PRE-HRS

Facility name CORNING GLASS WORKS - ZIRCOA PROD.

Location 31501 SOLON RD., SOLON OH

FACILITY DESCRIPTION MEDIUM SIZE INDUSTRIAL PLANT WITH 3 LAGOONS THAT ARE BEING PHASED OUT. A HF STORAGE TANK EXPLODED IN APRIL, 1972 SPILLING ~5000 GALLONS OF HF. IT WAS WASHED DOWN AND INTO A LARGE LAGOON. THE FACILITY HAS SEVERAL AIR PERMITS WITH THE AIR QUALITY AGENCY IN CLEVELAND.

US EPA RECORDS CENTER REGION 5
472877

POTENTIAL SW + GW Scores: $S_M = 8.76$ ($S_{gw} = 13.61$, $S_{sw} = 6.66$, $S_a = 0$) $S_{FE} = 0$ $S_{DC} = 62.5$	OBS. RELEASE SW + GW $S_M = 36.69$ ($S_{gw} = 22.68$, $S_{sw} = 7.13$, $S_a = 58.88$) $S_{FE} = 0$ $S_{DC} = 62.5$
Potential SW OBS. RELEASE GW $S_M = 13.66$ ($S_{gw} = 22.68$, $S_{sw} = 6.66$, $S_a = 0$) S_{FE} 0 S_{DC} 62.5	Potential GW OBS RELEASE SW $S_M = 8.88$ ($S_{gw} = 13.61$, $S_{sw} = 7.13$, $S_a = 0$) $S_{FE} = 0$ $S_{DC} = 62.5$

WORKSHEET

-GW & SW

Groundwater Route

Depth to aquifer of concern	(2)	38' (WELL LOG SOLON TWP SHIP)
Net precipitation	(1)	5"
Perneability (material type)	(1)	CLAY LENSE IN AREA
Physical state	(3)	LIQUID ACIDS
Containment (type, degree)	(3)	UNLINED? LAGOON, SPILLS
Toxicity; persistence (compounds)	(9)	HYDROCHLORIC ACID
quantity	(8)	68,805 TONS/YEAR
Groundwater use		
Population served		
Nearest well		

Surface Water Route

Slope and terrain	(3)	SITE NEXT TO DITCH WHICH LEADS TO MANMADE CREEK
24 hr rainfall	(2)	2.2
Nearest Surface water	(3)	~300' TO CREEK
Physical state	(3)	LIQUID
Containment (type, degree)	(3)	SPILL, LAGOON
Toxicity; persistence (compounds)	(9)	HYDROCHLORIC ACID
quantity	(8)	68,805 TONS/YEAR
Surface water use	(2)	
Sensitive environment	(0)	
Intake distance	(0)	
Population served	(0)	

05T:2T

Groundwater Route Score (S_{gw})	13.61	185.23
Surface Water Route Score (S_{sw})	6.66	44.36
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		229.59
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		15.15
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}/1.73 = S_w$:		8.76

OBSERVED RELEASE

	S	S^2
Groundwater Route Score (S_{gw})	22.68	514.38
Surface Water Route Score (S_{sw})	7.13	50.84
Air Route Score (S_a)	58.85	3463.32
$S_{gw}^2 + S_{sw}^2 + S_a^2$		4028.54
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		63.47
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}/1.73 = S_w$:		36.69

OBSERVED RELEASE GW ONLY

	S	S^2
Groundwater Route Score (S_{gw})	22.68	514.38
Surface Water Route Score (S_{sw})	6.66	44.36
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		558.74
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		23.64
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}/1.73 = S_w$:		13.66

OBSERVED RELEASE SW ONLY

	S	S^2
Groundwater Route Score (S_{gw})	13.61	185.23
Surface Water Route Score (S_{sw})	7.13	50.84
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		236.07
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		15.36
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}/1.73 = S_w$:		8.88

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	4.1	45
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.						
2 Route Characteristics					4.2	
Facility Slope and Intervening Terrain	0 1 2 (3)	1	3	3		
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3		
Distance to Nearest Surface Water	0 1 2 (3)	2	6	6		
Physical State	0 1 2 (3)	1	3	3		
	Total Route Characteristics Score		14	15		
3 Containment	0 1 2 (3)	1	3	3	4.3	
4 Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 (9) 12 15 18	1	9	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8		
	Total Waste Characteristics Score		17	26		17
5 Targets					4.5	
Surface Water Use	0 1 (2) 3	3	6	9		
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6		
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40		
	Total Targets Score		6	55		6
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			4284	64,350		4590
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 6.66			7.13

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	3.1	45
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.						
2 Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 (2) 3	2	4	6		
Net Precipitation	0 (1) 2 3	1	1	3		
Permeability of the Unsaturated Zone	0 (1) 2 3	1	1	3		
Physical State	0 1 2 (3)	1	3	3		
Total Route Characteristics Score			9	15		
3 Containment	0 1 2 (3)	1	3	3	3.3	
4 Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 (9) 12 15 18	1	9	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8		
Total Waste Characteristics Score			17	26		17
5 Targets					3.5	
Ground Water Use	0 1 (2) (3)	3	9	9		
Distance to Nearest Well/Population Served	0 4 6 (8) 10 / 12 16 18 20 / 24 30 32 35 40	1	8	40		
Total Targets Score			17	49		17
6 If line 1 is 45, multiply 1 x 4 x 5 / If line 1 is 0, multiply 2 x 3 x 4 x 5			7803	57.330		13005
7 Divide line 6 by 57.330 and multiply by 100		S_{gw} = 13.61				22.68

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	45	45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1	0	3	
Toxicity	0 1 2 3	3	9	9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	8	8	
	Total Waste Characteristics Score		17	20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1	24	30	
Distance to Sensitive Environment	0 1 2 3	2	0	6	
Land Use	0 1 2 3	1	3	3	
	Total Targets Score		27	39	
4 Multiply 1 x 2 x 3			20655	35,100	
5 Divide line 4 by 35,100 and multiply by 100			S_a = 58.85		

FIGURE 9
AIR ROUTE WORK SHEET

Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	OBS. RELEASE
1 Observed Incident	0 45	1	0	45	8.1	45
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2						
2 Accessibility	0 1 2 3	1	3	3	8.2	
3 Containment	0 15	1	15	15	8.3	
4 Waste Characteristics Toxicity	0 1 2 3	5	15	15	8.4	15
5 Targets					8.5	
Population Within a 1-Mile Radius	0 1 2 3 4 5	4	20	20		
Distance to a Critical Habitat	0 1 2 3	4	0	12		
Total Targets Score			20	32		20
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			13500	21,600		13500
7 Divide line 6 by 21,600 and multiply by 100	S_{DC} = 62.5					62.5

FIGURE 12
DIRECT CONTACT WORK SHEET