Facility Name: Combe Fill South Landfill
Location: Parker Rd, Chester, Morris Co, NJ
EPA Region: I
Person(s) in Charge of the Facility: Anthony Farro
John Castner
Name of Reviewer: Richard Katz Date: 7/82
General Description of the Facility:
(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)
Inactive landfill which has been found by
analysis to be releasing numerous hazardous
substances to ground and surface water.
Numerous residences in close proximity.
NJ Dept of Environmental Protection issued
several Administrative Orders culminating in
closure order 9/8/81
Scores: SM = 45.22 (Sgw =73.08 Sgw =27.90Sa = 0 )
Sgg =
S <sub>DC</sub> =

. Figure 1

HRS COVER SHEET

#### COMBE FILL SOUTH LANDFILL

#### SITE DESCRIPTION

The inactive Combe-Fill South Landfill is located on Parker Road on an eighty (80) acre tract of land which reaches into both Washington and Chester Townships in Morris County, New Jersey. The area in the vicinity of the landfill is drained by the North Branch of the Raritan and Lamington Rivers. Trout Brook, a recreational waterway, also runs through the site.

Chemical analysis of the ground and surface waters, done by the New Jersey Department of Health, revealed leaching of various chlorinated hydrocarbons. There is a potential for potable well contamination in the underlying Precambrian Gneiss Aquifer.

	Rating Factor	UND WATER ROUTE WORK S  Assigned Value (Circle One)	Multi-	Score	Max.	Re
ī	Observed Release	<b>a 45</b>	1	45	45:	3.
		given a score of 45, proceed to line 4. given a score of 0, proceed to line 2.	•		<del> </del>	
2]	Route Churacteristics.	0 1 2 1	2		_	3.
	Depth to Aquifer of Concern	0 1 2 3	4		6	
	Net Precipitation	0 1 2 3	1		3.	
	Permeability of the Unsaturated Zone	0 1 2 3	1		3	
	Physical State	0 1 2 3	1		3	
		Total Route Characteristics Score			. 15	
3]	Containment .	0 1 2 3	7		3	2.
ब	Waste Characteristics. Toxicity/Persistence Hazardous Waste Quantity	0 3 6 9 12 15 18 0 1 2 3 4 5 6 7 8	1	18	18 <sup>°</sup> 8	
		Total Waste Characteristics Score		19	26	
1	Targets					3.5
	Ground Water Use Distance to Nearest Well/Population Served	0 1 2 (3) 0 4 6 8 10 12 16 18 20 24 30 32 35 (40)	1	40	9 40-	
		Total Targets Score	•	49	49	
	If line 1 is 45, multi If line 1 is 0, multip			41,895	57,330	

- SURFACE WATER ROUTE WORK SHEET										
	Rating Eactor	Assigned Value (Circle One)						Score	Max. Score	(S
回	Observed Release		0.		45)		1	45	45	
	If observed release						,			
2	Route Characteristi Pacility Slope and I		0.	† 2	3		t		3:	
	Terrain- T-ye. 24-he. Rainfall-		Q.	t 2	3.		1		3:.	
	Distance to Neares Water	st. Surface	0	1 2	3		2		5.	
	Physical State		0.	1 2	3.		†	,	3.	
		Tot	al Rout	e Che	racteristics	Score			15	
<u> </u>	Containment		0.	† 2	3		1	·	3.	
1	Waste Characteristi Toxicity/Persistenc Hezardous Waste Quantity		a a (	3 6 D 2	9 12 15 (1 3 4 5	8 7 8	1	18	18. 8.	
		Tot	ai Wast	e Cha	racteristics	Score		19	26	
<b>国</b>	Targets Surface Water Use Distance to a Sensi Environment Population Served/I to Water Intake Downstream.	itiv <del>o</del>		D 2'		•	3 2 1	9210	95 6 40	•
:	·		Tota	4 Targ	ets Score	•		21	<b>55</b>	
	if line 1 is 45, m If line 1 is 0, mu	nuitiply 1 littiply 2 :				•		17,955	64,350	
<b>I</b>	Divide line 6 by	64,350 and	multiply	by 10	0 S <sub>81</sub>	• <i>- 2</i> 7.	90			

	AIR: ROUTE WORK SHEET										
	Reting Fector		Assigned Vi (Circle On		Multi- plier	Score	Max. Score	(Se			
III	Observed Release	· C	9	45.	1.		45				
	Date and Location:	Nod	ata a	vailable							
	Sampling Protocol:	1									
	thline 1 is 0, to						-	,			
2	Waster Characterist Reactivity and:	i <b>cs.</b> •	1 2 3		1		3.				
	Incompatibility- Toxicity Hazardous Waster Quantity			45678	3. T		9. 8.				
·					•			1.			
		Total We	ste Charact	eristics Score			20.				
<u> </u>	Targets Population Within 4-Mile Radius.	J 21	9 12 15 1 24 27 30	8.	, <b>1</b>		30.				
	Distance to Sensiti Environment. Land: Use		123		2		<b>6.</b> 3				
	Cand: Use	•			•		. <b>.</b>				
		•	•				•	: "			
		•									
		· Te	xial Targets	Score .			39	•			
4	Multiply 11 x 2	× 3					35,100				
डा	Olvide line 👍 by	35,100 and multi	oly by 100	sQ		<u> </u>	<u> </u>				

	S	\$ <sup>2</sup>
Groundwater Route Score (Sgw.)	73.08	5,340.24
Surface Water Route: Score (S <sub>SW</sub> )	27,90	778,53
Air Route Score (Sa)	0	0
$S_{gw}^2 + S_{sw}^2 + S_{a}^2$		6118.7
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		78.ZZ
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2} / 1.73$		SM-4.

worksheet for computing  ${\sf s_{M}}$ 

	Rating, Factor	^	Assigned Value. (Circle One)				Multi- plier	Score	Mex. Score	Ref. (Section			
ī	Containment	1					3.			1:		3.	7.1.
2]	Wester Characteristics:												7.2
	Direct Evidence	0			3					1		3	
	Ignitability			. 2	3.					1		3.	
	Reactivity	0 0	7	2	3					T .		3	
	Incompatibility: Hezardous Waste. Quantity.	<b>0</b> .	1	Z	_	4	5	6.	7° B	1	-	8.	
					•							·	
		Total Was	ite	Cha	rac	tori	stic	s Sc	ore:			20	
3]	Targets-												7.3.
	Distance to Nearest Population	0.	T	2	7	•	5.			1		5	
	Distance to Nearest Building	0.	1	2	3					. 1		3	•
	Distance to Sensitive. Environment	٥	1	Z	3					Ť		3	
	Land: Use	σ	1	Z	3					1	•	3.	
	Population Within 2-Mile Radius	a	1	2	3	4	5			1		. 5.	
	Buildings Within  2-Mile Radius	0	7	2	3	4	5			1		5	
		·											
	•										•		•
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I	Multiply 11 × 21 × 3											T,44G	

DIRECT CONTACT WORK SHEET										
Rating, Factor	Assigned Value. (Circle One)	Multi- plier Sco	Max. Score	Ref. (Section						
Observed: Incident:	0 45	Ť	45	8.1						
if line: 1 is 45, proceed it line: 1 is 0, proceed		-								
21 Accessibility:	. C. 1: 2 3	t	3	8.2						
Containment	G 15	•	15	8.3						
Waste Characteristics. Toxicity	0 1 2 3	. 5	15	8.4						
Targets. Population Within a t-Mile Radius.	Q + 2, 3 4 5	4	302	8.5						
Distance to: a. Critical Habitat	0 1 2 3	4	12							

	Total Targets Score	32
6 It line 1 is 45, multiply it line 1 is 0, multiply	7	27,500
1 Divide line 6 by 21,600	and multiply by 100 SOC -	

#### DOCUMENTATION RECORDS FOR HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Combe-Fill Landfill South

LOCATION: Parker Rd, Chester, Morris Co. NJ

#### GROUND WATER ROUTE

#### 1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Carlan Tetrach or 18e chemical analysis done

Tetrachloroethylene & by NJ Free of Hauth

Heptone

Trichloroethyle

12 Dichloroethane

Rationale for attributing the contaminants to the facility:

Contaminants detected in on-site and down-product

Nells-no other potential source of poliution exists,

Same contaminants detected in leachade on site

#### 2 ROUTE CHARACTERISTICS

#### Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

Depth from the ground surface to the lowest point of waste disposal/ storage:

#### Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

Mean annual lake or seasonal evaporation (list months for seasonal):

Net precipitation (subtract the above figures):

#### Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Permeability associated with soil type:

#### Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

#### Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

## WASTE CHARACTERISTICS

# Toxicity and Persistence

Compound(s) evaluated: Carbon Tetrachloride chemical analyses done by Tetrachloroethylene NJ Dept of Health Lais - Hoplane data in Dwm, Trenton files.

Compound with highest score: Carbon Tetrachloride (HKS User Manual)

# Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if

quantity is above maximum):

old landfill - no pasis of estimating quarting directly

Scored as a"1" (see discussion below)

Basis of estimating and/or computing waste quantity:

Evidence of groundwater contamination, Pased on p.3 of 1' Supplemental Instructions for the Hazard Ranking System", Steve Caldwell, July 29,1982.

#### 5 TARGETS

#### Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Potable - Precambrian Gneissic Bedrock

(interviews with homeowners; all aquifers interd
by fracturing - see geological report attacked)

#### Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Several private wells located along Parker Road

(NDEP on-site inspection)
Nearest well owned by Mr. Manfredonia
Distance to above well or building:

\* 50 feet

#### Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

X-Public supply wells belonging to Chester Twp,

Chester Boro, Washington Twp, several schools and various commercial enterprises

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

\* None

Total population served by ground water within a 3-mile radius:

\* 11,200

\* Info supplied by Frank Matter, Morris County
Health Officer

#### SURFACE WATER ROUTE

#### 1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

CATUAN Tetrackloride Chemical analysis done by NJ Dept of Hailth by

#### 2 ROUTE CHARACTERISTICS

#### Facility Slope and Intervening Terrain

Average slope of facility in percent:

Name/description of nearest downslope surface water:

Average slope of terrain between facility and above-cited surface water body in percent:

Is the facility located either totally or partially in surface water?

Is the facility con setely surrounded by area of ther elevation?

#### 1-Year 24-Hour Rainfall in Inches

#### Distance to Nearest Downslope Surface Water

#### Physical State of Waste

3 CONTAINMENT

#### Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

WASTE CHARACTERISTICS

#### Toxicity and Persistence

Compound(s) evaluated

see p. 4

Compound with highest score:

Carbon Tetrachloride (HES User Manual)

#### Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Scored as a "1" (see p.4)

Basis of estimating and/or computing waste quantity:

(sec p.4)

5 TARGETS

#### Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous

Recrectional - Trout Brook was trout

Maintenance area; adversely impacted by co. Time 1913
Hacklebarney State Park, Schooley's Klountain Park
(Div. of Water Resources 4 les)

Potable (Frank Matteo, Morris Co, Health Officer

Is there tidal influence?

#### Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if I mile or less: ~ 3000 to PEM + PFO (palustrine wetlands) (Not'l wetlands Inventory map, Chester quad, US Dept of the Interior

Distance to critical habitat of an endangered species or national wildlife refuge, if I mile or less:

None

### Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

2 Intakes located along Trout Brook (one is 2000' from leachate entry point and the other is 2 miles downstrain).

(Frank Matteo, County Health Officer)

Computation of lar area irrigated by above ted ntake(s) and conversion to opulation (1.5 people per acre):

8 people in two families (Frank Matteo, Co. H.O.)

Name/description of nearest of above water bodies:
Streams tributary to Trout Brook, former
trout maintenance area

Distance to above-cited intakes, measured in stream miles.

2000' and Zmiles

#### AIR ROUTE

1 OBSERVED RELEASE

No sampling performed

Contaminants detected:

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

_		_	•	_
To	Xl	c	1	ĽΥ

Most toxic compound:

#### Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

#### 3 TARGETS

#### Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi

0 to 1 mi

0 to 1/2 mi 0 to 1/4 mi

#### Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if I mile or less:

Distance to critical habitat of an endangered species, if I mile or less:

#### Land Use

Distance to commercial/industrial area, if I mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if I mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?



### State of New Jersey

DIVISION OF 5H, GAME AND WILDLIFE. JSSELL A. COOKINGHAM-DIRECTOR: |

# DEPARTMENT OF ENVIRONMENTAL PROTECTION

July 19, 1982

PLEASE REPLY TO: CN 400 TRENTON, NEW JERSEY 08625

Johnsthan Hess Environmental Technichian Solide Waste Administration Niter Task Force 120 Rt. 156 Yardville, NJ 08620

RE: Comb Landfill South,
Parker Road, Chester Township

#### Dear Mr. Hess:

Per our conversation on July 17, 1982, please be advised that the project area is within the range of the following species listed as endangered (E) or threatened (T) in the state.

Our records do not show any confirmed sightings for any of these species in the Parker Road area.

- 1. Bog Turtle (E) occurs in open sphagnum bogs, swamps and marshy meadows which have clear, slow-moving streams with soft muddy bottoms. Common vegetation in bog turtle habitat includes sedges, skunk cabbage, cattail, jewelweed and smartweed.
- 2. Wood turtle (T) occurs in hardwood forests. The wood turtle needs clean streams in or adjacent to wet meadows and farmland.
- 3. Long-tailed Salamander (T) lay their eggs in clear ponds or slow streams. The terrestrial adults live under logs in the vicinity of cool streams and feeds on insects and worms.
- 4. Red-shouldered hawk (T) breeds in moist woodlands both in the northern section and in the coastal plain. They generally nest under the forest camopy, placing the nest in the first crotch of a hardwood. Small mammals, amphibians, reptiles, and some small birds are usually taken by hunting from a favorite perch, but few hawks winter within the State.
- 5. Bobolink (T) nest on the ground in uncut fields.

If habitat suitable for any of these species is located within the project area then that species may be expected to occur there. Should suitable habitat occur, we recommend that further surveys be conducted to determine if such species inhabit the project area.

I hope this information is helpful to you. I have enclosed an order form for the publication Endangered and Threatened Species of New Jersey. This book contains information on the habitat requirements, range, and distribution of our endangered and threatened species and would be a useful addition to your reference library.

If I can be of further assistance, please contact me.

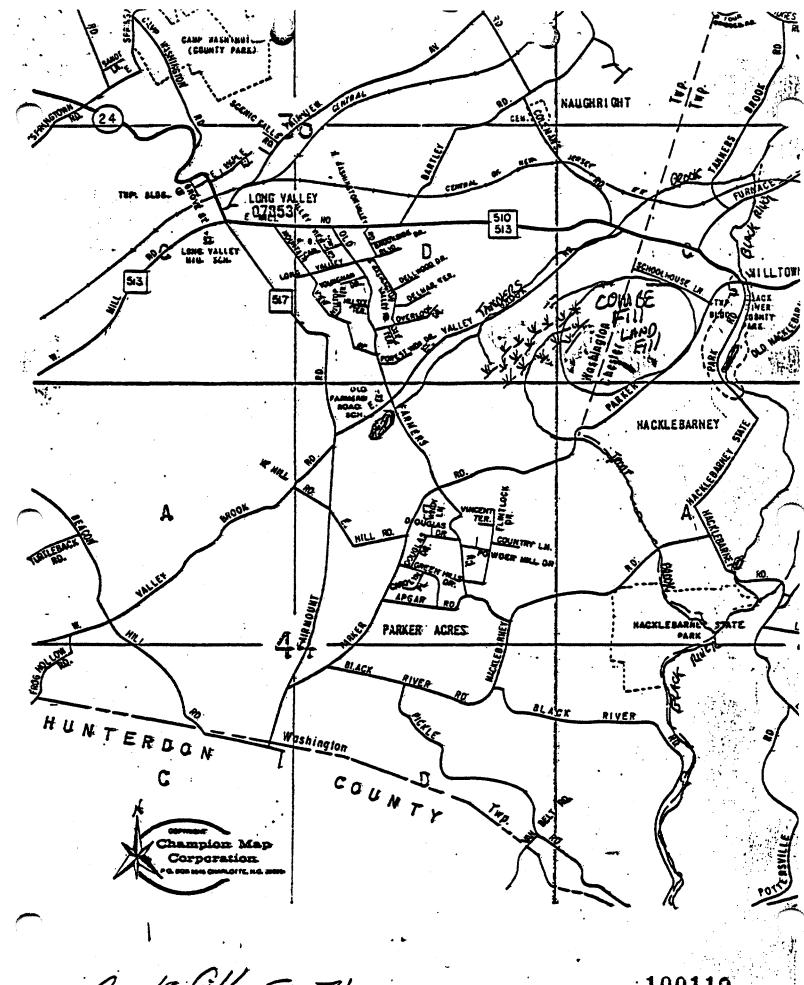
Very truly yours,

Melinda Welton, Nongame Zoologist

Endangered and Nongame Species Project

ml

Enclosure



Combefill South

100119

### MEMO

#### NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO	John Castner			)							•
FROM	Don Toder	· · ·				DATE	Febr	uary 2	27, 198	I	
SUBJECT	Environmental	Imapet	of Continu	ing Operations	at	Combe	Fill So	uth Ci	ester	Twp.	_
	Morris County										

#### General Setting:

The Combe Fill landfill is located in Chester Township, Morris County.

The site lies within the Reading Province of the New Jersey Appalachian

Highlands with large valleys and ridges trending northeast-southwest. The

Chester Township area in the vicninity of the landfill is drained by the North
Branch of the Raritan River and the Lamington River. There are several

private dwellings and public buildings within 4 mile of the landfill property.

The people in the area use groundwater obtained from wells located in Precambrian gneissic bedrock.

#### Geology:

The geology in the vicinity of the landfill consists of pre-Wisconsin glacial drift from 10-25 feet in thickness which is underlain by fractured, crystalline hornblende and amphilbolite gneisses of Precambrian age. The first 3-5 feet of the bedrock is highly weathered and fractured. It is a common practice at this landfill to excavate some of the glacial overburden for use as cover material. In the past the operators have completely stripped o-f the overburden down to bedrock, in places, creating a potential environmental hazard. Surface Water:

The site-is drained by two branches of Trout Brook and Tanners Brook. The western branch of Trout Brook flows from north to south and is itocated approximately 75 feet west of the existing landfill (the stream runs through the middle of the property). Three small ponds are fed by this branch of Trout Brook; on of which

is a man-made pond located on the property used in the past for disposal of septic tank wastes. The second pond is located about 500 ft south of the southern boundary of the Combe-Fill property owned by Mr. Tingue and the third pond is 1500 ft downstream of Tingue's pond.

The eastern branch of Trout Brook begins 500-700 feet south & east of the existing Landfill and flows under Parker road. Approximately 1200 feet south of Parker road the east and west branches of Trout Brook join. Trout Brook later drains into the Lamington River and the Lamington later drains into the North Branch of the Raritan River.

Tanners brook is another stream that drains the landfill property, however, the existing landfill is about 2500 feet from this stream at the present
time. Tanner's Brook flows northeast and drains into the Lamington River,
later, draining into the North Branch of the Raritan River.

#### Groundwater:

I have been informed by the county clerk and health officer of Chester Township that all people in the immediate area of the landfill are using private groundwater wells for their potable water supply. Wells on the average are about 150 ft deep and are drawing water from the fractures existing in the bedrock. However, some private wells are more shallow with some tapping the water stored in the glacial overburden.

The shallow groundwater flow would be locally affected by topography, depth to bedrock and local drainage from the existing landfill the shallow groundwater flow would most likely be west (toward the western tributary of Trout Brook) and south. Groundwater flow direction within the bedrock is difficult to determine since the water flows within a complex fracture system. This area is not considered a major area for groundwater recharge.

Conclusions and Recommendations:

If it is decided to continue and expand operations (into the woods on t west side of the existing landfill) without any environmental controls, then no doubt that there will be a severe deleterious environmental impact on growaters and surface waters of the area.

The western tributary of Trout Brook which runs through the site will p natural drainage for any leachate that is generated. Only a 50 foot buffer around the tributary is planned in the engineering design. Also, the area proposed to be filled west of the tributary of Trout Brook should be declare wetland area. The soil survey report for Morris County designates this part area as having a seasonal high water table of zero depth. An on-site inspe confirms this statement. Both tributaries of Trout Brook show visual signs leachate presently. Reddish liquid and turbid waters can easily be seen in streams. Mr. Tingue lives immediately downstream from the landfill and redd liquid can be seen in his lake and stream.

Tanner's Brook on the northwest corner of the site would also be a nature drainage area for the northwest portion of the site. There is a local drainable divide through the area to be filled. The area east of the divide would drain toward Trout Brook and the area west of the divide would drain toward Tanner Brook. There have been many new houses built (using private wells) along Val Brook road adjacent to Tanners Brook.

#### REcommendations:

Using the remaining property for landfilling municipal waste at Combe-Fi South without doing serious harm to the environment will require many enviror controls and sound engineering practices. It is obvious that these controls be very expensive to install. The following is a list of a few of the items needed to abate groundwater & surface water pollution.



- I. Backfill with clean fill all areas to be filled so that waste is at leas 5 feet above water.
- Z. A liner of clay, bentonite or PVC
- 3. A leachate collection system
- 4. Additional monitor wells to monitor groundwater in the bedrock and shall groundwater existing within the glacial overburden.
- 5. A sampling program for the streams that drain the site.
- 6. Gas evacuation system.

Even if these controls are installed, there is always some leakage from t most adequate liners and leachate collection systems. Some of the resid have less than 500 feet from the landfill property line and still may be affected. Also, noise of operation, blowing litter & odors maybe nuisan to near-by homeowners.