

PART 8. SITE ASSESSMENT MODEL

R 299.5801 Definitions; A to I.

Rule 801. As used in this part:

- (a) "Aquatic life" means all life forms that live in surface water or get most of their food from surface water.
- (b) "Category" means any of the 6 major components of the site assessment model. A category shall be 1 of the following:
 - (i) Environmental contamination.
 - (ii) Mobility rating.
 - (iii) Sensitive environmental resource.
 - (iv) Population.
 - (v) Institutional population.
 - (vi) Chemical hazard.
- (c) "Category subscore" means the points scored for a site for each of the 6 categories in the site screening model.
- (d) "Chemical hazard" means the category in which the hazard posed by a substance is evaluated, considering the quantity of the hazardous substance; health-related effects, such as acute toxicity, carcinogenicity, mutagenicity, persistence, and bioaccumulation; and other adverse effects on human and non-human life forms.
- (e) "Confirmed contamination" means the component of the environmental contamination category scored when analytical data is available to confirm a release of a hazardous substance.
- (f) "Containment structure" means any natural or human-made structure that is designed or used for the storage, transport, treatment, or disposal of hazardous substances, and from which substances may be released. The term may include soil and surface waters.
- (g) "Concentration and cleanup criteria ratio" means the value obtained when the concentration of a hazardous substance is divided by the cleanup criterion for that hazardous substance as further described in R 299.5819(3)(a).
- (h) "Contaminant mobility" means the category in which points are assigned based on the potential or actual migration of a hazardous substance.
- (i) "Environmental contamination" means the category in which points are assigned for hazardous substance effects on environmental media.
- (j) "Environmental media" means any of the following:
 - (i) Soil.
 - (ii) Groundwater.
 - (iii) Surface water.
 - (iv) Air.
 - (v) Aquifer matrix.
 - (vi) Sediments.

(k) "Human exposure" means the component of the environmental contamination category scored when there is or may be human exposure to a hazardous substance.

(l) "Institutional population" means the category scored when an occupied school, hospital, nursing home, or licensed child care center is located within 1/2 mile of the site.

R 299.5803 Definitions; M to W.

Rule 803. As used in this part:

(a) "Mobile solids" means a solid hazardous substance or a material that contains a hazardous substance which is less than 2,000 microns (2 millimeters) in diameter and which may be transported by the air.

(b) "Natural community" means an association of plants, animals, or combinations thereof found to have a natural symbiotic relationship to one another.

(c) "Population" means the category in which points are assigned on the basis of the population density for the area within 1/2 mile of the site.

(d) "Potential contamination" means the component of the environmental contamination category scored when there is a potential for a hazardous substance to contaminate the environmental media being evaluated.

(e) "Receptor" means an individual or a population that may be affected by the release of a hazardous substance.

(f) "Saturated soil" means soil in which the concentration of a hazardous substance exceeds the soil saturation limit established under R 299.5718(2), or, if data are not available, soil that appears, upon visual inspection, to contain a free phase hazardous substance.

(g) "Semiliquid" means a substance which is intermediate in properties between a solid and a liquid, but which flows readily.

(h) "Semisolid" means a substance which is intermediate in properties between a solid and a liquid, but which will not flow readily.

(i) "Sensitive environmental resource" means the category in which points are assigned for either a natural community which occurs within 1/2 mile of the site and which has been classified as uncommon, extremely rare, or rare or a plant or animal species which has been classified as endangered or threatened as defined in section 2(d) or (l) of 1974 PA 203, MCL 299.222(d) or (l). The term also includes plant and animal species classified as being of special concern. All such classifications are made by the department of natural resources.

(j) "Site assessment model" means the numerical risk assessment model that is used to establish the relative risk rankings of sites of environmental contamination.

(k) "Site score" means the sum of the 6 category subscores in the site screening model.

(l) "Surface impoundment" means a natural topographic depression, human-made excavation, or diked area which holds an accumulation of liquid that contains hazardous substances. The term may include natural lakes, ponds, or wetlands.

(m) "Surface water" has the meaning given in R 323.1044(v).

(n) "Surficial soil" means the top 6 inches of the ground surface.

(o) "Suspected contamination" means the component of the environmental contamination category scored when analytical data is not available to confirm a release of a hazardous substance, but a release can reasonably be judged to have occurred, based on visual or other evidence.

(p) "Target area" means the area within 1/2 mile of a site.

(q) "Vulnerable aquifer" means an aquifer that is not protected by an aquitard from contamination by hazardous substances.

(r) "Waste" means disposed of or discarded material that contains 1 or more hazardous substances.

(s) "Waste class" means the component of the chemical hazard category that is scored on the basis of the business type or waste source.

(t) "Wellhead protection area" means the surface and subsurface area surrounding a water well or well field, supplying a public water system, through which hazardous substances are reasonably likely to move toward and reach such water well or well field.

(u) "Well log" means the record of earth materials and other data recorded by a licensed well driller under part 127 of 1978 PA 368, MCL 333.12701 et seq.

(v) "Wetland" has the meaning defined in section 2(g) of 1979 PA 203, MCL 281.702(g), and known as the Goemaere-Anderson wetland protection act.

R 299.5805 Site assessment model.

Rule 805. The numerical risk-based site assessment model used for assessing the relative present and potential hazards of sites included in the listings provided to the legislature in accordance with section 20105 of the act shall be as described in this part.

R 299.5807 Scoring procedure.

Rule 807. (1) Category scores shall be determined for each site in accordance with this rule and R 299.5801 to R 299.5805 and R 299.5809 to R 299.5821 and shall be recorded on a site scoring sheet illustrated in figure 1, as follows:

**FIGURE 1
SITE SCORING SHEET**

Site Name	Site ID	County	Score		
CATEGORY			CATEGORY SUBSCORE		
Environmental Contamination (20 points Max.)	Environmental Media Exposure	Potential Contamination	Suspected Contamination	Confirmed Contamination	Human
	Soils	1	3	6	9
	Ground Water	1	3	6	9 to 20
	Surface Water	1	3	6	9 to 20
	Air	1	3	6	9 to 20
<input style="width: 50px; height: 20px;" type="text"/>					
Mobility Ratings (5 points Max.)	1	or	3	or	5
<input style="width: 50px; height: 20px;" type="text"/>					
Sensitive Environmental Resources (3 points Max.)	Natural Communities Plants/Animals	Uncommon Special Concern	Rare Threatened	Extremely Rare Endangered	
	One occurrence	1	2	3	
	Two occurrences	2	3	3	
	Three or more	3	3	3	
<input style="width: 50px; height: 20px;" type="text"/>					
Population (4 points Max.)	Density (persons per square mile)			Points	
	1 - 10			1	
	11 - 100			2	
	101 - 1000			3	
	1,001 or more			4	
<input style="width: 50px; height: 20px;" type="text"/>					

**FIGURE 1
SITE SCORING SHEET- Continued**

Site Name	Site ID	County	Score
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CATEGORY	CATEGORY SUBSCORE
Institutional Population (1 point Max.)	1
Presence of one or more institutions in target area	<input style="width: 40px; height: 20px;" type="text"/>

Chemical Hazard		
Method A	Concentration/ Cleanup Criteria Ratio	Points
	1.01-4.9	3
	5 - 9.9	5
	10 - 49.9	7
	50 - 99.9	9
	100 - 499.9	11
	500 - 1000	13
	> 1000	15
		<input style="width: 40px; height: 20px;" type="text"/>

Chemical Hazard					
Method B	Quantity of Waste (Cubic meters or acres)	D	C	B	A
Unidentified Chemical(s)	<50	<0.5	3	5	7
	50 -500	0.5 - 10	5	7	9
	501 - 2,500	11 - 60	7	9	11
	>2,500	>60	9	11	13
				13	15
					<input style="width: 40px; height: 20px;" type="text"/>

Special Wastes	Severely Toxic Waste = 15	<input style="width: 40px; height: 20px;" type="text"/>
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Total Possible Points	= 48	Total Site Score	<input style="width: 40px; height: 20px;" type="text"/>
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Scored By _____ Date _____

(2) Zero points shall be awarded to categories when the conditions of this rule and R 299.5809 to R 299.5821 are not met.

R 299.5809 Environmental contamination category.

Rule 809. (1) Environmental contamination includes all of the following subcategories:

- (a) Potential contamination.
- (b) Suspected contamination.
- (c) Confirmed contamination.
- (d) Human exposure.

(2) The environmental contamination category subscore shall be the sum of the highest point value applicable to each environmental media, not to exceed 20 points total. If analytical data exist for a given contaminant, then the threshold value for scoring for soil and groundwater is the applicable residential criterion established under part 7 of these rules. The threshold value for discharges to surface water shall be the groundwater surface water interface criteria established under R 299.5716. The threshold value for emissions to air from soil shall be the generic cleanup criteria for soil based on inhalation of hazardous substances in ambient air established under R 299.5726.

(3) The potential contamination subcategory shall be scored according to the following criteria:

- (a) One point shall be scored for soil if the containment structure or structures is known or likely to have inadequate integrity and a release would contaminate soils.
- (b) One point shall be scored for groundwater if a site overlies a vulnerable aquifer. The vulnerability of an aquifer shall be determined by consulting local well logs, hydrogeological studies, or published sources of information about geology and hydrogeology in the area of the site.
- (c) One point shall be scored for surface water if a surface water body or wetland is located within 1/2 mile of the site.
- (d) One point shall be scored for air if a containment structure which is located at or within 12 inches of the ground surface and which is judged to contain volatile liquids or mobile solids is of suspect or inadequate integrity. Zero points shall be scored for air if a containment structure is empty.
- (e) If a hazardous product is stored in containment that is known or likely to be inadequate, then it shall be scored under this subrule as if it is a discarded hazardous substance.

(4) The suspected contamination subcategory shall be scored according to the following criteria:

- (a) Three points shall be scored for soil if there has been a release to soils or there is waste in the surficial soils, but the release has not been confirmed with analytical data.

(b) Three points shall be scored for groundwater if any 1 of the following conditions is judged to be attributable to a hazardous substance associated with the site:

(i) There has been a release to the groundwater, but the release has not been documented with analytical data.

(ii) A sheen is visible on an exposed groundwater surface.

(iii) A hazardous substance or waste is in contact with groundwater.

(iv) The site is located within a wellhead protection area.

(c) Three points shall be scored for surface water if any 1 of the following conditions is judged to be attributable to a hazardous substance associated with the site:

(i) There has been a release to surface water, but the release is not documented with analytical data.

(ii) Leachate or contaminated groundwater is entering surface water.

(iii) Stained soils are in contact with surface water.

(d) Three points shall be scored for air if any 1 of the following conditions is judged to be attributable to a hazardous substance associated with the site:

(i) There is an open container or surface impoundment that contains volatile compounds.

(ii) An obnoxious or chemical odor that is associated with a hazardous substance has been confirmed at the site by state or local agency personnel and is attributable to the site being scored.

(iii) Volatile compounds are present in uncovered surficial soils.

(iv) An emission of dust or particulate matter is observed from a known contamination area.

(v) A vapor cloud is observed emanating from a containment structure or contaminated area.

(5) The confirmed contamination subcategory shall be scored according to the following criteria when there is a release from a containment structure that is documented by quantitative analytical data above acceptable thresholds defined in R 299.5809(2):

(a) Six points shall be scored for soils if quantitative analytical data document a release to soils.

(b) Six points shall be scored for groundwater if quantitative analytical data document the presence of a hazardous substance in groundwater.

(c) Six points shall be scored for surface water if either of the following exists:

(i) Analytical data that document a hazardous substance in surface water or sediment.

(ii) Documentation of fish kill, fish tissue contamination, or other adverse impact on wildlife or aquatic life that is attributable, wholly or in part, to a release at the site being scored.

(d) Six points shall be scored for air if air sampling data document the presence of a hazardous substance on the property or being transported by air beyond the property boundary and the hazardous substance is attributable to the site.

(6) The human exposure subcategory shall be scored according to the following criteria when there has been, or may be, a human exposure to contaminants documented by analytical data above acceptable thresholds defined in R 299.5809(2):

(a) Nine points shall be scored for soil if hazardous substances are present at the soil surface and the area of contamination is accessible to the public or efforts to restrict access to the area of contamination have been unsuccessful and the site is unlikely to be secured.

(b) Nine points shall be scored for groundwater if the department has recommended that a potable water supply well that serves 59 or fewer people not be used due to hazardous substance contamination that is attributable to the site and permanent alternate water service has not been provided.

(c) Twenty points shall be scored for groundwater if the department has determined that 1 or more groundwater supplies that collectively serve 60 or more people are contaminated with a hazardous substance that is attributable to the site.

(d) Nine points shall be scored for surface water if any 1 of the following conditions exists:

(i) A bathing beach exists within the site boundaries on a surface water body that has documented hazardous substance contamination.

(ii) The department of community health has issued a restricted consumption fish advisory for a water body and the site has contributed to the advisory.

(iii) If the department has determined that at least 1 potable surface water intake that serves 59 or fewer people is contaminated with a hazardous substance attributable to the site and permanent alternate water service has not been provided.

(e) Twenty points shall be scored for surface water if either of the following conditions exists:

(i) The department has determined that at least 1 potable surface water intake that serves 60 or more people is contaminated with a hazardous substance that is attributable to the site.

(ii) The department of community health has issued a no consumption fish advisory for a water body and the cause of such an advisory can be attributed to the site.

(f) Nine points shall be scored for air if analytical data from air sampling, surficial soil, or other environmental samples indicate that airborne hazardous substances from the site have reached or affected a receptor at or beyond the property boundary of the source area.

(g) Twenty points shall be scored for air if 15 or more residences being receptors meet the criteria specified in subdivision (f) of this subrule.

R 299.5813 Sensitive environmental resource category.

Rule 813. (1) The sensitive environmental resource category shall be scored when either or both of the following conditions exist:

(a) A natural community that is located within 1/2 mile of the site has been classified by the department of natural resources as extremely rare, rare, or uncommon.

(b) A plant or animal that is located within 1/2 mile of the site has been classified by the department of natural resources as endangered, threatened, or of special concern.

(2) Zero points shall be scored where only groundwater is contaminated and a sensitive environmental resource is not likely to be affected by the hazardous substance either directly or during response activity undertaken to address the site.

(3) Points shall be assigned according to the criteria shown in figure 1 of R 299.5807.

(4) The sensitive environmental resource category subscore shall consist of the sum of the points shown in figure 1 of R 299.5807 for the number of occurrences of sensitive environmental resources. The sensitive environmental resource subscore shall not exceed 3 points.

R 299.5815 Population category.

Rule 815. (1) The population category subscore shall be determined from the criteria in the site scoring sheet illustrated in figure 1 of R 299.5807, considering the population density within 1/2 mile of the site or the density of the population potentially exposed through an exposure pathway that extends outside the target area, whichever is greater.

(2) The determination of population densities shall be based upon the best data that are readily available to the department.

(3) One point shall be scored when the population density within 1/2 mile of the site is fewer than 11 persons per square mile.

(4) Two points shall be scored when the population density within 1/2 mile of the site is more than 10 and fewer than 101 persons per square mile potentially exposed to a hazardous substance attributable to the site through an exposure pathway that extends outside the target area.

(5) Three points shall be scored when the population density within 1/2 mile of the site is more than 100 and fewer than 1,001 persons per square mile potentially exposed to hazardous substances attributable to the site through an exposure pathway that extends outside the target area.

(6) Four points shall be scored when the population density within 1/2 mile of the site is equal to or greater than 1,001 persons per square mile potentially exposed to hazardous substances attributed to the site through an exposure pathway that extends outside the target area.

R 299.5819 Chemical hazard category.

Rule 819. (1) The chemical hazard category shall be scored on the site scoring sheet illustrated in figure 1 of R 299.5807 according to the criteria described in this rule.

(2) The total quantity of waste on site shall not include any material that is properly stored in compliance with all applicable state and federal laws and regulations.

(3) Scoring shall be done according to 1 or both of the following methods described in subdivisions (a) and (b) of this subrule:

(a) Method A shall be used when the identity of a hazardous substance is known, and the concentration of 1 or more hazardous substances is known. If more than 1 hazardous substance is present at the same site, then the hazardous substance that provides the highest score shall be used to calculate the chemical hazard category subscore. The highest measured concentration from the most recent 12 months of sampling shall be used. The chemical hazard category score shall be determined by determining the applicable scoring ranges for the concentration and cleanup criteria ratios on the site scoring sheet illustrated in figure 1 of R 299.5807.

(b) Method B shall be used to score all hazardous substances at a site which have not been individually identified, but which are present in quantities that are known or can be estimated. For this method, the waste shall be characterized according to the type of business or process associated with the production of the waste contained in table 2. If more than 1 type of business or process is associated with a site, then the classification that best characterizes the suspected source of the environmental contamination shall be used. If a business or process which must be characterized is not found in table 2, the class which best approximates the business's waste stream, when compared to other businesses in that class, shall be assigned. The chemical hazard category score shall be determined on the basis of the applicable scoring ranges for waste class and quantity on the site scoring sheet illustrated in figure 1 of R 299.5807.

(c) If the quantity of waste is unknown, but the identity of the suspected or failed containment structure is known, then assume a onetime total volume loss.

(d) To estimate the volume of a lagoon when the depth is unknown, the depth shall be assumed to be 3 meters.

(e) To estimate the volume of contaminated soils when the depth of contamination is unknown, assume the depth to be 1 meter.

(f) If data availability allows for all of the hazardous substances at a site to be scored with 1 method, then method A is preferred. The method shall be determined by the availability of data.

(G) If data availability requires that more than 1 method for scoring the chemical hazard category be used, then hazardous substances at the site shall be combined on the basis of data availability and each group scored separately using the most appropriate method. The highest score of any 1 method shall be used as the chemical hazard score for the site.

(4) Score 15 points for the chemical hazard category when a polychlorinated dibenzodioxin or dibenzofuran is present at the site in a concentration that exceeds an applicable generic residential cleanup criterion for the substances.

(5) Table 2 reads as follows:

Table 2

Waste Class A

(Typical waste sources or business types)

- Pharmaceutical production
- Chemical formulation
- Explosives production
- Heavy metals
- Wood treatment
- Chemical treating
- Plating shops
- Chemical bonding
- Printed circuits
- Large assembly plants
- Polymer synthesis
- Solvent storage
- Chemical coating
- Petroleum or natural gas production, storage, refining, and transportation facilities
- Oil-based paint production
- Petroleum bulk storage
- Agricultural pesticides
- Metal coating
- Organic chemical production
- Hazardous waste hauling, storage, or treatment facility
- Dyes and pigments
- Oil or solvent recycling
- Landfill - more than 50% industrial waste

Waste Class B

(Typical waste sources or business types)

- Primary metals production
- Metal processing
- Small assembly plant
- Iron mining
- Inorganic chemical production
- Copper mining
- Adhesive/sealant production
- Iron steel foundry
- Body work and paint shops

Railroads
Pulp and paper production
Rubber products production
Gasoline station
Battery production/recycling
Auto manufacturing
Fuel transport
Leather tanning
Chemical transport
Barrel reclaiming
Engine component manufacturing
Charcoal manufacturing
Clay/glass production
Heavy manufacturing
Landfill - more than 10 to 50% industrial waste

Waste Class C

(Typical waste sources or business types)

Product assembly
Boat assembly
Plastic molding
Medical/hospital
Soap and detergent production
Machining formulation
Tool and die
Metal stamping/forging
Aircraft assembly
Consumer packaging
Latex paint production
Furniture stripping
Laundry/dry cleaner
Laboratory waste
Coal gasification
Coal ash or foundry sands
Scrap metal yard
Cleaning transport vehicles
Appliance manufacturing
Plastics fabrication
Light manufacturing
Auto repair
Landfill - 1 to 10% industrial waste
Gas/oil drilling

Fertilizer storage and processing
Auto junkyard
Asphalt, roofing production

Waste Class D

(Typical waste sources or business types)

Sanitary landfill - domestic or commercial wastes only
Dump - domestic or commercial wastes only
Recycling center
Salt storage
Food processing
Poultry farming
Printing
Brine use/disposal
Hog farming

R 299.5823 Procedure for changing numerical risk assessment model.

Rule 823. (1) On an annual basis, the department shall review the numerical risk assessment model provided for pursuant to section 20105 of the act. Such review shall consider public comments received by the department that concern the numerical risk assessment model.

(2) Any changes in the numerical risk assessment model shall be made under 1969 PA 306, MCL 24.201 et seq., and known as the administrative procedures act.