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14 December, 2016

Mr. Jeff Mildner, Governor  
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**Re: Legal Opinion  
Review of Vortex Development Group  
Digital Bunker E-BDN™/E-BDR/E-BDC™ /E-Ship Safety™ forms  
for MARPOL and Related Compliance**

Gentlemen:

On behalf of Vortex Development Group LLC (“Vortex”), owner of E-STEM™, E-Ship Safety™, E-BDN™/E-BDR and E-BDC™ forms under the Digital Bunker™ solution, you have asked for our opinion concerning whether the bunker delivery notes (“BDNs,” interchangeably known as bunker delivery notes and receipts, “BDR’s” and Bunker Data Captures BDC’s) which the Vortex Digital Bunker software, E-Ship Safety™/E-BDN™/E-BDN™/E-BDC™ generates are legally compliant and enforceable.

As we detail here, the BDNs which the Vortex’s E-BDN™/E-BDR software generates are legally compliant and enforceable.

The current international trend encouraging the use of electronic recordkeeping confirms that the E-BDN™/E-BDN™ system is not only an acceptable substitution for maintaining paper copies of bunker delivery receipts/notes (BDRs/BDNs), but that is a preferred method for BDR/BDN recordkeeping, proof and authentication.

As explained herein, nothing in the International Convention for the Prevention of Pollution from Ships (MARPOL) present provisions including regulations, nor in the statutes and regulations of the United States, the United Kingdom, and Singapore (the current focus for Vortex’s implementation of the E-BDN™/E-BDN™) require a paper copy of a bunker delivery receipt or a physical signature on that paper copy. Indeed, these jurisdictions actively encourage the use of electronic recordkeeping for reasons of efficiency, security, and waste reduction.

**I. General, Current Requirements for BDN/BDRs**

MARPOL Annex VI, Regulation 18, Appendix V to the Annex VI, and the 2008 Marine Environment Protection Committee (MEPC) Amendments to Annex VI govern the contents of bunker delivery notes, which must contain the following information:

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- The name and IMO number of the vessel receiving the fuel.
- Port (or description of the location, if the delivery does not take place at a port).
- Date the fuel is delivered to the vessel (or the date on which the delivery begins, if the delivery begins on one day and ends on a different day).
- Name, address, and telephone number of fuel supplier.
- Fuel type and designation.
- Quantity, in metric tons.
- Density at 15 °C, in kg/m<sup>3</sup>.
- Sulfur content, as tested in accordance with ISO 8754:2003, in weight percent.
- A signed statement by an authorized representative of the fuel supplier certifying that the fuel supplied conforms to Regulations 14.1 or 14.4 and 18.3 of Annex VI consistent with its designation, intended use, and the date on which it is to be used. This statement in a BDN is not required, with respect to Regulations 14.1 and 14.4, if the vessel is not subject to fuel sulfur standards of Regulation 14 of Annex VI pursuant to a Regulation 3 or Regulation 4 permit or waiver. Per Regulation 18.8.1 of Annex VI, BDNs/BDRs notes shall be accompanied by a sample of the fuel. The sample must be sealed and signed by a representative and the master or office in charge of the bunker operation, and must be retained on the ship for at least 1 year from the date of delivery.<sup>1</sup>

In addition to specifying the content of bunker delivery receipts, MARPOL requires that a BDN/BDR be kept on board the ship for three years after fuel delivery.<sup>2</sup> The competent authority of the Government of a Party to the Protocol of 1997 may inspect and request a copy of the BDN/BDR, and may require the master or person in charge of the ship to certify that each copy is a true copy of such BDN/BDR.<sup>3</sup>

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<sup>1</sup> The International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, Chapter 3, Regulation 18; MARPOL Annex VI, Appendix V; 40 C.F.R. 1043.80; *see also* United States Environmental Protection Agency Guidance on ECA Marine Fuel, EPA-420-B-14-097 (December 2014), available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100LBX4.PDF?Dockey=P100LBX4.PDF>.

<sup>2</sup> MPEC Annex 13 (Amendment to MARPOL Annex VI), Reg.18.6.

<sup>3</sup> *Id.* at 18.7.1.

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There is, however, nothing to suggest that such copies may not be provided and kept aboard electronically or through electronic means. As stated above, MARPOL also requires that the bunker delivery note be accompanied by a representative sample of the fuel oil delivered.<sup>4</sup> For practical purposes, it may be preferable to maintain a paper copy of the BDN/BDR with a representative fuel sample on board, but again, electronic copy of the BDN/BDR can be kept aboard as or more easily than paper copy.

As we understand the Digital Bunker™ E-Ship Safety™ /E-BDN™ /E-BDR system, once the delivery is made to the vessel and an E-Ship Safety™ /E-BDN™ /E-BDR form completed and signed, it is contemporaneously transmitted electronically to the email accounts of the vessel, supplier and others involved in the completion of that specific form for the purpose of one phase of the fuel delivery process. This eliminates the need to have paper copies carried back to the vessel and physically sorted, placed in some filing system and physically maintained. The Vortex software also contains the email addresses of everyone involved in the chain of custody for products received using the E-BDN™ /E-BDR a Digital Bunker form.

**A. The October, 2016 International Maritime Organization (“IMO”) Marine Environmental Protection Committee (“MEPC”) Recommended Changes to The BDN/BDR**

The changes to the BDN/BDR which the IMO-MEPC recommended in October, 2016 further support the legal an enforcement compliance, of the BDNs/BDRs that the E-BDN™ /E-BDR system generate.

The IMO-MEPC recommended changes anticipate the worldwide 2020 prevention of vessels' use (without compensating scrubbers or an exemption) of marine fuels with sulphur content greater than .5% m/m. In order to contribute to accurate enforcement of this .5% m/m cap, the IMO-MEPC decided that to be MARPOL-compliant, BDN's/BDRs also must report the "purchaser's specified limit value" of the sulfur contents of fuel loaded on the purchaser's vessel.

Consequently, the BDN/BDR changes require further statement of how the fuel supplied, as the vessel is able to use that fuel, conforms MARPOL Annex VI regulations 14.1 and 14.4.

First, then, when the MEPC recommended BDN/BDR changes become effective, suppliers must have ready new BDN/BDR forms complying with the effective changes. Suppliers either can print and physically store thousands of new paper forms (including some

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<sup>4</sup> *Id.* at 18.8.1.

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sort of carbonless or other duplication system), or utilize the Digital Bunker™ system to have the changes immediately available.

The Digital Bunker™ system may, also, in advance be reviewed and approved by national authorities so that when the MEPC-recommended BDN/BDR changes become effective, there will be no question about whether the BDN/BDR system the supplier uses, contains the required reporting features and is legally compliant. Use of Digital Bunker™ also avoids the mistaken use of superseded paper forms and allows for quick modification of the BDN/BDR form to reflect national law changes.

Although it is expected that the IMO will confirm the BDN/BDR changes that the MEPC has recommended, it still is possible for last-minute, further changes to be made to the recommendation. As we understand Digital Bunker™, changes are effected instantaneously for all subscribers of the forms supported by the Digital Bunker software. Any changes made to “deployed” forms that are in a constant state of being updated, keeping each subscriber current with the latest version of a particular form. Specifically, Digital Bunker™ is the engine that drives myriad forms deployed on a per-email basis and keeps them in a perpetual state of being continuously updated to their latest revision level.

Second, one difficulty with the BDN/BDR changes that the IMO-MEPC has recommended is that they only use a “check box” system to confirm that the fuel supplied to the vessel can be used in compliance with the .5% (or in ECA zones .1%) cap. The new-recommended form provides no explanation of the actual applicable sulfur limits. Consequently, bunker barge workers, or truckers delivering fuel, may not understand the limits as set out on the form.

Nothing prevents adding explanation on, or in connection with the BDN/BDR form, however, of the the/.5%/.1% limits. The E-BDN™ /E-BDR system can add this explanation, just as it adds automatic API 2004 volumetric and density calculations (from °API and Temperature value inputs), which replace the paper 1980 API Tables 6B and 54B now relied on for marine fuel delivery. The Digital Bunker™ E- BDN™ /E-BDR system thus offers more reliable compliance with fuel quality and quantity delivery requirements.

Further, the IMO-MEPC in 2016 recommended that the revised BDN/BDR include a further “check box,” through which the supplier declare that it provides the fuel relying on the purchaser’s notice that the vessel (a) either will use the fuel with a scrubber (“equivalent means “ under Annex VI, regulation 4) or (b) carries a trial exemption under Annex VI regulation 3.2.

This puts the supplier in the position (and certainly subject to later disputes) of having certified that it has actually relied on the purchaser’s notice to provide compliant fuel to a vessel. If there is a question long after the provision of fuel, proving the notice could be difficult.

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Each vessel which consumes otherwise noncompliant fuel, however, must carry a certificate of equivalent means of compliance, or exemption, under Annex VI regulations 4 and 3.2, respectively. The E-BDN™ /E-BDR system allows suppliers to include with each BDR, a photo of the vessel's equivalent means or exemption certificate, so there is much less likely to be a dispute over whether the supplier had notice (or whether the purchaser ever provided notice) of the vessel's ability to use otherwise noncompliant fuel. As we understand, the Digital Bunker™ E-BDN™ /E-BDR system also includes a photograph of the actual bottle and affixed seal(s), further tying the E-BDN™ /E-BDR to the sample seal beyond simply recording the seal number.

In this way the E-BDN™ /E-BDR system reliably collects the necessary documentation for each fuel provision, so that it is ready for any later port state control inspection questioning whether there has been compliance with fuel sulfur content limitations.

Consequently, as we understand it and especially with the upcoming likely modifications to the BDN/BDR which the MEPC has recommended, Digital Bunker's™ E-BDN™ /E-BDR system, the system will tend to minimize misunderstanding and data recording errors. It therefore may be considered more legally reliable and compliant than paper-based systems.

## **II. Government-Specific Requirements**

Ample law and model law supports the legal effectiveness of the Digital Bunker™ E-BDN™ /E-BDR™ system. UNCITRAL's Model Law on Electronic Commerce and State law corollaries were created to address the growing need for alternatives to cumbersome paper recordkeeping methods that are error-prone and easily alterable for fraudulent purposes. The U.S., the UK (UK law on the subject controlling in Gibraltar), and Singapore are supportive of electronic recordkeeping and signatures, so long as a showing can be made that the recordkeeping and signatures are authentic, unique, and cannot be altered without consent of the parties.

Specifically, each of the following jurisdictions' law addresses BDN/BDRs as follows:

### **A. The United States**

United States law follows MARPOL in its requirements for bunker delivery receipts.<sup>5</sup> The U.S. requires that both fuel suppliers and the owner/operator of the vessel keep copies of

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<sup>5</sup> 40 C.F.R. 1043.80.

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BDN/BDRs,<sup>6</sup> vi a burden that would be considerably lightened by electronic BDN/BDR storage through the use of Digital Bunker™.

In the United States, electronic signatures are governed by the Federal E-Sign Act,<sup>7</sup>vii which promotes the use of electronic signatures in international transactions to “permit parties to a transaction to determine the appropriate authentication technologies and implementation models for their transactions, with assurance that those technologies and implementation models will be recognized and enforced.”<sup>8</sup>viii A signature, contract, or other record relating to any transaction in or affecting interstate or foreign commerce may not be denied legal effect, validity, or enforceability solely because it is in electronic form, and a contract relating to such transaction may not be denied legal effect, validity, or enforceability solely because an electronic signature or electronic record was used in its formation.<sup>9</sup> U.S. law, however, requires that certain disclosures be made and that consent be obtained when a statute or rule exists that requires the transaction to be made available in writing. This includes the following:

- Obtaining consent to electronic recordkeeping;
- Providing a clear and conspicuous statement informing the parties of a right to opt out and sign with a paper signature, have the record made available on paper, and the method for withdrawing consent and obtaining a paper copy;
- Providing a statement of hardware and software requirements for access to and retention of electronic records and obtaining consent electronically in a manner that demonstrates that the consumer can access the information in the electronic form provided;
- A continuing duty to update consumers on revised hardware and software requirements for access and retention of electronic records; and
- Maintaining the disclosures so that they are accessible for consumers to view and retain.<sup>10</sup>

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<sup>6</sup> *Id.*; EPA-420-B-14-097

<sup>7</sup> 15 U.S.C. § 7001 *et seq.*

<sup>8</sup> 15 U.S.C. § 7031.

<sup>9</sup> *See* 15 U.S.C. § 7001.

<sup>10</sup> *Id.*

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Accordingly, the Digital Bunker™ E-BDN™ /E-BDR should include a disclosure form and obtain user consent pursuant to these requirements.

## **B. Singapore**

Like the U.S. Code, Singapore’s Code of Practice for Bunkering requires compliance with MARPOL Annex VI.<sup>11</sup> In addition, any cancellation or amendment on the BDN must be endorsed and stamped by the cargo officer and the chief engineer.<sup>12</sup>

Singapore law requires that “[a]t least two copies” of the completed BDN must be signed by the cargo officer and the chief engineer with their names clearly printed and stamped with the bunker tanker’s stamp and vessel’s stamp, and that a copy of the tank gauging/calculation form be attached with the BDN/BDR.<sup>13</sup> Although the requirement for “two copies” reflects the current practice for BDN/BDRs, it does not require that the “two copies” be paper copies.

The Singapore Electronic Transactions Act provides that contracts may be formed by means of electronic communications. Electronic signatures may be used provided that a reliable method is used to identify the person signing and to indicate that person’s intention with respect to the information contained in the electronic record.<sup>14</sup> The Act requires commercially reasonable security procedures be in place to ensure that the electronic signature be verifiably (a) unique to the person using it, (b) capable of identifying such person, (c) created in a manner or using a means under the sole control of the person using it, and (d) linked to the electronic record to which it relates in a manner such that if the record was changed the electronic signature would be invalidated.<sup>15</sup>

Commercially reasonable security procedures must also be used to verify that the electronic record has not been altered.<sup>16</sup> “Commercially reasonable” is defined by reference to industry standards and what others are using for similar types of transactions, among other things.<sup>17</sup>

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<sup>11</sup> Singapore Code of Practice for Bunkering, SS 600:2008, Ch.1, 1.15.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> *See* Singapore ETA Pt. II, § 8.

<sup>15</sup> *See* Pt. III, § 18.

<sup>16</sup> *See id.* at § 17.

<sup>17</sup> *See id.*

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We understand that the Digital Bunker™ E-BDN™ /E-BDR system captures GPS-tagged ship stamp photos, signatures, and answers to 23 International Safety Guide for Oil Tankers and Terminals (“ISGOTT”) delivery safety questions. The Digital Bunker™ system thus ensures proper security procedures are in place to authenticate the BDN/BDRs and the signatures and GPS coordinates they contain.

The inclusion of the GPS tags makes the secure electronic signature and vessel stamp, confirmed and preserved through the Digital Bunker™ E-BDN™ /E-BDR system, arguably more reliable and subject to later accurate confirmation than a physical, hand stamp and/or signature.

### **C. United Kingdom**

UK law also follows the requirements of MARPOL Annex VI pursuant to the EU Sulphur Directive, and like the nations above, the UK recognizes the validity of electronic signatures through the UK Electronic Communications Act 2000 (ECA).

The authenticity and integrity of the signature are important for determining a signature’s validity, which is determined by whether the communication or data comes from a particular person or other source, whether it is accurately timed and dated, whether it is intended to have legal effect, and whether there has been any tampering with or other modification of the communication or data.<sup>18</sup>

Again, the Digital Bunker™ E-BDN™ /E-BDR system utilizing GPS tagging of photographs of vessel stamps and signatures, and securing those digitally, makes it less likely than a physical, paper-borne signature and stamp to tamper with or modify.

### **Conclusion**

The Digital Bunker™ E-BDN™ /E-BDR system keeps with the international encouragement of electronic recordkeeping and signature recognition.

To the extent possible, national laws regarding electronic signatures and recordkeeping should be consulted where relevant to revise the electronic recordkeeping and signature requirements for Digital Bunker™ E-BDN™ /E-BDR system - generated BDR’s.

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<sup>18</sup> ECA Sec. 7 explanatory notes.

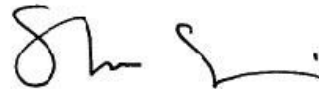


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Such examples include the U.S.'s disclosure and consent requirements and Singapore's requirement for an attached tank gauging/calculation form. Care should also be given to ensure the continued cyber security of the BDN/BDRs, their authentications and accompanying documents.

As we have detailed above, however, the BDRs which the Vortex's Digital Bunker™ E-BDN™ /E-BDR software generates are legally compliant and enforceable, and from a legal compliance and enforcement standpoint, for suppliers, their customers, and enforcement authorities, are superior to paper-dependent systems.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Stephen Simms". The signature is fluid and cursive, with a distinct loop at the end.

J. Stephen Simms