

DUPONT CONFIDENTIAL
SPECIAL CONTROL

Du Pont de Nemours (Nederland) BV
Dordrecht Works

To: see distribution list

Dordrecht, 10-3-1994

From: [REDACTED]

C-8 IN GROUND WATER

This letter explains the status of groundwater sampling activities on the site and at landfills around the site. It refers to the recommendations of M. Parr in his letter of 2 December 1993 (attached). These recommendations are also shown in bold text in the next paragraphs. The current status is shown directly after each recommendation.

1. Have the plant evaluate, based upon the methods used to set permit limits for other chemicals in their wastewater discharge permit, what limits might apply to C-8 were it permitted. This will help us to evaluate the significance of the observed concentrations in the river.

Status

In the context of the new aqueous discharge permit request, we are discussing C-8 aquatic toxicity with the authorities. We have provided the most recent data on aquatic toxicity of C-8, but still need to provide data on bio-accumulation in aquatic species. We expect to have guidelines on C-8 limits in river water by mid 1994.

2. Resample the previously sampled wells and surface water points and have the samples analyzed for C-8. This will give us more insight into groundwater conditions by validating the earlier results.

Status

14 resamples have been taken. The purchase order for analysis by Quality Analytical Laboratories (formerly CH2M Hill) is being prepared. Expect results in two months.

3. Determine whether the offsite landfills have monitoring wells we could sample to determine whether there may be offsite C-8 contamination of groundwater. [REDACTED] should be able to assist with this.

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Status

There are some political problems associated with this:
The private landfill has a groundwater control plan (NOT a soil remediation plan) to contain (i.e. stop spreading out of) other contaminants (tars), and probably has wells. If we ask for groundwater samples there and find C-8, we will be asked to share the cost of the groundwater control. This doesn't make the groundwater any cleaner, it just costs us more and the other company less. Sofar we are not planning to take samples here.

The public landfills have probably no wells. They are covered, so wash out by rain is minimal. If we would start a program to measure C-8 in groundwater there, we will have to bear the (financial) consequences if any C-8 would be found. The consequences of NOT doing anything are hard to predict. There seems to be no direct hazard for the drinking water, which is taken from the deeper aquifers, where no C-8 was detected. But who knows what may happen long term?

§[7m PERSONALLY I THINK SAMPLING IS THE ETHICAL THING TO DO. BUT WE NEED A FIRM BACKING BY MANAGEMENT, BEFORE WE START THIS. §[27m

4. Evaluate whether the soil remediation activities at the closed public landfill presents the potential for worker exposure to C-8 or spreading C-8 around and creating additional contamination. Again, [REDACTED] should be able to assist.

Status

There are no soil remediation activities at any landfill. There is only a groundwater control system at the private landfill.

5. Site individuals with responsibility for C-8 issues should discuss the planned chlorocarbon groundwater remediation activities with [REDACTED] and determine whether any modifications to address C-8 might be appropriate.

Status

The last step of the Dordrecht site chlorocarbon groundwater remediation facilities involves adsorption on active carbon, not only for the off gas, but also for the water itself. This will effectively remove C-8 from the groundwater.

Additional considerations

[REDACTED] has raised another concern: that "there are no monitoring wells on-site in the vicinity of a former landfill (known as the airport area)". I can't find any details on this former "landfill", it seems to have been a place where small amounts of PTFE sewer waste were dumped temporarily. In spite of that, we believe that -considering the direction of groundwater flows- the existing net of monitoring wells provides adequate information on the spread of C-8 in groundwater.

There is an involuntary "landfill" though, under the Teflon FEP building. The sewer pipes sometimes break or leak, so large quantities of FEP dispersion (containing C-8) have been found under the building. The mixture of coagulated dispersion and sand has been removed, but the potential for new leaks remains. I believe this place is the largest potential source of C-8 leaks into the groundwater. Although several precautions have been taken to reduce the risk of a leak, I think we need to provide spill containment facilities, so that -if a leak occurs- it does not go into the groundwater.

THINGS TO DO

1. Follow up on existing programs: groundwater sampling, discussion with authorities on aqueous emission limits etc.
2. Spill containment under the FEP building
3. Management decision on taking groundwater samples at public landfills.

Best regards,

[REDACTED]
C-8 coordinator Dordrecht Works

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INTEROFFICE MEMORANDUM

Date: 02-Dec-1993 04:34pm
From: [REDACTED]
Dept: CHEMICALS
Tel No: 773-0613

TO: [REDACTED]
TO: [REDACTED]

Subject: Dordrecht C-8

TO: [REDACTED]
FROM: [REDACTED]
SUBJ: C-8 AT DORDRECHT
DATE: 12-2-93

Per our discussions, I have reviewed the available data regarding C-8 in soil and groundwater at and adjacent to the Dordrecht site. This memo summarizes that information, key issues it raises, and my recommendations for additional activities.

Current Situation

C-8 has been and continues to be used in the Teflon process. Spills of C-8 containing materials in the process area and/or disposal of C-8 adjacent to process areas have resulted in groundwater contamination in the shallow and 1st groundwater aquifers beneath the site. C-8 levels in the shallow aquifer are high versus Haskell laboratory's drinking water guideline for C-8 (230 ppb vs. 3 ppb). Levels in the first aquifer are much lower (max. 3 ppb). C-8 in the first aquifer is migrating with the groundwater. C-8 has not been detected in deeper aquifers (public drinking water is withdrawn from the deeper aquifer). C-8 has been detected migrating offsite at 0.2 ppb. All of this is based upon one round of samples.

Three offsite landfills (two public, one private) have accepted C-8 containing wastes. Surface water runoff from one of these landfills contained C-8 at 53 ppb. The private and one public landfill are closed, the remaining landfill is active. Some form of soil remediation is taking place at the closed public landfill.

Shallow groundwater containing C-8 discharges to the Merweede river, and C-8 containing wastewater is also discharged (approx. 10M lbs/yr. C-8). C-8 has been measured in the river at 7.0 ppb.

There is significant groundwater contamination at the site by chlorocarbons, which has been discussed extensively with the

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laboratory authorities. A groundwater remediation plan is in place to extract groundwater and treat it via air stripping and adsorption phase carbon prior to discharge into the river. This treatment will not remove C-8 from the groundwater.

Potential Concerns

The situation raises a number of issues.

Our understanding of on-site groundwater conditions is based upon a single set of samples, for which there was some analytical difficulty.

There are no monitoring wells on-site in the vicinity of a former landfill (known as the "airport area").

C-8 is known to bioaccumulate in some organisms, and may do so in aquatic organisms. The impact of C-8 on the river is unclear.

We have no data on potential groundwater impact at the three off-site landfills or potential human exposure to contaminated surface water runoff.

There is some potential for workers in the soil remediation effort at the closed public landfill to be exposed to or spread C-8 during that activity.

Recommendations

To address the issues noted above, I suggest you consider the following items.

Have the plant evaluate, based upon the methods used to set permit limits for other chemicals in their wastewater discharge permit, what limits might apply to C-8 were it permitted. This will help us to evaluate the significance of the observed concentrations in the river.

Resample the previously sampled wells and surface water points and have the samples analyzed for C-8. This will give us more insight into groundwater conditions by validating the earlier results.

Determine whether the offsite landfills have monitoring wells we could sample to determine whether there may be offsite C-8 contamination of groundwater. [REDACTED] should be able to assist with this.

Evaluate whether the soil remediation activities at the closed public landfill presents the potential for worker exposure to C-8 or spreading C-8 around and creating additional contamination. Again, [REDACTED] should be able to assist.

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Site individuals with responsibility for C-8 issues should discuss the planned chlorocarbon groundwater remediation activities with [REDACTED] and determine whether any modifications to address C-8 might be appropriate.

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