

**OPINION UNDER SECTION 74A**

Patent	GB 2564660 B8
Proprietor(s)	Wolf Safety Lamp Company Limited
Exclusive Licensee	
Requester	Berggren Oy
Observer(s)	
Date Opinion issued	24 March 2021

**The request**

1. The Comptroller has been requested by Berggren Oy (the Requester) to issue an Opinion on whether GB 2564660 B8 (the Patent) is valid regarding novelty and inventive step in light of the following documents;

P1: IECEEx VTT 16.0002 certificate (29<sup>th</sup> February 2016): Finish certifying body VTT Expert Services Ltd

P2: SLAM Star Datasheet (16<sup>th</sup> December 2015)

P3: Product Datasheet (18<sup>th</sup> November 2014): Veronica-SQ-RS by Ledil Oy, Finland

D1: US 2017/175992 A1 (22<sup>nd</sup> June 2017)

D2: DE 10 2012 101 411 A1 (22<sup>nd</sup> August 2013)

2. Observations were received from Atkinson & Company Intellectual Property Limited (the Proprietor) on the 27<sup>th</sup> January 2021. The observations set out to refute the novelty and inventive step contentions of the Requester. Observations in reply were received from the Requester on the 18<sup>th</sup> February 2021.

**Preliminary matters**

3. The Requester has asked me to consider D1 and D2 which have been previously considered by the UKIPO examiner during pre-grant prosecution of the Patent. Section 74A(3) of the Patents Act 1977 provides that:

*(3) The comptroller shall issue an opinion if requested to do so under subsection (1) above, but shall not do so;*

*(a) in such circumstances as may be prescribed, or*

*(b) if for any reason he considers it inappropriate in all the circumstances to do so.*

Rule 94(1) of the Patents Rules 2007 provides that:

*(1) The comptroller shall not issue an opinion if—  
(a) the request appears to him to be frivolous or vexatious; or  
(b) the question upon which the opinion is sought appears to him to have been sufficiently considered in any relevant proceedings.*

4. D1 and D2 were cited in the X category during examination, however neither have been assessed in the light of the potentially new prior art documents. Therefore, in this instance, I consider this to be a new question. However, I am unable to reconsider either document solely, or in light of the common general knowledge.

5. D2 is a German language patent document and no associated translation has been provided. There seems to be no contention over the relevant components of D2, as set out in the Request, and therefore I am prepared to exercise my discretion and accept D2 without a translation.

6. Rule 93(6) of the Patents Rules 2007 provides that:

*(6) The prescribed matters for the purposes of section 74A(1) are as follows—  
(a) ...;  
(b) whether, or to what extent, an invention for which the patent has been granted is not a patentable invention;  
(c) ...;  
(d) whether the matter disclosed in the specification of the patent extends beyond that disclosed in the application for the patent as filed or, if the patent was granted on a new application, in the earlier application as filed;...*

7. The Requester asserts that the amendments provided with the letter dated 9<sup>th</sup> July 2019 are not supported by the application as filed. The Requester's arguments find basis in an alleged ambiguity with respect to the term '*continuous*'. Therefore, it appears that the request is to be restricted to an Opinion under Rule 93(6)(b) rather than Rule 93(6)(d) and I shall treat it as such. If I need to reconsider the request with respect to Rule 93(6)(d) I will do so.

8. The documents P1, P2 and P3 are non-patent art. The Requester asserts that these documents were made public prior to the filing date of the Patent; this is not contested by the Proprietor. I will consider the validity of the Requester's assertion, if needed, at a later stage of my opinion.

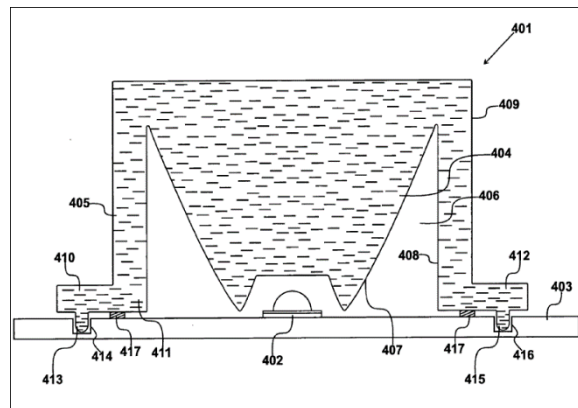
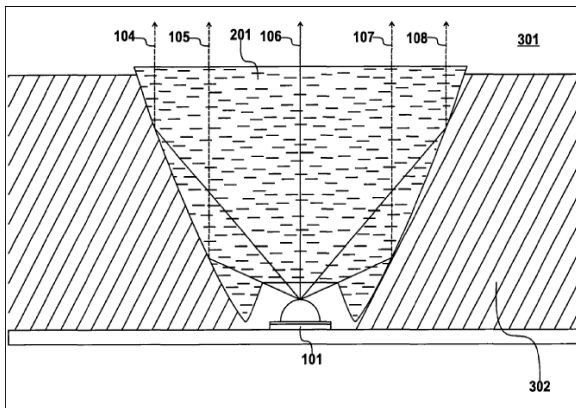
## **The Patent**

9. The Patent was filed 14<sup>th</sup> July 2017 and was granted 9<sup>th</sup> September 2020. The Patent remains in force.

10. The Patent is entitled 'Providing illumination in potentially explosive atmospheres', and relates to a lighting system comprising a plurality of light emitting diodes (LEDs) 402 mounted to a substrate 403, a collimating device 401 arranged

above each LED and an encapsulating material 807 in contact with an outer surface of the collimating device. The collimating device comprises a solid lens portion 404 that collimates incident light from a respective LED by total internal reflection, wherein the encapsulating material isolates any potential ignition sources from the atmosphere.

11. The Patent acknowledges a prior art solution, illustrated in the left-hand side figure below, wherein an encapsulating material is provided directly adjacent a solid lens portion of a lighting apparatus. The Patent implies that the presence of the encapsulant, in proximity to the lens portion, results in a degree of light absorption thereby diminishing the intensity of the usable light emitted from the apparatus. The Patent, illustrated in the right-hand side figure below, attempts to mitigate this problem by providing a sealed air gap 406 between the lens portion and the encapsulant, the air gap is maintained by a support portion 405 arranged to surround the solid lens portion.



12. The Patent has two independent claims; claim 1 is to an apparatus whilst claim 11 concerns a method of fabrication of an apparatus. There are a further 9 claims appended to claim 1, and a further 9 claims appended to claim 11.

13. Claim 1, adopting the references used by the Requester, reads;

- F1) An apparatus for providing illumination in a potentially explosive atmosphere, comprising:
- F2) a plurality of light emitting diodes mounted on a substrate for connection to a power supply;
- F3) a collimating device located above each said light emitting diode and secured to said substrate; and
- F4) an encapsulating material, wherein each said collimating device includes:
- F5) a solid internal lens portion configured to collimate incident light from a respective light emitting diode by total internal reflection; and
- F6) a support portion attached to said substrate and to said solid lens portion, said support portion having an inner surface adjacent to the lens portion, and an outer surface that forms an outer surface of the collimating device;
- F7) said substrate is continuous in the region covered by said collimating device;

- F8) said support portion surrounds said solid lens portion and defines a sealed air-gap between said solid lens portion, said inner surface of said support portion, and said substrate; and
- F9) said encapsulating material contacts said outer surface of said support portion and does not contact said lens portion.

14. Claim 11, applying similar references as used by the Requester regarding claim 1, reads;

- F1') A method of fabricating an apparatus for illuminating spaces having potentially explosive atmospheres, comprising the steps of:
- F2') mounting a plurality of light emitting diodes onto continuous regions of a substrate that includes a circuit board;
- F3') locating a collimating device above each said light emitting diode, in which each said collimating device has
- F5') a solid lens portion that collimates incident light from a respective light emitting diode by total internal reflection, and
- F6') and a support portion attached to and surrounding said lens portion, said support portion having an inner surface adjacent to the lens portion, and an outer surface that forms an outer surface of the collimating device,
- F8') such that a sealed gap is defined between said solid lens portion, said inner surface of said support portion, and said substrate; and
- F9') encapsulating said collimating devices by applying encapsulating material that contacts said outer surface of said external support portion and does not contact said lens portion.

15. I will consider the dependent claims should it become necessary after my assessment of claim 1 and claim 11.

### **Novelty and inventive step – the law**

16. The Requester argues that claim 1 and claim 11 lacks novelty and/or an inventive step in light of evidence provided by the Requester. Section 1(1)(a) of the Act reads:

*1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say*

- (a) the invention is new;*
- (b) it involves an inventive step;*

17. The relevant provisions in relation to novelty are found in section 2(1) and section 2(2) which read:

*2(1) An invention shall be taken to be new if it does not form part of the state of the art.*

*2(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.*

18. The Court of Appeal in *Windsurfing*<sup>1</sup> formulated a four-step approach for assessing whether an invention is obvious to a person skilled in the art. This approach was restated and elaborated upon by the Court of Appeal in *Pozzoli*<sup>2</sup>. Here, Jacob LJ reformulated the *Windsurfing* approach as follows:

- (1)(a) Identify the notional “person skilled in the art”
- (1)(b) Identify the common general knowledge of that person;
- (2) Identify the inventive concept of the claim in question or if that cannot be readily done, construe it;
- (3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed.
- (4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps that would have been obvious to the person skilled in the art or do they require any degree of invention?

### Claim construction

19. Before I can determine whether the claims of the Patent are not novel or lack an inventive step, I must first construe them. This means interpreting the claims in light of the description and drawings as instructed by section 125(1) which reads:

*For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.*

20. In doing so, I must interpret the claims in context through the eyes of the person skilled in the art. Ultimately the question is what the person skilled in the art would have understood the patentee to be using the language of the claim to mean. This approach has been confirmed in the decisions of the High Court in *Mylan v Yeda*<sup>3</sup> and the Court of Appeal in *Actavis v ICOS*<sup>4</sup>.

21. Both the Requester and the Proprietor refer to the skilled person in the request and observations respectively, however neither party attempt to define the skilled person. I consider the skilled person to be a designer of lights that are intended to be used in potentially explosive conditions.

22. I find claim 1 and claim 11, on the most part, straightforward to construe. However, there is some contention over F7 and potentially F6 and F8 of claim 1. This contention applies also to the corresponding features in claim 11.

23. F7 requires that the substrate is *continuous* in the region covered by said collimating device. The Requester argues that this feature is not supported by the

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<sup>1</sup> *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59

<sup>2</sup> *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588

<sup>3</sup> *Generics UK Ltd (t/a Mylan) v Yeda Research and Development Co. Ltd & Anor* [2017] EWHC 2629 (Pat)

<sup>4</sup> *Actavis Group & Ors v ICOS Corp & Eli Lilly & Co.* [2017] EWCA Civ 1671

application as filed and additionally asserts that the term, in the context of the Patent, is unclear. The Requester provides two possible definitions for the term as being;

*Without a pause or interruption, and*

*In mathematics, a continuous function is a function that does not have any abrupt changes in value, known as discontinuities.*

24. The Requester additionally observes that an embodiment of the Patent is provided with holes 414, 416, and draws attention to alleged holes in a region covered by the collimating device illustrated in figure 5 of the Patent.

25. The Proprietor argues that holes 414, 416 are recesses within the substrate provided to accommodate lugs 413, 415 of a corresponding collimating device, rather than apertures passing through the substrate. The Proprietor further acknowledges the alleged holes illustrated in figure 5 as being said lugs.

26. The Patent provides no explicit discussion of the substrate being continuous in the region covered by the collimating device in the accompanying description. Furthermore, the Patent does not provide any explicit reasoning why the substrate is continuous in this region. However, page 6 lines 4-6 reads;

*To improve the seal between an outside atmosphere and the light emitting diode 402, a gasket 417 is provided between the bottom of the support portion 405 and the substrate 403.*

27. Therefore, there is some implication that the LED is sealed from the outside atmosphere as would be expected of a light of this nature. If the substrate was formed with holes in the region covered by the collimating device 401 then, arguably, the LED would not be sealed from the outside atmosphere.

28. I am content that, on balance, the alleged holes illustrated in figure 5, and figure 7, correspond to lugs 413, 415 of the collimating devices; this appears to be consistent with the elevated cross section shown in figure 8. Furthermore, I am content that, in order to provide a seal between the LED and the outside atmosphere, the substrate would inevitably be un-holed, or *continuous*, in the region covered by the collimating device.

29. There is additional dispute regarding the extent of the lens portion and the support portion concerning some nominal upper surface of the collimating device. The Requester, referring to figure 4 of the Patent, appears to argue that the lens portion only goes as far as the intersection between the outer surface 407 of the lens portion and the internal surface of the support portion. The Proprietor argues that the intent of the limitation is that the encapsulant does not cover the collimating device.

30. I do not think it is strictly necessary to identify a specific boundary between the lens portion and the supporting device. However, the Patent is trying to solve the problem of altering the optical properties of a lens by the presence of an encapsulant. The support portion, defining a gap between the lens and any encapsulant, limits lateral light absorption. Claim 1 requires the support portion to surround the lens portion, wherein the support portion comprises an outer surface

that forms an outer surface of the collimating device. I appreciate, if I were to take a literal interpretation of the claims, that the upper horizontal surface of the Patent could be construed as a support portion outer surface and wherein any encapsulating material could contact this area. However, this claim construction teaches against the premise of the Patent which is trying to minimise encapsulant light absorption. Therefore, I understand the outer surface of the support portion to exclude the top horizontal surface of the collimator.

31. There are some distinctions between claim 1 and claim 11, however these distinctions are trivial. It is noted that neither the Requester nor the Observer have made any comment regarding these distinctions.

### **The prior art P1-P3**

32. The Requester asserts that P1, P2 and P3 are interrelated wherein P2 discloses a portable luminary (SLAM Star) system, P1 discloses an IECEx certificate for the SLAM Star system, and P3 discloses a collimating device used in the SLAM Star system. This assertion is not explicitly contested by the Proprietor; however, they do appear to imply that the collimating device of P3 is not clearly related to P2.

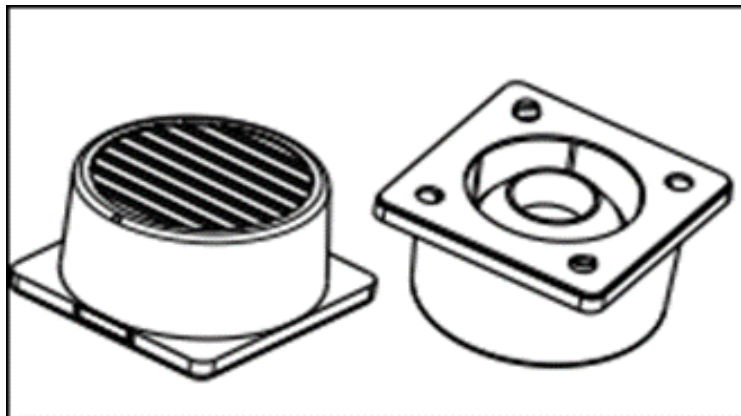
33. The Requester ably directs me to the specific relationship between P1 and P2, however there is no similar narrative directing me to any specific relationship between either P1 or P2 and P3. P1 comprises a main body marked as page 1 of 3, 2 of 3 and 3 of 3, P1 additionally comprises Annex 1 apparently marked as page 1(1). There are a further 7 pages of photometric data which appear to imply that the SLAM Star system was tested with the collimating device of P3. The composition of P1 is undisputed by the Proprietor and therefore I am content to treat P1, P2 and P3 as a single disclosure (P1-P3), as the Proprietor has done in their observations.

34. P1-P3 concerns a portable floodlight comprising a main enclosure comprising a carrying handle, and a lighting frame connected to the base unit. The figure below is an extract from P2 and illustrates the SLAM Star system comprising a lighting frame having 3 LED modules, and it appears that each LED module comprises a plurality of LEDs.

35. The light module has an IECEx marking *EX mb op* which indicates that the system is suitable for providing illumination in a potentially explosive atmosphere. Furthermore the 'm' prefix in the IECEx marking relates to 'encapsulation'; this typically relates to surrounding components, that could ignite an explosive atmosphere, in a compound resistant to electrical, thermal and mechanical influences.



36. P1-P3 additionally discloses a collimator, shown in the figure below, comprising a square base provided with fixing holes, and an optic mounted to the base by what appears to be an external support structure. I understand from the figure that there is a space defined between the support structure and the optic.



37. The LEDs and collimator, as is entirely typical in the art, would be mounted to a substrate which would be connected to a power supply and therefore this feature is implied by the disclosure. This is not disputed by the Proprietor .

### **Novelty**

38. The Requester alleges that P1-P3 discloses F4, F8 and F9 although provides no supporting narrative. The Requester additionally alleges that P1-P3 discloses F7 arguing that a printed circuit board (the substrate) is located on the surface of the frame structure. The Requester further asserts that there is a hole in the substrate, but this hole is blocked by the frame structure thereby isolating the LED from a potentially explosive atmosphere.

39. The Proprietor identifies two distinctions between the Patent and P1-P2;



“6.1 the substrate is continuous in the region covered by the collimating device; and

6.2 The encapsulating material contacts the outer surface of the support portion and does not contact the lens portion.”

40. The prior art shows F1, F2, F3, F5, F6; this does not appear to be contested by the Proprietor and they acknowledge that P1-P3 disclose some elements of claim 1 including implicit disclosure regarding how LEDs and optics are mounted on a substrate and the form of the optic.

41. There is no discussion of the substrate used in P1-P2, and whilst I agree that a substrate would be necessary for mounting a LED and respective collimator, there is no disclosure relating to the construction of the substrate in P1-P2 as required by F7. Furthermore, there is no discussion of the use of an encapsulating material, beyond simply stating that encapsulation is used and therefore the features of F9 cannot be inferred. Therefore, I agree with the Proprietor that P1-P3 does not show F4 or F9.

42. Furthermore, in the absence of any discussion relating to how the collimator is attached to the substrate, P1-P3 does not clearly and unambiguously show the features of F8.

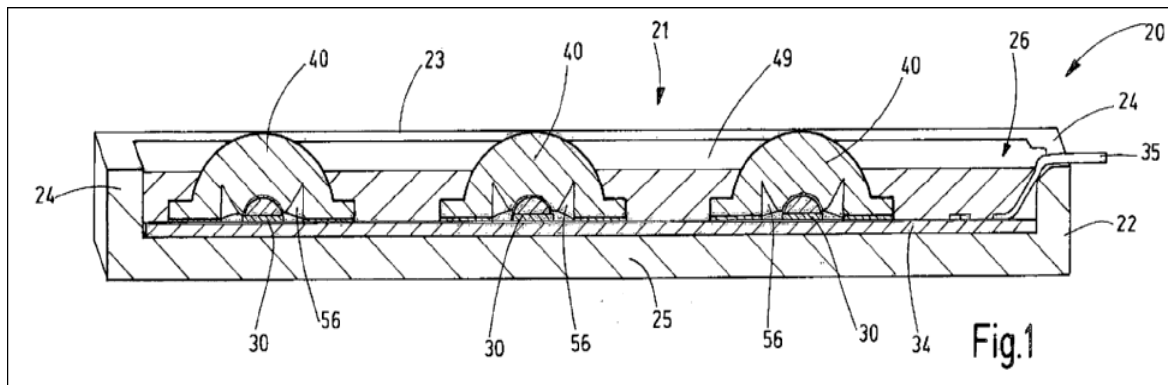
43. Therefore, the Patent as set out in claim 1 is novel with respect to P1-P3. It is noted that the features of F4 and F9, at least, are present in claim 11 and therefore claim 11 is also novel with respect to P1-P3.

### **Inventive step**

44. The Requester alleges, notwithstanding lack of novelty, that the Patent is obvious. The Requester asserts that the skilled person would combine the teachings of P1-P3 with that of D2 in order to arrive at claim 1 and claim 11 of the Patent.

45. The Requester's discussion of D2 is very brief, merely stating that the substrate shown in D2 is '*continuous*'. The Proprietor agrees with the Requester and additionally concedes that D2 discloses an encapsulant not contacting the lens of the collimating device.

46. D2 relates to an explosion proof lamp 20, illustrated in the figure below, comprising a plurality of LEDs 30 mounted to a circuit board 34. A transmitting optic element 40 is associated with each LED and the LEDs, optic elements, and circuit board are received in a casing 22 wherein an encapsulating material fills the interior of the casing around the circuit board, the optical elements and any other electrical components. The optic element comprises a light guide surface 55 and an annular supporting flange 48. A chamber 56, 41 is defined between the circuit board light guide surface and annular supporting flange. The chamber may be a vacuum, or otherwise closed in a gas tight manner, therefore it is understood that the circuit board is '*continuous*' in the same manner as the Patent.



47. The Requester alleges that the skilled person would find D2 and would have no difficulties in replacing the substrate of P1-P3 with the 'continuous' substrate of D2. The Requester makes no argument with respect to the additional distinctions between P1-P3 and the Patent, namely the provision of an encapsulating material contacting an outer surface of the support portion and not contacting the lens, and a sealed air gap between the support portion and the substrate.

48. The Proprietor, in contention, refers to the Requester's claim that P1-P3 prevents atmosphere entering the volume where the LED is located by sealing a hole in the substrate with a frame. The Proprietor additionally argues that P1-P3 could not be adapted such that the encapsulant does not contact the top of the lens relying on a distinction between a thickness of the respective collimating devices and size of the air gap.

49. I have already identified the skilled person in paragraph 21 above. Neither the Requester nor the Proprietor provide any opinion on the common general knowledge of the skilled person.

50. The skilled person, being a designer of lights intended to be used in potentially explosive conditions, would be aware of the use of distinct collimating devices that could be used to achieve desired beam patterns, the skilled person would additionally be aware of the requirements of both ATEX (Atmospheres Explosible) and IECEx (International Electrotechnical Commission Explosive) standards and how these are achieved. The skilled person would be aware of typical methods for encasing LEDs, and similar light sources, in such a way as they could be used in a potentially explosive condition.

51. I have previously identified the distinction between the Patent and P1-P3 above. These distinctions are, for the most part, shown in D2. However, as previously mentioned, there is no discussion in P1-P3 regarding how the SLAM Star system achieves its IECEx Certificate of Conformity beyond stipulating that the light modules are protected by encapsulation. Nevertheless, it seems that P1-P3 achieves conformity despite omitting a continuous substrate, and a sealed gap defined between the lens portion, the substrate and the support portion; therefore P1-P3 already solves the problem of providing illumination in explosive atmospheres, without any adaption. Consequently, the skilled person would not look for alternative ways in which to solve the same problem and would not be motivated to combine the teachings of P1-P3 with D2.

52. If I am wrong, and the skilled person would look for alternative solutions to solve the same problem the skilled person would come across D2.

53. However, when considering an interaction between the collimator of P3 and a substrate; there is no evidence that the space between the support structure and the optic, when mounted to the substrate/circuit board, defines a sealed gap. Whilst it may be argued that a seal would be formed between the support structure and substrate/circuit board to prevent an ingress of any encapsulant surrounding the collimator, I am unable to assume any such sealing arrangement between the optic and the substrate. Such a seal is not necessary; this is exemplified in D2 where the LED occupies the sealed chamber 56, 41. Therefore, if the skilled person were to arrange the collimator of P3 on a continuous substrate, as shown in D2, a sealing relationship between the optic and the substrate cannot be implied. Furthermore, with a sealing relationship between the base and the support portion of the collimator there would be no motivation for the skilled person to adapt the optic such that it formed a seal with the substrate.

54. The Patent is inventive over P1-P3, when read in light of D2.

### **Opinion**

55. Based on the evidence put forward regarding documents P1-P3 and D2, I am of the opinion that claim 1 and claim 11 of the Patent are new and involve an inventive step.

Sean OConnor  
Examiner

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### **NOTE**

*This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.*