



COUNCIL ON ENVIRONMENTAL QUALITY

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RE: Comments on the Draft General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

The Council on Environmental Quality (Council) has reviewed many solar energy facility applications, as a consequence of its responsibilities under CGS 16-50j (g) and 22a-12, inquiries from citizens, its research for its 2015 Discussion Draft, *Digging Connecticut*, and again in its 2017 report, *Energy Sprawl*. Those reviews led to conclusions about stormwater management in Connecticut that are represented in these comments on the *Draft General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* ([Draft Permit](#)).

The Draft Permit is greatly improved from the permit it is intended to replace ([Former Permit](#)). Many changes are similar to suggestions made in the Council's discussion draft, *Digging Connecticut*, which pointed out some of the problems with the Former Permit, which was in force at the time and which is now extended until September 30, 2020.

The comments below offer ten recommendations to clarify the intent and improve implementation of the Draft Permit.

Five Important Improvements to the Former Permit

Among the improvements made to the Draft Permit, five worthy of special note are:

1. It mandates electronic reporting and electronic submission of site plans.
2. There is better transparency as a consequence of electronic filing and the extension of the public comment deadlines.
3. There is an expanded role for Conservation Districts in reviewing plans and site monitoring, though this could be expanded to other activity categories and broadened to include other professional qualifications.
4. There is special attention to, and requirements for, construction of solar energy facilities.
5. It shifts focus from turbidity monitoring to frequent site inspections.

1. Mandated use of electronic reporting and electronic submission of site plans.

In the Council's review of enforcement actions against three solar energy facilities, where failure to implement proper erosion controls resulted in major erosion problems, suggested an apparent lack of early awareness at DEEP that the sites had failed to implement required controls during construction. The Draft Permit addresses this with the requirement in Section (5) of Appendix I that copies of all inspection checklists and inspection reports be submitted electronically to DEEP.

2. Better transparency as a consequence of electronic filing and the extension of the public comment deadlines.

In Commissioner Katie Dykes' "20 BY 20" initiative, Goal 13 is to accelerate "e-governance" integration at the Department of Energy and Environmental Protection (DEEP). The incorporation of this goal into the Draft Permit by mandating digital submission of all registrations and reports is a welcome change that portends improved efficiency and transparency in the implementation of the Draft Permit.

The increase from 15 days to 30 days in the period for public review and comment after a registration is submitted is likely to increase stakeholder engagement, also a goal of 20 BY 20 (Goal #16). The requirement for posting site plans on the DEEP website is a welcome improvement in transparency.

Also related to improved transparency is the condition that a "qualified professional" must remain in good standing with the Department of Consumer Protection. This requirement breaks the "silo phenomenon" that government is often criticized for.

3. An expanded role for Conservation Districts in reviewing plans and site monitoring.

An important safeguard against disregard of, or inadequate implementation of, soil stabilization techniques is the utilization of the State's Conservation Districts as force multipliers. Given DEEP's skeletal staffing, the inclusion of review by Conservation Districts of both locally exempt and locally approvable projects is an improvement. The Draft Permit requires site monitoring three times within ninety days from the beginning of construction and prior to the commencement of each phase of construction. DEEP lacks sufficient staff to perform this task during construction at the frequency that experience has shown to be necessary to prevent poor implementation of erosion controls.

The role of Conservation Districts was expanded in the Draft Permit to include review of the Stormwater Pollution Control Plan (SWPCP) for "locally exempt" projects and to monitor its implementation. This is an appropriate application of the 20 BY 20 Goal 18, "Seek Opportunities for Innovative Partnerships to Enhance Services". Conservation Districts have the expertise needed to review plans and

perform site inspections that can prevent problems before they occur.

RECOMMENDATION: Consideration of expanded use of Conservation Districts' experts for other DEEP programs would be a fruitful application of 20 BY 20 Goal 18. Also, the definition of who qualifies as a "qualified soil erosion and sediment control professional" should be reconsidered since many who have expertise in soils and erosion control appear to be excluded.

4. There is special attention to, and requirements for, construction of solar energy facilities.

In the Draft Permit, construction of solar arrays is singled out as a special category that has conditions which are not required at all construction sites. The history of excessive erosion at some solar sites warrants such special consideration. Section 5(b)(4) and 5(b)(5) lays out a rigorous protocol for inspections before and during construction by the PE designated by the developer as well as by the Conservation District.

5. The changes in site monitoring in Appendix I are appropriate.

The requirement of turbidity monitoring has been deleted. This was a requirement without a standard for assessing what was too much. It was intended to indicate a potential problem with the erosion controls on the site. A high level of turbidity would necessitate an inspection of the controls for adequacy. The Draft Permit puts the focus on those controls from the start with review of the SWPCP, inspection of proper erosion controls at the start of construction and mandated inspections during and after construction.

Sections of the Draft Permit That Need Clarification or Modification to Enhance Implementation

There are some improvements that would enhance implementation of the Draft Permit:

1. There appears to be an internal contradiction regarding what is the appropriate guidance for calculating precipitation frequency and volume.
2. Some adjustments and clarifications are needed regarding methods to control runoff.
3. Tailor the amount required in the letter of credit to the conditions at the site.
4. Expand some of the requirements for solar arrays to other types of construction.
5. Provide guidance for solar arrays that have special features.
6. Implement continual monitoring and allow for changes by the Commissioner if design assumptions prove erroneous.

1. There appears to be an internal contradiction regarding what is the appropriate guidance for calculating precipitation frequency and volume.

The 2014 National Climate [Assessment](#) reported that the Northeast has experienced a greater recent increase in extreme precipitation than any other region in the U.S. Between 1958 and 2010, the Northeast saw more than a 70% increase in the amount of precipitation falling in very heavy events. Clarity with regard to which measures are best to anticipate the intensity and frequency of storm events is important.

In that regard, Section 3(d) of Appendix I references the material on page 23 of the [Instructions for Completing a Permit Application for Programs Administered by the Inland Water Resources Division](#). On page 23 of those instructions it indicates that the permittee must describe the design storm frequency, intensity, volume and duration using data obtained from the [CT Department of Transportation Drainage Manual](#) as revised. A conflicting directive appears in the definitions section of the Draft Permit (see page 4) where it indicates: “x-year, 24-hour rainfall event” means the maximum 24-hour precipitation event with a probable recurrence interval of once in the given number of years (i.e. x=2, 25 or 100), as defined by the *National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 10, Version 2, Point Precipitation Frequency Estimates*, or equivalent regional or state rainfall probability information developed therefrom.”

RECOMMENDATION: The Draft Permit needs to clarify whether the Connecticut Department of Transportation Drainage Manual storm frequency data supersedes the NOAA data as shown in the General Permit definition section.

RECOMMENDATION: Whichever measure is chosen, to provide the maximum flexibility for the future, the Draft Permit should add a provision that the Commissioner may substitute another source should a better model become available. This would allow for the possibility that the current precipitation patterns of increasing volume per storm event necessitates a revised, more accurate, predictor in the future. An example of a different calculator is *EPA’s National Stormwater Calculator*.

Regulation by reference runs the risk of problems due to faulty URL links. This is especially true now that DEEP is in the process of migrating to a new website, during which there is a real possibility that some links will be broken in the process.

RECOMMENDATION: The URL reference in section 3(d) of Appendix I to the material on page 23 of the [Instructions for Completing a Permit Application for Programs Administered by the Inland Water Resources Division](#) should be replaced with the insertion of that textual material into Appendix I.

2. Technical adjustments and clarifications are needed regarding methods to control runoff.

Non-erosive conveyance of runoff only to the property line or downgradient from the site does not necessarily lower non-point pollution or off-site erosion. Appendix I must be clear that there should not be an increase in the stormwater discharge

volumes compared to the pre-existing conditions prior to the installation of the solar arrays. In some cases the methods described, such as the differing requirements for erosion control techniques on slopes of 5% and 10%, though necessary, might not be sufficient to meet that goal.

Similarly, differentiating the rainfall impacts of solar panels that are greater than 10 feet above ground at their lowest clearance compared to those that are less than 10 feet above ground at their lowest clearance will not guarantee achievement of stormwater management objectives.

RECOMMENDATION: Regardless of the height of the lowest elevation of the solar panels, it must be clear that both vegetative and non-vegetative control measures are required to guarantee no net increase of flow from the site.

Though the Draft Permit treats gravel surfaces as impervious, it allows for the impervious solar panel surfaces to be treated as though they are pervious if their installation meets the conditions listed in Sections (a) through (e) of Section 1 in Appendix I. Some aspects of provisions (a) through (e) could prove to be inadequate to control erosion, as discussed below.

In the second bullet point of Section (1)(c) there is a requirement that erosion control material be applied on slopes greater than 8% when a rainfall greater than 0.5 inches is predicted within 24 hours. This requires a level of expertise on the part of the weather prognosticators and a responsiveness on the part of developers that might be unrealistic.

Bullet point four of Section (1)(c) requires that for slopes between 10% and 15% stormwater control measures are designed to provide non-erosive conveyance of runoff to the property line of the site or downgradient from the site. Non-erosive conveyance of runoff to the property line or downgradient from the site does not necessarily lower non-point pollution or off-site erosion. Appendix I must be clear that there should not be an increase in the stormwater discharge volumes compared to the pre-existing conditions prior to the installation of the solar arrays.

RECOMMENDATION: The standard used in Section (1)(c), bullet point four should be the same as is used in Section (1)(e), “no net increase in peak flows, erosive velocities or volumes”.

3. Reconsideration of the minimum amount required in the letter of credit is suggested to better tailor the financial guarantee to the conditions at the site.

The demand of financial security to guarantee adequate implementation of the provisions of the Draft Permit is a prudent requirement that will most probably benefit, both business and the environment. The Council reviewed the cases of three solar installations that collectively were assessed a total of approximately 1.5 million dollars for failing to adhere to the erosion controls of their permits. No doubt, a developer who knew such fines for misfeasance were a possibility would pay close

attention to construction practices at the site. Similarly, a developer who has a significant financial guarantee at stake will also.

The letter of credit amount (\$15,000 per acre) should be adjustable and appropriate for the location. Not all construction will be on flat land. The amount should vary as slopes increase beyond 5%. There is no reason a developer should guarantee more, or less, than those anticipated costs.

RECOMMENDATION: The financial guarantee should cover the costs of regrading, re-seeding, repairs to erosion controls and remediating off-site damage. The amount should reflect the actual costs to be anticipated if a developer fails to complete his/her responsibilities for stormwater management.

4. Expansion of the requirements for solar arrays to other types of construction is recommended.

While the siting of solar arrays has often proved problematic with regard to erosion, there are other construction sites that have been problematic as well. Non-solar sites that, from the onset, appear to risk excessive erosion, due to steepness or soil conditions should be subject to restrictions like those in Appendix I, including the 100' buffer between the site and wetlands.

RECOMMENDATION: Mandate some of the special requirements for Construction of Solar Arrays for other construction types. These include:

- Apply erosion controls from Appendix I at all slopes greater than 15%;
- Maintain a 100' buffer at wetlands;
- Use Conservation Districts to review plans and conduct inspections.

5. There is a need for guidance for solar arrays that have special features.

A section of Appendix I addresses design requirements for post-construction stormwater management (pgs. 3 – 4). It states “(2) Orientation of panels shall be considered with respect to drainage pattern, flow concentration, drainage area and velocity (i.e. rows perpendicular to the contours may result in higher runoff).” This section would be improved if it were more inclusive of various solar technologies and engineering requirements. It should also provide guidance for unique solar arrays that are co-located with farming or other businesses, or that function as carport covers, or depend on a southerly solar panel orientation that is not perpendicular to the natural flow of stormwater, or utilize a solar tracking system, or have unique tilts or panel sizes.

RECOMMENDATION: For some solar arrays an engineered stormwater management system that is more sophisticated than is represented in Figures 1 and 2, should be required.

6. Implement continual monitoring of the results from the Draft Permit's requirements and allow for changes by the Commissioner if design assumptions

prove erroneous.

The treatment of solar arrays as pervious appears to be based on guidelines from other states such as Minnesota, Maryland and North Carolina. The experience of those states may not be appropriate for Connecticut which, generally, is less flat than Minnesota and Maryland and has longer periods of freezing than does North Carolina.

RECOMMENDATION: Long term monitoring and evaluation of all sites approved under the Draft Permit is recommended. To anticipate the need for modification of conditions (a) through (e), the Draft Permit should specify that those are subject to modification by the Commissioner, if necessary.

Thank you for consideration of these comments on the Draft Permit.

Sincerely,

A handwritten signature in cursive script that reads "Peter Hearn". The signature is written in black ink and is positioned above the typed name and title.

Peter Hearn
Executive Director