

Dordrecht Works C-8 Sampling Summary

Groundwater Sampling Results
March 2003

AR226-16 70

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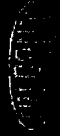
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EID720705

Site Conceptual Model

- Primary source area (I.e., C8 and chlorocarbons) is freatic (shallow) aquifer underlying FP process area. This area of impact is contained by a sheet-pile cut-off wall and a Groundwater Pump & Treat system. Treatment is air stripper (no affect on C-8).
- First aquifer is also pumped to maintain inward groundwater flow gradient.
- Second aquifer receives "Pumped Infiltration" to establish higher pressures (upward gradient) and prevent first aquifer from flowing vertically downward to second.
- Second aquifer likely flows laterally offsite. Overall in this aquifer, C8 concentrations have gone from ND in mid 1990's to 14.4 ug/L in March 2003.

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Scope of Work Summary

- 24 samples were collected on March 10-12, 2003, including:
 - 18 site monitoring wells (most previously sampled in mid 1990's). Three water bearing zones: freatic, first, and second aquifers.
 - 1 site tapwater (local "city" water)
 - 1 from "Spaarbekk" reservoir
 - 2 from groundwater treatment system (combined influent and effluent)
 - 2 from site wastewater treatment plant (sweetwater and saltwater)

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Analytical Results (in ug/L)

Sample ID	Date	C-8 (ug/L)
MW-315	3/10/2003	71.3
MW-N10-2	3/10/2003	15
MW-N23-1	3/10/2003	5.5
MW-N28-1	3/10/2003	14.4
GW Treatment 103	3/11/2003	9.18
Waste Treatment 82	3/11/2003	3,890
GW Treatment 401	3/11/2003	7.91
Waste Treatment 80	3/11/2003	4,850
Spaarbekk	3/11/2003	0.439
Tap Water	3/11/2003	0.0736
MW-119	3/11/2003	158
MW-303	3/11/2003	7,430
MW-05A	3/11/2003	6.1
MW-N26-1	3/11/2003	16.1
MW-N25-1	3/11/2003	3.99
MW-308	3/11/2003	131
MW-W02-A	3/11/2003	14.7
MW-314	3/11/2003	50.2
MW-118	3/11/2003	34.9
MW-N17-1	3/11/2003	0.139
MW-N19-1	3/12/2003	0.762
MW-311	3/12/2003	354
MW-316	3/12/2003	1530
MW-317	3/12/2003	2890

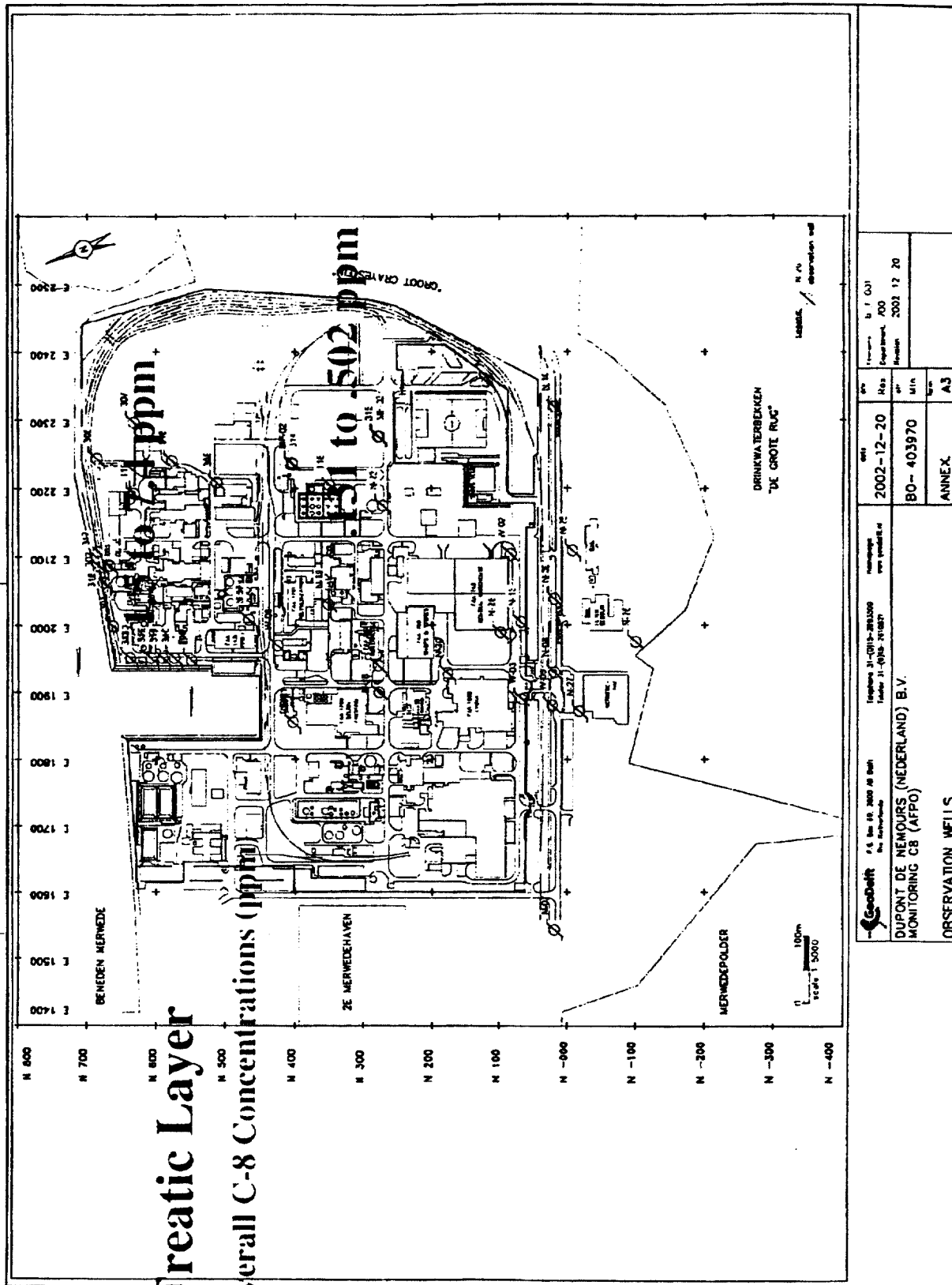
Corrected Sampling 2003

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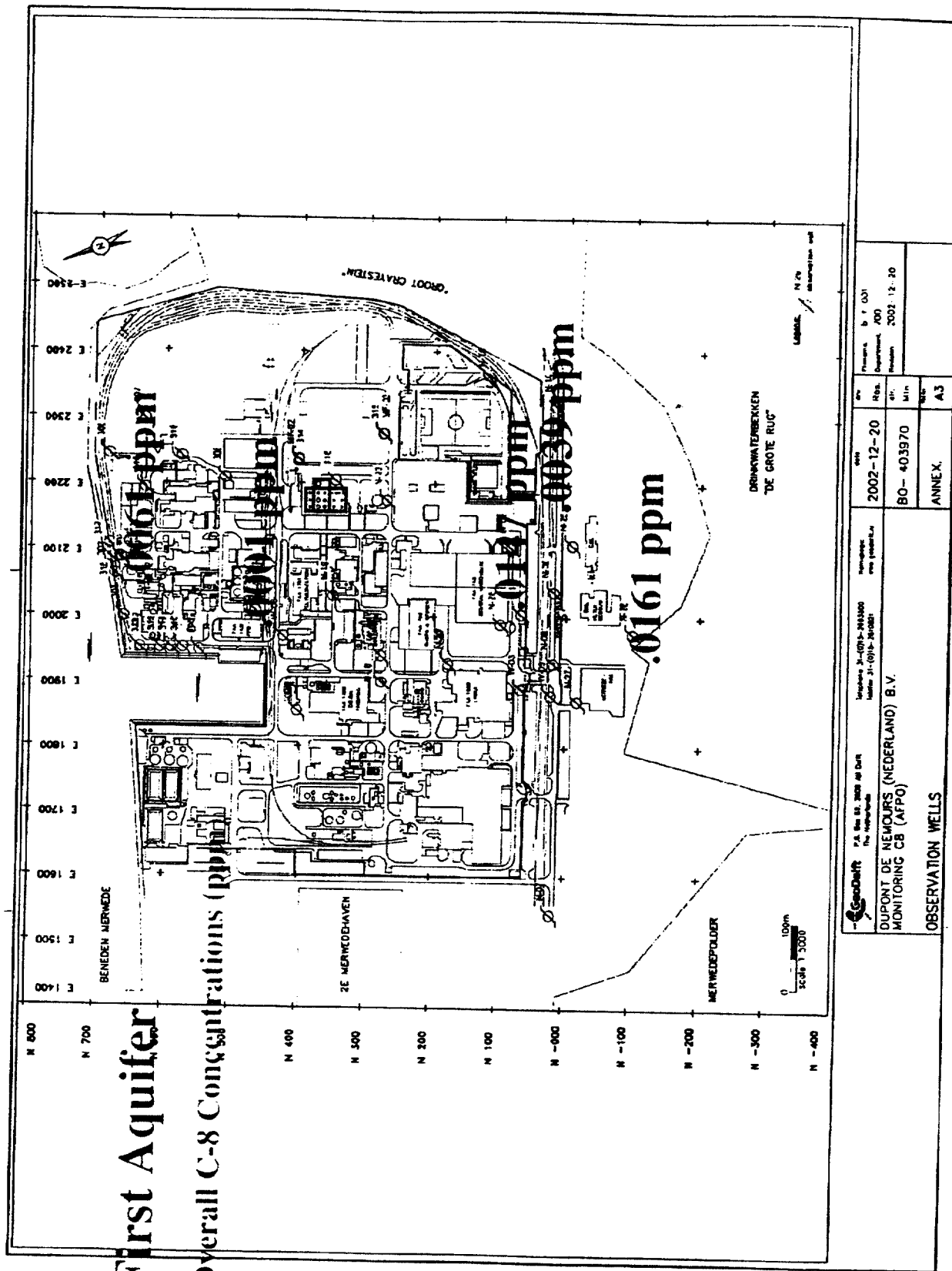
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GeoDelft P.O. Box 10, 2000 AA Delft T: 015-2512000 F: 015-2512001 E: info@geodelft.nl		Project: 2002-12-20 Report: 2002-12-20	
Client: DUPONT DE NEMOURS (NEDERLAND) B.V. Monitoring: MONITORING C8 (APPO)		Date: 2002-12-20 Version: 1.0	
Observation Wells		Annex: A3	

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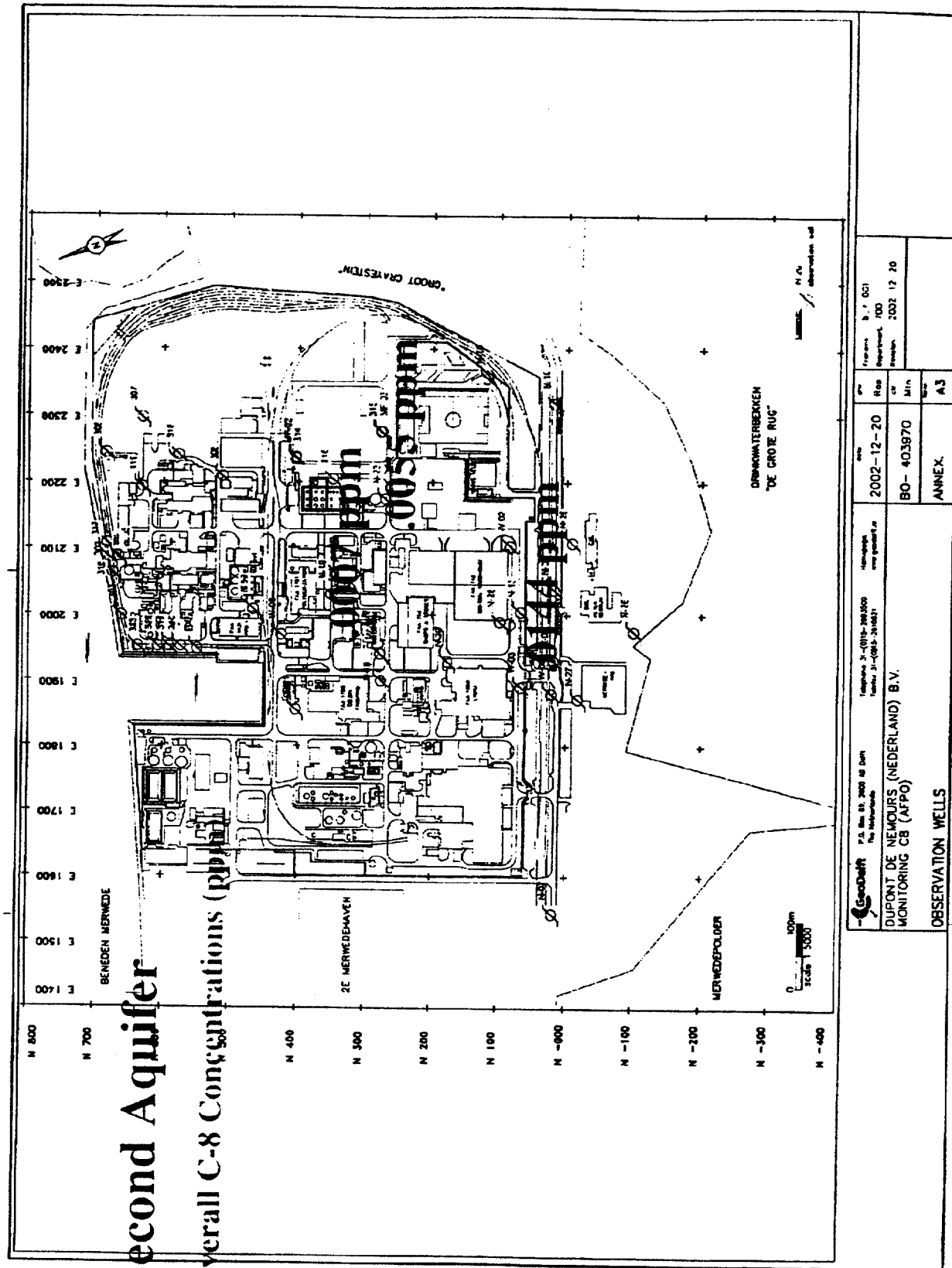
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 GeoDelft P.O. Box 10, 2000 AA Delft The Netherlands Dupont de Nemours (Nederland) B.V. MONITORING CB (APO)	Verspreide 3-(GT)-2-MSX Isotien 21-(GT)-2-MSX	2002-12-20	0404	2002-12-20	Gis	Mtr	2002.12.30	B. 1.031 APO
OBSERVATION WELLS								A3

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GeoDelft P.O. Box 33, 2000 AB Delft The Netherlands Telephone: 31-(0)15-2683500 Telefax: 31-(0)15-2683521 Homepage: www.geodelft.nl		Project: 2002-12-20 Date: BO-403970 Revision: ANNEX.	
Dupont de Nemours (Nederland) B.V. Monitoring CB (AFPO)		Form: B-1 GCI Department: 100 Project: 2002 12 20	
OBSERVATION WELLS		A3	

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Results Discussion

- Elevated levels found in Waste Treatment 82-Sweetwater (3890 ug/L) and Waste Treatment 80-Saltwater (4850 ug/L).
 - Based on flow of approximately 500,000 gal./day, this represents discharge of approximately 7,300 lbs/year.
- Highest groundwater measurement 7430 ug/L in MW-303, a well completed in shallowest water bearing zone, “freatic layer” (“Ophooglaag”). Slightly higher than Aug. 1995 measurement of 1700 ug/L. Other shallow wells near this site location MW-316 (1530 ug/L) and MW-317 (2890 ug/L).
- Range for shallow water bearing zone is 34.9 ug/L (central site) to 7430 ug/L, north site, near river.



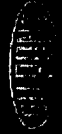
Results Discussion

- Concentrations in first aquifer "Eerste" range from .139 to 16.1 ug/L.
- Concentrations in second aquifer "Tweede" range from .762 to 14.4 ug/L.
- Overall, 2003 measured concentrations are higher than mid 90's sampling events.
- Spaarbekk Reservoir .439 ug/L. Water used by site for non-contact cooling. Also used for water sports/recreation.
- Groundwater treatment system influent, GW Treatment 103 was 9.18 ug/L and effluent, GW Treatment 401, was 7.91 ug/L.
- Site "Tap Water" was .0736 ug/L. Source is "city water".

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Site Conceptual Model Summary

Areas of impact and groundwater flow directions

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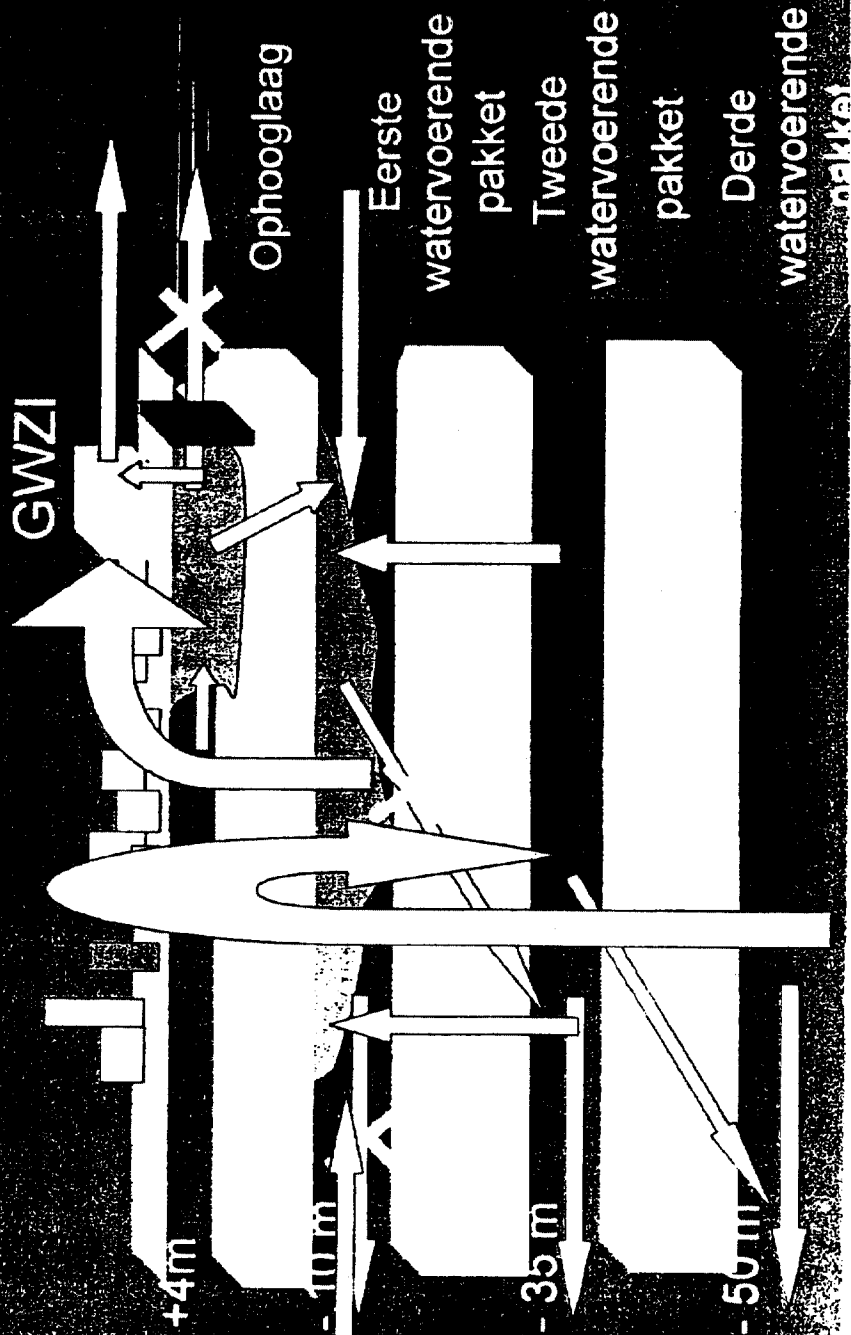
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Principe van het GBS





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