

INFORMATION AND DATA REQUEST TO
LIBERTY INTERACTIVE CORPORATION

1. Provide all documents and communications (except documents solely relating to environmental, tax, human resources, OSHA, or ERISA issues) relating to the proposed Transaction and provide:
 - a. a timetable for each Transaction, a description of all actions that must be taken prior to consummation of each Transaction, and any harm that will result if the Transactions are not consummated;
 - b. a description of (including the rationale for, and identification of all documents directly or indirectly used to prepare the Company's response to this sub-part) all plans for changes in the Company's operations, structure, policies, strategies, corporate goals, financing, business, officers, executives or any other area of corporate activity as a result of the Transaction; and
 - c. a description of any other terms or conditions of the Transaction that are not reflected in the Transaction agreements between the parties.

2. For each entity in which you own 5% or more of the issued and outstanding stock of any class (or other ownership interest), or in which you otherwise have an Attributable Interest, provide the following:
 - a. The name of the entity;
 - b. The lines of business of the entity;
 - c. The executive officers of the entity;
 - d. The individuals and entities that have an Attributable Interest in the entity;
 - e. The directors of the entity before and after the Transaction including:
 - i. A brief biography of each director; and
 - ii. The length of the director's term on the board;
 - f. The monetary value of the holdings as a fraction of the value of the issued and outstanding stock of the entity; (for partnerships and limited liability companies, provide the monetary value of the holdings as a fraction of the total capitalization of the entity);
 - g. For each class of stock or other ownership interest owned, provide the following:
 - i. The entity owning the stock, limited liability company membership interest or partnership interest, as applicable;
 - ii. The voting rights of the shares as a fraction of total voting rights, membership interests or partnership interests, as applicable; and
 - h. A description of any conversion rights or other rights that may affect voting rights of the stock, membership interests or partnership interests, as applicable; and if the entity is a partnership or limited liability company, provide the foregoing information for every partner that holds an Attributable Interest.

3. List and describe all voting and non-voting securities, membership and partnership interests, as applicable, to be acquired by you in the Transaction:
 - a. List the total number of shares of each class of security;
 - b. List the total number of shares of each class of security being acquired;
 - c. Provide the identity of Persons acquiring securities;
 - d. Provide the total number of each class of securities to be held as a result of the Transaction; and
 - e. For the securities, membership and partnership interests to be acquired, describe any conversion rights or other rights that may affect the voting rights of the stock.
4. Describe in detail John Malone's ownership, control (whether *de jure*, *de facto* or negative), or management of Charter, Time Warner Cable, DIRECTV, Liberty Media, Liberty Broadband, Liberty Interactive, Liberty Cablevision of Puerto Rico, Liberty Global, Liberty Ventures Group, Discovery Communications, Starz, New Charter and any other MVPDs and programmers not listed herein for which he owns an interest. For each entity in which John Malone manages, controls, or has an ownership interest, please describe: (1) the nature and extent of the ownership interest and all board representation, management rights, voting rights, veto rights, or veto power; and (ii) all effects that the proposed Transaction, if consummated, would have on the interests described in response to (i).
5. For the companies listed in the Company's response to Information Request 4, provide all documents relating to the Company's current or future plans related to the acquisition or divestiture of ownership interests, whether partial or in full, in these entities and/or relating to any of the Company's Attributable Interest holder's current or future plans related to the acquisition or divestiture of ownership interests, whether full or partial in these companies.
6. Provide all documents relating to any:
 - a. financial or management relationships between you and Discovery Communications, Starz, or any other programmer in which you have an Attributable Interest, including all Affiliates and Subsidiaries, or any technical, management, administrative, or other services provided by you to Discovery Communications, Starz, or any other programmer in which you have an Attributable Interest relating to the media-related activities of such programmers; and
 - b. involvement of John Malone or other Company officers, directors, or employees in the management or operation of Discovery Communications, Starz, or any other programmer in which you have an Attributable Interest, including, but not limited to: (1) decisions or discussions regarding which programming is presented by the programmer; (2) whether to distribute, not distribute, or stop distributing any Video Programming to any MVPD or OVD; (3) budget development or operation of Video Programming services; (4) hiring,

firing, or supervising of employees; or (5) assessing the performance of any Video Programming distributed, or licensed to other distributors.

7. Provide all documents discussing plans to provide the Video Programming affiliated with the Company or any of its directors, including Discovery, Starz, Charter, New Charter, or any other programmer or MVPD in which the Company has an Attributable Interest, to unaffiliated OVDs, including, but not limited to: (1) the minimum viable scale necessary for OVD entry; (2) the time required to roll out the OVD service and the steps taken or additional steps that the Company would need to take to launch the service; (3) all effects that the Transaction, if consummated, would have on these plans; and (4) presentations to management committees, executive committees, and boards of directors. For regularly prepared budgets and financial projections, the Company need only provide one copy of final year-end documents for each year and cumulative year-to-date documents for the current year.
8. Identify each instance in which the Company analyzed or considered introducing or acquiring an OVD service (including in-footprint service or out-of-footprint service, and any OVD service proposed or offered by Discovery Communications, Starz or any other programmer in which the Company has an Attributable Interest) and for each such instance:
 - a. describe the timing of the analysis or consideration;
 - b. describe the service, including content, projected prices, and customers to which it would be offered, including whether the intended customers would be existing customers, other customers within your footprint, and customers outside your footprint;
 - c. discuss any decision made and the reasons for the decision or factors considered;
 - d. identify all employees or agents of the Company involved in the analysis or consideration;
 - e. provide all documents related to the analysis and consideration; and
 - f. identify documents sufficient to support your answers for each (a), (b), (c), and (d) above.
9. Submit all documents discussing: the CBS All Access service; Comcast's Stream service; DISH's Sling TV service; HBO Now; Sony Entertainment Network's Vue service; or any over-the-top video streaming service that may be offered by you.
10. Describe in detail, and produce and identify all documents relating to: (i) John Malone and your incentive and ability, or lack thereof, to take actions that conflict with or support New Charter's interests; and (ii) each one's incentive and ability to withhold programming or particular rights to distribute programming from other MVPDs or OVDs in order to favor or protect New Charter or to increase New Charter's sales.
11. Identify each instance, including the relevant dates, where an MVPD has discussed with you or any of your officers, directors, or executives raising, threatened to raise, or has raised, a program access complaint as a means to obtain the right to distribute video programming in which you or any of your officers, directors, or executives, or any entity sharing officers,

directors, executives or attributable interest holders with New Charter, has an attributable interest or has distribution rights, including via VOD and PPV, and separately for each type of video programming (i.e., standard or high definition), describe:

- a. the nature of the dispute or issue;
 - b. the persons involved in the dispute; and
 - c. how and whether the dispute or issue was resolved. To the extent the dispute was settled, explain whether the settlement required program access to the complaining party, and produce all documents relating to each instance identified, and any settlement thereof.
12. The Applicants state that “there are a number of specific precautions in place to...ensure that Liberty Broadband and Advance/Newhouse cannot improperly influence New Charter.” Public Interest Statement at 54. Describe in detail, and produce all documents relating to, reflecting, considering, or describing any “specific precautions” that will exist following the consummation of the transaction ensuring that:
- a. John Malone, Advance/Newhouse, and you cannot improperly influence New Charter; and
 - b. John Malone, Advance/Newhouse, and you will not withhold, or cause the withholding of, programming from MVPDs or OVDs in order to favor or protect New Charter or increase New Charter’s sales.
13. Submit all documents relating to any plans of, interest in, or efforts undertaken by the Company or any other person for any acquisition, divestiture, joint venture, alliance, or merger of any kind involving the sale of any relevant service other than the Transaction. Describe, and identify documents sufficient to show each instance when the Company attempted to partner with an MVPD to achieve joint objectives, including but not limited to, attempts to launch or deploy a coordinated or joint OVD service, business services, reciprocal access to Wi-Fi networks, out of home data access service, or mobile wireless service (e.g., sales agent, reseller, mobile virtual network operator). In the description, state the results of each instance and the reasons for its success or failure.
14. Provide one copy of each related person transaction policy or procedure, including policies or procedures for Charter, Discovery, Liberty Broadband, Liberty Media, and Starz. For each policy and procedure, separately identify the persons, parties, or entities that are deemed related to John Malone and each director or officer of the Company.
15. Provide all documents the Company has provided to the Department of Justice during the course of its investigation into the proposed Transaction. There is a continuing obligation to supplement responses to this information request as documents are provided to DOJ.
16. Provide one copy of (and identify the Bates number of) each agenda, summary, or minutes of any meeting of the board of directors of the Company, and one copy of each presentation or other document provided to the board (except documents solely relating to environmental, tax, human resources, OSHA, or ERISA issues).

17. Provide in Excel format, a chart listing the identity of each document cited in or used to support your narrative responses to each of the Information and Data Requests and for each document include the Information and Data Request number(s) for which it was used.

Definitions

The following definitions apply only to this Information Request. They are not intended to set or modify precedent outside the context of this document. In this Information Request, the following terms shall have the following meanings (such meanings to be equally applicable to both the singular and plural forms of the terms defined):

1. The terms “you,” “your,” or “the Company” mean Liberty Interactive Corporation, its domestic and foreign parents, predecessors, divisions, subsidiaries, affiliates, partnerships and joint ventures, and all directors, officers, employees, agents and representatives of the foregoing.
2. The term “Advance/Newhouse” means Advance/Newhouse Partnership and its Subsidiaries.
3. The term “Affiliate” means, as to any Person, any other Person that, directly or indirectly, controls, is controlled by or is under common control with such Person.
4. The terms “and” and “or” have both conjunctive and disjunctive meanings.
5. The word “any” shall be construed to include the word “all,” and the word “all” shall be construed to include the word “any.” The word “each” shall be construed to include the word “every,” and the word “every” shall be construed to include the word “each.” All words used in the singular should be construed to include the plural, and all words used in the plural should be construed to include the singular.
6. The term “Applicants” means Charter, TWC, and Advance/Newhouse.
7. The term “Attributable Interest” means: (i) for Cable Systems, any interest that is cognizable or attributable under Section 76.501 of the Commission’s Rules; (ii) for non-broadcast programming networks, any interest that is cognizable or attributable under Section 76.1000(b) of the Commission’s Rules; (iii) for broadcast television stations, any interest that is cognizable or attributable under Section 73.3555 of the Commission’s Rules.
8. The term “Bright House Networks” or “Bright House” or “BHN” means Advance/Newhouse Partnership’s Subsidiary Bright House Networks, LLC and its Subsidiaries.
9. The term “Charter” means Charter Communications Inc., and its Subsidiaries.
10. The term “customer” means an end user of any relevant service, as opposed to a distribution partner.
11. The term “Discovery Communications” or “Discovery” means Video Programming provided through Discovery Communications, Inc., including Discovery Channel, TLC, and Animal Planet.
12. The term “discussing” when used to refer to documents means analyzing, constituting, summarizing, reporting on, considering, recommending, setting forth, or describing a subject. Documents that contain reports, studies, forecasts, analyses, plans, proposals, evaluations, recommendations, directives, procedures, policies, or guidelines regarding a subject should be treated as documents that discuss the subject. However, documents that merely mention or refer

to a subject without further elaboration should not be treated as documents that discuss that subject.

13. The term “documents” means all computer files and written, recorded, and graphic materials of every kind in the possession, custody, or control of the Company. The term “documents” includes without limitation, electronic correspondence, metadata, embedded, hidden and other bibliographic or historical data describing or relating to documents created, revised, or distributed on computers systems, and all duplicates of documents (whether or not identical) in the files of or in the files maintained on behalf of all directors, officers, managers or other supervisory employees, duplicates of documents in all other files that are not identical duplicate of the originals, and duplicates of documents the original of which are not in the possession, custody, or control of the Company. The term “documents” includes spreadsheets, as well as underlying cell formulae and other codes. In addition, the term “documents” includes without limitation any amendments, side letters, appendices, or attachments. The term “computer files” includes without limitation information stored in, or accessible through, computer or other information retrieval systems. Thus, the Company should produce documents that exist in machine-readable form, including documents stored in personal computers, portable computers, workstations, minicomputers, mainframes, servers, backup disks and tapes and archive disks and tapes, and other forms of offline storage, whether on or off the Company’s premises. Electronic mail messages should also be provided, even if only available on backup or archive tapes or disks. Computer files shall be printed and produced in hard copy or produced in machine-readable form (provided that Commission staff determine prior to submission that it would be in a format that allows the Commission to use the computer files), together with instruction and all other materials necessary to use or interpret the data. Unless otherwise specified, the term “documents” excludes bills of lading, invoices, purchase orders, customs declarations, and other similar documents of a purely transactional nature and also excludes architectural plans and engineering blueprints. Where more than one identical copy of a requested document exists, the Company shall only produce one representative copy.
14. The term “identify,” when used with reference to a Person or Persons, means to state his/her full legal name, current or last known business address, current or last known telephone number, current or last known organization, and position therewith. “Identify,” when used with reference to a document, means to state the Bates number, date, author, addressee, type of document (e.g., the types of document, as described above), a brief description of the subject matter, its present or last known location, and its custodian, who must also be identified. “Identify,” when used with reference to an entity other than a Person, means to state its name, current or last known business address, and current or last known business telephone number. The term “identify” when used with reference to a census block means to geocode the census block using the 2010 Census Block Identifier.
15. “Liberty Broadband” means Liberty Broadband Corporation, its Subsidiaries, and any Affiliate in which it or a Subsidiary holds an Attributable Interest pursuant to Section 76.1000(b) of the Commission’s rules or any entity in which John Malone holds an Attributable Interest pursuant to Section 76.1000(b) of the Commission’s rules.

16. The term “Multichannel Video Programming Distributor” or “MVPD” means an entity, including cable operators, which is engaged in the business of making available for purchase, by subscribers or customers, multiple channels of Video Programming.
17. The term “New Charter” means the Applicants’ successor company or future parent that will result from the Transaction.
18. The term “Online Video Programming” means Video Programming that is intended for distribution by means of the Internet or other IP-based transmission path.
19. The term “Online Video Distributor” or “OVD” means any entity that provides Video Programming by means of the Internet or other IP-based transmission path provided by a Person other than the OVD. Unless otherwise stated, an OVD does not include an MVPD inside its MVPD footprint or an MVPD to the extent it is offering Online Video Programming as a component of an MVPD subscription to customers whose homes are inside its MVPD footprint.
20. The term “plans” means tentative and preliminary proposals, recommendations, or considerations, whether or not finalized or authorized, as well as those that have been adopted.
21. The term “Person” includes the Company, and means any natural person, corporate entity, association, partnership, joint stock company, trust, unincorporated association, joint venture, limited liability company or other entity, or a government or any political subdivision or agency thereof.
22. The term “relating to” means in the whole or in part constituting, containing, concerning, discussing, describing, analyzing, identifying, or stating.
23. “Starz” means Video Programming provided through the Starz Network, including STARZ, ENCORE, and MOVIEPLEX.
24. The term “Subsidiary” as to any Person means any corporation, partnership, joint venture, limited liability company, or other entity of which shares of stock or other ownership interests having ordinary voting power to elect a majority of the board of directors or other managers of such corporation, partnership, joint venture, limited liability company or other entity are at the time owned, or the management of which is otherwise controlled, directly or indirectly, through one or more intermediaries, or both, by such Person.
25. The term “Time Warner Cable” or “TWC” means Time Warner Cable Inc. and its Subsidiaries.
26. The term “Transaction” means the transaction contemplated in the applications filed by Charter, TWC, and Advance/Newhouse Partnership on June 25, 2015, that, if completed, would effectuate the sale of TWC and Bright House Networks cable systems and assets to Charter.
27. The term “Video Programming” means programming provided by, or generally considered comparable to programming provided by, a television broadcast station or cable network, regardless of the medium or method used for distribution, and includes but is not limited to: programming prescheduled by the programming provider (also known as scheduled programming or a linear feed); programming offered to viewers on an on-demand, point-to-point basis (also known as Video-on-Demand or Pay Per View); short programming segments (also known as

clips); programming that includes multiple video sources (also known as feeds, including camera angles); programming that includes video in different qualities or formats (including high-definition, 3D and 4K); and films.

Instructions

1. Unless otherwise specified, each Information and Data Request that calls for documents requires the Company to submit all responsive documents that were created or received by the Company on or after July 24, 2013. Where information is required, provided it separately for each year. Where yearly data is not yet available, provide data for the calendar year to date.

2. Submit responses to Information Requests in both paper and electronic form, unless an electronic form is specified (e.g., electronic spreadsheet). Submit responsive documents (including materials containing Highly Confidential or Confidential Information) in electronic form only, unless otherwise specified, as set forth in the Instructions for Submission of Electronic Documents. The Commission does not now require the submission of paper copies of these documents at this time, but reserves the right to require their submission at a later time. The Commission does not now require the submission of drafts and final copies of agreements between any MVPD or OVD and any programmer, nor any emails exchanged between the Company and any OVD or MVPD other than Charter, Time Warner Cable, and Bright House related to negotiations over such agreements, but reserves the right to require their submission at a later time.

3. Where a narrative response is required, identify each document relied upon to support the Company's response in the narrative response.

4. Documents submitted in response to this Information Request that were or will be submitted both to the Commission and the U.S. Department of Justice must have the same Bates number and the same metadata.

5. Each responsive document shall be submitted in its entirety, even if only a portion of that document is responsive to a request made herein. This means that the document shall not be edited, cut, or expunged, and shall include all appendices, tables, or other attachments, and all other documents referred to in the document or attachments. All written materials necessary to understand any document responsive to these Requests shall also be submitted.

6. Documents written in a language other than English must be translated into English; automated or machine translations are not permitted. Submit the foreign language document with the English translation attached.

7. Data provided in response to this Information Request should include a list of all parameters/assumptions on which the data are based.

8. Unless otherwise agreed to by the Commission, requests for the production of documents (and any particular type of document) require the production of all responsive documents in the possession, custody, or control of the Company.

9. For each statement submitted in response to the Information Request, indicate, by number

and subsection, the specific request to which it is responsive.

10. For each document submitted in response to the Information Request, identify the Person(s) from whose files the document was retrieved (i.e., the custodian). If any document is not dated, if known, state the date on which it was prepared. If any document does not identify its author(s) or recipient(s), provide, if known, the name(s) of the author(s) or recipient(s) as metadata in accordance with Instructions for Submission of Electronic Documents. The Company must identify with reasonable specificity all documents provided in response to these Requests. Where more than one identical copy of a requested document exists, the Company may submit only one representative copy, but in all cases all metadata, including without limitation all custodians who possessed identical documents withheld, must be provided in accordance with the provisions of Instructions for Submission of Electronic Documents.

11. For each question in this Information Request, provide a list of which custodians, based on discussions with Commission staff are most likely to have relevant documents, are to be searched for responsive documents.

12. Describe the search methodologies and the applications used to execute the search conducted in response to this Information Request, including, if search terms were used to conduct all or any part of the search, a list of terms used.

13. Provide a glossary of industry and company terminology, including project code words.

14. The specific requests made herein are continuing in nature. The Company is required to produce in the future any and all documents and information that are responsive to the requests made herein but not initially produced. In this regard, the Company must supplement its responses (a) if the Company learns that, in some material respect, the documents and information initially disclosed were incomplete or incorrect or (b) if additional responsive documents or information are acquired by or become known to the Company after the initial production.

15. Any documents that are withheld in whole or in part from production based on a claim of privilege shall be assigned document control numbers (with unique consecutive numbers for each page of each document). For any page of any document that the Company has designated to be withheld as entirely privileged, the Company shall submit a substitute, placeholder page that lists only the Document ID of the page that was withheld in entirety as privileged and a statement indicating that the page has been withheld in entirety as privileged. For any document withheld as entirely privileged, it is sufficient to supply one substitute, placeholder page for that document, so long as the range of Document IDs for the entire document is listed on the placeholder page and each Document ID for each page of the document is reflected in metadata. The placeholder pages must be imaged as any other paper record, as described above. For each document withheld as privileged, whether in entirety or in part, the Company shall code the substitute document submitted as specified in and provide as metadata the information in the attached MetaData Table of Requested Fields.

16. For each Document identified on the Company privilege log:
- a. Provide the document control number(s);
 - b. Identify all authors of the document;
 - c. Identify all addressees of the document;
 - d. Identify all recipients of the document or of any copies of the document,

- e. to the extent not included among the document's addressees;
- e. Provide the date of the document;
- f. Provide a description of the subject matter of the document;
- g. State the nature or type of the privilege that the Company is asserting *for* the document (e.g., "attorney-client privilege");
- h. Provide the number(s) of the Information Request to which the document is responsive;
- i. Provide the document control number(s) of any attachments to the document, regardless of whether any privilege is being asserted for such attachment(s); and
- j. State whether the document has been produced in redacted form, and include the range of Document ID labels for those produced documents.

17. The Company's privilege log shall also conform with all of the following requirements:

- a. Provide a separate legend identifying each author, addressee, and recipient identified on the Company's privilege log.
- b. Identify on the privilege log, and denote with an asterisk, all attorneys acting in a legal capacity with respect to the withheld document or communication.
- c. The description of the subject matter of each document shall describe the nature of the document in a manner that, though not revealing information that is itself privileged, provides sufficiently detailed information to enable the Commission to assess the applicability of the privilege claimed.
- d. For each document withheld under a claim that it constitutes or contains attorney work product, also state whether the Company asserts that the document was prepared in anticipation of litigation or for trial and, if so, specify the anticipated litigation or trial upon which the assertion is based.
- e. Produce all nonprivileged portions of any responsive document (including nonprivileged or redactable attachments) for which a claim of privilege is asserted, except where the only nonprivileged information in the document has already been produced. Note where any redactions in the document have been made.
- f. The privilege log shall be produced in both hardcopy and electronic form, the electronic form of which shall be both searchable and sortable.
- g. Documents sent solely between counsel, including in-house counsel acting solely in a legal capacity, and documents authored by the Company's outside counsel that were not directly or indirectly furnished to any third party, such as internal law firm memoranda, may be omitted from the privilege log. However, any attachments to such documents must be included on the privilege log (if a privilege is applicable to such materials), unless such attachments are addressed and sent solely to counsel.

Instructions for Electronic Production of Documents and Electronically Stored Information

Introduction

This document contains the standard specifications and procedures for submitting to the Federal Communications Commission electronic versions of documents in response to an Information Request.

- In many cases, it is useful for the party producing the documents, its vendor and the FCC staff to review the technical details of the production prior to submitting the response.
- Take care to ensure that all responsive data and metadata are preserved in the collection process.
- Submit two copies of the response: file one copy in the docket with the Secretary's Office and provide one copy to FCC staff or the FCC's contractor, as directed, for loading and review.

1. Categories of Documents

There are seven major categories of relevant documents: (1) email and other electronic messages (*e.g.*, instant messaging, text messages), (2) other electronic documents, (3) hard copy documents, (4) shared resources, (5) databases, (6) audio and video data, and (7) foreign-language materials. Typically, responsive documents will come from the first four categories, although databases will be used to respond to Data Requests. The general requirements for each category of document are outlined below. The attached Metadata Table of Requested Fields provides information regarding document-specific metadata and bibliographic information (identifying information).

A. Email, Attachments, and Other Electronic Messages

Email and other electronic messages (*e.g.*, instant messages (IMs), text messages) should be produced as image files with related searchable text, metadata and bibliographic information. Depending on how the Company's systems represent names in email messages, IMs or text messages, we may require a table of names or contact lists from custodians.

Each IM or text conversation should be produced as one document.

Email repositories, also known as email databases (*e.g.*, Outlook .PST, Lotus .NSF), can contain a variety of items, including messages, calendars, contacts, tasks, etc. For purposes of production, responsive items should include the "Email", "Other ESI", or "Calendar Items" metadata/database fields outlined in the Metadata Table, including but not limited to all parent items (mail, calendar, contacts, tasks, notes, etc.) and child files (attachments of files to email or other items), with the parent/child relationship preserved. Similar items found and collected outside an email repository (*e.g.*, .MSG, .EML, .HTM, .MHT) should be produced in the same manner.

Graphic objects embedded in emails such as logos, letterheads, or backgrounds should remain as part of the email and not be extracted as separate attached documents.

Pay special attention to the PARENTID, ATTACHMENTIDS, and FAMILYRANGE fields, which are used to track email families. While the example below relates to email families, all attachment relationships for all responsive documents are to be produced in this format.

EXAMPLE: Consider ABC-JD-00000001 a 10-page parent email, with records ABC-JD-00000011 to ABC- JD-00000015, ABC-JD-00000016 to ABC-JD-00000020, and ABC-JD-00000021 to

ABC-JD-00000025 as its attachments. Fields should be populated exactly as follows using the semicolon as the multi-entry delimiter for ATTACHMENTIDS:

BEGDOC#	ENDDOC#	PARENTID	ATTACHMENTIDS	FAMILYRANGE
ABC-JD-00000001	ABC-JD-00000010		ABC-JD-00000011;ABC-JD-00000016;ABC-JD-00000021	ABC-JD-00000001 – ABC-JD-00000025
ABC-JD-00000011	ABC-JD-00000015	ABC-JD-00000001		ABC-JD-00000001 – ABC-JD-00000025
ABC-JD-00000016	ABC-JD-00000020	ABC-JD-00000001		ABC-JD-00000001 – ABC-JD-00000025
ABC-JD-00000021	ABC-JD-00000025	ABC-JD-00000001		ABC-JD-00000001 – ABC-JD-00000025

B. Electronic Documents

Electronic documents include word-processing documents, spreadsheets, presentations, and all other electronic documents not specifically discussed elsewhere. Production of these items should include image files with related searchable text, metadata, and bibliographic information. All passwords and encryption must be removed from electronic documents prior to production. Note that the following apply to both attachments of files to email or other items and loose native files:

1. *Spreadsheets:* Spreadsheets should be produced in native format (*e.g.*, as .XLSX files), with searchable text for the entire document, metadata, and bibliographic information. Provide only a single image of the first page of the spreadsheet or provide a single placeholder image. The placeholder image must contain at a minimum the BEGDOC#, FILENAME, and FILEPATH. The Identification range for a spreadsheet should be a single number (*e.g.*, ABC-JD-00000001 – ABC- JD-00000001). The linked native file name should match the BEGDOC#/DOCID with the appropriate file extension.
2. *Presentations:* Presentations should be produced in full slide image format along with speaker notes (which should follow the full images of the slides) with related searchable text, metadata, bibliographic information and linked native file. Presentations should also be produced in native format (*e.g.*, as .PPT files). The linked native file name should match the BEGDOC#/DOCID with the appropriate file extension.
3. *Hidden Text.* All hidden text (*e.g.*, track changes, hidden columns, hidden slides, mark-ups, notes) shall be expanded and rendered in the extracted text file. For files that cannot be expanded linked native files shall be produced with the image files.
4. *Embedded Files.* All embedded objects (*e.g.*, graphical files, Word documents, Excel spreadsheets, .wav files) that are found within a file shall be produced so as to maintain the integrity of the source document as a single document. For purposes of

production the embedded files shall remain embedded as part of the original source document. Hyperlinked files must be produced as separate, attached documents upon request. Any objects that cannot be rendered to images and extracted text (e.g., .wav, .avi files) must be produced as separate extracted files with linked native files and placeholder images and be treated as attachments to the original file.

5. *Image-Only Files.* All image-only files (non-searchable .PDFs, multi-page TIFFs, Snipping Tool screenshots, etc., as well as all other images that contain text) shall be produced with associated OCR text, metadata, and bibliographic information.
6. *Proprietary File Types and Non-PC or Non-Windows Based Systems.* Proprietary file types, such as those generated by financial or graphic design software, should be discussed with Commission staff in advance of production to determine the optimal format of production. Also, file types from non-PC or non-Windows based systems (e.g., Apple, UNIX, LINUX systems), should be discussed with Commission staff in advance of production to determine the optimal format of production.
7. *Archive File Types.* Archive file types (e.g., .zip, .rar) must be uncompressed for processing. Each file contained within an archive file should be produced as a child to the parent archive file. If the archive file is itself an attachment, that parent/child relationship must also be preserved.
8. *Processing Errors.* The text of the placeholder image should also be contained in the searchable text of the document in the event of uncorrectable processing errors.

C. Hard-Copy (or Paper) Documents

Hard-copy documents are to be produced as black-and-white image files, except where noted below, with related searchable OCR text and bibliographic information. Special attention should be paid to ensure that hard-copy documents are produced as they are kept, reflecting attachment relationships between documents and information about the file folders within which each document is found. In addition, multi-page documents must be produced as single documents (*i.e.*, properly unitized) and not as several single-page documents. Where color is required to interpret the document, such as hard copy photos, and certain charts, that image must be produced in color. These color images are to be produced as .jpg format. Hard-copy photographs should be produced as color .jpg format files, if originally in color, or black-and-white .tif files if originally in black-and-white.

D. Shared Resources

Shared Resources should be produced as separate custodians if responsive custodians have access to them or if they contain responsive documents. The name of the group having access would be used as the custodian name, *i.e.* Marketing Execs or Accounting Dept. The Company will separately provide a brief description of each shared resource that includes a list of the custodians who have access to that shared resource.

E. Database Productions

Production of enterprise databases are not addressed in these specifications and must be discussed with the appropriate government legal and technical staff to determine the optimal production format;

these will usually fall outside the scope of an image-based production. Care must be taken to ensure that all responsive databases and their metadata are preserved.

F. Audio/Video Data

These specifications do not address the production of audio/video data. Care must be taken to ensure that all responsive audio/video data and their metadata are preserved. These data types may be stored in audio or video recordings, voicemail text messaging, and related/similar technologies. However, such data, logs, metadata, or other files related thereto, as well as other less common but similar data types, should only be produced after consultation with and consent of Commission staff as to the format for the production of such data.

G. Foreign-Language Materials

Foreign language materials should be produced after consultation with Commission staff.

2. De-duplication

Before doing any de-duplication, provide Commission staff with a written description of the method used to de-duplicate (including which elements are compared and what hash codes are used), and what is considered a duplicate. Then confirm that your approach is acceptable to the Commission. The Commission does not allow de-duplication of hard-copy documents, or that of “loose” electronic documents (*e.g.*, presentation slides located on the custodian’s C: drive) against email attachment versions of those same documents. The integrity of any produced email and any related “document family” must be maintained except as limited by any claim of privilege. Email attachments may not be deduplicated against attachments in other email families. De-duplication should occur both vertically within each custodian and horizontally across custodians. Vertical de-duplication is crucial when a production includes electronic documents from back-up tapes. Horizontal de-duplication must be done in a way that preserves (and produces) information on blind copy (Bcc) recipients of emails and other custodians whose files contain the duplicates that will be eliminated from the production as well as original filepath and mailbox folder information.

Custodian Append File. A Custodian Append file is to be produced when de-duplicating ACROSS custodians (*i.e.*, horizontal de-duplication) and data is produced on a rolling basis. The file must be provided on an incremental basis starting with the second submission; as more custodians are discovered for previously produced documents, this file is updated with only the new custodian information. The Custodian Append File is a four-field delimited file consisting of the DOCIDs of the previously delivered document, the new custodian names, the Filepath(s) prepended with Custodian Name (multi-entry), and the FolderLabel(s) prepended with Custodian name (multi-entry) for the duplicates of those records that would otherwise have been produced in the subsequent (new) submissions.

These specifications do not allow for near de-duplication or email threading. These forms of de-duplication must be discussed separately with Commission staff and consent obtained prior to the use of such techniques for production.

3. Document Numbering

Documents must be uniquely and sequentially numbered across the entire production, with an

endorsement burned into each image. Each number shall be of a consistent length, include leading zeros in the number, and unique for each produced page. Numbers should contain no more than three segments connected by a hyphen. The leading segment must be the Company identifier, a middle segment identifying the custodian, and a sequential page counter with connecting hyphens (*e.g.*, ABCCO-CEO-0000001). The number of digits in the numeric portion of the format should not change in subsequent productions, nor should spaces, hyphens, or other separators be added or deleted. Under no circumstances should Identification numbers contain embedded spaces, slashes (/), backslashes (\), carats (^), underscores (_), ampersands (&), hash marks (#), plus signs (+), percent signs (%), dollar signs (\$), exclamation marks (!), pipes (|), any character used as a delimiter in the metadata load files, or any character not allowed in Windows file-naming convention (, \ / : * ? " < > | ~ @ ^).

4. Privilege Designations

Documents redacted pursuant to any claim of privilege will be designated “Redacted” in the EPROPERTIES field as described in the Metadata Table. Appropriately redacted searchable text (OCR of the redacted images is acceptable), metadata, and bibliographic information must also be provided.

All documents that are part of a document family that includes a document withheld pursuant to any claim of privilege will be designated “Family Member of Privileged Doc” in the EPROPERTIES field as described in the Metadata Fields table for all other documents in its family. Placeholder images with BEGDOC#, FILENAME, FILEPATH and reason withheld (*e.g.*, “Privileged”) should be provided in place of the document images of the privileged document.

5. Sample

Before beginning production, a sample production covering files of all types, including emails with attachments, loose files including spreadsheets and presentations, redacted documents, etc., should be provided, as directed by Commission staff. The sample size should be between 500 to 1000 records to be large enough to be representative and small enough to review quickly. The Commission will take a few business days to evaluate the sample and provide feedback. If there are any problems, corrected samples will need to be resubmitted until the Commission can confirm the problems are resolved.

6. Load File Set/Volume Configuration

Each production must have a unique MEDIAID name associated with it. This MEDIAID name must also appear on the physical label. The MEDIAID naming scheme should start with a 2 or 3 letter prefix identifying the Company followed by a 3-digit counter (*e.g.*, ABC001). Each separate volume delivered on that media must also have a separate VOLUMENAME associated with it. On the root of the media, the top level folder(s) must be named for the volume(s). VOLUMENAME(s) should also be indicated on the physical label of the media. The volume naming scheme should be based on the MEDIAID name followed by a hyphen, followed by a 3-digit counter (*e.g.*, ABC001-001). Load file volumes should be as large as practical but not contain more than 100,000 records each. The VOLUMENAME should increase sequentially across all productions on the same MEDIAID.

Under the VOLUMENAME folder, the production should be organized in 4 subfolders:

1. DOCLINK (contains linked native files, may contain subfolders, with no more than 5,000 files per folder)
2. IMAGES (may contain subfolders, with no more than 5,000 image files per folder)

3. FULLTEXT (may contain subfolders, with no more than 5,000 document-level text files per folder)
4. LOADFILES (should contain the metadata, DII, OPT, LST, and custodian append files)

7. Deliverables

A submission index spreadsheet must be delivered with each submission and should provide statistical information about the volume(s) and media produced. Provide this in hard copy format and electronically on the deliverable media. A sample is included in this PDF.

It is expected that all productions will conform to the structure of the final, approved sample production. Any changes to production procedures that alter output format will require prior submission of another sample production as outlined in section 5. Sample.

The Commission accepts electronic productions loaded onto hard drives, CD-ROMs, or DVD-ROMs; however, production on hard drives minimizes costs and delay and is preferable. Where the size of the production exceeds the capacity of a single DVD-ROM, hard drives should be used as the delivery medium. For each piece of media a unique identifier (MEDIAID) must be provided and must be physically visible *on the exterior* of the physical item.

If the media is encrypted, supply the tool for decryption on or with the same media, as well as instructions for decryption. Provide the password separately.

All documents produced in electronic format shall be scanned for, and free of, viruses. The Commission will return any infected media for replacement, which may affect the timing of the Company's compliance with this Information Request.

The Commission does not accept load file productions via email or those that are posted on download sites (*e.g.*, FTP, secure server).

The Commission recognizes that occasionally unforeseen issues will arise that require replacing documents or data from a previously delivered production with new documents or corrected data. Substantive corrections may require the reproduction of the entire production volume. The production format for all corrections must be agreed upon prior to any submission of corrections. Any productions that have been created but not delivered when the need for corrections is detected must be corrected prior to delivery. Each replacement or corrected production must be named based on the production volume that is being replaced or corrected. For example, if a corrected metadata file replaces data in the previously delivered volume ABC-001-001 then the file name ABC-001-001-fix.txt should be used. Replacement document image file names, likewise, must be labeled with the same Identification number as the image being replaced. A separate correcting file is required for each volume to be corrected. These replacement or corrected productions must be delivered on separate media from any new productions. In the event that corrections alter the statistical information previously reported in the cover letter spreadsheet, an updated submission index spreadsheet with the corrected final statistical information must accompany each replacement or corrected submission. Provide this in hard copy format and electronically on the deliverable media.

METADATA TABLE OF REQUESTED FIELDS

Review carefully as fields have been added or modified from the Commission's last set of specifications.

Field Name	Field Description	Field Type	Hard-Copy	Email	Other ESI	Calendar Items
COMPANIES	Company submitting data	Multi-Entry	X	X	X	X
MEDIAID	The unique identifier on the physical piece of media (e.g., ABC001)	Note Text	X	X	X	X
VOLUMENAME	Production volume number (e.g., ABC001-001)	Note Text	X	X	X	X
CUSTODIAN	Custodian(s) / source(s) -- format: <i>Last, First</i> or <i>ABC Dept.</i> Be consistent across all ESI sources/productions.	Multi-Entry	X	X	X	X
TIMEZONE	The TimeZone in which the custodian is located.	Note Text		X	X	X
SPEC#	Subpoena/request paragraph number to which the document is responsive	Multi-Entry	X	X	X	X
HASHMD5	Document MD5 hash value (used for deduplication or other processing)	Note Text		X	X	X
HASHSHA	Document SHA1 hash value (used for deduplication or other processing)	Note Text		X	X	X
SEARCHVALUES	List of search terms used to identify record as responsive (if used)	Multi-Entry	X	X	X	X
BEGDOC#	Start Identification number (including prefix) -- No spaces or special characters	Note Text	X	X	X	X
ENDDOC#	End Identification number (including prefix) -- No spaces or special characters	Note Text	X	X	X	X
DOCID	Must equal the value appearing in the BEGDOC# field and be UNIQUE	Note Text	X	X	X	X
NUMPAGES	Page count	Integer	X	X	X	X
PARENTID	Parent record's BEGDOC#, including prefix (populated ONLY in child records)	Note Text	X	X	X	X
ATTACHMENTIDS	Child document list: BEGDOC# of each child (populated ONLY in parent records)	Multi-Entry	X	X	X	X
FAMILYRANGE	Range of the BEGDOC# value of the parent record to the ENDDOC# value (including prefix) of the last child record (for example, ABC-JD-00001201 - ABC-JD-00001220); populated for all documents in the group. Empty if the record is NOT in family grouping	Note Text	X	X	X	X
EPROPERTIES	Indicate all that apply : Record Type: E-Doc, E-Doc Attachment, Email, Email Attachment, Hard Copy, Calendar Appt Other Notations: Translation of [DOCID of original], Translated as [DOCID of Translation] Privilege Notations: Redacted, Privileged, Family Member of Priv Doc	Multi-Entry	X	X	X	X
FOLDERLABEL	Email folder path (sample: Smith,James-Inbox\Active); or Hard Copy folder/binder title/label prepended with Custodian Name.	Multi-Entry	X	X		X
FROM	Author of the Email or Calendar item (as formatted on the original)	Note Text		X		X
TO	Recipients of the Email or Calendar Item (as formatted on the original)	Multi-Entry		X		X
CC	Names of the individuals who were copied on the Email or Calendar Item (as formatted on the original)	Multi-Entry		X		X
BCC	Names of the individuals who were blind-copied on the Email or Calendar Item (as formatted on the original)	Multi-Entry		X		X
SUBJECT	Email or calendar subject	Note Text		X		X
DATE_HC	Date of hard copy documents, if coded. Format: YYYYMMDD.	Date	X			
DOCDATE	This is a multipurpose date field. Populate with: DATESAVED for E-Docs; DATESENT for Emails; DATEAPPTSTART for calendar appointments; DATE_HC for hard copy documents, if available. Format: YYYYMMDD.	Date	X	X	X	X
DATECREATED	Date electronic file was created. Format: YYYYMMDD.	Date			X	
DATESENT	Date the Email or Calendar Item was sent. Format: YYYYMMDD.	Date		X		X
TIMESENT	Time Email or Calendar Item was sent -- Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; timezone indicators cannot be included)	Time		X		X
DATERECEIVED	Date Email or Calendar Item was received. Format: YYYYMMDD.	Date		X		X
TIMERECEIVED	Time Email or Calendar Item was received. Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; timezone indicators cannot be included)	Time		X		X
HEADER	The internet header information for Email sent through the internet;	Note Text		X		
INTERNETMSGID	Globally unique identifier for a message which typically includes messageid and a domain name. Example: <0E6648D558F338179524D555@m1p.innovy.net	Note Text		X		X

MESSAGEID	Unique system identification number for the e-mail message assigned by the proprietary email database/mailstore/post office file associated with centrally managed enterprise email servers. EntryID for Microsoft Outlook, the UniqueID (UNID) for Lotus Notes, or equivalent value for other proprietary mailstore formats.	Note Text		X		X
INREPLYTOID	Internet message ID of the Email replied to	Note Text		X		
CONVERSATIONINDEX	Email Thread Identification	Note Text		X		X
IMPORTANCE	Email flag indicating priority level set for message	Note Text		X		X
DELIVRECEIPT	Delivery receipt request notification for Email messages	Note Text		X		X

An “X” indicates that the field should be populated in the load file produced. “Other ESI” includes non-email files, such as, but not limited to MS Office files, WordPerfect files, etc.

