August 1, 2022

Status of Chemours Consent Order Toxicity Studies

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Chemours Consent Order Background

Since 2017, DEQ has taken decisive action to require Chemours to significantly reduce the release of PFAS contamination into North Carolina's air, water and soil.

In February 2019, the Consent Order between DEQ, Cape Fear River Watch represented by the Southern Environmental Law Center, and Chemours was entered in Bladen County Superior Court. The court-enforceable order, requires Chemours to address PFAS sources and contamination at the facility to prevent further impacts to air, soil, groundwater and surface waters

Chemours Consent Order: Paragraph 14

Toxicity Studies:
Within thirty (30) days of entry of this Consent Order, Chemours shall submit a plan and proposed schedule for review and approval by DEQ for funding and facilitating the conducting of an initial set of toxicity studies by a qualified third party approved by DEQ relating to both toxicity assays informative to human health and aquatic life sufficient to aid in development of surface water and groundwater regulatory standards for up to five PFAS as determined by DEQ. The plan shall provide for the studies and parameters identified in **Attachment B** as well as technologically feasible dosing parameters to be agreed upon by Chemours and DEQ. Chemours shall implement the measures set forth in the approved plan. DEQ reserves the right to seek additional toxicity studies or additional health, chemical persistence and environmental fate information beyond the scope of the initial set of studies required by this paragraph. DEQ shall consider public comments in determining what additional toxicity studies or additional health, chemical persistence and environmental fate information are needed. Chemours reserves the right to contest any efforts by DEQ to seek additional toxicity studies or additional health, chemical persistence and environmental fate information from Chemours beyond the scope of the initial set of studies required by this paragraph. Additionally, modification of toxicity study(ies) specified in Attachment B shall permitted, upon agreement between DEQ and Chemours, only if DEQ determines that such modification will provide substantially better information. Any dispute with respect to this paragraph that the parties are unable to resolve after good faith negotiations shall be resolved by the Court, which shall determine whether the disputed activity is reasonably necessary to achieve the objectives of this paragraph

Chemours Consent Order: Attachment B

ATTACHMENT B

Chemours' proposed plan to conduct toxicity studies pursuant to paragraph 14 shall include:

(i) Testing of the following PFAS compounds:*

Common Name		Chemical Name		CASN		Chemical Formula
PFMOAA		Perfluoro- 2-methoxyacetic acid		674-13-5		C3HF5O3
PMPA	PFMOPrA	Perfluoro-2-methoxypropanoic acid	Perfluoro-3-methoxypropanoic acid	13140-29-9	377-73-1	C4HF7O3
PFO2HXA		Perfluoro(3,5-dioxahexanoic) acid		39492-88-1		C4HF7O4
PEPA	PFMOBA	2,3,3,3-Tetrafluoro-2-(pentafluoroethoxy) propanoic acid	Perfluoro-4-methoxybutanoic acid	267239-61-2	863090-89-5	C5HF9O3
PFESA-BP2 / Nafion BP #2		Nafion Byproduct 2		749836-20-2		C7H2F14O5S

* For clarification, compounds identified with two common names in Attachment B or C shall be tested using a single CASN, to be proposed by Chemours and approved by DEQ.

(ii) The following studies, which shall be conducted following applicable USEPA, OECD protocols as defined in the USEPA TSCA, OPPT or other appropriate programs as determined by DEQ:

a. Toxicity Studies:
   - 28-day oral immunotoxicity study in rats
   - 28-day oral immunotoxicity study in mice
   - 90-day repeated dose oral toxicity study in rats
   - 90-day repeated dose oral toxicity study in mice

b. Ecological Toxicity Studies:
   - Algal acute (72-hour growth) toxicity study
   - Daphnid acute toxicity study
   - Daphnid chronic (reproduction) toxicity study
   - Fish acute toxicity study
   - Sediment 10-day freshwater invertebrates toxicity test

(iii) A detailed proposed schedule of work.

PFAS in North Carolina

Legacy PFAS

CO PFAS

EPA PFAS RoadMap Compounds

PFBS	PFHxS	PFOS
PFOA	PFBA	PFHxA
PFNA	GenX	PFDA

Non-EPA PFAS RoadMap Compounds

PFHpA	PFMOAA	PMPA
PFO2HxA	PEPA	PFO3OA
PFO4DA	PFO5DA	HydroEVE
PFPeA	Nafion BPs	

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Non-EPA PFAS RoadMap Compounds

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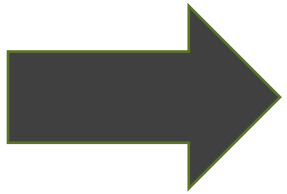
Department of Environmental Quality

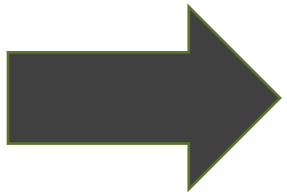
Consent Order Paragraph 14 Study PFAS



PFHpA	PFMOAA	PMPA
PFO2HxA	PEPA	PFO3OA
PFO4DA	PFO5DA	HydroEVE
PFPeA	Nafion BPs	

PFAS in North Carolina

Consent Order Paragraph 14 Study PFAS



- PFMOAA
- PMPA
- PFO2HxA
- PEPA
- Nafion BP2

Chemours Consent Order: Toxicity Study Details

The following studies, which shall be conducted following applicable USEPA, OECD protocols as defined in the USEPA TSCA, OPPT or other appropriate programs as determined by DEQ:

a. Toxicity Studies:
- 28-day oral immunotoxicity study in rats
- 28-day oral immunotoxicity study in mice
- 90-day repeated dose oral toxicity study in rats
- 90-day repeated dose oral toxicity study in mice

***Rodent Studies**: mouse and rat; classic tox and immunotox*

b. Ecological Toxicity Studies:
- Algal acute (72-hour growth) toxicity study
- Daphnid acute toxicity study
- Daphnid chronic (reproduction) toxicity study
- Fish acute toxicity study
- Sediment 10-day freshwater invertebrates toxicity test

***Aquatic Tox Studies**: algae, zooplankton, fish, and sediment worms*

Current Status of Consent Order: Toxicity Study Review & Approval Process

Toxicity Study Protocol Review Timeline

	1st Draft		2nd Draft		3rd / Final? Draft		4th / Final? Draft	
Aquatic	Dec 2020	Feb, Mar, May 2021	July, Aug 2021	Sept, Oct 2021	Feb 2022	Algae & Fish Approved April 2022	July 2022	Plankton & Sediment Under review
Rodent	Dec 2020	Apr, Sept 2021	Nov 2021	Dec 2021, Mar 2022				
	Initial protocols Rec'd	Meetings/ Comments	Revised protocol Rec'd	Meetings/ Comments	Revised protocol Rec'd	Meetings/ Comments	Revised protocol Rec'd	Meetings/ Comments

Chemours Consent Order: Aquatic Toxicity Study Status

Ecotoxicity Studies	
Algae	***Approved- awaiting timeline from contract lab***
Daphnid (acute)	***Revision required; pending review***
Daphnid (chronic)	***Revision required; pending review***
Fish	***Approved- awaiting timeline from contract lab***
Sediment	***Revision required; pending review***

Chemours Consent Order: Rodent Aquatic Toxicity Study Status

Rodent Studies

Mouse Immuno Tox	***Revision required; not yet received***
Rat Immuno Tox	***Revision required; not yet received***
Mouse Classic Tox	***Revision required; not yet received***
Rat Classic Tox	***Revision required; not yet received***

NORTH CAROLINA Department of Environmental Quality

Chemours Consent Order: Planned Timeline Moving Forward

Toxicity Study Protocol Review Timeline

	1st Draft		2nd Draft		3rd / Final? Draft		4th / Final? Draft	
Aquatic	Dec 2020	Feb, Mar, May 2021	July, Aug 2021	Sept, Oct 2021	Feb 2022	Algae & Fish Approved April 2022	July 2022	Plankton & Sediment Under review
Rodent	Dec 2020	Apr, Sept 2021	Nov 2021	Dec 2021, Mar 2022				
	Initial protocols Rec'd	Meetings/ Comments	Revised protocol Rec'd	Meetings/ Comments	Revised protocol Rec'd	Meetings/ Comments	Revised protocol Rec'd	Meetings/ Comments

Aug 2022; review & potentially approve Aquatic protocols

Sep 2022 – Dec 2022; get rodent protocols back into circulation and review process; potentially approve

Thank you

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