

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: City of Bridgeport, Seaside Park Landfill

Facility Address: Barnum Blvd, Bridgeport

Facility EPA ID #: CTD000651927

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

YES If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ if data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Is **groundwater** known or reasonably suspected to be "**contaminated**"¹ above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

YES If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): See Attachment 1

Footnotes:

¹"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

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3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination)?

Yes If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"²).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"²) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): "Because the landfill is located on a peninsula with the landfill being the high point, it has been concluded that the ground water flows radially from the center of the landfill to the surrounding surface-water bodies." (See Attachment 4, Reference #7)

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

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5. Is the **discharge** of "contaminated" groundwater into surface water likely to be "**insignificant**" (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

Yes If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s)

The groundwater is not contaminated at levels that exceed the Ct. RSR criteria (see Table 5, Parameters which Exceeded EPA Drinking Water Standards, attached, from the 2000 Annual Groundwater Monitoring Report for the Seaside Landfill). The discharge of groundwater to the surface water has not had unacceptable impacts on the surface water (see Table 8, Surface Water Quality, attached, from the Zone of Influence Investigation, City of Bridgeport, Seaside Landfill).

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

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6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s): _____

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

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8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

Yes YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **Bridgeport Seaside Park Landfill** facility, EPA ID # **CTD000651927**, located at **Barnum Blvd, Bridgeport, CT.** Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

_____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

_____ IN - More information is needed to make a determination.

Completed by (signature) David Ringquist Date 9-17-01
 (print) David Ringquist
 (title) Sanitary Engineer

Supervisor (signature) John England Date 9/18/01
 (print) John England
 (title) Supervising Sanitary Engineer
 (State) Connecticut DEP

Reviewed by
Daniel Kim 9/28/01
Daniel Kim

Locations where References may be found:

Connecticut DEP, 79 Elm Street, Hartford, CT 06106

_____ Approved by
Mark S. England
Section Chief
EPA-Region I-New Eng

Contact telephone and e-mail numbers

name) David Ringquist
(phone #) 860-424-3573
(e-mail) david.ringquist@po.state.ct.us

Attachment 1

Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be contaminated?

Rationale / Key Contaminants and Reference(s)

Groundwater

The most recent RCRA annual groundwater monitoring report states that groundwater is contaminated by inorganic parameters, typical of municipal landfill leachate. These include chloride, fluoride, iron, manganese, sodium, sulfate. Cadmium, chromium, lead, and nickel slightly exceed the surface water protection criteria occasionally however these do not occur as a consistent trend. Volatile organics are detected less frequently and have historically been below the RSR criteria. See the attached groundwater monitoring data from the year 2000 Annual Groundwater Monitoring Report (see Attachment 4, Ref. #5).

Air Indoors

Moist gases emanating from a fissure in the sludge cell were discovered in 1987. Soil gas samples in the fissures in 1987-1988 showed carbon dioxide, chlorinated, aromatic, and aldehyde hydrocarbons, methane (>1000 ppm), carbon monoxide, and hydrogen sulfide. Gas temperatures ranged from 125-156° F in 1988 and 140-176° F in 1989. After four different sampling investigations, it was concluded that the gases were generated by aerobic biodegradation fueled by oily organic waste (wood chips, wood, sawdust, spill clean-up residue, i.e. speedi-dry, etc.).

In 1988 the EPA Environmental Services Division studied the impact of the gas venting on ambient air quality in the vicinity of the landfill. Based on ambient air monitoring, the EPA concluded that the low levels of air toxins were "below those utilized as criteria for safe industrial exposure by a factor of several orders of magnitude, at a minimum" and recommended "no further ambient monitoring for toxics" (see Attachment 4, Ref. #4).

The venting has since ceased and, as a result, the closure plan no longer needs to include gas venting as part of the RCRA cell cover system.

Indoor air contamination at or neighboring the landfill does not exist because there are no buildings on the landfill. The nearest structures offsite are seasonal bath houses associated with the beach at Seaside Park, located to the northeast of the landfill. Since the gas venting is no longer observed, most likely due to the age of the waste, there is no concern for indoor air in these buildings.

Surface Soil

Surface soils (<2ft) for the municipal solid waste landfill are components of completed cover system for the landfill. These cover soils were imported to the site as clean fill and clean topsoil and are presently vegetated. An as-built drawing documenting the placement of the cover system was submitted in January of 2001 and is on file at DEP. Surface soils within the fenced RCRA hazardous waste disposal cell are likely to be the actual waste since this area is not yet closed.

Attachment 1 (cont'd)

Surface Water

The landfill lies on a peninsula formed by Long Island Sound to the south and Cedar Creek to the west and north (see Figure 1). These are considered to be the receiving bodies for some of the groundwater and plumes from the landfill. The creek and sound waters were sampled in November of 1997 and January of 1998 during low tide (worst-case conditions) and the data shows no parameters above surface water protection criteria for aquatic life in saltwater (Ref. #7).

Sediment

Sediment has not been sampled in Cedar Creek/Black Rock Harbor and Long Island Sound. For the purpose of this EI determination, we assume that this media is contaminated at both locations.

Subsurface Soil

Municipal solid waste, hazardous waste and demolition debris are disposed of in this landfill. Subsurface "soil", i.e. waste, is therefore contaminated. For the hazardous waste cell, chemical testing of sludge samples taken from the cell in 1989 indicate greater-than-one-percent levels of aluminum, calcium, iron, and magnesium; part-per-thousand levels of copper, lead, nickel, zinc and sodium; and trace amounts of petroleum hydrocarbons.

Air (Outdoors)

See Air (Indoors) above

Attachment 2

Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Rationale and References

Groundwater

There are no pathways between contaminated groundwater and any of the possible receptors. The landfill is located on the shore of Long Island Sound and Cedar Creek/Black Rock Harbor runs to the west and behind the landfill, forming the peninsula upon which the landfill is located.

The groundwater therefore flows radially from the landfill to the two water bodies. There is some influence from the nearby salt water on the groundwater as evidenced by the elevated levels of sodium. Swimmers at Seaside Park are not exposed to elevated levels of contaminants as shown by the surface water data, both in Cedar Creek and the Sound.

Surface Soil

The two solid waste management units at the site present no complete pathway to receptors. The municipal landfill is capped with soil and seeded top cover and the hazardous waste cell, although not capped, is fenced and warning signs are posted.

Sediment

Without any sediment data for the beach area or Cedar Creek, we are assuming that contamination exists and that there is a slight chance for a complete pathway for swimmers and an indirect pathway for consumption of fish taken from either body of water.

Soil Subsurface

See Surface Soil (above)

Attachment 3

Explanation and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

Sediment

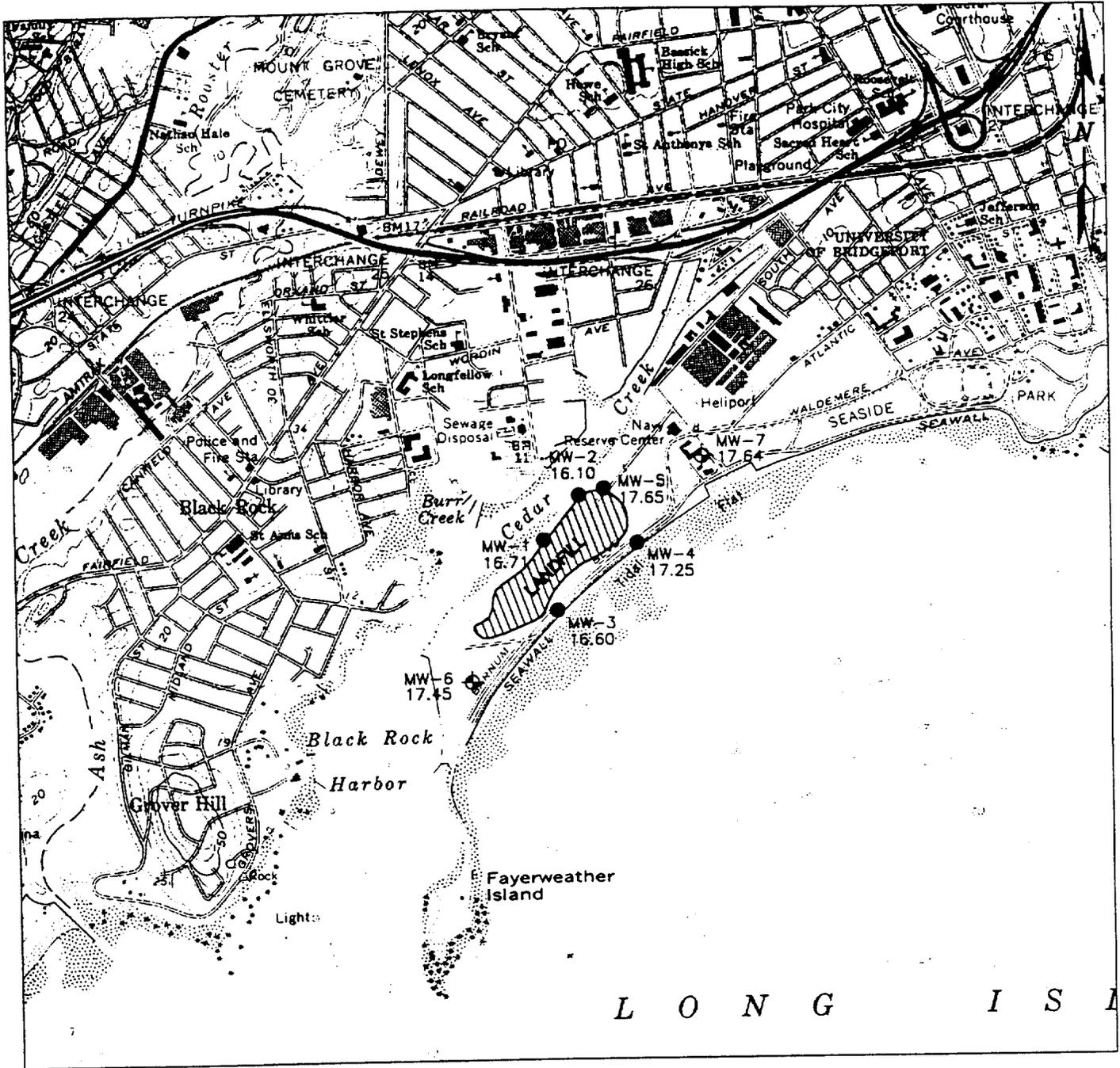
Without any sediment data for the beach area or Cedar Creek, we are assuming that contamination exists and that there is a slight chance for a complete pathway for swimmers and an indirect pathway for consumption of fish taken from either body of water. Exposure to the contamination is not expected to be significant due to the following:

1. The tidal cycle and storm events have likely removed some or most of the contaminated sediments from the creek, harbor and beach.
2. The landfill is closed and has not received waste since the end of 1999, therefore no additional source of contaminants are coming into the landfill.
3. The landfill has been capped with a seeded top cover so no silt/sediment runoff is expected to reach the surface water.
4. The RCRA cell is not capped but was recently observed to be well vegetated which would serve to stop the migration of silts/sediments to the water.
5. The likelihood that swimmers would prefer Seaside Park Beach to Cedar Creek will limit the number of swimmers in Cedar Creek and therefore will limit exposure to the contaminants there.
6. No commercial fishing takes place in the vicinity of the landfill. Consumption of fish is limited to recreational fishing only.
7. Other industrial and municipal activities are likely contributors to contamination of sediments in this area. The Bridgeport waste water treatment facility discharges to Cedar Creek, there is an aggregate/asphalt plant adjacent to the creek and Sikorsky operates a manufacturing plant adjacent to the creek.

Attachment 4
References

1. TRC Environmental Corporation, December 21, 1993, Final RCRA Facility Assessment, Seaside Park Landfill, RCRA Facility Assessments.
2. CTDEP, October 2, 1996, Consent Order No. SW-381, State of Connecticut v. City of Bridgeport.
3. Haley & Aldrich Inc., May 2, 1991, RCRA Hazardous Waste Closure and post-closure plan, City of Bridgeport Seaside Landfill, Bridgeport, CT.
4. Haley & Aldrich Inc., May 6, 1994, RCRA Post-Closure Permit Application, Hazardous Waste Area, City of Bridgeport Seaside Landfill, Bridgeport, CT.
5. LBG March 2001, 2000 Annual RCRA Ground-Water Monitoring Report for The Seaside Landfill, Bridgeport, CT.
6. LBG Leggette, Brashears & Graham, Inc., December 1996, City of Bridgeport Seaside Landfill, Work Plan for Zone of Influence Determination
7. LBG, March 1998, Zone of Influence Investigation, City of Bridgeport, Seaside Landfill, Bridgeport, Connecticut
8. Telephone call from Karen Destefanis, Leggette, Brashears & Graham, Inc., December 24, 1997.
9. LBG Inc., February 1997, Revised August 1997, City of Bridgeport, Seaside Landfill, Site Operation, Management and Closure Plan.
10. Connecticut Department of Environmental Protection, December 1997, Environmental Indicator Assessment, City of Bridgeport, Seaside Park Landfill

Attachment 5
Two Landfill Topographic Maps
Seaside Park Landfill
Bridgeport

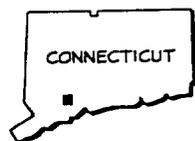


L O N G I S L

SOURCE: USGS TOPOGRAPHIC QUADRANGLE BRIDGEPORT, CONNECTICUT (PHOTOREVISED 1984).

LEGEND

- MW-1 EXISTING RCRA WELL LOCATION
- 17.25 WATER ELEVATION
- ◆ MW-6 ZONE OF INFLUENCE WELL



QUADRANGLE LOCATION

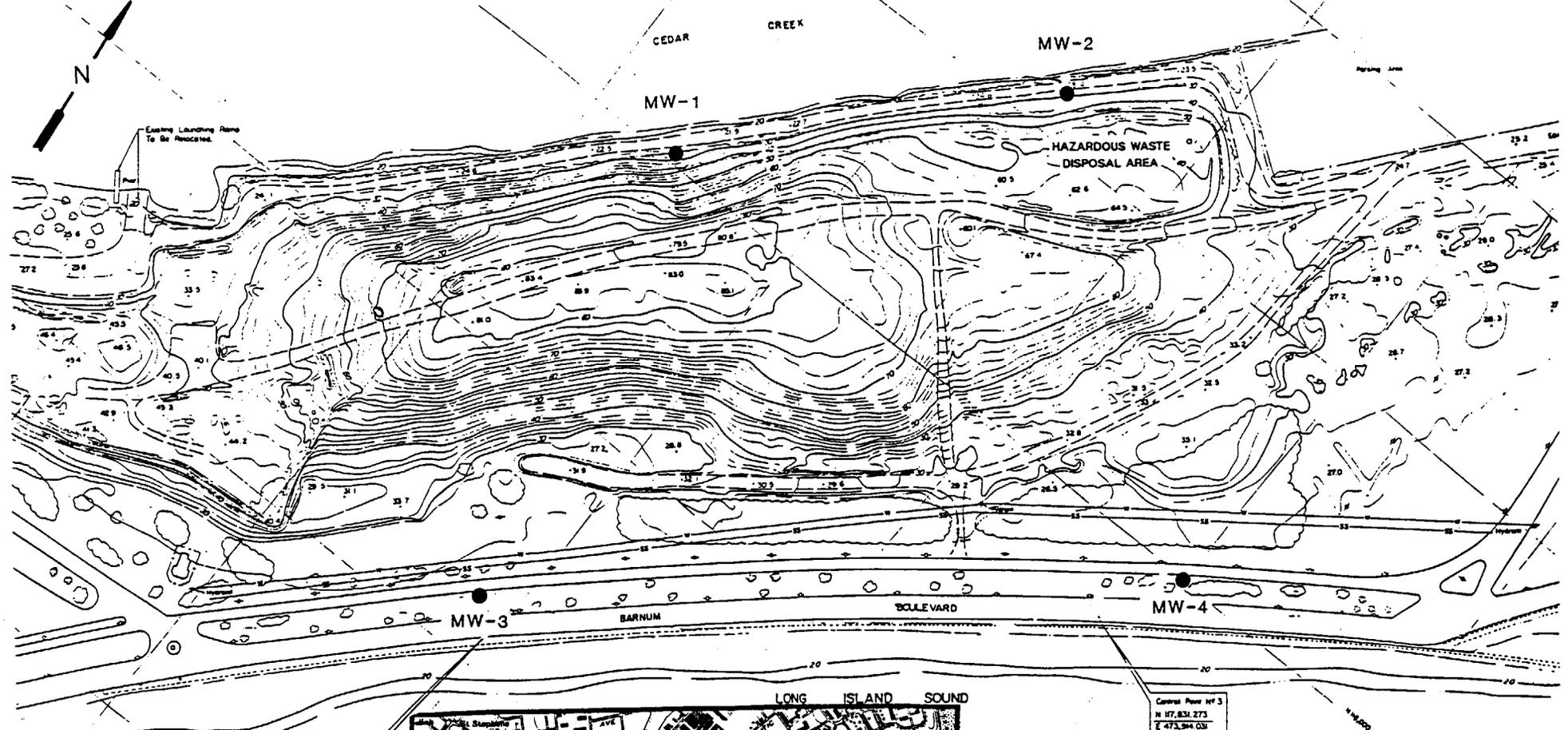


**CITY OF BRIDGEPORT
SEASIDE LANDFILL
BRIDGEPORT, CONNECTICUT**

WATER ELEVATIONS ON DECEMBER 17, 1997

DATE	REVISED	PREPARED BY:
		LEGGETTE, BRASHEARS & GRAHAM, INC.
		Professional Ground-Water and Environmental Engineering Services
		126 Monroe Turnpike
		Trumbull, CT 06611
		(203) 452-3100
DRAWN:	MRV	CHECKED: KBD
		DATE: 3/24/98
		FIGURE: 4



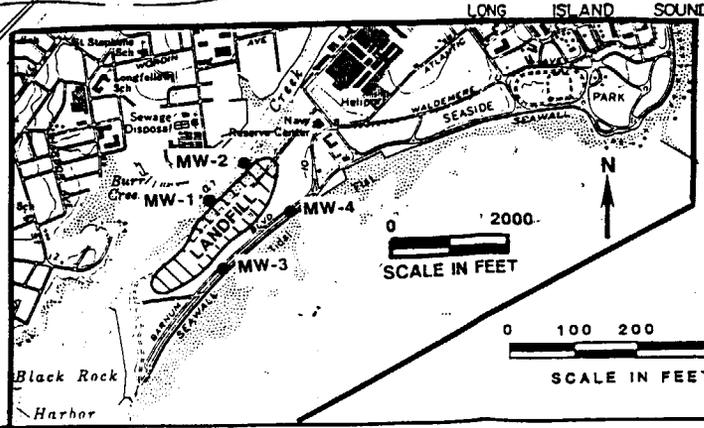


Central Point #2
N 117,125,904
E 472,999,509

Central Point #3
N 117,831,273
E 473,994,031

NOTES:

- Existing level contours
- Horizontal Datum USCGS
- Vertical Datum City of Bridgeport (10' above USCGS Datum)
- Existing Contours Based on Aerial Survey from on July 9, 1985
- Approximate location of water table
- Approximate location of sanitary sewer



**CITY OF BRIDGEPORT
SEASIDE LANDFILL
BRIDGEPORT, CONNECTICUT**

LANDFILL VICINITY AND MONITOR WELL LOCATIONS

DATE	REVISED

PREPARED BY:



**LEGGETTE, BRASHEARS &
GRAHAM, INC.**
Professional Ground-Water Consultants
72 Danbury Road
Wilton, CT 06897
203-762-1207

DATE:

FIGURE 5-2

Surface Water Quality Data
Seaside Park Landfill
Bridgeport

**ZONE OF INFLUENCE INVESTIGATION
CITY OF BRIDGEPORT
SEASIDE LANDFILL
BRIDGEPORT, CONNECTICUT**

Prepared For

City of Bridgeport

March 1998

Prepared By

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water & Environmental Engineering Services
126 Monroe Turnpike
Trumbull, CT 06611

TABLE 8
CITY OF BRIDGEPORT
SEASIDE LANDFILL
ZONE OF INFLUENCE INVESTIGATION

Surface-Water Quality
 Concentrations mg/l (Unless Noted)

Parameter	Maximum Contaminant Level ^{1/2}	Station Location	November 6, 1997	January 19, 1998
Barium	NS	1	0.011	0.011
		2	0.011	0.011
		3	0.013	0.013
		4	0.010	ND<0.010
		5	0.010	0.010
Cadium	0.043 Acute 0.0093 Chronic	1	ND<0.005	ND<0.005
		2	ND<0.005	ND<0.005
		3	ND<0.005	ND<0.005
		4	ND<0.005	ND<0.005
		5	ND<0.005	ND<0.005
Cyanide	0.001 Acute 0.001 Chronic	1	ND<0.01	0.02
		2	ND<0.01	ND<0.01
		3	ND<0.01	ND<0.01
		4	ND<0.01	ND<0.01
		5	ND<0.01	ND<0.01
Chromium	1.1 Acute 0.05 Chronic	1	ND<0.005	ND<0.005
		2	ND<0.005	ND<0.005
		3	ND<0.005	ND<0.005
		4	ND<0.005	ND<0.005
		5	ND<0.005	ND<0.005
Fluoride	NS	1	0.86	0.75
		2	0.86	0.80
		3	0.86	0.76
		4	0.76	0.66
		5	0.76	0.76
Lead	0.220 Acute 0.0085 Chronic	1	ND<0.005	ND<0.005
		2	ND<0.005	ND<0.005
		3	ND<0.005	ND<0.005
		4	ND<0.005	ND<0.005
		5	ND<0.005	ND<0.005
Nickel	0.075 Acute 0.0083 Chronic	1	ND<0.005	ND<0.005
		2	ND<0.005	ND<0.005
		3	ND<0.005	ND<0.005
		4	ND<0.005	ND<0.005
		5	ND<0.005	ND<0.005

SWPC RES
 NE NE
 .006 NE
 .052 NE
 .110 NE
 .013 N
 .88

TABLE 8
(continued)

CITY OF BRIDGEPORT
SEASIDE LANDFILL
ZONE OF INFLUENCE INVESTIGATION

Surface-Water Quality
Concentrations mg/l (Unless Noted)

Parameter	Maximum Contaminant Level ^{1/2}	Station Location	November 6, 1997	January 19, 1998
Nitrate - Nitrogen	NS	1	0.60	0.35
		2	0.45	1.38
		3	1.34	0.85
		4	0.17	0.38
		5	0.17	0.28
Silver	0.0023 Acute	1	ND<0.002	ND<0.002
		2	ND<0.002	ND<0.002
		3	ND<0.002	ND<0.002
		4	ND<0.002	ND<0.002
		5	ND<0.002	ND<0.002
Chloride	NS	1	17,000	12,700
		2	8,700	13,800
		3	11,000	12,000
		4	2	15,000
		5	14,000	15,300
Iron	NS	1	0.062	0.059
		2	0.060	0.027
		3	0.079	0.029
		4	ND<0.005	0.007
		5	ND<0.005	0.024
Manganese	NS	1	ND<0.005	ND<0.005
		2	ND<0.005	0.006
		3	0.020	0.019
		4	ND<0.005	ND<0.005
		5	ND<0.005	ND<0.005
Phenols	NS	1	ND<0.005	ND<0.005
		2	ND<0.005	ND<0.005
		3	ND<0.005	ND<0.005
		4	ND<0.005	ND<0.005
		5	ND<0.005	ND<0.005

SWP/RES

NE NE

012 NE

NE NE

NE NE

NE NE

92,000 NE

TABLE 8
(continued)

CITY OF BRIDGEPORT
SEASIDE LANDFILL
ZONE OF INFLUENCE INVESTIGATION

Surface-Water Quality
Concentrations mg/l (Unless Noted)

Parameter	Maximum Contaminant Level ^{1/2}	Station Location	November 6, 1997	January 19, 1998
Sodium	NS	1	14,400	14,200
		2	14,200	11,800
		3	11,700	10,800
		4	14,600	14,200
		5	14,500	14,300
Sulfate	NS	1	2.460	1.990
		2	2.380	1.930
		3	1.920	1.590
		4	2.430	1.910
		5	2.430	1.900
pH (units)	NS	1	7.44	7.64
		2	7.48	7.41
		3	7.33	7.28
		4	7.84	7.71
		5	7.83	7.50
Conductivity (umhos/cm)	NS	1	33,200	30,200
		2	30,700	25,100
		3	25,500	25,000
		4	34,000	29,400
		5	34,200	26,200
BOD	NS	1	9	4
		2	24	8
		3	9	2
		4	54	3
		5	24	5
COD	NS	1	227	263
		2	307	294
		3	267	232
		4	307	279
		5	320	310

TABLE 8
(continued)

CITY OF BRIDGEPORT
SEASIDE LANDFILL
ZONE OF INFLUENCE INVESTIGATION

Surface-Water Quality
Concentrations mg/l (Unless Noted)

Parameter	Maximum Contaminant Level ^{1/2}	Station Location	November 6, 1997	January 19, 1998
TDS	NS	1	28,000	28,000
		2	28,000	25,000
		3	23,000	21,200
		4	30,000	28,700
		5	30,000	30,400
Alkalinity	NS	1	96	99
		2	94	91
		3	90	88
		4	96	93
		5	96	91
Ammonia - Nitrogen	NS	1	0.54	0.442
		2	1.78	1.09
		3	1.89	1.46
		4	1.20	0.0693
		5	0.79	0.0937
Radium 226 (pCi/L)	NS	1	ND<0.45	0.44 ± 0.19
		2	ND<0.46	ND<0.30
		3	ND<0.47	ND<0.29
		4	ND<0.23	ND<0.29
		5	ND<0.48	ND<0.29
Gross Alpha pCi/L	NS	1	28.53 ± 94.59	ND<40.45
		2	90.09 ± 135.14	ND<25.53
		3	80.06 ± 93.09	ND<36.04
		4	36.04 ± 132.80	ND<43.54
		5	16.52 ± 93.09	ND<42.04
Gross Beta pCi/L	NS	1	52.55 ± 88.59	159.16 ± 103.6
		2	15.77 ± 128.38	40.54 ± 97.6
		3	100.6 ± 90.09	43.54 ± 97.6
		4	132.88 ± 126.1	ND<40.54
		5	135.14 ± 88.59	ND<40.54

mg/l
umhos/cm

Milligram per liter.
micromhos per centimeter

pCi/L
1/

pico Curies per liter.
Surface-Water Protection Criteria

Groundwater Quality Data
Seaside Park Landfill
Bridgeport

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DEP-WASTE MANAGEMENT BUREAU
WASTE ENGINEERING & ENFORCEMENT

**2000 ANNUAL RCRA
GROUND-WATER MONITORING REPORT
THE SEASIDE LANDFILL
BRIDGEPORT, CONNECTICUT**

Prepared For

City of Bridgeport

March 2001

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water and Environmental Engineering Services
126 Monroe Turnpike
Trumbull, CT 06611

TABLE 5
CITY OF BRIDGEPORT
SEASIDE LANDFILL
BRIDGEPORT, CONNECTICUT

**Parameters Which Exceeded EPA Drinking Water
Standards or State of Connecticut Standards
March 15, 2000**

Parameter (units)	Well	Concentration	Limit
Chloride (mg/l)	MW-1	1,100	250
	MW-2	3,200	
Fluoride (mg/l)	MW-3	3.2	1.4 - 2.4
Iron (mg/l)	MW-1	0.59	0.30 ^{1/}
	MW-3	0.67	
	MW-4	7.10	
Manganese (mg/l)	MW-1	0.12	0.05 ^{1/}
	MW-2	0.08	
	MW-3	0.25	
	MW-4	0.52	
Sodium (mg/l)	MW-1	429	28 ^{2/}
	MW-2	2,040	
	MW-3	28.6	
	MW-4	38	
Sulfate (mg/l)	MW-1	392	250
Gross Alpha (pCi/l)	MW-2	22.97 ± 10.8	15
Gross Beta (pCi/l)	MW-2	49.1 ± 13.5	50

- 1/ USEPA secondary maximum contaminant level.
2/ Notification level for people on sodium restricted diets.
mg/l Milligrams per liter.
pCi/l Pico Curies per liter.

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TABLE 6
CITY OF BRIDGEPORT
SEASIDE LANDFILL
BRIDGEPORT, CONNECTICUT

Parameters Which Exceeded EPA Drinking Water
Standards or State of Connecticut Standards
June 29, 2000

Parameter (units)	Well	Concentration	Limit
Fluoride (mg/l)	MW-3	3.8	1.4 - 2.4
Chloride (mg/l)	MW-1	670	250
	MW-2	1,200	
Iron (mg/l)	MW-1	0.78	0.30 ^{1/}
	MW-3	2.44	
	MW-4	8.12	
Manganese (mg/l)	MW-1	0.10	0.05 ^{1/}
	MW-3	0.28	
	MW-4	0.54	
Nitrate-nitrogen (mg/l)	MW-2	37	10
Sodium (mg/l)	MW-1	243	28 ^{2/}
	MW-2	784	
	MW-4	33.4	
Sulfate (mg/l)	MW-1	340	250
	MW-2	1,700	
Gross Alpha (pCi/l)	MW-2	11.5 ± 4.28	15
Gross Beta (pCi/l)	MW-2	62.16 ± 4.73	50

- 1/ USEPA secondary maximum contaminant level.
2/ Notification level for people on sodium restricted diets.
mg/l Milligrams per liter.
pCi/l Pico Curies per liter.

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TABLE 7
CITY OF BRIDGEPORT
SEASIDE LANDFILL
BRIDGEPORT, CONNECTICUT

**Parameters Which Exceeded EPA Drinking Water
Standards or State of Connecticut Standards
September 28, 2000**

Parameter (units)	Well	Concentration	Limit
Chloride (mg/l)	MW-1	2,000	250
	MW-2	2,700	
Fluoride (mg/l)	MW-3	2.8	1.4 - 2.4
Iron (mg/l)	MW-1	1.18	0.30 ^{1/}
	MW-3	0.96	
	MW-4	8.98	
Manganese (mg/l)	MW-1	0.59	0.05 ^{1/}
	MW-3	0.20	
	MW-4	0.48	
Sodium (mg/l)	MW-1	2,040	28 ^{2/}
	MW-2	2,770	
	MW-3	133	
	MW-4	41.4	
Sulfate (mg/l)	MW-1	700	250
	MW-2	1,800	
Gross Alpha (pCi/l)	MW-2	NA	15
Gross Beta (pCi/l)	MW-2	NA	50

- 1/ USEPA secondary maximum contaminant level.
- 2/ Notification level for people on sodium restricted diets.
- mg/l Milligrams per liter.
- pCi/l Pico Curies per liter.
- NA Not analyzed for this parameter due to laboratory error.

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TABLE 8

CITY OF BRIDGEPORT
SEASIDE LANDFILL
BRIDGEPORT, CONNECTICUT

Parameters Which Exceeded EPA Drinking Water
Standards or State of Connecticut Standards
December 29, 2000

Parameter (units)	Well	Concentration	Limit
Turbidity (NTU)	MW-1	12	1.0
	MW-3	860	
	MW-4	190	
Chloride (mg/l)	MW-1	2,100	250
	MW-2	2,600	
Fluoride	MW-3	3.2	1.4 - 2.4
Chromium (mg/l)	MW-3	0.10	0.05
Iron (mg/l)	MW-1	1.54	0.30 ^{1/}
	MW-3	127	
	MW-4	10.8	
Lead (mg/l)	MW-2	0.02	0.015
	MW-3	0.21	
Manganese (mg/l)	MW-1	0.22	0.05 ^{1/}
	MW-2	0.07	
	MW-3	1.50	
	MW-4	0.53	
Nickel (mg/l)	MW-3	0.13	0.10
Sodium (mg/l)	MW-1	1,380	28 ^{2/}
	MW-2	1,710	
	MW-3	28.4	
	MW-4	41.7	
Sulfate (mg/l)	MW-1	370	250
	MW-2	1,100	
Gross Beta (pCi/l)	MW-1	68.24 ± 8.11	50
	MW-2	60.96 ± 8.71	

- 1/ USEPA secondary maximum contaminant level.
- 2/ Notification level for people on sodium restricted diets.
- NTU Nephelometric turbidity unit.
- mg/l Milligrams per liter.
- pCi/l Pico Curies per liter.
- ug/l Micrograms per liter.

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