00E+02		MCL	5.11E+04	N	Ing		1.96E+03	N	Ing	
OXYFLUORFEN	42874033	1.10E+02	N		6.13E+03	N	Ing		2.35E+02	N	Ing	
PARAQUAT DICHLORIDE	1910425	1.84E+02	N		9.20E+03	N	Ing		3.52E+02	N	Ing	
PARATHION	56382	2.19E+02	N		1.23E+03	N	Ing		4.69E+02	N	Ing	
PENTACHLOROBENZENE	608935	2.92E+01	N		1.63E+03	N	Ing		6.26E+01	N	Ing	
1,2,3,7,8-PENTACHLORODIBENZOFURAN (PeCDF)	57117416	8.93E-08	C		7.63E-04	C	Ing		8.52E-05	C	Ing	
2,3,4,7,8-PENTACHLORODIBENZOFURAN (PeCDF)	57117314	8.93E-07	C		7.63E-05	C	Ing		8.52E-06	C	Ing	
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (PeCDD)	40321764	8.93E-07	C		7.63E-05	C	Ing		8.52E-06	C	Ing	
PENTACHLORONITROBENZENE	82688	2.58E-01	C		2.20E+01	C	Ing		2.46E+00	C	Ing	
PENTACHLOROPHENOL	87865	1.00E+00		MCL	2.38E+01	N	Ing	7	2.66E+00	C	Ing	7
PERCHLOROETHENE (TETRACHLOROETHENE) (PCE)	127184	5.00E+00		MCL	1.82E+01	C	Inh	1	1.19E+01	C	Inh	1
PERMETHRIN	52645531	1.83E+03	N		1.02E+05	N	Ing		3.91E+03	N	Ing	
PHENANTHRENE	85018	1.10E+03	N		6.13E+04	N	Ing		2.35E+03	N	Ing	
PHENOL	108952	2.19E+04	N	R	1.23E+05	N	Ing		4.69E+04	N	Ing	
M-PHENYLENEDIAMINE	108452	2.19E+02	N		1.23E+04	N	Ing		4.69E+02	N	Ing	
O-PHENYLENEDIAMINE	95545	1.42E+00	C		1.22E+02	C	Ing		1.36E+01	C	Ing	
P-PHENYLENEDIAMINE	106503	6.94E+03	N		3.88E+05	N	Ing		1.49E+04	N	Ing	
2-PHENYLPHENOL	90437	3.45E+01	C		2.95E+03	C	Ing		3.29E+02	C	Ing	
PHOSPHINE	7803512	5.92E-01	N		6.13E+01	N	Ing		2.35E+01	N	Ing	
PHOSPHORIC ACID	7664382	2.09E+01	N		5.72E+34	C	Ing		6.39E+33	C	Ing	
PHOSPHORUS (WHITE)	7723140	7.30E-01	N		4.09E+01	N	Ing		1.56E+00	N	Ing	
P-PHTHALIC ACID	100210	3.65E+04	N		2.04E+05	N	Ing		7.82E+04	N	Ing	
PHTHALIC ANHYDRIDE	85449	7.30E+04	N		4.08E+05	N	Ing		1.56E+05	N	Ing	
POLYBROMINATED BIPHENYLS (PBBs)		7.52E-03	C		6.43E-01	C	Ing		7.18E-02	C	Ing	
POLYCHLORINATED BIPHENYLS (PCBs)	1336363	5.00E-01		MCL	1.00E+01	C		9	1.00E+00	C		8
AROCLOR-1016	12674112	9.57E-01	C		1.00E+01	C		9	1.00E+00	C		8
AROCLOR-1221	11104282	3.35E-02	C		1.00E+01	C		9	1.00E+00	C		8
AROCLOR-1232	11141165	3.35E-02	C		1.00E+01	C		9	1.00E+00	C		8
AROCLOR-1242	53469219	3.35E-02	C		1.00E+01	C		9	1.00E+00	C		8
AROCLOR-1248	12672296	3.35E-02	C		1.00E+01	C		9	1.00E+00	C		8
AROCLOR-1254	11097691	3.35E-02	C		1.00E+01	C		9	1.00E+00	C		8
AROCLOR-1260	11096825	3.35E-02	C		1.00E+01	C		9	1.00E+00	C		8
POLYCHLORINATED TERPHENYLS	61788338	1.49E-02	C		1.27E+00	C	Ing		1.42E-01	C	Ing	

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TIER 1 TRG TABLE

CHEMICAL	CAS No.	Groundwater			Soil							
					Restricted				Unrestricted			
		ug/l		Notes	mg/kg		Notes		mg/kg		Notes	
POLYNUCLEAR AROMATIC HYDROCARBONS:												
ACENAPHTHENE	83329	3.65E+02	N	R	1.23E+05	N	Ing		4.69E+03	N	Ing	
ACENAPHTHYLENE	208968	2.19E+03	N		1.23E+05	N	Ing		4.69E+03	N	Ing	
ANTHRACENE	120127	4.34E+01		Csol	6.13E+05	N	Ing		2.35E+04	N	Ing	
BENZ[A]ANTHRACENE	56553	9.17E-02	C	R	7.84E+00	C	Ing		8.75E-01	C	Ing	
BENZO[A]PYRENE	50328	2.00E-01		MCL	7.84E-01	C	Ing		8.75E-02	C	Ing	
BENZO[B]FLUORANTHENE	205992	9.17E-02	C	R	7.84E+00	C	Ing		8.75E-01	C	Ing	
BENZO[G,H,I]PERYLENE	191242	1.10E+03	N		6.13E+04	N	Ing		2.35E+03	N	Ing	
BENZO[K]FLUORANTHENE	207089	9.17E-01	C	R	7.84E+01	C	Ing		8.75E+00	C	Ing	
CHRYSENE	218019	9.17E+00	C	R	7.84E+02	C	Ing		8.75E+01	C	Ing	
DIBENZ[A,H]ANTHRACENE	53703	9.17E-03	C	R	7.84E-01	C	Ing		8.75E-02	C	Ing	
FLUORANTHENE	206440	1.46E+03	N	R	8.17E+04	N	Ing		3.13E+03	N	Ing	
FLUORENE	86737	2.43E+02	N	R	8.17E+04	N	Ing		3.13E+03	N	Ing	
INDENO[1,2,3-C,D]PYRENE	193395	9.17E-02	C	R	7.84E+00	C	Ing		8.75E-01	C	Ing	
2-METHYLNAPHTHALENE	91576	1.22E+02	N		4.09E+04	N	Ing		1.56E+03	N	Ing	
NAPHTHALENE	91203	6.20E+00	N	R	2.47E+02	N	Inh	1	1.94E+02	N	Inh	1
PHENANTHRENE	85018	1.10E+03	N		6.13E+04	N	Ing		2.35E+03	N	Ing	
PYRENE	129000	1.83E+02	N	R	6.13E+04	N	Ing		2.35E+03	N	Ing	
POTASSIUM CYANIDE	151508	1.83E+03	N		1.02E+04	N	Ing		3.91E+03	N	Ing	
POTASSIUM SILVER CYANIDE	506616	7.30E+03	N		4.08E+04	N	Ing		1.56E+04	N	Ing	
PROMETON	1610180	5.48E+02	N		3.07E+04	N	Ing		1.17E+03	N	Ing	
PROMETRYN	7287196	1.46E+02	N		8.18E+03	N	Ing		3.13E+02	N	Ing	
PROPACHLOR	1918167	4.75E+02	N		2.65E+04	N	Ing		1.02E+03	N	Ing	
PROPANIL	709988	1.83E+02	N		1.02E+04	N	Ing		3.91E+02	N	Ing	
PROPARGITE	2312358	7.30E+02	N		4.09E+04	N	Ing		1.56E+03	N	Ing	
N-PROPYLBENZENE	103651	2.43E+02	N	R	4.90E+02		Csat		4.90E+02		Csat	
PROPYLENE GLYCOL	57556	7.30E+05	N		6.13E+06	N	Ing		1.56E+06	N	Ing	
PROPYLENE GLYCOL, MONOETHYL ETHER	52125338	2.56E+04	N		1.43E+06	N	Ing		5.48E+04	N	Ing	
PROPYLENE GLYCOL, MONOMETHYL ETHER	107982	2.56E+04	N		1.43E+06	N	Ing		5.48E+04	N	Ing	
PURSUIT	81335775	9.13E+03	N		5.11E+05	N	Ing		1.95E+04	N	Ing	
PYRENE	129000	1.83E+02	N	R	6.13E+04	N	Ing		2.35E+03	N	Ing	
PYRIDINE	110861	3.65E+01	N		2.04E+03	N	Ing		7.82E+01	N	Ing	
QUINOLINE	91225	5.58E-03	C		4.77E-01	C	Ing		5.32E-02	C	Ing	
RDX (CYCLONITE)	121824	6.09E-01	C		5.20E+01	C	Ing		5.81E+00	C	Ing	
RESMETHRIN	10453868	1.10E+03	N		6.13E+04	N	Ing		2.35E+03	N	Ing	
RONNEL	299843	1.83E+03	N		1.02E+04	N	Ing		3.91E+03	N	Ing	
ROTENONE	83794	1.46E+02	N		8.18E+03	N	Ing		3.13E+02	N	Ing	
SELENIOUS ACID	7783008	1.83E+02	N		1.02E+03	N	Ing		3.91E+02	N	Ing	
SELENIUM	7782492	5.00E+01		MCL	1.02E+03	N	Ing		3.91E+02	N	Ing	
SILVER	7440224	1.83E+02	N	MCL	1.02E+03	N	Ing		3.91E+02	N	Ing	
SILVER CYANIDE	506649	3.65E+03	N		2.04E+04	N	Ing		7.82E+03	N	Ing	
SIMAZINE	122349	4.00E+00		MCL	4.77E+01	C	Ing		5.32E+00	C	Ing	
SODIUM AZIDE	26628228	1.46E+02	N		8.18E+03	N	Ing		3.13E+02	N	Ing	
SODIUM DIETHYLDITHIOCARBAMATE	148185	2.48E-01	C		2.12E+01	C	Ing		2.37E+00	C	Ing	
SODIUM CYANIDE	143339	1.46E+03	N		8.17E+03	N	Ing		3.13E+03	N	Ing	
STRONTIUM, STABLE	7440246	2.19E+04	N		1.23E+05	N	Ing		4.69E+04	N	Ing	
STRYCHNINE	57249	1.10E+01	N		6.13E+02	N	Ing		2.35E+01	N	Ing	
STYRENE	100425	1.00E+02		MCL	3.84E+02	N	Inh	1	3.84E+02	N	Inh	1
2,3,7,8-TETRACHLORODIBENZOFURAN (TCDF)	51207319	4.46E-06	C		3.82E-04	C	Ing		4.26E-05	C	Ing	
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD)	1746016	3.00E-05		MCL	3.82E-05	C	Ing		4.26E-06	C	Ing	
1,2,4,5-TETRACHLOROBENZENE	95943	1.10E+01	N		6.13E+02	N	Ing		2.35E+01	N	Ing	
1,1,1,2-TETRACHLOROETHANE	630206	4.06E-01	C		2.20E+02	C	Ing		2.46E+01	C	Ing	
1,1,2,2-TETRACHLOROETHANE	79345	5.27E-02	C	R	1.00E+00	C	Inh	1	8.56E-01	C	Inh	1
TETRACHLOROETHENE (PERCHLOROETHENE) (PCE)	127184	5.00E+00		MCL	1.82E+01	C	Inh	1	1.19E+01	C	Inh	1
2,3,4,6-TETRACHLOROPHENOL	58902	1.10E+03	N		6.13E+04	N	Ing		2.35E+03	N	Ing	
P,A,A,A-TETRACHLOROTOLUENE	5216251	2.18E-03	C		2.88E-01	C	Ing		3.19E-02	C	Ing	
TETRAETHYL LEAD	78002	3.65E-03	N		2.04E-01	N	Ing		7.82E-03	N	Ing	
1,1,1,2-TETRAFLUOROETHANE	811972	1.67E+05	N									
TETRYL	479458	3.65E+02	N		2.04E+04	N	Ing		7.82E+02	N	Ing	
THALLIC OXIDE	1314325	2.56E+00	N		1.43E+02	N	Ing		5.48E+00	N	Ing	
THALLIUM	7440280	2.00E+00		MCL	1.43E+02	N	Ing		5.48E+00	N	Ing	
THALLIUM ACETATE	563688	2.00E+00		MCL	1.84E+02	N	Ing		7.04E+00	N	Ing	
THALLIUM CARBONATE	6533739	2.00E+00		MCL	1.63E+02	N	Ing		6.26E+00	N	Ing	
THALLIUM CHLORIDE	7791120	2.00E+00		MCL	1.63E+02	N	Ing		6.26E+00	N	Ing	
THALLIUM NITRATE	10102451	2.00E+00		MCL	1.84E+02	N	Ing		7.04E+00	N	Ing	
THALLIUM SULFATE (2:1)	7446186	2.00E+00		MCL	1.63E+02	N	Ing		6.26E+00	N	Ing	
THIOBENCARB	28249776	3.65E+02	N		2.04E+04	N	Ing		7.82E+02	N	Ing	
THIOCYANATE		1.83E+03	N		1.02E+05	N	Ing		3.91E+03	N	Ing	
TIN	7440315	2.19E+04	N		1.23E+06	N	Ing		4.69E+04	N	Ing	
TITANIUM	7440326	1.46E+05	N		8.18E+06	N	Ing		3.13E+05	N	Ing	

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TIER 1 TRG TABLE

CHEMICAL	CAS No.	Groundwater			Soil						
					Restricted				Unrestricted		
		ug/l		Notes	mg/kg		Notes		mg/kg		Notes
TITANIUM DIOXIDE	13463677	1.46E+05	N		8.18E+06	N	Ing		3.13E+05	N	Ing
TOLUENE	108883	1.00E+03		MCL	3.80E+01	N	Inh	1	3.80E+01	N	Inh 1
TOLUENE-2,4-DIAMINE	95807	2.09E-02	C		1.79E+00	C	Ing		2.00E-01	C	Ing
TOLUENE-2,5-DIAMINE	95705	2.19E+04	N		1.23E+05	N	Ing		4.69E+04	N	Ing
TOLUENE-2,6-DIAMINE	823405	7.30E+03	N		4.08E+04	N	Ing		1.56E+04	N	Ing
P-TOLUIDINE	106490	3.52E-01	C		3.01E+01	C	Ing		3.36E+00	C	Ing
TOTAL PETROLEUM HYDROCARBONS-GASOLINE RANGE ORGANICS (TPH-GRO)		3.50E+02	N	R	3.00E+02	N	Inh	1	2.00E+02	N	Inh 1
TOTAL PETROLEUM HYDROCARBONS-DIESEL RANGE ORGANICS (TPH-DRO)		6.50E+02	N	R	3.50E+02		Csat		3.00E+02	N	Inh 1
TOXAPHENE	8001352	3.00E+00		MCL	5.20E+00	C	Ing		5.81E-01	C	Ing
1,2,4-TRIBROMOBENZENE	615543	1.83E+02	N		1.02E+04	N	Ing		3.91E+02	N	Ing
TRIBUTYLTIN OXIDE	56359	1.10E+01	N		6.13E+02	N	Ing		2.35E+01	N	Ing
2,4,6-TRICHLOROANILINE	634936	1.97E+00	C		1.88E+02	C	Ing		1.88E+01	C	Ing
1,2,4-TRICHLOROBENZENE	120821	7.00E+01		MCL	8.24E+02	N	Inh	1	7.82E+02	N	Ing
1,1,1-TRICHLOROETHANE	71556	2.00E+02		MCL	1.19E+03		Csat		1.19E+03		Csat
1,1,2-TRICHLOROETHANE	79005	5.00E+00		MCL	1.87E+00	C	Inh	1	1.09E+00	C	Inh 1
TRICHLOROETHENE (TCE)	79016	5.00E+00		MCL	7.92E+00	C	Inh	1	5.17E+00	C	Inh 1
TRICHLOROFLUOROMETHANE	75694	1.29E+03	N		1.43E+05	N	Ing		2.35E+04	N	Ing
2,4,5-TRICHLOROPHENOL	95954	3.65E+03	N	R	2.04E+05	N	Ing		7.82E+03	N	Ing
2,4,6-TRICHLOROPHENOL	88062	6.09E+00	C	R	3.14E+02	C	Inh	1	5.81E+01	C	Ing
2,4,5-TRICHLOROPHENOXYACETIC ACID (2,4,5-T)	93765	3.65E+02	N		2.04E+04	N	Ing		7.82E+02	N	Ing
2-(2,4,5-TRICHLOROPHENOXY)PROPIONIC ACID (2,4,5-TP SILVEX)	93721	5.00E+01		MCL	1.53E+03	N	Ing		5.26E+02	N	Ing
1,1,2-TRICHLOROPROPANE	598776	3.04E+01	N		1.02E+04	N	Ing		3.91E+02	N	Ing
1,2,3-TRICHLOROPROPANE	96184	6.23E-03	C		8.18E-01	C	Ing		9.12E-02	C	Ing
1,2,3-TRICHLOROPROPENE	96195	3.04E+01	N		1.02E+03	N	Ing		3.91E+02	N	Ing
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76131	5.94E+04	N		6.13E+05	N	Ing		6.13E+05	N	Ing
1,2,4-TRIMETHYLBENZENE	95636	1.23E+01	N		1.02E+05	N	Ing		3.91E+03	N	Ing
1,3,5-TRIMETHYLBENZENE	108678	1.23E+01	N	R	4.36E+02		Csat		4.36E+02		Csat
TRIMETHYL PHOSPHATE	512561	1.81E+00	C		1.55E+02	C	Ing		1.73E+01	C	Ing
1,3,5-TRINITROBENZENE	99354	1.10E+03	N		1.02E+02	N	Ing		1.02E+02	N	Ing
2,4,6-TRINITROTOLUENE	118967	2.23E+00	C		1.02E+02	N	Ing		2.13E+01	C	Ing
URANIUM (SOLUBLE SALTS)		1.10E+02	N		6.13E+03	N	Ing		2.35E+02	N	Ing
VANADIUM	7440622	2.55E+02	N		1.43E+03	N	Ing		5.48E+02	N	Ing
VANADIUM PENTOXIDE	1314621	3.29E+02	N		1.84E+03	N	Ing		7.04E+02	N	Ing
VANADIUM SULFATE	16785812	7.30E+02	N		4.08E+03	N	Ing		1.56E+03	N	Ing
VINCLOZOLIN	50471448	9.13E+02	N		5.11E+04	N	Ing		1.96E+03	N	Ing
VINYL ACETATE	108054	4.12E+02	N	R	9.13E+00	N	Inh	1	9.13E+00	N	Inh 1
VINYL BROMIDE (BROMOETHENE)	593602	1.12E-01	C	R	1.26E-01	N	Inh	1	1.26E-01	N	Inh 1
VINYL CHLORIDE (CHLOROETHENE)	75014	2.00E+00		MCL	9.39E-01	C	Inh	1	4.26E-01	C	Ing
WARFARIN	81812	1.10E+01	N		6.13E+01	N	Ing		2.35E+01	N	Ing
M-XYLENE	108383	1.22E+04	N	R	4.18E+02		Csat		4.18E+02		Csat
O-XYLENE	95476	1.22E+04	N	R	4.13E+02		Csat		4.13E+02		Csat
P-XYLENE	106423	1.22E+04	N	R	4.61E+02		Csat		4.61E+02		Csat
XYLENES	1330207	1.00E+04		MCL	3.18E+02		Csat		3.18E+02		Csat
ZINC	7440666	1.10E+04	N		6.13E+04	N	Ing		2.35E+04	N	Ing
ZINC CYANIDE	557211	1.83E+03	N		1.02E+04	N	Ing		3.91E+03	N	Ing
ZINC PHOSPHIDE	1314847	1.10E+01	N		6.13E+02	N	Ing		2.35E+01	N	Ing
ZINEB	12122677	1.83E+03	N		1.02E+04	N	Ing		3.91E+03	N	Ing

APPENDIX B

PETROLEUM HYDROCARBON TABLES

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

TABLE 1

PETROLEUM HYDROCARBON INDICATOR COMPOUNDS1

Type of Release								
Indicator Compound	Gasoline	Kerosene, Jet Fuel	Diesel, Light Fuel Oils	Heavy Fuel Oils	Crude Oil	Highly Refined Base Oils2	Used Motor Oil, Lubricating Oil	Unknown
T TPH-GRO	X	X						X
TPH-DRO		X	X	X	X	X	X	X
Volatiles	X	X						X
Acenaphthene		X	X	X	X	X	X	X
Acenaphthylene		X	X	X	X	X	X	X
Anthracene		X	X	X	X	X	X	X
Benz[a]anthracene		X	X	X	X	X	X	X
Benzo[a]pyrene		X	X	X	X	X	X	X
Benzo[b]fluoranthene		X	X	X	X	X	X	X
Benzo[g,h,i]perylene		X	X	X	X	X	X	X
Benzo(k)fluoranthene		X	X	X	X	X	X	X
Chrysene		X	X	X	X	X	X	X
Fluoranthene		X	X	X	X	X	X	X
Fluorene		X	X	X	X	X	X	X
Indeno[1,2,3-c,d]pyrene		X	X	X	X	X	X	X
2-Methylnaphthalene		X	X	X	X	X	X	X
Naphthalene		X	X	X	X	X	X	X
Phenanthrene		X	X	X	X	X	X	X
Pyrene		X	X	X	X	X	X	X
Metals							X	X
Methyl tertbutyl ether	X							X
Methyl ethyl ketone	X3							X
Methyl isobutyl ketone	X3							X

NOTES:

1 ASTM 1995 and TPH Criteria Working Group; for large releases additional indicator constituents may be identified for evaluation.

2 Applies to oils formulated with highly refined base oils including hydraulic fluids (Mineral-oil based hydraulic fluids, Toxicological Profile for Mineral Oil Hydraulic Fluids, Organophosphate Ester Hydraulic Fluids, and Polyalphaolefin Hydraulic Fluids, ATSDR 1994), motor oils, industrial oils, and automatic transmission fluid-type oils (i.e., severely refined base oils).

3 When suspected to be present.

TABLE 2

TIER 2 PETROLEUM HYDROCARBON TARGET REMEDIATION GOALS (TRGS)

Carbon Fraction	Method	Groundwater (ìg/L)	Soils Unrestricted (mg/kg)	Soils Restricted (mg/kg)
C_5-C_8	Aliphatic	400	100	500
C_9-C_{12}	Aliphatic	4,000	1,000	5,000
C_9-C_{10}	Aromatic	200	100	100
C_9-C_{18}	Aliphatic	200	100	5,000
C_{19}-C_{36}	Aliphatic	5,000	2,500	5,000
C_{11}-C_{22}	Aromatic	200	200	200

APPENDIX D

ECOLOGICAL CHECKLIST

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
BROWNFIELD VOLUNTARY CLEANUP PROGRAM
ECOLOGICAL CHECKLIST

Section I- Facility Information

1. Name of Facility: _____

2. Location of Facility: _____

County: _____

3. Mailing Address: _____

4. Type of Facility: _____

5. Describe land use at and in the vicinity of the release site _____

_____

6. Attach a USGS topographic map of the facility and aerial and other photographs of the release site and surrounding areas.

Section 2-Surrounding Land Use Information

1. Describe land use adjacent to the facility.
   _____

2. Provide the following information regarding the nearest water body:
   Name of surface water body: _____

   Type of surface water body (pond, lake, river etc: _____

3. Do any potentially sensitive environmental areas exist adjacent to or in proximity to the site, e.g., Federal and State parks, National and State Monuments, wetlands, etc.
   _____

Section 3 - Release Information

1. Nature of release. _____

2. Location of the release (within the facility) _____

3. Location of the release with respect to the facility property boundaries:

4. Chemicals of Concern (COC) known or suspected to have been released: _____

5. Indicate which media are known or suspected to be impacted and if sampling data are available:

Soil 0-6 feet bgs yes no

groundwater yes no

surface water/sediment yes no

6. Has migration occurred outside the facility property boundaries? yes no

If yes, describe the designated use of the land impacted:

_____

Section 4 - Criteria for Further Assessment

If the Area of Impact (AOI) meets all of the criteria presented below, then typically no further ecological evaluation shall be required. If the AOI does not meet all of the criteria, then a screening level ecological risk shall be conducted. The Submitter should make the initial decision regarding whether or not a screening level ecological risk assessment is warranted based on compliance of the AOI with criteria listed below. After review of the ecological checklist and other available site information, the Mississippi Department of Environmental Quality will make a final determination on the need for a screening level ecological risk assessment. If site conditions at the AOI change such that one or more of the criteria are not met, then a screening level ecological risk assessment shall be conducted.

The criteria for exclusion from further ecological assessment include:

The area of impacted soil is approximately 1 acre or less in size;

There is no current (or potential) release (via runoff or groundwater discharge) of COCs from the AOI to a surface water body;

Recreational species, commercial species, threatened or endangered species, and/or their habitats are not currently being exposed, or expected to be exposed, to COCs present at or migrating from the AOI; and

There are no obvious impacts to ecological receptors or their habitats.

Section 5 - Site Summary

The ecological checklist submittal shall include a site summary which presents sufficient information to verify that the AOI meets or does not meet the criteria for further assessment.

Section 6 - Submitter Information

Date:	
Name of person submitting this check list:	
Affiliation:	
Signature	
Additional Preparers:	

Source: Miss. Code Ann. *§§ 49-35-1, et seq., 49-2-9(1)(b), 49-17-17, 17-17-1, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Part 3, Chapter 3: Mississippi Commission on Environmental Quality "Right-Way-To-Throw-Away Program" Regulations – Adopted February 25, 1993

TABLE OF CONTENTS

Subchapter 1 Household Hazardous Waste Regulation

Rule 3.1.1 Definitions.

Rule 3.1.2 Applicability.

Rule 3.1.3 Application.

Rule 3.1.4 Site Plan.

Rule 3.1.5 Management /Operation Plan.

Rule 3.1.6 Safety and Emergency Response Plan.

Rule 3.1.7 Recordkeeping and Reporting Procedures.

Rule 3.1.8 Recycling and Reuse Plan.

Rule 3.1.9 Public Information and Education Plan.

Subchapter 2 Household Hazardous Waste Program

Rule 3.2.1 Definitions

Rule 3.2.2 Eligibility.

Rule 3.2.3 Allocation of Funds.

Rule 3.2.4 Application.

Rule 3.2.5 Selection of Applicants for Funding.

Rule 3.2.6 The Department May Refuse to Approve or Grant Application for Any of the Following Reasons.

Rule 3.2.7 If Insufficient Fund are not Available for the "Right-Way-to-Throw-Away Program," No Grant will be Awarded.

Rule 3.2.8 If the Department Should Refuse to Approve a Grant Application for any Reason, the Applicant May Request a Hearing Before the Commission in Accordance with Section 49-17-35, Mississippi Code of 1972.

Rule 3.2.9 Conditions of Grant.

Subchapter 1 Household Hazardous Waste Regulation

This regulation is promulgated by the Mississippi Commission on Environmental Quality under the authority of Mississippi Code Annotated Sections 49-17-17, 49-17-29, 17-17-439, 17-17-443, and 17-17-445, Mississippi Code of 1972 (Supp. 1992).

Rule 3.1.1 Definitions.

For the purposes of this regulation, the following words shall have the definitions ascribed herein unless the context requires otherwise:

A. "Commission" shall mean the Commission on Environmental Quality.

B. "Department" shall mean the Department of Environmental Quality.

C. "Collection contractor" shall mean a person approved by the Department and retained by a county, municipality, or multicounty agency to operate a household hazardous waste collection and management program.

D. "Household hazardous waste" shall mean any waste that would be considered hazardous under the Solid Waste Disposal Law of 1974, Section 17-17-1 et seq., Mississippi Code of 1972, or any rules or regulations promulgated thereunder, but for the fact that it is

produced in quantities smaller than those regulated under such laws or regulations and is generated by persons not otherwise covered by such laws or regulations.

E. "Applicant" shall mean a county, municipality, or multicounty agency requesting to operate a household hazardous waste collection and management program.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.1.2 Applicability.

These requirements shall apply to all applicants requesting to establish a program for the collection and management of household hazardous waste. Prior to implementation, the Department must approve and certify all proposed household hazardous waste collection and management programs.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.1.3 Application.

A. Any person proposing to establish a program for the collection and management of household hazardous waste must submit an application to the Department. All applications shall be completed by the appropriate person at least 120 days prior to the proposed collection day or prior to the establishment of a permanent facility on forms provided by the Department.

B. Each application shall include, at a minimum, (1) a site plan, (2) a management/operations plan, (3) a health and safety plan, (4) recordkeeping and reporting procedures, (5) a recycling or reuse plan, and (6) a public information and education plan.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*.

Rule 3.1.4 Site Plan.

The site plan shall describe all pertinent information concerning the site where the collection program will be conducted, and shall include, at the minimum, the following:

A. a description of the general characteristics and location of the site;

B. a U.S. Geological Survey map with the site location identified;

C. a detailed site map (8 ½" X 11" or larger") indicating structure locations, access roads, property lines (the collection facility shall be a minimum of 50 feet from

the property line), surface waters (the collection facility shall be a minimum of 250 feet from any surface waters), and water wells (the collection facility shall be a minimum of 250 feet from any public water well).

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.1.5 Management/Operations Plan.

A. General description

The applicant shall describe in narrative form the management and collection of the household hazardous waste collection program, discussing all pertinent aspects, including, but not necessarily limited to:

(1) day (s) and hours of operation;

(2) a listing of all waste categories that will be accepted by the facility including an estimate of the amount of waste expected to be collected by waste category;

(3) the name, address, and contact person of the collection contractor;

(4) description of the collection contractor's previous experience, and a list of key personnel's experience and training.

B. Material drop-off, handling, storage, and containment

The applicant shall describe the method the applicant will use to handle each waste type that will be accepted, procedures for waste identification and characterization, and on-site storage and containment. The description shall include, at a minimum, the following:

(1) a copy of the collection contractor's operation manual, if applicable;

(2) a description of the traffic circulation at the facility;

(3) a description of the traffic areas as they relate to the waste storage areas;

(4) a description of how the materials will be transferred from the participant's vehicles to the waste storage area;

(5) a description of security and safety procedures to be used by the collection contractor to control access to the waste storage area;

(6) a description of the procedures and methodology used by the collection contractor for characterizing all waste as either reactive, explosive, corrosive, ignitable, or toxic to ensure the proper handling of the wastes;

(7) a description of the procedures for handling unknown wastes, and for handling wastes brought in that are not accepted by the collection contractor;

(8) a description of the procedures for handling wastes that that are received in corroded or leaking containers;

(9) a description of the procedures for handling wastes brought to the facility by businesses;

(10) a description of the procedures used to ensure that all wastes and storage containers are chemically compatible such that no reaction or leakage occurs;

(11) a description of the procedures to remove all waste materials from the site within ten (10) days after the approved collection day;

(12) the name, address, telephone number, EPA ID number, and contact person of the transporter of the household hazardous waste collected;

(13) a listing of the amounts and destinations of the wastes that were collected.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.1.6 Safety and Emergency Response Plan.

The applicant shall describe the procedures to ensure the public's health and safety for any unplanned release of hazardous waste or hazardous waste constituents to the air, soil, groundwater, or surface water. These procedures should include the following:

A. a device, such as a telephone or hand-held two-way radio, capable of summoning emergency assistance from local police departments, or state or local emergency response teams;

B. a fire extinguisher system;

C. a list of eye wash, showers, first aid, or other safety equipment necessary to prevent or mitigate injury to personnel who handle wastes. The applicant shall include detailed information on protective gear that personnel will wear as standard practice;

D. a list of names of all persons qualified to act as emergency coordinator, designating one person as primary contact and listing others in the order in which they assume responsibility;

E. a description of the arrangements agreed to by local police department, fire and rescue, hospitals, and state and local emergency response teams to coordinate and deliver emergency services;

F. a list of contact persons and telephone numbers for the police department, fire and rescue units, hospitals, and state and local emergency response teams;

G. a description of actions which facility personnel are to take in response to fires, explosions, or any release of waste constituents to air, soil, or surface water at the facility;

H. a description of the evacuation plan for the facility in case of an emergency.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.1.7 Recordkeeping and Reporting Procedures.

A. The applicant shall describe procedures for recording the amounts of material received and transported for disposal.

B. The applicant shall describe procedures for the submittal of the following to the Department within 30 days after the collection day or on a quarterly basis for permanent facilities:

(1) the type of wastes collected;

(2) the amounts of waste collected, by waste type;

(3) the method utilized for disposal, by waste type.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.1.8 Recycling and Reuse Plan.

The applicant shall describe in detail the procedures used for the recycling or reuse of nay of the collected household hazardous wastes.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.1.9 Public Information and Education Plan.

A. The applicant shall describe plans to inform the public concerning the collection day, hours of operations, types and amounts of wastes accepted, and the proper transportation of these materials to the collection site.

B. The applicant shall describe any educational presentations and materials to encourage waste reduction, minimization, or recycling that will be made available to the participants.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Subchapter 2 Household Hazardous Waste Grant Program.

This regulation is promulgated by the Mississippi Commission on Environmental Quality under the authority of Mississippi Code Annotated Sections 49-17-17, 49-17-29, and 17-17-441, Mississippi Code of 1972 (Supp. 1992).

Rule 3.2.1 Definitions

For the purpose of this regulation, the following words shall have the definition ascribed herein unless the context requires otherwise:

A. "Commission" shall mean the Commission on Environmental Quality.

B. "Department" shall mean the Department of Environmental Quality.

C. "Local government" shall mean a county, municipality, or multicounty agency.

D. "Household hazardous waste" shall mean any waste that would be considered hazardous under the Solid Waste Disposal Law of 1974, Section 17-17-1 et seq.., Mississippi Code of 1972, or any rules and regulations promulgated thereunder, but for the fact that it is produced in quantities smaller than those regulated under such laws or regulations and is generated by persons not otherwise covered by such laws or regulations.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.2.2 Eligibility.

All counties, municipalities and multicounty agencies in Mississippi are eligible to apply for funding under the "Right-Way-To-Throw-Away Program".

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.2.3 Allocation of Funds.

A. Monies allocated to counties, municipalities and multicounty agencies can be utilized for the following purposes:

(1) the collection and proper treatment, storage, or disposal of household hazardous waste.

(2) transportation costs associated with the proper treatment, storage, or disposal of the household hazardous waste collected.

(3) costs for administration and dissemination of public information associated with the collection or transportation of household hazardous waste.

(4) other costs determined by the Department to be integral to a successful household hazardous waste program.

B. The Department shall accept applications on an annual basis by July 1 of each year, beginning in 1993. The Commission shall award funds after the Department has reviewed applications received prior to July 1 of each year. If monies remain after the Commission funds the projects received and approved before July 1 of each year, additional applications will be evaluated and, if approved, may be funded after the Commission awards the projects received prior to July 1.

C. For grants to counties, municipalities, and multicounty agencies, no more than 75% of the costs of the project shall be eligible for grant funding.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.2.4 Applications.

Entities requesting funding for a "Right-Way-To-Throw-Away Program" shall submit to the Department an original and two (2) copies of a grant application. This application shall contain the following:

A. a completed grant application form, as provided by the Department.

B. a detailed narrative description of the proposed household hazardous waste program.

C. a detailed narrative description of any proposed recycling/reuse activities.

D. the applicant's resolution authorizing the submission of a household hazardous waste grant application.

E. if applicable, a copy of the applicant's intergovernmental compact or agreement between the applicable counties or municipalities.

F. a statement of the applicant's assurances for providing at least 25% local match for the grant request.

G. the applicant's proposed budget, which shall include the program's cost estimate, by major expense category, for the funding being requested.

H. the applicant's agreement with the collection contractor that will be responsible for collecting hazardous waste, and transporting the waste to the appropriate permitted recycling, storage, treatment, or disposal facility.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.2.5 Selection of Applicants for Funding.

Where funds requested exceed funds available, applications shall be evaluated and ranked, with prioritization for funding based on the following criteria:

A. the extent to which a project would serve an area that is not being presently served by a household hazardous waste program or which has not been served with the past twelve months.

B. the number of people served and the amount of the household hazardous waste to be collected by the project.

C. the extent to which the project proposes to recycle or reuse specified household hazardous waste rather than merely to treat, store, or dispose of such waste.

D. the amount of the funds that exceed the minimum twenty-five percent (25%) matching requirement.

E. the extent to which the project allows for the transfer of both technical and management information to other household hazardous waste grant applications.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.2.6 The Department May Refuse To Approve A Grant Application For Any Of The Following Reasons:

A. the Department determines that the project is not consistent with the "Right-Way-To-Throw-Away Program".

B. the Department determines that the applicant does not have the technical or administrative capacity to conduct the proposed project.

C. the applicant is in violation of, or delinquent on, any condition of a previously awarded grant by the department.

D. The applicant has been significantly or habitually in violation of environmental laws, regulations, or permits.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.2.7

If insufficient funds are available for the "Right-Way-To-Throw-Away Program", no grant will be awarded.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.2.8

If the Department should refuse to approve a grant application for any reason, the applicant may request a hearing before the Commission in accordance with Section 49-17-35, Mississippi Code of 1972.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Rule 3.2.9 Conditions of Grant.

A. Grants made to counties, municipalities, or multicounty agencies shall require compliance with all applicable procurement and purchasing regulations established by the Mississippi Department of Finance and Administration, Bureau of Purchasing.

B. At the discretion of the Commission, monies which are unspent twelve (12) months after the grant award shall be forfeited back to the Department.

C. The applicant shall submit to the Department additional material, as required by the "Right-Way-To-Throw-Away Program" Title 11, Part 3, Chapter 3, within sixty days of the grant award.

D. The Department may include any other conditions as part of the grant award which it feels necessary to reasonably manage the project or to protect the environment.

Source: Miss. Code Ann. *§§ 49-17-17, 49-17-29, 17-17-439, 17-17-443, 17-17-445, 17-17-1, et seq., 17-17-401, et seq., 49-2-1, et seq. and 49-17-1, et seq.*

Part 3 Hazardous Waste Management Regulations

Part 3, Chapter 4: Mississippi Environmental Quality Permit Board Commercial Hazardous Waste Management Facility Demonstration of Need Regulations, (Adopted October 22, 1991, Effective November 25, 1991)

TABLE OF CONTENTS

Rule 4.1 Scope and Authority

Rule 4.2 Definitions

Rule 4.3 Demonstration of Need

Rule 4.4 Evaluation Criteria

Rule 4.5 Permit Board Authority

Rule 4.6 Permit Board

Rule 4.1 *Scope and Authority.* This regulation is promulgated by the Mississippi Environmental Quality Permit Board under the authority of Mississippi Code Annotated Sections 49-17-17, 49-17-29, and 17-17-151 (Supp. 1991). Other regulations will apply to applicants seeking permits to establish or expand a commercial hazardous waste management facility.

Source: Miss. Code Ann. §§ *17-17-1, et seq., 17-17-151, 49-17-17, 49-17-29, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 4.2 *Definitions.* For the purpose of this regulation, all words and phrases shall have the meanings ascribed to them in Section 17-17-3 of the Mississippi Code unless the context clearly indicates otherwise. Terms not defined therein shall have their ordinary meaning within the hazardous waste field. Terms having such a specialized meaning are to be given that specialized meaning unless otherwise defined in Section 17-17-3 of the Mississippi Code.

Source: Miss. Code Ann. §§ *17-17-1, et seq., 17-17-151, 49-17-17, 49-17-29, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 4.3 *Demonstration of Need.* Each application for a permit to establish or expand a commercial hazardous waste management facility shall be accompanied by a written demonstration of need for such facility in the anticipated service area. The demonstration of need shall be specific as to the types of hazardous waste to be managed and shall include, as a minimum, the following:

A. A description of the service area for the proposed facility with an explanation of the economics of hazardous waste collection, transportation, treatment, storage and disposal as these relate to the proposed service area.

B. Documentation of the available capacity at existing commercial hazardous waste management facilities in the area to be served by the facility.

C. Documentation of the current quantity of hazardous waste generated and the quantity of hazardous waste reasonably expected to be generated during the next twenty (20) years within the anticipated service area, including documentation of the anticipated quantity of hazardous waste suitable for treatment, storage or disposal at the proposed facility.

D. Documentation of the extent to which the proposed facility is needed to replace other facilities in the proposed service area.

E. A description of any additional factors, such as physical limitation on the transportation of the hazardous waste or the existence of additional capacity outside the area to be served, which may satisfy the projected need.

F. Documentation of the extent to which the proposed commercial hazardous waste management facility is in conformance with the Mississippi Capacity Assurance Plan and any interstate or regional agreements associated therewith.

G. Additional information as the Permit Board may require.

Source: Miss. Code Ann. §§ *17-17-1, et seq., 17-17-151, 49-17-17, 49-17-29, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 4.4 *Evaluation Criteria.* The Mississippi Environmental Quality Permit Board shall consider the following criteria in evaluating the need for the proposed commercial hazardous waste management facility:

A. The extent to which the proposed commercial hazardous waste management facility is in conformance with the Mississippi Capacity Assurance Plan and any interstate or regional agreements.

B. An approximate service area for the proposed facility which takes into account the economics of the hazardous waste collection, transportation, treatment, storage and disposal.

C. The quantity of hazardous waste generated within the anticipated service area suitable for treatment, storage or disposal at the proposed facility.

D. The design capacity of existing commercial hazardous waste management facilities located within the anticipated service area of the proposed facility.

Source: Miss. Code Ann. §§ *17-17-1, et seq., 17-17-151, 49-17-17, 49-17-29, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 4.5 *Permit Board Authority.* If the Permit Board determines that a proposed commercial hazardous waste management facility is inconsistent with or contradictory to the factors set forth in Rule 4.4, the Permit Board may deny any permit for such facility.

A. The extent to which the proposed facility is needed to replace other facilities, if the need for a proposed commercial hazardous waste management facility cannot be established under Rule 4.4 A-D through Rule 4.5 A.

B. The extent to which the proposed facility will result in a proliferation of necessary facilities in the county where the proposed facility is located.

Source: §§ *17-17-1, et seq., 17-17-151, 49-17-17, 49-17-29, 49-2-1, et seq. and 49-17-1, et seq.*

Rule 4.6 Permit Board

If the Permit Board determines that a proposed commercial hazardous waste management facility is inconsistent with or contradictory to the factors set forth in Rule 4.4, the Permit Board may deny any permit for such facility.

Source: Miss. Code Ann. §§ *17-17-1, et seq., 17-17-151, 49-17-17, 49-17-29, 49-2-1, et seq. and 49-17-1, et seq.*

Part 3: Hazardous Waste Management Regulations

Part 3, Chapter 5: Mississippi Commission on Environmental Quality Groundwater Quality Standards (Adopted November 21, 1991)

TABLE OF CONTENTS

Rule 5.1 Introduction

Rule 5.2 Applicability

Rule 5.3 Numerical Groundwater Standards

Rule 5.4 Table 1 – Numerical Groundwater Standards

Rule 5.1 Introduction (Adopted November 21, 1991).

Mississippi groundwaters are among the basic resources of the state. They are utilized for many economically beneficial purposes, including agricultural irrigation, aquaculture, livestock watering, & industrial manufacturing. The most critical use, however, is that it serves as the principal source of drinking water in the state. In fact, over 90% of the population of the state utilizes groundwater as its potable water supply. Therefore, the standards adopted herein focus on preserving the quality of the groundwater as a drinking water resource. In doing so, it is generally believed that other uses will be adequately protected. It is the policy of the Commission on Environmental Quality that where alternate technology is available, groundwater should not be used for wastewater disposal. Therefore, the standards adopted herein should not be misconstrued to allow or condone deliberate, limited degradation of groundwater from disposal practices that can be avoided with alternate technology.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 5.2 Applicability.

The standards adopted herein are applicable to all groundwater aquifers with a total dissolved solids (TDS) concentration less than 10,000 mg/l, except those incapable of yielding an adequate volume of water to serve the potable water needs of an average residence using standard well construction and pumping technology. Generally, the soil water (unsaturated zone) and the saturated water found in clay or shale formations (aquitards) do not yield water in sufficient quantities to be used as a potable water supply, and the standards incorporated herein are not intended to apply to such waters. However, some protection or remediation of these waters will be necessary, particularly if it is determined that they may be interconnected with other groundwater and thus impact the chemical quality of that water. Also, it is recognized that the implementation of federal programs such as Subtitle C of the Resource, Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) may require the applicability of these or more stringent standards to all groundwater.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 5.3 Numerical Groundwater Standards.

Groundwater is expected to meet the water quality standards equivalent to the Maximum Contaminant Level (MCL) of any constituent, as established by the Environmental Protection Agency (EPA). Table 1 is a list of those chemicals for which EPA has promulgated MCL's. As EPA adopts additional or different MCL's, this table will be revised and updated accordingly. For chemicals with no established MCL, the water quality standard shall be calculated using the procedure outlined in this section.

A. Carcinogens

(1) A water quality standard may be calculated from Risk-Specific Doses (RSD's) developed according to EPA Guidelines for Carcinogen Risk Assessment. The RSD is an upper bound estimate of the average daily dose of a carcinogenic substance that

corresponds to a specified excess cancer risk for lifetime exposure. The standards calculated are derived from the following basic formula:

RSD = (R/q1) x (W/I) Equation (1)

Where:

RSD = the Risk Specific Dose, or standard for the toxicant of interest;

R = the specified risk level (e.g. 10-6);

q1 = the carcinogen slope factor (CSF) in (mg/kg/day)-1 developed by the Carginogen Assessment Group (CAG) of the EPA, Office of Health & Environmental Assessment, or the EPA's Carcinogen Risk Assessment Verification Endeavor (CRAVE) Workgroup;

W = the assumed weight of the exposed individual; and

I = the intake amount for a given time period.

(2) For purposes of calculating groundwater quality standards, it is assumed that the weight of the exposed individual (W) will be 70 kg & that the intake rate (I) will be 2 liters/day over a lifetime. Therefore, equation (1) is reduced to:

RSD = 35 x R/q1 Equation (2)

(3) Except as provided in Paragraph E of this section, the standard calculated from Equation (2) shall correspond to a risk level (R) of no less than 10-6 for Class A & B carcinogens, or 10-5 for Class C carcinogens.

B. Systemic Toxicants

(1) A water quality standard may be calculated from Reference Doses (RfD's) developed according to EPA accumulated data describing noncarcinogenic end points of toxicity. The RfD is an estimate of the daily exposure an individual (including sensitive individuals) can experience without appreciable risk of health effects during a lifetime. The standards calculated are derived from the following basic formula:

C = (RfD) x (W/I) x (RSC) Equation (3)

where:

C = concentration for the toxicant of interest;

RfD = Reference Dose in mg/kg/day;

W = the assumed weight of the exposed individual;

I = the intake amount for a given time period; and

RSC = Relative Source Contribution, or the fraction of the overall exposure contributed by ingestion of water over the lifetime of an individual.

(2) For purposes of calculating groundwater quality standards, it is usually assumed that the weight of the exposed individual (W) will be 70 kg and that the intake rate (I) will be 2 liters/day over a lifetime. Therefore, Equation (3) is reduced to:

$$C = 35 \times RfD \times RSC \qquad \text{Equation (4)}$$

The Relative Source Contribution (RSC) may vary widely with each application of Equation (4). Again, for purposes of calculating a groundwater quality standard, it should be assumed that ingestion from drinking water contributes a minimum of 20% of the overall exposure of a specific contaminant over the lifetime of an individual. If, however, there is information indicating that ingestion represents a higher fraction of the overall exposure, the RSC value may be adjusted, but in no case should it exceed 80%.

C. TOXICANTS WHICH ARE BOTH CARGINOGENS & SYSTEMICALLY TOXIC

Some toxicants may be both carginogenic and systemically toxic. In such cases, the lower of the two values as calculated by Equations (1) - (4) shall be the standard.

D. DETECTION LIMITS

In cases where the calculated standard is below the current analytical detection limit, the standard shall be the detection limit.

E. ALTERNATIVE STANDARDS

(1) For remedial purposes only, the Commission on Environmental Quality may establish an alternative standard (AS) in lieu of the calculated standard, as long as:

(a) the AS established is based upon human health criteria; and

(b) the AS does not exceed a lifetime cancer risk level of 10-4.

(2) Environmental, technological, and economic factors, as well as consistency with EPA regulations and guidance may be considered in establishing an AS.

(3) An AS may be site specific or for a group of remedial sites with similar characteristics.

Source: *Miss. Code Ann. §§ 17-17-1, et seq., 49-2-9 (1)(b), 49-2-1, et seq. and 49-17-1, et seq.*

Rule 5.4 Table 1 – Numerical Groundwater Standards.

Contaminant	Standard (PPB)
Alachlor	2
Aldicarb	3
Aldicarb Sulfone	2
Aldicarb Sulfoxide	4
Antimony	6
Arsenic	50
Atrazine	3
Barium	2,000
Benzene	5
Benzo(a) pyrene	0.2
Beryllium	4
Cadmium	5
Carbofuran	40
Carbon Tetrachloride	5
Chlordane	2
Chromium	100
Cyanide	200
2,4-D	70
Dalapon	200
Dibromochloropropane (DBCP)	0.2
o-Dichlorobenzene	600
p-Dichlorobenzene	75
1,2-Dichloroethane	5
1,1-Dichloroethylene	7
cis-1,2-Dichloroethylene	70
trans-1,2-Dichloroethylene	100
Dichloromethane (Methylene Chloride)	5
1,2-Dichloropropane	5
Di(2-ethylhexyl)adipate	400
Di(2-ethylhexyl)phthalate	6
Dinoseb	7
Diquat	20
Endothall	100
Endrin	2
Ethylbenzene	700
Ethylene Dibromide (EDB)	0.05
Fluoride	4

Glyphosate	700
Heptachlor	0.4
Heptachlor Epoxide	0.2
Hexachlorobenzene	1
Hexachlorocyclopentadiene	50
Lead	50
Lindane	0.2
Mercury	2
Methoxychlor	40
Monochlorobenzene	100
Nickel	100
Nitrates (as N)	10,000
Nitrites (as N)	1,000
Nitrites & Nitrates (as N)	10,000
Oxamyl (Vydate)	200
Pentachlorophenol	1
PCB's	0.5
Picloram	500
Selenium	50
Silver	50
Simazine	4
Styrene	100
2,3,7,8-TCDD (Dioxin)	0.00003
2,4,5-TP	50
Tetrachloroethylene	5
Thallium	2
Toluene	1,000
Toxaphene	3
1,2,4-Trichlorobenzene	70
1,1,1-Trichloroethane	200
1,1,2-Trichloroethane	5
Trichloroethylene	5
Vinyl Chloride	2
Xylene	10,000