August 31, 2001

Mr. Garth Connor (3EC10)
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103

Via Federal Express

Dee Ann Staats, Ph. D.
West Virginia Department of Environmental Protection
1356 Hansford Street
Charleston, WV 25301

Via Hand Delivery

Dear Mr. Connor and Dr. Staats:

On behalf of E. I. duPont de Nemours and Company ("DuPont") we hereby file this response to the Request for Information addressed to Mr. Paul Bossert at DuPont's Washington Works facility and dated July 24, 2001 ("Information Request"). In a letter dated August 24, 2001, also responding to the Information Request and resulting from various conversations between DuPont representatives and Mr. Connor and Ms. Janet Sharke of EPA Region III, Mr. Bernard Reilly of DuPont's Legal Department indicated that DuPont would submit an initial response to the Information Request on August 31, 2001, which submittal would be supplemented following discussions to be held among DuPont, EPA and the West Virginia Department of Environmental Protection ("DEP") at a meeting scheduled for September 7, 2001.

As an initial matter, DuPont objects to the Information Request as extremely broad and burdensome. Although some of the individual requests are limited to DuPont facilities located in West Virginia, other requests are not so limited. DuPont owns or operates 135 manufacturing and processing facilities worldwide. Despite its best efforts, DuPont cannot supply all of the information requested within the time provided and in some instances searching to determine whether responsive information exists could take months or years. DuPont has made a good faith effort to provide the information requested in the time provided and we look forward to discussing a schedule for supplementing this initial submittal at our upcoming meeting.

Because of time limitations, DuPont has attempted to locate responsive documents by interviewing persons with knowledge of the subject matter of each request and by searching files identified by these persons as likely to contain responsive documents.

Where documents have been identified that, for example, show a number of copies going to different persons, no attempt has been made to track down all such copies to determine if any notations, marginalia or other revisions to the identified copy have been made.

Similarly, because of time limitations, DuPont has not conducted a comprehensive search of electronic communications (e-mail). Where e-mail communications responsive to the Information Request have been identified, they have been reproduced in hard copy and are provided with this response.

The Information Request is not limited in terms of the period of time covered by the request. Although we believe we have searched all likely locations where responsive documents may be kept, we cannot represent that some responsive documents may not be archived at other locations that have not been identified as yet.

Where documents are provided as a part of any response – the specific request to which the documents are responsive has been indicated. Where documents are responsive to more than one request a general cross-reference is made citing the number of the request to which it is also responsive. Time limitations have not permitted a more specific designation for each document or set of documents.

DuPont is not providing documents that are subject to the attorney-client privilege, the attorney work product doctrine or any other recognized privilege. We are providing documents identified as "Business Confidential" and have appropriately marked documents that are subject to this claim.

Several of the requests ask for copies of "capital requests" related to a certain activity or study. DuPont has informally requested clarification from EPA Region III as to the meaning of this term but, as of this date, has received no guidance from the Agency in this regard. Because we believe this term to be indefinite and uncertain, we are not providing any documents responsive to such requests at this time. We are prepared to discuss this issue further at our upcoming meeting.

By filing this response DuPont is not admitting to the jurisdiction or conceding the authority of the EPA or the DEP with respect to the information requested under the statutes cited in the Information Request or under any other statute.

The Information Request refers to ammonium perfluorooctanoate by the term "C-8." In the documents submitted with this response this compound has been referred to in several ways, using chemical nomenclature, trade names and abbreviations (e.g. APFO, FC-143, PFOA). In the responses reflected in Attachment A this compound is referred to as PFOA.

Attachment A to this letter reflects DuPont's initial response on an item-by-item basis, supported by the exhibits referenced therein.

Should there be any questions related to this response that the Agency would like to address in advance of our upcoming meeting, please contact me at (302) 999-2415 or Bernard Reilly at (302) 774-5445.

Very truly yours,

David Rurak

c: Janet E. Sharke, Esq.

RESPONSE TO INFORMATION REQUEST

RESPONSES

DuPont repeats and reiterates the objections and qualifications set forth in the letter accompanying these responses. Notwithstanding these objections and qualifications, DuPont responds as follows:

REQUEST NO. 1: Provide a process flow diagram for each manufacturing process line and treatment system where C-8 is utilized at the Facility. For each process unit in the manufacturing process line or treatment system provide a narrative description of the process unit, a C-8 material balance for each process unit, the identification of the destination of C-8 (whether it is recycled, recovered, emitted to air, land or water), and the concentration of C-8 and its by-products in each of the process streams. The basis for calculation should be the design capacity of the unit.

RESPONSE: Time limitations have not allowed DuPont to complete its response to this request. A response will be provided within thirty days of this initial submittal.

REQUEST NO. 2: Describe each treatment process used for the recovery or treatment of PFOA and the effectiveness of each unit in the recovery or treatment of PFOA or substances containing PFOA utilized at the Facility.

RESPONSE: Time limitations have not allowed DuPont to complete its response to this request. A response will be provided within thirty days of this initial submittal.

REQUEST NO. 3: For each of the previous five years quantify the amount of C-8 utilized at the Facility and provide the quantity and composition of C-8 released into each media from each process unit and for the Facility as a whole.

RESPONSE: Time limitations have not allowed DuPont to complete its response to this request. A response will be provided within thirty days of this initial submittal.

REQUEST NO. 4: Describe the conditions and characteristics necessary for polymerization and/or solubilization of acrylic resins or polymers detected in foam from Dry Run landfill; and describe any chemical interactions between these compounds and C-8 or other surfactants identified in the foam.

RESPONSE: DuPont identified acrylic resins or polymers in foam at the Dry Run landfill on one occasion. In October 1998, DuPont identified one acrylic resin in a foam sample obtained from the surface impoundment of the Dry Run landfill. This foam was not

discharged from the surface impoundment to the Dry Run creek. The acrylic resin identified was a high acid acrylic resin. Acrylic resins are created by polymerization at 85 to 100 degrees Centigrade, and under pressures of less than 30 pounds per square inch, using a Vazo initiator (azobis-isobutryonitrile). There is almost zero residual monomer because the resin goes through a steam stripper. Likewise, there is no residual initiator. Therefore, because the monomer and initiator are consumed during polymerization, acrylic resins do not continue to polymerize once produced. With respect to solubilization, high acid acrylic resins dissolve readily in a basic solution and specifically at pH's above 6.

With respect to chemical interactions, DuPont is not aware of any data that describes or identifies any chemical interactions between the acrylic resins and polymers identified in the foam and PFOA or any other surfactants identified in the foam. DuPont will supplement this request to the extent further responsive information is identified.

REQUEST NO. 5: Provide a copy of each document and study related to the treatment, disposal, containment, and remediation of C-8, commissioned by or conducted by DuPont, for all facilities. Include all documents related to such studies (including all capital requests and attachments thereto) and actions taken as the result of such studies.

RESPONSE: DuPont objects to this request as being overly broad and unduly burdensome. As written, this request would require DuPont to produce documents such as invoices showing shipments of PFOA material to landfills. DuPont also objects to this request to the extent it assumes some "action" was required as a result of a study. As stated in the accompanying letter, DuPont also objects to the terms "capital requests" as being vague and has requested clarification from EPA Region III regarding this term. As of this date, DuPont has received no guidance. Therefore, DuPont has not produced any documents related to "capital requests."

DuPont has provided studies related to the treatment, containment and remediation of PFOA for the Facilities in Exhibit 1 to this Attachment. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 6: Provide copies of documents regarding treatment options (including process units and waste treatment units), including efficacy, for C-8 in drinking water, soil and air.

RESPONSE: DuPont refers to the documents contained in response to Request No. 5 in Exhibit 1. In addition, DuPont has provided additional studies not specific to the Facilities in Exhibit 2 to this Attachment. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 7: Identify all landfills utilized by DuPont to dispose of C-8 from the Facility where seeps or leakage or migration to groundwater have occurred. Describe what measures DuPont has taken to eliminate the seeps, and if the seeps have been eliminated. Provide all sampling data for all constituents from such seeps, including C-8.

RESPONSE: The DuPont Washington Works Facility has historically utilized three off-site landfills for the disposal of solid waste that may contain residual concentrations of PFOA; they include the Local Landfill in Washington, WV, Letart Landfill in Letart, WV, and the Dry Run Landfill in Lubeck, WV.

With regard to whether seeps, leakage, or migration to groundwater has occurred, and efforts conducted to eliminate such impacts, the following responses address each landfill separately.

Local Landfill: Groundwater seepage at the Local Landfill has been identified and is captured in three surface water collection ponds. Effluent from these ponds is captured at the pond outlet structure and is conveyed via a pipeline to the nearby Washington Works Facility where it enters a process sewer line. Seepage (i.e., pond influent) surface water and groundwater are monitored at the facility under a State of West Virginia SW/NPDES Permit. Historical analytical data from seepage, surface water and groundwater indicates that low concentrations of PFOA are present. Groundwater flowing beneath Local Landfill flows toward the Washington Works Facility and discharges to the site's underlying aquifer system.

Letart Landfill: Open seepage of groundwater at Letart Landfill has been eliminated with the construction in 2000 of the 17-acre engineered cap system. Prior to cap construction, some groundwater seepage flowed into the Lower Pond, which has since been removed. Currently, the only media monitored for PFOA at the landfill are leachate (i.e., a single monitoring point) and groundwater, both of which are monitored on a quarterly basis. Historical analysis conducted at the landfill has identified PFOA in seepage, surface water, and groundwater. Recent monitoring of the leachate collection system indicates that the engineered cap system is effectively drying-up the landfill (i.e., preventing infiltration) as flow measurements have been less than 1 gallon per minute. Groundwater flowing beneath the Letart Landfill predominately flows toward, and discharges into the Ohio River.

Dry Run Landfill: Recent engineering improvements at the landfill have eliminated groundwater seepage. A leachate collection system was constructed during the facility upgrades to capture all discharges of this nature. Leachate is trucked to the Washington Works facility for treatment. Currently, all surface water flows coming off of the landfill (i.e., from precipitation) are conveyed into a surface collection pond, whose outlet is monitored under the landfill's West Virginia SW/NPDES permit. Historical analysis of seepage, surface water, and groundwater indicates the presence of PFOA at relatively low

concentrations. Surface water and groundwater at and beneath the Dry Run Landfill likely flows west toward the lower Dry Run Creek valley.

DuPont has attached analytical data for PFOA for sampling conducted at the three landfills of seepage, surface water and groundwater in Exhibit 3 to this Attachment. The complete historical data package for all constituents monitored at these landfills will be submitted in a supplemental response as soon as it becomes available. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 8: Provide all data on any chemical analysis of foam from Dry Run landfill.

RESPONSE: DuPont has attached documents responsive to this request in Exhibit 4 to this Attachment. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 9: Provide all monitoring and modeling of C-8 for groundwater, soil, surface water, air, sludges, sediments, terrestrial and aquatic species and humans in West Virginia and Ohio. Include in your response a copy of each capital request for such monitoring and modeling and all attachments thereto.

RESPONSE: As stated in the accompanying letter, DuPont objects to the terms "capital request" as being vague and has requested clarification from EPA Region III regarding this term. As of this date, DuPont has received no guidance. Therefore, DuPont has not produced any documents related to "capital request." In response to Request No. 7, DuPont attached analytical data for PFOA for sampling conducted at the three landfills of seepage, surface water and groundwater in Exhibit 3 to this Attachment. DuPont has attached additional documents responsive to this request in Exhibit 5 to this Attachment. DuPont has redacted employee names and social security numbers to protect the employee's privacy. DuPont also refers you to the Verification Investigation and RCRA Facility Investigation that was previously filed with Region III on April 3, 1992 and June 24, 1999, respectively. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 10: Provide all hydrogeologic information, monitoring well construction details and location for each of the Facilities including General Electric's Parkersburg, WV, facility.

RESPONSE: DuPont has attached documents responsive to this request in Exhibit 6 to this Attachment. DuPont also refers you to the Verification Investigation and RCRA Facility Investigation Study that were previously filed with Region III on April 3, 1992 and June 24, 1999 respectively. For information regarding the General Electric facility,

DuPont assumes this information would be available in any RCRA Facility Investigation conducted for the GE Plastics facility near Parkersburg, West Virginia, which is not in DuPont's possession. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 11: Provide all sampling analysis and volume of any leachate or groundwater recovery systems in operation at any facility handling C-8 sludges from the Facility, or other Teflon manufacturing byproducts, and the location and means of disposal of that waste/wastewater.

RESPONSE: There are no groundwater recovery systems in operation at any facility handling PFOA sludges or Teflon manufacturing byproducts from the Facility. In November 1996, DuPont installed a leachate collection system at the Dry Run landfill. This leachate collection system collects leachate from the landfill in a 50,000-gallon tank. The amount of leachate collected ranges between 550 to 1970 pounds per month. Leachate from the tank is transported by tanker truck to the Facility and processed in the Facility's NPDES permitted wastewater treatment plant. Treated wastewater is discharged into the Ohio River through Outlet 105. Copies of NPDES Monthly Discharge Monitoring Reports for the Facility (from November 1996) and the Quarterly Leachate Monitoring Reports from the Dry Run Landfill are produced in Exhibit 7 to this Attachment. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 12: Set forth in detail the sampling procedures and analytical methods for C-8 in water, soil, air and biological tissues. Describe if method differs depending on location, e.g., landfill leachate versus effluent outfall. Identify and describe what, if any, limitations or problems (e.g., adhesion to glass), are associated with such procedures or methods.

RESPONSE: DuPont responds separately for the procedures and methods used for PFOA in water, soil, air, and biological tissues. DuPont will supplement this request to the extent further responsive information is identified.

a. Water and Soil

Currently, the sampling procedures used for field sampling of groundwater and surface water samples for PFOA analysis are consistent with protocols required by and approved by EPA Region III in the DuPont Washington Works Facility RCRA Facility Investigation Work Plan-Quality Assurance Project Plan (QAPP), dated September 1997. In general, groundwater samples are collected using low-flow purge/sampling techniques. Glass bottles (i.e., 1 liter) are still being used for sample collection at this time.

DuPont has attached the PFOA analytical methodology description provided by our contract laboratory, Lancaster Laboratories, Lancaster, Pennsylvania for analysis in water

and soil in Exhibit 8 to this Attachment. DuPont is currently evaluating alternate methods for PFOA analysis in various media in order to address quality assurance issues identified in historical analytical results. [These issues were first brought to light in June 1999 during third party data validation of the RCRA Facility Investigation data results.] In addition, recent industry publications have documented several issues related to sample impact by external PFOA contamination due to field sampling methodology. These articles have also identified glass sample jars as a potential site for PFOA adsorption.

DuPont is actively studying and evaluating all of these issues related to PFOA sample collection and analysis. DuPont will keep the agencies updated on these efforts as more information is gained, conclusions are reached, and changes to sampling programs are implemented.

b. Air

DuPont has attached the PFOA analytical methodology for analysis in air in Exhibit 8.

c. Biological Tissues

DuPont has attached the PFOA analytical methods for analysis in whole blood in Exhibit 8.

REQUEST NO. 13: Identify by name and location any private well or public water system in West Virginia or Ohio sampled for C-8. Provide monitoring data for each such well where C-8 has been detected and any actions taken as the result of C-8 contamination. Include in your response a copy of each capital request for such sampling and follow-up action and all attachments thereto.

RESPONSE: As stated in the accompanying letter, DuPont objects to the terms "capital request" as being vague and has requested clarification from EPA Region III regarding this term. As of this date, DuPont has received no guidance. Therefore, DuPont has not produced any documents related to "capital request." DuPont also objects to this request to the extent it assumes some "action" was required as a result of some sampling. DuPont has attached in Exhibit 9 the sampling that it has conducted on private wells, public water systems and tap water. DuPont has also attached in Exhibit 9 some of the communications it has made to various government entities, agencies, employees and citizens regarding the sampling, the results and PFOA. DuPont also refers to the data provided in response to Request No. 9 in Exhibit 5. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 14: Identify by name and location any public water system with intakes or alluvial wells in the Ohio River within 40 miles of the Facility.

RESPONSE: There are no public water systems with a surface water intake in the Ohio River within 40 river miles downstream of the Facility. Several public water systems located in both Ohio and West Virginia with alluvial wells in the sand formation of the Ohio River were identified within 40 air miles downstream of the Facility. A list of these systems is provided in Exhibit 10 to this response.

REQUEST NO. 15: Provide results of any sampling of the Ohio River conducted or commissioned by DuPont where C-8 has been detected.

RESPONSE: DuPont has attached documents responsive to this request in Exhibit 11 to this Attachment. DuPont has also attached in Exhibit 5 a study titled, "Modeling Releases of Ammonium Perfluorooctanoate Into the Ohio River." DuPont also refers to the documents attached in Response to Request Nos. 9 and 13 in Exhibits 5 and 9. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 16: Provide a copy of each study and document related to existing or potential human health or environmental effects of C-8 conducted or commissioned by you or in your possession. Include all documents related to the need for such studies and actions taken as the result of such studies.

RESPONSE: DuPont objects to this request to the extent it assumes "actions" were required as a result of a study. Notwithstanding this specific objection and the general objections set forth above, DuPont has attached documents responsive to this request in Exhibit 12 to this Attachment. DuPont is producing documents on studies performed by 3M as "Confidential" to preserve any claims 3M may possess. DuPont also refers to the documents attached in response to Request Nos. 18, 19 and 21.a in Exhibits 13 and 15. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 17: Provide a complete copy of the C-8 monitoring database for Facility employees on disk and identify format. Include any results of blood sampling or urinalyses of the Facility employees where C-8 was detected.

RESPONSE: In response to Request No. 9, DuPont has attached all of the blood monitoring data and industrial hygiene data for the Facility. *See* Exhibit 5 for these documents. DuPont is in the process of copying this data onto disks and will provide this information in a supplemental response when it becomes available.

REQUEST NO. 18: Provide copies of all documents related to the assessment of health or environmental impacts of C-8 contamination to drinking water sources, surface water (including the Ohio River), and groundwater.

RESPONSE: DuPont has attached documents responsive to this request in Exhibit 13. DuPont also refers to the documents provided in responses to Requests Nos. 7, 9, 13, 15 and 16 in Exhibits 3, 5, 9, 11 and 12 to this Attachment. DuPont also refers you to the Verification Investigation and RCRA Facility Investigation that were previously filed with Region III on April 3, 1992 and June 24, 1999, respectively. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 19: Provide copies of all documents related to the procedures, justification, background data, analysis, used to establish DuPont's community and worker action levels for C-8.

RESPONSE: Documents responsive to this request are provided in Exhibit 13. DuPont fully incorporates its response in Request No. 18. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 20: Identify all data and information regarding the fate and transport characteristics and bioaccumulation and biopersistence characteristics of C-8 (e.g., physiochemical properties, partition coefficients soil adsorption studies). Provide copies of all such information and data not already provided.

RESPONSE: Documents responsive to this request are provided in Exhibit 14. DuPont also refers to the documents provided in response to request Nos. 5 and 6 in Exhibits 1 and 2. DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 21.a: Provide copies of all documents related to toxicological and epidemiological information regarding C-8 known to DuPont. This includes inhalation studies, physiologically-based toxicokinetic models, absorption/ metabolism /distribution /elimination kinetic data, in vivo and in vitro studies, C-8 in a mixture toxicology studies, final report or paper submitted for publication presenting data from the 1998-2000 monkey studies, and the Griffith 1980 monkey exposure paper. Identify the chemical forms of C-8 (e.g., APFO, PFOA, fluoride, organofluoride) analyzed in each toxicological study and describe the evolution of the latest methodology, form chosen, and its suitability (including limitations) as an indicator of exposure.

RESPONSE: Documents responsive to this request are provided in Exhibit 15. Any toxicological studies provided include the chemical form of PFOA analyzed. Other information requested is provided to the extent that is addressed in the documents

contained in Exhibits 5 and 12. DuPont is producing documents or studies performed by 3M as "Confidential" to preserve any claims 3M may possess DuPont will supplement this request to the extent further responsive information is located.

REQUEST NO. 21.b: Provide information on any additive or synergistic effects of C-8 with other chemicals, elements, substances or biological systems.

RESPONSE: DuPont possesses no experimental data or other evidence that PFOA and any other chemical or biological condition can act synergistically. We also have no data that demonstrates that PFOA and other chemicals act in an additive fashion. We do have data using acute oral lethality in rats as the endpoint which measures the acute response to PFOA as potentially modified by modifiers including other chemicals. The acute lethality of PFOA to male rats was not modified by pretreatment with inducers of liver metabolizing enzymes such as phenobarbital sodium or proadifen HCI (HLR 567-81). Pretreatment of rats with ethanol did not modify to acute lethality of PFOA (HLR 79-84) nor did castrated male or ovariectomized female rats respond differently to the acute lethal effects (HLR 600-81).

REQUEST NO. 22: Describe any surface activity of C-8 with biological membranes or tissues or organs or with nonbiological materials.

RESPONSE: When animals (most data exists on rodents) are exposed to PFOA at certain levels by the oral, dermal, and inhalation route the first responding organ is the liver. Tissues at the portal of entry (gastrointestinal tract, skin, and respiratory tract respectively) are not adversely affected. The chemical does not preferentially bind to any of these tissues as determined in distribution studies using radiolabelled material. This does not say that there are not local points of contact at which PFOA is in contact that have the surface activity unmodified but adverse effects as determined by microscopic investigation are not found.

REQUEST NO. 23: Describe any ability of C-8, or any other compound(s) detected in the Dry Run Landfill effluent or foam (such as surfactants or acrylic resins) individually or in concert as a mixture to affect or adhere to biological membranes, including but not limited to, the gastrointestinal tract.

RESPONSE: DuPont possesses no evidence that PFOA (or any of the identified compounds detected in the Dry Run Landfill effluent or foam) act alone or together to alter the integrity of biological membranes.

REQUEST NO. 24: Provide all toxicological and epidemiological data for the compounds, particularly C-8, identified in the foam or effluent from the Dry Run landfill, including any additive or synergistic effects, or chemical interactions between these compounds themselves or with biological systems.

RESPONSE: DuPont is not aware of any toxicologic or epidemiologic data that describes synergistic effects of PFOA with other chemicals or biological systems. The data on chemical analysis of foam from the Dry Run landfill is presented in Exhibit 4 to this Attachment. Attached as Exhibit 16 is a list of the compounds identified in the Dry Run Landfill effluent. For toxicological and epidemiological data for the compounds identified in the analysis, please refer to the appropriate Material Safety Data Sheet (MSDS). DuPont will provide copies of the appropriate MSDS's, should EPA so desire. For a discussion on the additive or synergistic effects, or chemical interactions between these compounds themselves or with biological systems see DuPont's Responses to Requests Nos. 21.b, and 22.