Michigan Site Assessment System Score Sheet

e Name: Chester A. B. Disposal DISPOSAL

Site Location Identification Number: 7406W17E17AC

House District: 078

ailing Address: 541 32nd St 4382 WALL ST 6/27/84 Mark Petrie

County: St Clair

Sen. Dist.: 28 Congr. Dist.: 12

ty: Port Huron State: MI Zip Code: Area Code: Telephone Number:

Rated by: PHOUCK

Date: 110883

omments: Site is a closed dump. Was never licensed. Mainly demolition material, household refuse, very possibly industrial waste – NO records for what was taken. Site is not fenced & probably is still used. Site is just South of Port Huron & a number of industrial activities.

Category	Route	Groundwater Rating Factor	Groundwater Range of Scores	Groundwater Site Score	Surface Water Rating Factor	Surface Water Range of Scores	Surface Water Site Score	Air Rating Factor	Air Range of Scores	Air Site Score	Direct Contact Rating Factor	Direct Contact Range of Scores	Direct Contact Site Score	Fire and Explosion Rating Factor	Fire and Explosion Range of Scores	Fire and Explosion Site Score
Potential Exposure	Release Potential (RP)	Release Potential	0–2	1.28	Release Potential	0–2	1.28	Release Potential	0–2	0.4	Release Potential	0–2	1.28	Release Potential	0–2	1.20
Potential Exposure	Environmental Exposure (EnE)	Unsaturated Zone	0–100	2	Distance to surface water	0–40	40	Mobility	0–70	61	Access-ibility	0–80	40	Ignition Source	0–50	–
					Site Slope	0–40	10	Site Activity	0–30	2.3	Attract-iveness	0–20	20	Waste Separation	0–50	–
					Flood Potential	0–20	20									
	Targets (T)	Population at Risk	0–100	0	Population at Risk	0–100	25	Population	0–100	45	Population	0–100	25	Population	0–100	–
					Drinking Water Population	0–40	0									
					Wetlands	0–10	10							Wetlands	0–10	–
		Saturated Zone	0–60	50	Cold water Fish	0–15	0									
					Warmwater Fish	0–10	10									
Potential Exposure (PE) Score - (EnE+T) x RP			0–520	67		0–530	147		0–400	43		0–400	109		0–420	–
Existing Exposure	Existing Exposure (E&E)	Existing Exposure	0–250	0	Existing Exposure	0–250	0	Existing Exposure	0–250	0						
Route Score PE + E&E			0–770	67		0–780	147		0–650	43		0–400	109		0–420	0

Subscore (SS)	$(GW^2 + SW^2 + Air^2 + DC^2 + FE^2)$	$\left[(770)^2 + (780)^2 + (650)^2 + (400)^2 + (420)^2\right]^{1/2}$	0–1,400	200
Chemical Hazard: Chemical Hazard (CH)	Range of Scores 0–600			200
		Site Score CH + SS	0–2,000	400

US EPA RECORDS CENTER REGION 5

442204

CONTAINMENT STRUCTURE EVALUATION

Designate containment effectiveness for parameters relevant to each structure

A Adequate U Unknown I Inadequate

Structure \ Factor	Cover	Liner	Diking	Fastened	Container Condition	Fencing	Other
Surface Impoundment							
Surface Impoundment							
Landfill air 1 Type: General Refuse, etc.	I	I				I	
Landfill 1 Type:							
Containers* drums 2					I	I	
Containers* air 2							
Piles Including Stockpiles and Bulk Storage							
Non Point Source (specify)							

Monitoring Data Demonstrating Contamination: Show well or monitor location on map. For wells, specify Drinking Water ( ) or Monitor well ( ). Is surface water contaminated? Yes ( ) No ( ). Are soils contaminated? Yes ( ) No ( ). If yes, check Air under Route Concern.

*Score separately the recorded containers as inadequate containment

ROUTE CONCERN EVALUATION

Check box under any route potentially affected by any structure receiving "I" or "U" designation

Structure	GW	SW	Air	DC	It
Surface Impoundment					
Surface Impoundment					
Landfill air 1					
Landfill 1					
Containers* drums 2	✓	✓	✓	✓	✓
Containers* air 2				✓	
Piles					
Non Point Source (specify)					

Routes to be Scored: If at least one box is checked in any column above, circle the route below and proceed to scoring instructions for that route

RELEASE POTENTIAL

If a structure is to be rated for any route, complete information below

Structure	Physical State A	Quantity B	% of Total Quan On Site C	D A · C	Reference
air 1	1.25	1500 Kg	.02	.25	~1500 Kg.
1	1.25	7.5×10^4 Kg	.9	1.13	assumed 15 acres
drums 2	1.5	5×10^3 Kg	.1	.15	~12 barrels
air 2	1.5	5×10^3 Kg	.1	.15	air route for barrels

1.25 was assigned because there is so little info on waste. There probably is industrial waste on site.

Route	D from above	GW	SW	Air	DC	It
	1.13	1.13	1.13		1.13	1.13
	.15	.15	.15		.15	.15
air 1				.25		
air 2	.15			.15		
TOTAL		1.28	1.28	.4	1.28	1.28

Figure 4-1 Release Potential Worksheet

DRAFT

Figure 4-3 Hazardous Waste Quantity Conversions

Kilograms	55 Gallon Drums	Tons	Lagoons (Cubic Yards)	Air Route Materials (Kg)	Landfill (Acres)
$5x10^3$	1-20	<5	1-16	100	<3
$1.5x10^4$	21-100	5-25	17-160	300	3-5
$7.5x10^4$	101-500	26-125	161-880	1500	6-20
$1.9x10^5$	501-1000	126-250	881-1600	3800	21-30
$5x10^5$	1001-3000	251-750	1601-6400	10,000	31-40
$1x10^6$	3001-5000	751-1250	6401-11,200	20,000	41-50
$1.3x10^6$	>5000	>1250	11,201-16,000	26,000	>50

*Small = 5 acres or less

Medium = 5 to 40 acres

Large = greater than 40 acres

Site: Winchester Disposal

Site Ranking System - Scoring Package

Groundwater Route					Source
Environmental Exposure Potential	Unsaturated Zone A) Rating from Fig. 5-3 and Fig. 5-2 Representative Well Records (max = 100)	2			well logs
Targets	Population B) Score from Fig. 6-1 (max = 100)	0			anglebrandt
Resource Value	Saturated Zone C) Rating from Fig. 6-4 (max = 60)	50			well logs
	D) Subtotal A + B + C Score = (max = 260)	52			
Release Potential	E) From R.P. Worksheet Fig. 4-1	1.28			
	F) Combined subroute D x E (max = 520)			67	
Existing Exposure	G) Route score from E.E. worksheet - Fig. 7-1 (max = 250)		0		anglebrandt
Route Score	H) Total Groundwater Route F + G (max = 770)		67		
	I) $(H)^2$ (max = 592900)			4489	

Comments on Groundwater Scoring:

no well logs on site, however, they do circle the site fairly well. I choose to say the clay is continuous. With thicknesses over >100' consistently this is justified.
No one is serviced by groundwater for drinking purposes.
No Exisiting Exposure.

Figure 5-2 Representative Well Record

Well Number	Distance from Site (Specify ft. or mi.)	Depth of Well (ft.)	Lithology/Earth Materials[1]	Thickness of Unsaturated Zone (ft.)	Thickness of Saturated Zone (ft.)	Depth to Bedrock (ft.)	Permeability of Unsaturated Zone (Specify gpd/ft² or cm/sec.)	Information Source[2]
M1	3/4 mile SW	123'	clay, gravel	118'	>5'			GSD water well log
M2	1 1/4 mile NW	114'	sandy clay, clay, sand	100'	>14'			GSD water well log
M3	4800' SE	630'	sand, clay, bedrock	112'		132'		Petroleum well log
M4	1 1/2 miles S	115	clay, sand	112'	>3'			GSD water well log
.								
.								
.								
.								
S1								
S2								
.								
.								
.								
.								

[1] Descriptors:

Gravel	Clay with <50% Sand	Well Cemented Sandstone
Coarse Sand	Clay	Fractured Shale
Medium Sand	Cavernous or Fractured Limestone	Siltstone
Fine Sand	Evaporites	Unfractured Shale
Very Fine Sand	Basalt Lava Tube Zones	Igneous and Metamorphic Rocks
Sand with <15% Clay, Silt	Fractured Igneous Metamorphic Sandstone	
Sand with >15% but <50% Clay	Moderately Cemented Sandstone	

[2] Identify each information source below. Note source number on record by appropriate data.

WH1 _____

WH2 _____

WH3 _____

WH4 _____

M=Monitor Well
S=Supply Well

Figure 5-3 Rating the Unsaturated Zone

Earth Material Category	RATING FACTORS					
	I	II	III	IV	V	VI
Unconsolidated Rock	Gravel, Medium to Coarse Sand	Fine to Very Fine Sand	Sand with <15% clay, Silt	Sand with >15% but ≤50% clay	Clay with <50% sand	Clay, >15' continuous
Consolidated Rock	Cavernous or Fractured Limestone Evaporites, Basalt Lava, Fault Zones	Fractured Igneous and Metamorphic (Except Lava), Sandstone (Poorly Cemented)	Sandstone (Moderately Cemented), Fractured Shale	Sandstone (Well Cemented)	Siltstone	Unfractured Shale, Igneous and Metamorphic Rocks
Representative Permeability						
in gpd/ft^2 –	>200	2 – 200	0.2 – 2	<0.2	<0.2	<0.002
in cm/sec –	$>10^{-2}$	10^{-4} – 10^{-2}	10^{-5} – 10^{-4}	$<10^{-5}$	$<10^{-6}$	$<10^{-7}$
RATING MATRIX						
Thickness of the Unsaturated Zone (feet) >100	90	60	40	20	8	2
31-100	92	70	50	30	20	4
11-30	96	80	70	46	30	8
4-10	98	90	80	60	40	20
<3	100	92	90	80	70	60

Chart adapted from: Silka, L.R., and T.L. Swearingen. 1978. A Manual for Evaluating Contamination Potential of Surface Impoundments. EPA 570/9-78-003. U.S. EPA, Groundwater Protection Branch, Washington, D.C.

Figure 6-1 Population at Risk Worksheet

Route	Factor	Number of Homes	Number of People (Homes x 4)	Presence of Additional Targets	Points Assigned (Fig. 6-2)					Reference
					GW	SW	AIR	DC	FE	
Air/ FE	Number of homes	26	104				45		45	topo
SW/DC	Number of homes (12)	26	52			25		25		topo
GW	Number of homes in direction of groundwater flow (on GW as drinking water supply)	0			0					not serviced by groundwater
GW/ SW	Number of homes/ people supplied by municipal or other public supply within target area	0			0	0				supply well outside target area. - Lake Huron
All	Hospitals* (5 pts)	—	—	—	0	0	0	0	0	anglebrandt
All	Schools* (5 pts)	—	—	—	0	0	0	0	0	topo
				TOTAL POINTS†	0	25	45	25	45	

*Additional targets are hospitals and schools; 5 additional points are assigned to each route for each type of institution present within the appropriate target area.

†Total points may not exceed 100 points in any route.

Figure 6-4 Saturated Zone Scoring Matrix

rth terial tegory	I	II	III
consolidated ck	Gravel or sand	Sand with ≤50% clay	Clay with <50% sand
nsolidated ck	Cavernous or Fractured Rock, Poorly Cemented Sandstone, Fault Zones, Basalt Lava	Moderately to Well Cemented Sandstone, Fractured Shale	Siltstone, Unfractured Shale and other Impervious Rock
presentative rmeability			
gpd/ft^2	>2	0.02 - 2	<0.02
cm/sec	$<10^{-4}$	10^{-6} - 10^{-4}	$<10^{-6}$
RATING MATRIX			
ck- s >100	60	40	20
sat- ted 10-100	50	30	10
et) <10	30	10	5

art adapted from: Silka, L.R., and T.L. Swearingen. 1978. A Manual for Evaluating Contamination Potential of Surface Impoundments. EPA 570/9-78-003. USEPA, Groundwater Protection Branch, Washington, DC.

Figure 6-2 Point Values for Population at Risk

Population at Risk			
Groundwater Surface Water (drinking water)	Air, Fire and Explosion	Surface Water (body contact) Direct Contact	Points
0	0	0	0
-	≤10	≤20	10
-	11-15	21-35	15
<6	16-20	36-50	20
7-10	21-30	51-80	25
11-15	31-40	81-130	30
16-25	41-55	131-200	35
26-40	56-75	201-300	40
41-55	76-105	301-440	45
56-75	106-180	441-640	50
76-100	181-370	641-920	55
101-140	371-700	921-1400	60
141-180	701-1200	1401-2000	65
181-260	1201-1700	2001-3000	70
261-360	1701-2400	3001-4400	75
361-500	2401-3400	4401-6600	80
501-1400	3401-4900	6601-9600	85
1401-4000	4901-7000	9601-14000	90
4001-12,000	7001-10,000	14001-20000	95
12000-40,000	>10,000	>20,000	100

Figure 6-3 Resource Value Worksheet

Route	Factor	Presence of Resource	Number of People	Points Assigned			Reference
				GW	SW	FE	
GW	Saturated zone characteristics			50			GSO Well logs
SW	Number of people using surface water drinking supply (up to 1 mile downstream)		0		0		intake is outside the target area.
SW	Warm water fish*(10 pt.)	✓			10		MWRC Land Use Map
SW	Cold water fish*(15 pt.)				0		
SW/FE	Wetlands (10 pt.) (5 acres, minimum)	✓			10	10	topo & M. Anglebrandt
TOTAL POINTS				50	10	10	

If both cold and warm water fish are present within the target area, score only for the cold water fish.

Note: no resource value points are assigned in the Air and Direct Contact Routes, therefore these routes do not appear on this worksheet.

Site: Winchester Disposal

Surface Water Route					Source
Environmental Exposure	Site Slope & Terrain A) Rating factor from Fig. 5-4	10			topo
	Distance to Surface Water B) Rating factor from Fig. 5-11	40			topo
	Flood Potential C) Rating factor from Fig. 5-12	20			Roger Clark
	D) A + B + C (max = 100)		70		
Targets	Population E) Score from Fig. 6-1 and Fig. 6-2 (max = 100)		25		
Resource Value	Wetlands F) Score from Targets worksheet - Fig. 6-3	10			
	Fish Designation G) Score from Targets Worksheet - Fig. 6-3	10			
	Drinking Water Supply H) Score from Targets Worksheet - Fig. 6-3	0			
Release Potential	Resource Value Subtotal I) Total score from Fig. 6-3		20		
	J) D + E + I		115		
	K) From R.P. Worksheet Fig. 4-1		1.28		
	L) Combined Subroute J x K (max = 530)			147	
Existing Exposure	M) Score from E.E. Worksheet Fig. 7-1 (max = 250)			0	
Route Score	N) Total Surface Water Route L + M (max = 780)			147	
	P) Surface Water Route Score $(N)^2$ (max = 608400)			21,609	

Comments on Surface Water Scoring:

Roger Clark (DNR/Water Management) assessed the site as w/in the <100 yr flood plain. No studies done on the area.

Figure 5-4 Site Slope Scoring Matrix

Average Site Slope	Distance to Nearest Surface Water (miles)		
	0 - 1/8	1/8+ - 1/4	> 1/4
Surrounding terrain is all higher	0	0	0
< 3%	10	8	6
3-5%	20	16	12
5+-8%	30	24	18
> 8%	40	32	24

Figure 5-11

Distance to Surface Water	Score
more than ½ mile	0
1/4+ to 1/2 mile	10
1/8+ to 1/4 mile	20
0 to 1/8 mile	40

Note: Distance to surface water is the shortest distance from the containment structure, regardless of the boundary of the site, to the nearest downhill body of surface water (e.g., lake or stream) that is in the expected course of runoff. A surface water body is any that contains water at least periodically. Do not include manmade ditches which do not connect with other surface water bodies.

Figure 5-12

Flood Potential	Score
Beyond the 100-year floodplain	0
In 100-year floodplain	10
In less than 100-year floodplain	20

Site: Winchester Disposal

Air Route

					Source
Environmental Exposure Potential	Volatility/Mobility				
	A) V/M Score from E.E.P. Worksheet - Fig. 5-5 (max = 70)		61		Anglebrandt
	Site Activity Ranking				
	B) Site Activity Score from Fig. 5-5 (max = 30)		2.3		Anglebrandt
Targets	Population				
	C) No. of houses in 1/2 mi. radius circle	26			topo
	D) Score from Fig. 6-1 and Fig. 6-2 (max = 100)		45		
Release Potential	Subtotal				
	E) A + B + D (max = 200)	108			
	F) From R.P. Worksheet Fig. 4-1	0.4			
	G) Combined Subroute E x F (max = 400)			43	
Existing Exposure	H) Odor Score from Fig. 7-4	0			
	I) Score from EE Worksheet Fig. 7-1 (max = 250)			0	Anglebrandt
Route Score	J) Total Air - G + T (max = 650)			43	
	K) Air Route Score - $(J)^2$ (max = 422500)			1849	

Comments on Air Scoring:

There has been no air testing done on site.

Figure 5-5 Air Route Worksheet

Mobility	Materials Category	Fraction* of Total Materials ①	Base Score ②	Category Scores ① x ②	Notes
	Gas		70		
	Liquid	.77	70	54	fraction liq in Barrels
	Finely Divided Solid		70		
	Coarsely Divided Solid	.23	30	6.9	fraction top 1" LF
	Immobile Solid		0		
	MOBILITY SCORE (ΣCategory Scores)			60.9	

Site Activity	Fraction* of Materials in Solid Form ③	Base Score ④	Site Activity Score ③ x ④	Notes
	.23	10	2.3	

*Round fractions to nearest 0.05.

The score is based on the physical state and physical form of the material (at 70°F, if enough information is available to use it). Any material which is clearly liquid or gas will be so scored. Sludges will be treated as "immobile solid" unless they have a known volatile component. (In this case, they will be scored as liquids.) An "immobile solid" is a substance that cannot be dispersed into the air by wind (e.g., materials in large chunks or embedded in a tarry surface). A "coarsely divided solid" is at least partly composed of particles small enough to be dispersed into the air by a strong wind (e.g., sand). A "finely divided solid" is at least partly composed of particles small enough to be dispersed into the air by a mild breeze (e.g., a dusty playground or piles containing fine particles).

Figure 5-6 Site Activity Matrix

People on Site	Light Vehicle (cars) Activity	Heavy Vehicles	Construction	Base Site Activity Score (B)
No	None	None	No	0
Yes	<5 cars/day	None	No	10
—	≥5 cars/day	5/day	No	20
—	—	≥5/day	Yes	30

Scoring guidance: The zero score is intended to indicate a secure site or a well isolated one. If it is known that a vehicle drives on a site once a month, it should receive at least 10 points (depending on other factors) for site activity.

NOTE: Choose the highest score resulting from any applicable column.

Figure 7-4 Scoring Detected Odors

Type of Odor	Score
No odors detected	0
Odors detected	10
Obnoxious odors detected	30
Chemical-specific odors detected	50

"No odors detected" means that no odors have been detected off-site by State investigative staff.

"Odors detected" means that law enforcement officials or State investigative staff have detected odors off-site and have confirmed that their source is the site.

"Obnoxious odors detected" means that odors detected off-site (and coming from the site) have been judged (by State staff trained in air quality investigation) to be a nuisance that should be mitigated.

"Chemical-specific odors detected" means that odors detected off-site have been identified by law enforcement officials or State investigative staff as being unique to a substance(s) with a Potential Toxicity Score (Section 8.2.6) greater than 40.

Site: Winchester Disposal

Direct Contact Route

					Source
Environmental Exposure	Accessibility A) Score from Fig. 5-8	40			Angleberandt
Potential	Attractiveness B) Score from Fig. 5-9	20			Angleberandt
	C) Combined Subroute score - A + B (max = 100)		60		
Targets	Population D) No. of houses in 1/2 mi. radius circle	26			topo
	E) Score from Fig. 6-1 and Fig. 6-2 (max = 100)		25		
Release Potential	Subtotal F) C + E (max = 200)		85		
	G) From R.P. Worksheet Fig. 4-1		1.28		
	H) Combined Subroute G ∴ H (max = 400)			109	
Route Score	I) $(H)^2$ (max = 160000)				11,881

Comments on Direct Contact Scoring:

No fence around site. There are low income homes around the area & a lot of wetlands. Direct contact would appear to be very possible.

Figure 5-8

Accessibility	Score
Open Lagoons	20
Contaminated Surface Soils	20
Leaking Containers	20
Suspect Containers*	12
Intact Containers	9

*A suspect drum or tank is one that shows evidence of deterioration such as rust, dents, or bulging seams.

Figure 5-9

Attractiveness	Score
School or Playground within 1/4-1/2 mile	10
School or Playground within 1/4 mile	20
Piles of soil etc. exist	10
Lagoons and/or standing water exist	10

Figure 5-10

Fire and Explosion Ignition Source	Score
No apparent ignition source; site secure. (Ignition would result from uncontrollable source, e.g. lightning, vandalism)	0
Ignition source nearby, but only intermittently (e.g., leaf burning)	30
Ignition source in close proximity (e.g., sparks, poor quality electrical wiring, open flame, highway)	50

Site: Winchester Disposal

Fire and Explosion Route				Source
Environmental Exposure Potential	Documented Hazard			
	A) Certified fire & and explosion threat Yes = 100, then go to E No = go to B	NO		
	B) All chemicals have a NFPA rating < 2 Yes = Route Zeros; J = 0 No = go to C and D	Yes		
	C) Ignition source (max = 50)	0		
	D) Segregation Score from Fig. 5-7 (max = 50)	0		
	E) A + B + C + D (max = 100)			
Targets	Population			
	F) Score from Fig. 6-1			
	Wetlands			
	G) Score from Fig. 6-3			
Release Potential	Subtotal			
	H) E + F + G (max = 210)			
	I) From R.P. Worksheet Fig. 4-1			
Route Score	J) Total Fire & Explosion Points H x I (max = 420)			
	K) $(J)^2$ (max = 176400)		0	

Comments on Fire & Explosion Scoring:

There is no documentation to support a fire and explosion threat.

Figure 5-7 Waste Separation Scoring

Flammable Waste Quantity Number of Barrels	Flammable Waste Quantity Gallons	Area of Contamination (acres)	Distance of Separation (ft) <100	100-200	200-400	>400
>500	>27,500	>5.0	50	30	15	0
50+-500	2,750-27,500	1.0+-5.0	30	15	0	0
5+-50	275-2,750	.5+-1	15	0	0	0
≤5	≤275	<.5	0	0	0	0

DRAFT

Figure 7-4 Existing Exposure Worksheet

Route	Chemical	Documented Exposure Level (DEL)	Background Level (BL)	DEL - BL	Chemical Exposure Factor	Population Exposed	Population Factor (PF)	Score	Reference
Ground-water									
							Groundwater Total Score		
Surface Water									
							Surface Water Total Score		
Air									
							Air Subtotal		
							Odor Score		
							Air Total Score		

CHEMICAL HAZARD SCORING

SITE OR FILE NAME: Winchester Disposal

FINAL SCORE: (200) = Potential Toxicity (200) + Flam/React (0)

CONTAINMENT STRUCTURE (Circle):

Lagoons	Landfill	River Sediment
Pits	Contam. Soils	Direct Discharge
Drums	Barrels	Tank Trucks

Other (describe) _____

QUANTITY OF WASTE AT EACH STRUCTURE:
Use the following conversions:

Figure 4-3 or

1 drum or barrel = 55 gallons

1 gallon of liquid waste = 3.8 Kg (density of 1g/ml)

1 m^3 of solid waste = 2000 Kg (density of 2g/ml)

Work Space - Please show all calculations for each containment structure.

- Exact size of landfill is unknown. But it is within the 6-20 acre range (Mike Anglebrandt, St. Clair Co. H.D.)
- A size of 15 acres will be assumed for scoring purposes
- No documentation of wastes deposited. Very possible to have taken industrial waste (Mike Anglebrandt)
- Will be scored 50/50, Res-comm/ heavy industry

Check the following information against Figure 4-4.

Barrels

There are 12 barrels on site with unknown contents. They will be scored under heavy industry.

If any containment structure has been sampled and chemicals identified, then proceed in calculating quantity for each chemical. If not, proceed to page C5.

IDENTIFIED CHEMICALS:

Name	C Concentration	Q Waste Quantity of Structure Sampled (Page 1)	k = Conversion Factors C x Q x k Amount (Kg)

unidentified

*Disregard all quantities less than 1 Kg EXCEPT FOR:
Aflatoxin
2,3,7,8-Tetrachlorodibenzo-p-dioxin
1,2,3,7,8-Pentachlorodibenzo-p-dioxin
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin
2,3,7,8-Tetrachlorodibenzofuran

For chemicals greater than 1 Kg and those listed above, go to Page 3.

UNIDENTIFIED CHEMICALS:

Calculate the surface area contaminated by unidentified chemicals from maps in files.

Work Space (describe and show all calculations)

Identify the source or origin* of these chemicals from file information and classify according to Figure 8-1.

Waste Classification	Source of Information	% of Total Quantity
Landfill -Res-Comm/Heavy Ind.	Mike Anglebrandt and 50/50 split per MDNR-SAS Technical Committee	15 acres
(Res-Commercial		7.5 ac
Heavy Manu.		7.5 ac)
Barrels Heavy Industry	Contents unknown -Mike Anglebrandt Assume heavy manufacturing	12 barrels

Fill in Figure 8-3 with data from Pages 2, 3, 4 and 5.

*The following references may help: Chemical and Process Technology Handbook, D. Considine, McGray-Hill Brook Co., 1972.

LEVEL OF CONCERN: POTENTIAL TOXICITY

1. For each chemical listed on Figure 8-3, list the quantity and potential toxicity score on Figure 8-4.

2. From Page 5, list the quantity of each class of unidentified chemical waste on Figure 8-4.

3. Use Figure 8-9 to determine Level of Concern for each grouping of identified chemicals.

4. Use Figure 8-10 to determine Level of Concern for unidentified chemicals. (Use Fig. 4-3 to convert kg to acres.)

5. Complete Figure 8-4 for Level of Concern.

LEVEL OF CONCERN: FLAMMABILITY/REACTIVITY

1. From Figure 8-3, complete Figure 8-11.

2. Use Figure 8-12 and 8-13 to determine Level of Concern for Flammability/Reactivity.

*CAUTION: For unidentified chemicals, list sources of information documenting flammability and reactivity potential: _____

No documentation to justify F/R concern.

Go to Page C1 and fill in scores!

Figure 8-3 Chemical Hazard Worksheet

	CHEMICAL NAME	WASTE QUANTITY		POTENTIAL TOXICITY																	
		Quantity	%Quantity	Acute Toxicity	M/S	Carcinogenicity	M/S	Subchronic/ Chronic Toxicity	M/S	Ecological Toxicity	M/S	Bioaccumulation	M/S	Persistence	M/S	Total	Data Indicator Toxicity Indicator	Potential Toxicity Score	Flammability Reactivity Score
IDENTIFIED CHEMICALS																			
	TOTAL		% OF TOTAL																EVIDENC
UNIDENTIFIED CHEMICALS	Res-Comm LF	7.5 ac		SOURCE															
	Heavy Ind. LF	7.5 ac																	
	Barrels	12 barrels																	
	TOTAL		% OF TOTAL 100%																
	TOTAL QUANTITY ON SITE	15 acres 12 barrels	100%																

Figure 8-4 Level of Concern/Potential Toxicity Worksheet

DRAF

Identified Chemicals

Potential Toxicity Score	Chemical Name	Quantity	Level of Concern Score
0-20			
	Total		
21-40			
	Total		
41-60			
	Total		
>60			
	Total		

A. Total Quantity Scores _____

B. Fraction of Total _____ = $\frac{A}{A+D}$

C. TOTAL LEVEL OF CONCERN 0 / 450 max.

Unidentified Chemicals

Waste Type	Quantity	Level of Concern Score
Domestic and Commercial Waste	7.5 ac	0
Light manufacturing/assembly		
Heavy manufacturing/fabricating/refining	7.5 ac 12 barrels (2.4 m³)	150 50
Chemical Manufacturing Waste		

D. Total Quantity Scores 15 ac + 12 barrels

E. Fraction of Total 100% = $\frac{D}{A+D}$

F. TOTAL LEVEL OF CONCERN 200 / 450 max.

WEIGHTED AVERAGE Level of Concern/Potential Toxicity Score = (B) (C)+(E) (F) = 200

DRA

Identified Chemicals

Flammability/ Reactivity Score	Chemical Name	Quantity	Level of Concern Score
2			
	Total		
3			
	Total		
4			
	Total		

A. Total Quantity Scored _____

B. Fraction of Total _____ = $\frac{A}{A-D}$

C. TOTAL LEVEL OF CONCERN 0 / 150 max.

Unidentified Chemicals

Evidence	Quantity	Level of Concern Score

D. Total Quantity Scored _____

E. Fraction of Total _____ = $\frac{D}{A-D}$

F. TOTAL LEVEL OF CONCERN 0 / 150 max.

WEIGHTED AVERAGE Level of Concern/Flammability/Reactivity = (B) (C) + (E) (F) =

CHEMICAL HAZARD SCORE : Average Level of Concern/ Potential Toxicity 200 : Average Level of Concern/ Flammability/Reactivity 0 = 200 / 600 max.