



Market Manual 2: Market Administration

**Part 2.5: Maintaining
Surveillance Data and
Amending the Data
Catalogue**

Issue 7.0

This procedure provides *market participants* with information for providing market surveillance data to the *IMO*, requesting market surveillance data from the *IMO*, and submitting amendments to the Market Surveillance Data Catalogue.

Disclaimer

The posting of documents on this Web site is done for the convenience of *market participants* and other interested visitors to the *IMO* Web site. Please be advised that, while the *IMO* attempts to have all posted documents conform to the original, changes can result from the original, including changes resulting from the programs used to format the documents for posting on the Web site as well as from the programs used by the viewer to download and read the documents. The *IMO* makes no representation or warranty, express or implied, that the documents on this Web site are exact reproductions of the original documents listed. In addition, the documents and information posted on this Web site are subject to change. The *IMO* may revise, withdraw or make final these materials at any time at its sole discretion without further notice. It is solely your responsibility to ensure that you are using up-to-date documents and information.

This *market manual* may contain a summary of a particular *market rule*. Where provided, the summary has been used because of the length of the *market rule* itself. The reader should be aware, however, that where a *market rule* is applicable, the obligation that needs to be met is as stated in the "Market Rules". To the extent of any discrepancy or inconsistency between the provisions of a particular *market rule* and the summary, the provision of the *market rule* shall govern.

Document ID	MDP_PRO_0021
Document Name	Part 2.5: Maintaining Surveillance Data and Amending the Data Catalogue
Issue	Issue 7.0
Reason for Issue	Issue released containing Catalogue of Market Monitoring Indices (Appendix C)
Effective Date	September 25, 2002

Document Change History

Issue	Reason for Issue	Date
1.0	Unapproved version released for Baseline 3	June 19, 2000
2.0	Unapproved version released for Baseline 4	October 4, 2000
3.0	Unapproved version released for Baseline 6.1	March 26, 2001
4.0	Issue released for Baseline 6.2	May 22, 2001
5.0	Issue released containing finalized Market Surveillance Data Catalogue (Appendix B)	February 8, 2002
6.0	Issue released containing revised Market Surveillance Data Catalogue (Appendix B)	March 15, 2002
7.0	Issue released containing Catalogue of Market Monitoring Indices (Appendix C)	September 25, 2002

Related Documents

Document ID	Document Title
IMO_POL_0049	Market Surveillance Confidentiality Policy
MDP_PRO_0023	Market Manual 2: Part 2.7: Treatment of Market Surveillance Issues

Table of Contents

Table of Contents	i
List of Figures	iii
List of Tables	iv
Table of Changes	v
Market Manuals	1
Market Procedures	1
1. Introduction	3
1.1 Purpose	3
1.2 Scope	3
1.3 Overview	3
1.3.1 Market Monitoring at the IMO	3
1.3.2 The Surveillance Database	4
1.4 Roles and Responsibilities	5
1.5 Contact Information	5
2. Procedural Work Flow	7
2.1 Updating Surveillance Data in the Surveillance Database	7
2.2 Requesting Surveillance Data from the IMO	10
2.3 Amending the Market Surveillance Data Catalogue	11
2.4 Publishing the Catalogue of Monitoring Indices	14
3. Procedural Steps	15
3.1 Updating Surveillance Data in the Surveillance Database	16
3.2 Requesting Surveillance Data from the IMO	24
3.3 Amending the Market Surveillance Data Catalogue	29
3.4 Publishing the Catalogue of Monitoring Indices	35
Appendix A: Forms	A-1
Appendix B: Market Surveillance Data Catalogue	B-1
Appendix C: Catalogue of Market Monitoring Indices	C-1

References **1**

Archive

List of Figures

Figure 2–1: Work Flow for Updating Surveillance Data.....	8
Figure 2–1: Work Flow for Updating Surveillance Data (continued)	9
Figure 2–2: Work Flow for Requesting Surveillance Data from the <i>IMO</i>	11
Figure 2–3: Work Flow for Submitting Proposed Amendments to the Market Surveillance Data Catalogue	12
Figure 2–3: Work Flow for Submitting Proposed Amendments to the Market Surveillance Data Catalogue (continued).....	13
Figure 2-4 Work Flow for Publishing the Catalogue of Monitoring Indices.....	14

List of Tables

Table 2–1: Legend for Work Flow Diagrams	7
Table 3–1: Procedural Steps for Updating Surveillance Data	16
Table 3–2: Procedural Steps for Requesting Surveillance Data from the <i>IMO</i>	24
Table 3–3: Procedural Steps for Amending the Market Surveillance Data Catalogue	29
Table 3–4: Procedural Steps for Publishing the Catalogue of Monitoring Indices	35
Table C- 1: Key to Acronyms	C-4

Archived

Table of Changes

Reference (Paragraph and Section)	Description of Change
Appendix A	Addition of Form 1325
Appendix C	Addition of Catalogue of Market Monitoring Indices and Key to Acronyms

Archiv

Market Manuals

The *market manuals* consolidate the market procedures and associated forms, standards, and policies that define certain elements relating to the operation of the *IMO-administered markets*. Market procedures provide more detailed descriptions of the requirements for various activities than is specified in the *Market Rules*. Where there is a discrepancy between the requirements in a document within a *market manuals* and the *Market Rules*, the *Market Rules* shall prevail. Standards and policies appended to, or referenced in, these procedures provide a supporting framework.

Market Procedures

The “Market Administration Manual” is Volume 2 of the *market manuals*, where this document forms “Part 2.5, Maintaining Surveillance Data and Amending the Data Catalogue”.

A list of the other component parts of the “Market Administration Manual” is provided in “Part 2.0: Market Administration Overview”, in Section 2, “About This Manual”.

Structure of Market Procedures

Each market procedure is composed of the following sections:

1. **Introduction**, which contains general information about the procedure, including an overview, a description of the purpose and scope of the procedure, and information about roles and responsibilities of the parties involved in the procedure.
2. **Procedural Work Flow**, which contains a graphical representation of the steps and flow of information within the procedure.
3. **Procedural Steps**, which contains a table that describes each step and provides other details related to each step.
4. **Appendices**, which may include such items as standards, policies, agreements, and list of forms.

Conventions

The market manual standard conventions are defined in the Market Manual Overview document.

– End of Section –

Archive

1. Introduction

1.1 Purpose

This document provides *market participants* with procedures for:

- submitting surveillance data and information to the *IMO* on a routine or as-requested basis;
- requesting non-confidential, unpublished surveillance data and related information from the *IMO*;
- submitting proposed amendments to the “Market Surveillance Data Catalogue”;
- commenting on proposed data catalogue amendments; and
- commenting on the “Catalogue of Monitoring Indices”, if *published*.

1.2 Scope

This procedure is intended to provide *market participants* with a summary of the steps and interfaces between *market participants*, the *IMO*, and other parties for maintaining surveillance data and updating the “Market Surveillance Data Catalogue”. Work flows and procedural steps described in this document will serve as a roadmap for *market participants* and the *IMO*, and reflect the requirements set out in the “Market Rules” and applicable *IMO* policies and standards. The overview information in Section 1.3, below, is provided for context purposes only, highlighting the main actions that comprise the procedure as illustrated in Section 2 and described in Section 3.

1.3 Overview

IMO-administered markets must be monitored to protect both the markets and *market participants* from improper or inappropriate behavior on the part of other *market participants*, structural and market design inefficiencies, and inefficiencies in the “Market Rules”.

1.3.1 Market Monitoring at the IMO

The *market surveillance panel* of the *IMO* is charged with overseeing activity within the *IMO-administered markets*, and has the ultimate responsibility for market surveillance and monitoring. The *market surveillance panel* comprises three persons, including a Chair. Members of the *market surveillance panel* may not have any material interest in a *market participant* and may not be directors, officers, or employees of the *IMO* or a *market participant*.

In addition to its monitoring activities, the *market surveillance panel* has the authority to conduct investigations into the conduct of any *market participant* or into any activity related to the *IMO*-

administered markets. The *market surveillance panel* may initiate investigations on its own initiative, or as a result of a matter being brought to its attention by way of a referral or complaint from any source. This may include a report from the *market assessment unit*, a third party request for an investigation or a complaint, a request for an investigation from the Chair of the *IMO Board of Directors*. (See *Market Manual 2: Market Administration, Part 2.7: Treatment of Market Surveillance Issues* for further information on investigations.)

The day-to-day monitoring, analysis, and evaluation of the markets are the responsibility of the *market assessment unit*. The *market assessment unit* is composed of *IMO* full-time staff. Each *market assessment unit* member has pertinent professional training or experience in either the operation of similar markets in the electric power industry, or in the field of competition law, economics, and policy. In general, the *market assessment unit* reports to and is under the management and administration of the CEO of the *IMO*. The *market assessment unit* also reports to and takes direction from the Chair of the *market surveillance panel*.

1.3.2 The Surveillance Database

In order to monitor the activities of the *IMO-administered markets* the *market surveillance panel* and the *market assessment unit* will maintain a Surveillance Database. While most of the data resident in this database are collected from *IMO* internal sources, other data must be collected directly from *market participants*. Therefore, data collected directly from *market participants* will comprise the data catalogue. The data catalogue is maintained by the *market assessment unit* under the supervision and direction of the *market surveillance panel*, and is adopted by the *market surveillance panel* (“Market Rules”, Chapter 3, Section 3.3.2.1). The list of categories of data will be published by the *IMO* as the data catalogue. Notice of the publication of the Data Catalogue is provided to *market participants*, who are required by the *Market Rules* to submit the data described in the “Market Surveillance Data Catalogue”. The Market Surveillance Data Catalogue is contained as Appendix B.

The *market assessment unit*, under the supervision and direction of the *market surveillance panel*, will develop a catalogue of the monitoring indices that it will use to evaluate and analyze the data so acquired (“Market Rules”, Chapter 3, Section 3.3.2.2).

The catalogue of monitoring indices will be *published* by the *IMO* and notice thereof was given to *market participants* for comment prior to its adoption, subject to the *independent directors’* right to vote against publication. The Catalogue of Market Monitoring Indices has been published and is contained as Appendix C (“Market Rules”, Chapter 3, Section 3.3.4).

The *market surveillance panel* retains the sole discretion to adopt the catalogues referred to above, notwithstanding any comments received in opposition thereto (“Market Rules”, Chapter 3, Section 3.3.5).

Market participant responsibility in the market monitoring process consists of providing all data required by the “Market Surveillance Data Catalogue”, any data or information requested for investigative purposes, or any additional data requirements of the *market surveillance panel* or the *market assessment unit*. Submittal of data to the *IMO* for surveillance monitoring is illustrated in Figure 2–1 and described in Table 3–1.

Market participants may request non-published and non-confidential surveillance monitoring data as illustrated in Figure 2–2 and described in Table 3–2.

Market participants may submit proposals to *amend* the “Market Surveillance Data Catalogue”, as illustrated in Figure 2–3 and described in Table 3–3.

Market participants may also submit comments on and proposals to amend the “Catalogue of Monitoring Indices”, if the *independent directors* decide to *publish* the catalogue. The steps illustrated in Figure 2–4 are described in detail in Table 3–4.

1.4 Roles and Responsibilities

Responsibility for carrying out the procedures for managing market surveillance data and requesting amendments to the “Market Surveillance Data Catalogue” is shared among:

- ***Market participants***, who are responsible for:
 - submitting surveillance data to the *IMO* on a routine basis to comprise the Data Catalogue;
 - submitting surveillance data to the *IMO* on an as-requested basis;
 - requesting non-confidential and unpublished surveillance data as required from the *IMO*; and
 - submitting proposed amendments to the “Market Surveillance Data Catalogue”.
- The ***market surveillance panel*** (and its *market assessment unit*) which is responsible for:
 - publishing the Market Surveillance Data Catalogue;
 - collecting market surveillance data and information;
 - processing requests from *market participants* for surveillance data and information; and
 - considering proposed amendments to the “Market Surveillance Data Catalogue”.

1.5 Contact Information

As part of the participant authorization and registration process, applicants are able to identify a range of contacts within their organization that address specific areas of market operations. For maintaining and amending the surveillance data catalogue, this contact will most likely be the Market Surveillance Market Contact Type as indicated in PLC (MP Contacts screen). If a *market participant* has not identified a specific contact, the *IMO* will seek to contact the Main Contact in PLC that is established during the participant authorization process. The *IMO* will seek to contact these individuals within this procedure, unless alternative arrangements have been established between the *IMO* and the *Market Participant*. For more information on PLC and the participant authorization process see "Market Entry, Maintenance and Exit, Part 1.1 – Participant Authorization Maintenance and Exit".

If the *market participant* wishes to contact the *IMO*, the *market participant* can contact the *IMO* Help Centre via email at helpcentre@theimo.com or via telephone, mail or courier to the numbers and addresses given on the *IMO*'s Web site (www.theimo.com - or click on 'Have a question?' to go to the 'Contacting the *IMO*' page). If the *IMO* Help Centre is closed, telephone messages or emails may be

left in relevant voice or electronic *IMO* mail boxes, which will be answered as soon as possible by Help Centre staff.

Standard forms that participants must complete for this procedure are listed in Appendix A. These forms are generally available for downloading on the *IMO*'s public Web site. These forms as well as the accompanying supporting documentation must be transmitted to the *IMO* via mail, fax or courier, by using the appropriate address or number provided on the *IMO*'s public Web site or on the form. All correspondence relating to this procedure shall identify the **subject: Market Surveillance Data Catalogue**. Documentation where it is not a requirement to be mailed or couriered, can also be emailed to MACD@theimo.com.

– End of Section –

Archive

2. Procedural Work Flow

The diagrams in this section represent the flow of work and information related to maintaining surveillance data and amending the data catalogue between the *IMO*, the *market participant* involved in the procedure, and any other parties.

Table 2–1: Legend for Work Flow Diagrams

Legend	Description
Oval	An event that triggers task or that completes task. Trigger events and completion events are numbered sequentially within procedure (01 to 99).
Task Box	Shows reference number, party responsible for performing task (if “other party”), and task name or brief summary of task. Reference number (e.g., 1A.02) indicates procedure number within current <i>market manual</i> (1), sub-procedure identifier (if applicable) (A), and task number (02).
Solid horizontal line	Shows information flow between the <i>IMO</i> and external parties.
Solid vertical line	Shows linkage between tasks.
Broken line	Links trigger events and completion events preceding or succeeding task.

2.1 Updating Surveillance Data in the Surveillance Database

Daily, the *IMO*¹ polls internal systems for resident data required for the surveillance database. Although the majority of the required data and information are resident in the various *IMO* systems, the *IMO* requires *market participants*' data to comprise the data catalogue and may request additional data from *market participants* in order to complete assessments, reporting, or investigations required. Once the surveillance database has been updated the monitoring indices are produced, the *IMO* updates surveillance models, determines indicators, performs a market assessment, and determines courses of action.

The steps illustrated in Figure 2–1 are described in detail in Section 3.1.

¹ References to the *IMO* in this section refer to the *market assessment unit* that is established to support the *market surveillance panel*.

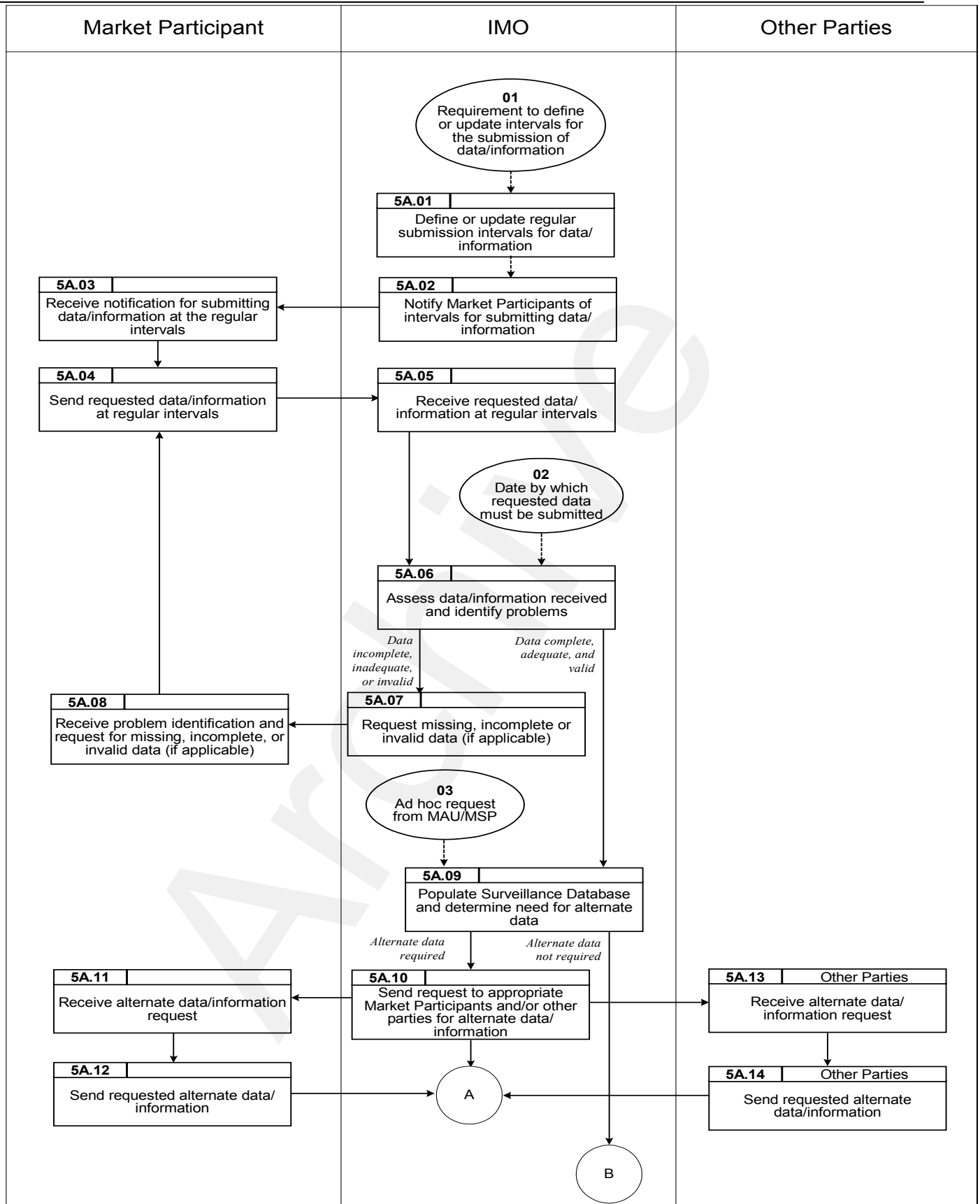


Figure 2-1: Work Flow for Updating Surveillance Data

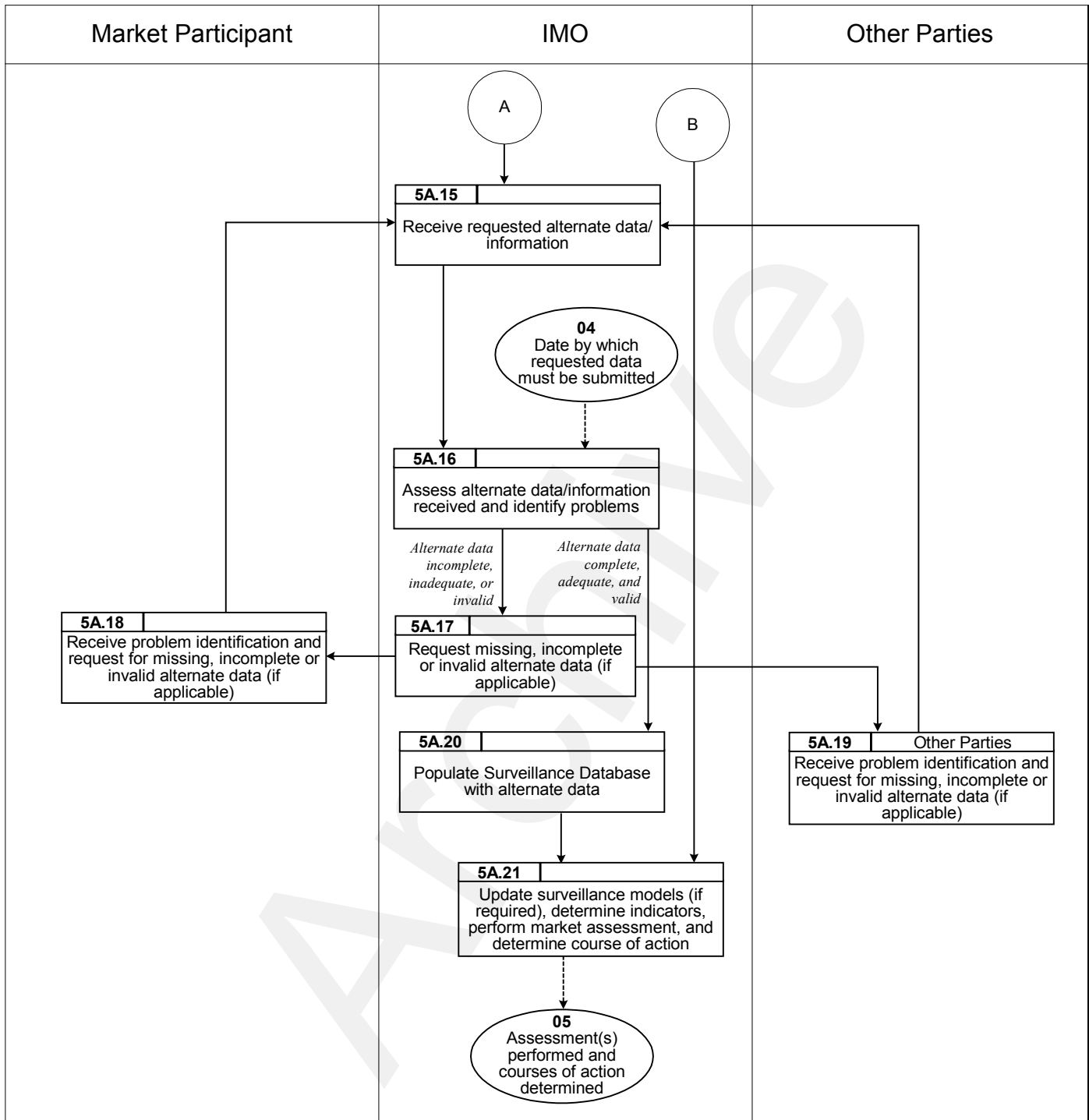


Figure 2–1: Work Flow for Updating Surveillance Data (continued)

2.2 Requesting Surveillance Data from the IMO

Occasionally, a *market participant* may require surveillance data from the *IMO*. The “Market Rules” allow *market participant* to request that the *market assessment unit* provide non-confidential data collected or created for the purpose of market monitoring activities, and that are not otherwise required to be published by the *IMO*. Such requests must be transmitted to the *market assessment unit* or the *market surveillance panel* for consideration and *response*. The steps illustrated in Figure 2–2 are described in detail in Section 3.2.

Archive

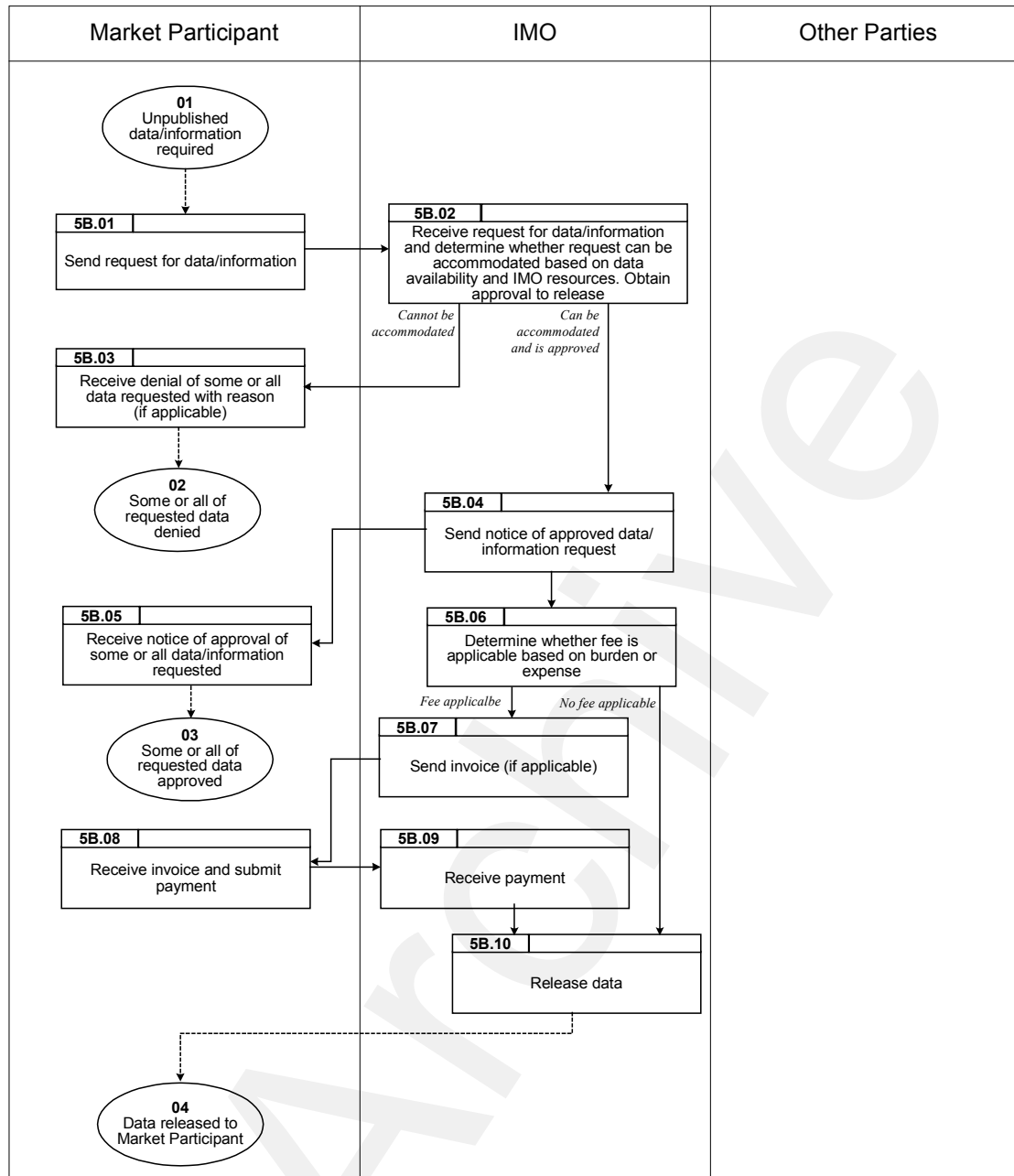


Figure 2–2: Work Flow for Requesting Surveillance Data from the IMO

2.3 Amending the Market Surveillance Data Catalogue

Market participants may submit proposals to amend the “Market Surveillance Data Catalogue”.

The steps illustrated in Figure 2–3 are described in detail in Section 3.3.

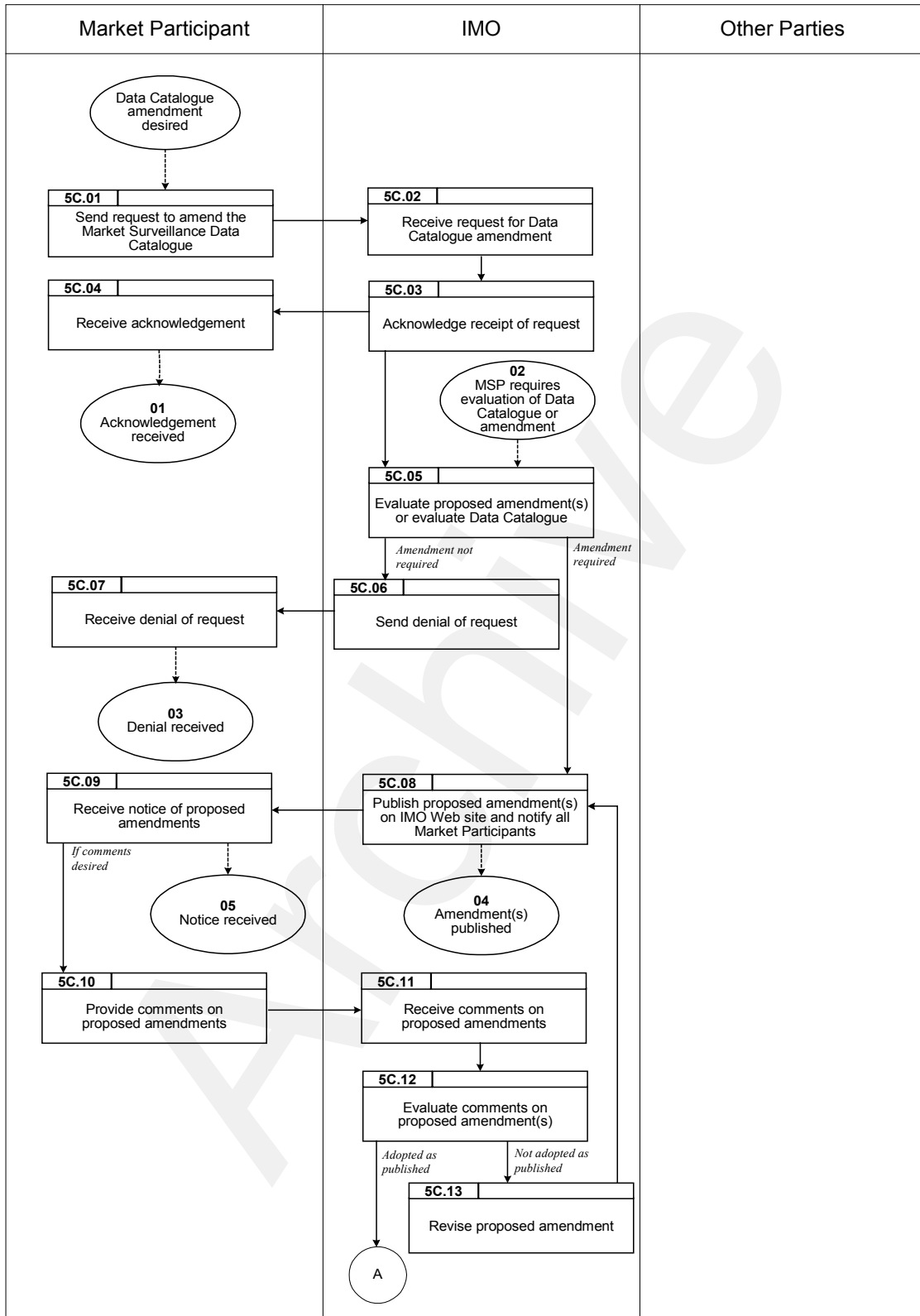


Figure 2–3: Work Flow for Submitting Proposed Amendments to the Market Surveillance Data Catalogue

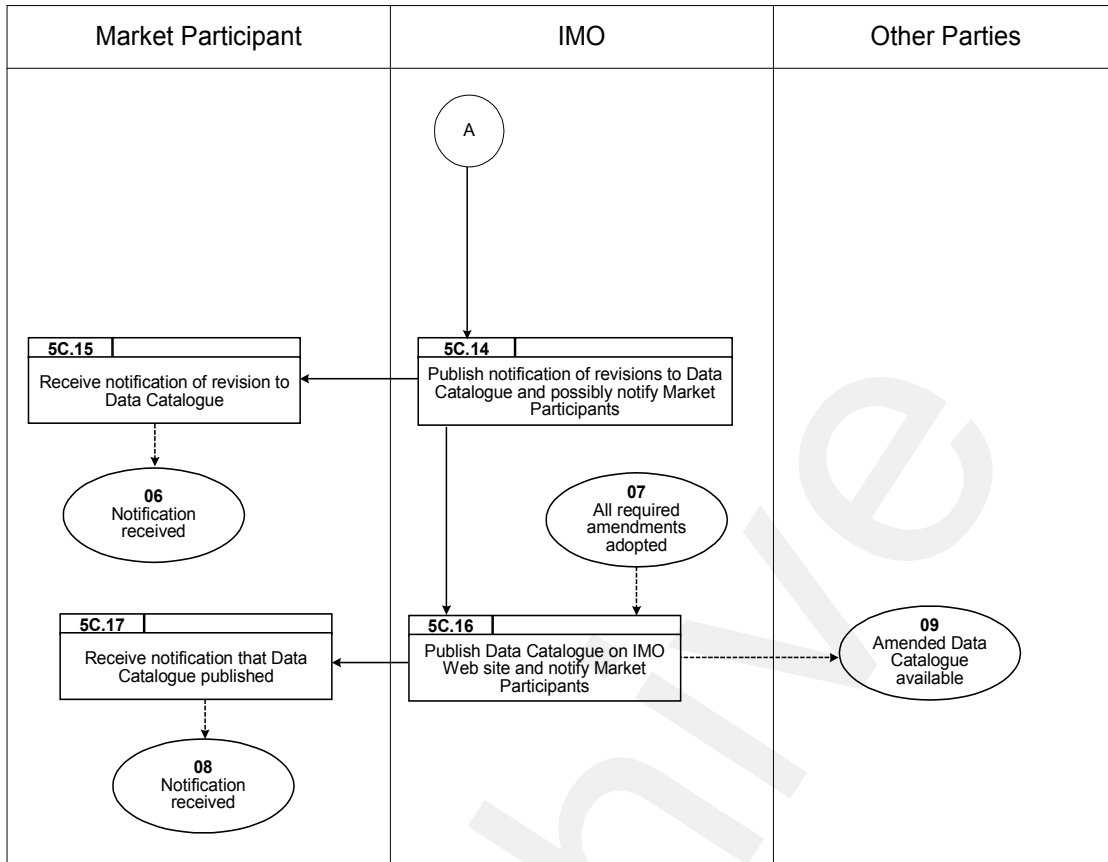


Figure 2–3: Work Flow for Submitting Proposed Amendments to the Market Surveillance Data Catalogue (continued)

2.4 Publishing the Catalogue of Monitoring Indices

Market participants may submit comments on the “Catalogue of Monitoring Indices”, if the independent directors decide to publish the catalogue. The steps illustrated in Figure 2–4 are described in detail in Section 3.4.

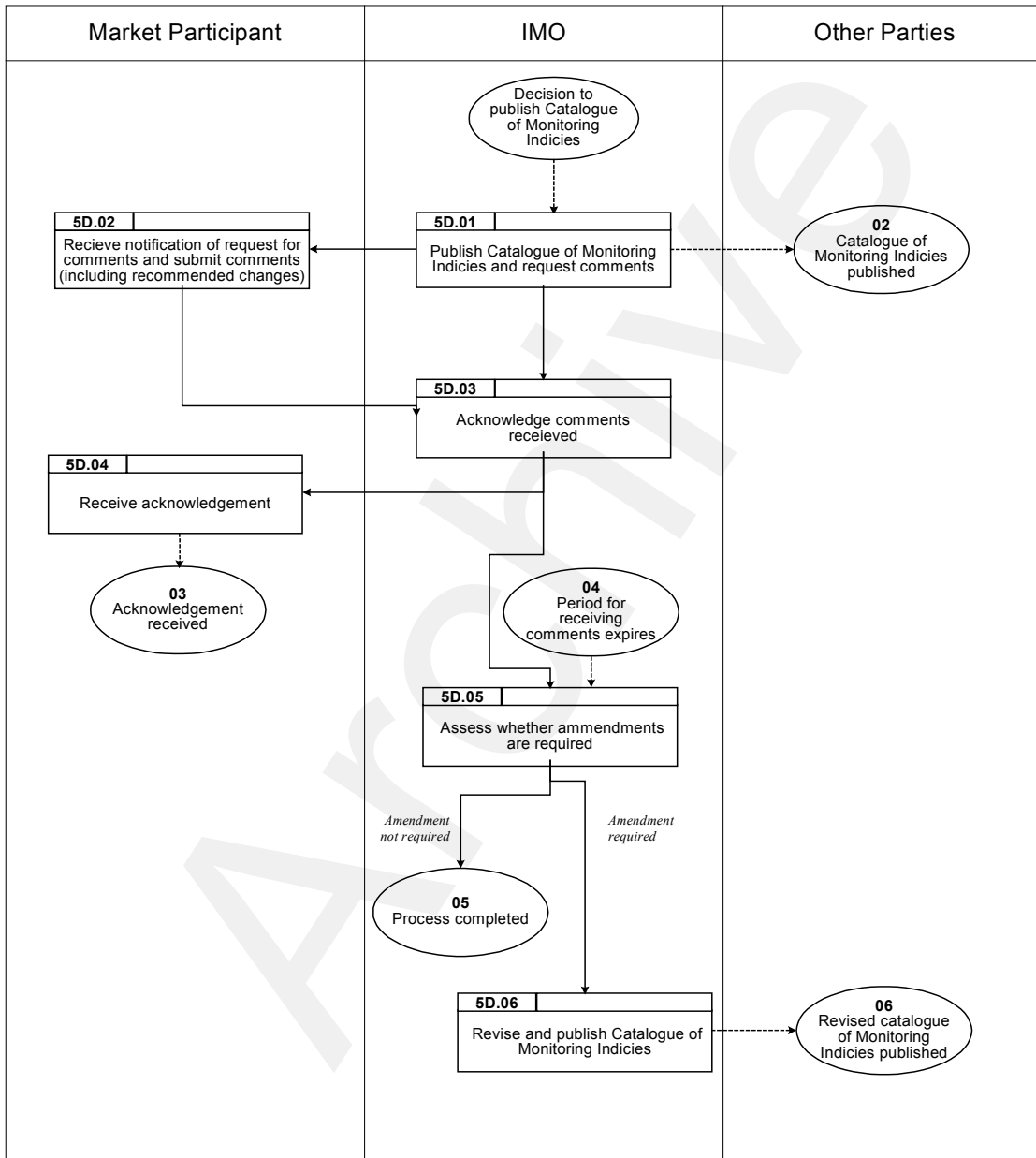


Figure 2-4 Work Flow for Publishing the Catalogue of Monitoring Indices

– End of Section –

3. Procedural Steps

This section contains detail on the tasks (steps) that comprise the procedures. Each table contains seven columns, as follows:

Ref

The numerical reference to the task.

Task Name

The task name as identified in Section 2.

Task Detail

Detail about the task.

When

A list of all the events that can trigger commencement of the task.

Resulting Information

A list of the information flows that may or must result from the task.

Method

The format and method for each information flow are specified.

Completion Events

A list of all the circumstances in which the task should be deemed finished.

3.1 Updating Surveillance Data in the Surveillance Database

Daily, the *IMO*² updates the surveillance database and may request additional and alternate data from *market participants*. Once the surveillance database has been updated, the *IMO* updates surveillance models, determines indicators, performs a market assessment, and determines courses of action.

The steps in the following table are illustrated in Section 2, Figure 2–1.

Table 3–1: Procedural Steps for Updating Surveillance Data

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5A.01	Define or update regular submission intervals for data/information	The <i>IMO</i> defines or updates the data/information and its submission intervals	When required for the data catalogue.	Submission intervals	None	Set the data/information submission intervals.
5A.02	Notify <i>market participants</i> of intervals for submitting data/information.	The <i>IMO</i> notifies the <i>market participants</i> of intervals for data/information not resident in the <i>IMO</i> systems by publishing on <i>IMO</i> Web site.	Following Step 5A.01.	Non-resident surveillance data request at the specified interval.	Publication on <i>IMO</i> Web site.	Notify <i>market participants</i> of the data/information submission intervals and its submission form.

² References to the *IMO* in this section refer to the *market assessment unit* that is established to support the *market surveillance panel* .

Table 3–1: Procedural Steps for Updating Surveillance Data

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5A.03	Receive notification for submitting data/information at the regular intervals.	The <i>market participant</i> receives the notification for data/information and its submission from the <i>IMO</i> .	Following Step 5A.02.	None	None	Received notification for submitting data/information and the submission form by the <i>market participant</i> .
5A.04	Send requested data/information at regular intervals.	<i>Market participant</i> sends requested information to the <i>IMO</i> . See Appendix A for the appropriate “Data Catalogue Submission Form”.	Following Step 5A.03 and 5A.08.	Non-resident surveillance data as specified in <i>published</i> Market Surveillance Data Catalogue or as specified in “IMO Request for Surveillance Data/Information Form”.	Completed “Data Catalogue Submission Forms” should be submitted via electronic file on a floppy disk or CD delivered in an envelope marked “highly confidential” addressed to the Market Assessment Unit, <i>IMO</i> .	Requested data sent by the <i>market participant</i> .
5A.05	Receive and log requested data/information.	The <i>IMO</i> receives and logs the requested data/information from the <i>market participant</i> .	Following Step 5A.04	None	None	Requested data received by the <i>IMO</i> .

Table 3–1: Procedural Steps for Updating Surveillance Data

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5A.06	Assess data/information received and identify problems.	The <i>IMO</i> evaluates data for completeness, including the inclusion of mandatory data, reasonability, formats, etc., and identifies any problems with the data.	Following Step 5A.05.	None	None	Data received, assessed, and problems identified. Data tagged as: complete, adequate, and valid; otherwise tagged as incomplete, inadequate, or invalid.
5A.07	Request missing, incomplete, or invalid data (if applicable).	The <i>IMO</i> requests the <i>market participant</i> to correct and resubmit the data/information or provide missing data.	Following Step 5A.06.	Request for correction or provision of missing data. As specified in form “IMO Request for Surveillance Data/Information”.	Electronically via an e-mail submission form; hard copy in certain cases.	Request for correction and/or provision of missing data sent to the <i>market participant</i> . See form “IMO Request for Surveillance Data/Information Form”.
5A.08	Receive problem identification and request for missing, incomplete, or invalid data (if applicable).	The <i>market participant</i> receives the problem identification and the request to correct and resubmit data/information or to provide missing data.	Following Step 5A.07.	None	None	Problem identification and request for correction or provision of missing data received by the <i>market participant</i> .

Table 3–1: Procedural Steps for Updating Surveillance Data

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5A.09	Populate Surveillance Database and determine need for alternate data.	The <i>IMO</i> populates the Surveillance Database and determines whether alternate data are required from <i>market participants</i> .	Following Step 5A.06, when required for an assessment, reporting, or an investigation as determined by the <i>market assessment unit</i> or <i>market surveillance panel</i> .	None	None	Complete, adequate, and validated data in Surveillance Database updated and alternate data needs determined.
5A.10	Send request to appropriate <i>market participants</i> and/or other parties for alternate data/information.	The <i>IMO</i> requests alternate historical and current data from <i>market participants</i> and/or other parties that are not part of the <i>Market Surveillance Data Catalogue</i> . Alternate data may include any data required by the <i>market assessment unit</i> or the <i>market surveillance panel</i> for an assessment (for either the production of a report or an investigation).	Following Step 5A.09, if alternate data are required.	Request for alternate data. As specified in form “IMO Request for Surveillance Data/Information”.	Electronically via an e-mail submission form; hard copy in certain cases.	Request for alternate data sent to the <i>market participant</i> and/or other parties.

Table 3–1: Procedural Steps for Updating Surveillance Data

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5A.11	Receive alternate data/information request.	The <i>market participant</i> receives the request for alternate historical and current data/information from the <i>IMO</i> .	Following Step 5A.10.	None	None	Request for alternate data received from the <i>IMO</i> .
5A.12	Send requested alternate data/information.	The <i>market participant</i> sends the requested alternate data/information.	Following Step 5A.11.	Requested alternate data.	Completed “Data Catalogue Submission Forms” should be submitted via electronic file on a floppy disk or CD delivered in an envelope marked “highly confidential” addressed to the Market Assessment Unit, <i>IMO</i> .	Requested alternate data sent by <i>market participants</i> to the <i>IMO</i> .
5A.13	Receive alternate data/information request.	Other parties as appropriate receive the request for alternate historical and current data/information from the <i>IMO</i> .	Following Step 5A.10.	None	None	Request for alternate data received from the <i>IMO</i> .

Table 3–1: Procedural Steps for Updating Surveillance Data

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5A.14	Send requested alternate data/information.	The other parties send the requested alternate data/information.	Following Step 5A.13.	Requested alternate data	Completed “Data Catalogue Submission Forms” should be submitted via electronic file on a floppy disk or CD delivered in an envelope marked “highly confidential” addressed to the Market Assessment Unit, <i>IMO</i> .	Requested alternate data sent by other parties to the <i>IMO</i> .
5A.15	Receive requested alternate data/information.	The <i>IMO</i> receives all requested alternate data from <i>market participant</i> and other parties.	Following Steps 5A.10, 5A.12, 5A.14, 5A.18, and 5A.19.	None	None	Requested alternate data received from <i>market participant</i> and other parties by the <i>IMO</i> .
5A.16	Assess alternate data/information received and identify problems.	The <i>IMO</i> evaluates data for completeness, including inclusion of mandatory data, reasonability, formats, etc., and identifies problems with the alternate data.	Following Step 5A.15.	None	None	Alternate data received, assessed, and problems identified. Alternate data tagged as: complete, adequate, and valid; otherwise tagged as incomplete, inadequate, or invalid.

Table 3–1: Procedural Steps for Updating Surveillance Data

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5A.17	Request missing, incomplete, or invalid alternate data (if applicable).	The <i>IMO</i> requests that the <i>market participants</i> and/or other parties correct and resubmit alternate data/information or provide missing alternate data.	Following Step 5A.16.	Request for correction or provision of missing alternate data/information. As specified in form “IMO Request for Surveillance Data/Information”.	Electronically via an e-mail form; hard copy in certain cases.	Request for correction and/or provision of missing alternate data sent to <i>market participants</i> and/or other parties.
5A.18	Receive problem identification and request for missing, incomplete, or invalid alternate data (if applicable) and send data.	The <i>market participant</i> receives the problem identification and request to correct and resubmit alternate data/information or to provide missing alternate data.	Following Step 5A.17.	Provision of missing data, as requested. As specified in form “IMO Request for Surveillance Data/Information”.	Electronically via an e-mail form; hard copy in certain cases.	Problem identification and request for correction or provision of missing alternate data received by the <i>market participant</i> .
5A.19	Receive problem identification and request for missing, incomplete, or invalid alternate data (if applicable) and send data.	Other parties as appropriate receive the problem identification and request to correct and resubmit alternate data/information or to provide missing alternate data.	Following Step 5A.17.	Provision of missing data, as requested. See form “IMO Request for Surveillance Data/Information”.	Electronically via an e-mail form; hard copy in certain cases.	Problem identification and request for correction or provision of missing alternate data received by other parties as appropriate.

Table 3–1: Procedural Steps for Updating Surveillance Data

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5A.20	Populate Surveillance Database with alternate data.	The <i>IMO</i> populates the Surveillance Database with alternate data received from <i>market participants</i> .	Following Step 5A.16, if alternate data are complete, adequate, and valid.	None	None	Surveillance Database updated with alternate data.
5A.21	Update surveillance models (if required); determine indicators; perform market assessment; and determine course of action.	Once the Surveillance Database has been updated with all requested data and alternate data, the <i>IMO</i> updates the surveillance models, determines indicators, performs a market assessment, and determines courses of action.	Daily, following database updates, as required, and following Step 5A.09, if alternate data are not required.	None	None	Required assessments made and courses of action determined.

3.2 Requesting Surveillance Data from the IMO

Market participants can request non-confidential data collected or created for the purpose of market monitoring activities that is not otherwise published by the *IMO*. Such requests must be transmitted to the *market assessment unit* for consideration and *response*.

The following table provides an overview of the steps for obtaining such data. The steps are illustrated in Section 2, Figure 2–2.

Table 3–2: Procedural Steps for Requesting Surveillance Data from the *IMO*

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5B.01	Send request for data/information.	A <i>market participant</i> submits a formal request for data or information to the <i>IMO</i> .	As required.	Request for data/information. See form: “Market Participant Request for Market Surveillance Data/Information”.	Electronically via an e-mail form, via hard copy in certain cases or via the <i>IMO</i> Help Centre.	Request for data/information sent by the <i>market participant</i> to the <i>IMO</i> .

Table 3–2: Procedural Steps for Requesting Surveillance Data from the *IMO*

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5B.02	Receive request for data/information and determine whether request can be accommodated based on data availability and <i>IMO</i> resources. Obtain approval to release.	<p>The <i>market assessment unit</i> receives the request for data or information from the <i>market participant</i>. The <i>market assessment unit</i> evaluates whether the request can be accommodated in whole or in part by determining the resource requirements required to provide the requested data, the data confidentiality, and the availability of the data/information.</p> <p>If all or part data/information is published, the request for that portion of the data is denied (refer to 5B.03).</p> <p>The Unit will seek <i>IMO</i> Chair for approval to release the data.</p>	Following Step 5B.01.	None	None	Request for data/information received by the <i>market assessment unit</i> and subsequent evaluation (to determine the <i>IMO</i> 's ability to accommodate the request in whole or in part) completed.

Table 3–2: Procedural Steps for Requesting Surveillance Data from the *IMO*

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5B.03	Receive denial of some or all data requested with reason (if applicable).	The <i>market participant</i> receives the <i>IMO</i> 's denial of all or part of the request.	Following Step 5B.02.	Full or partial Denial of Request. As set out in form "IMO Denial of Market Participant Request for Surveillance Data/Information".	Fax or mail	Denial of request received by the <i>market participant</i> .
5B.04	Send notice of approved data/information request.	The <i>IMO</i> sends an approval notice to the <i>market participant</i> for the portion of the requested data/information that has been approved for release.	Following Step 5B.02 if approved, and within five <i>business days</i> of receipt of request.	Notice of approved data/information. As set out in form "IMO Approval of Market Participant Request for Surveillance Data/Information".	Fax or mail	Notice sent to the <i>market participant</i> for the portion of the requested data/information approved for release.
5B.05	Receive notice of approval of some or all data/information requested.	The <i>market participant</i> receives the approval notice for the portion of the requested data/information that has been approved for release.	Following Step 5B.04.	None	None	Notice received by the <i>market participant</i> for the portion of the requested data/information that has been approved for release.

Table 3–2: Procedural Steps for Requesting Surveillance Data from the *IMO*

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5B.06	Determine whether fee is applicable based on burden or expense.	The <i>IMO</i> determines whether a fee is necessary when the request resulted in a significant resource burden or expense to the <i>IMO</i> . If a fee applies, the <i>IMO</i> calculates the fee.	Following Step 5B.04.	None	None	Determination of whether a fee applies, and if applicable, the amount of the fee.
5B.07	Send <i>invoice</i> (if applicable).	The <i>IMO</i> sends an <i>invoice</i> for processing the request, if applicable.	Following Step 5B.06, if applicable.	<i>Invoice</i> for the fee calculated in Step 5B.07.	<i>IMO invoice</i> process via <i>market participant</i> Interface.	<i>Invoice</i> sent to the <i>market participant</i> .
5B.08	Receive <i>invoice</i> and submit payment.	The <i>market participant</i> receives the <i>invoice</i> from the <i>IMO</i> for processing the request sends payment to the <i>IMO</i> for processing request (if applicable).	Following Step 5B.07.	Remittance	Electronic Funds Transfer, VISA, Cheque	Remittance for <i>invoice</i> sent by the <i>market participant</i> to the <i>IMO</i> .
5B.09	Receive payment.	The <i>IMO</i> receives payment for processing the data/information request from the <i>market participant</i> .	Following Step 5B.08, if applicable.	None	None	Payment received by the <i>IMO</i> .

Table 3–2: Procedural Steps for Requesting Surveillance Data from the *IMO*

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5B.10	Release data.	The <i>IMO</i> releases the approved data/information to the <i>market participant</i> .	Following Step 5B.06, (if no fee applicable) or Step 5B.09 (if fee applicable), and within 20 <i>business days</i> of receipt of request, where possible.	Requested and approved data.	Electronically via e-mail or in writing as appropriate.	Approved data released to the <i>market participant</i> .

3.3 Amending the Market Surveillance Data Catalogue

Market participants may submit proposals to *amend* the “Market Surveillance Data Catalogue”.

The steps in the following table are illustrated in Section 2, Figure 2–3.

Table 3–3: Procedural Steps for Amending the Market Surveillance Data Catalogue

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5C.01	Send request to <i>amend</i> the “Market Surveillance Data Catalogue”.	A <i>market participant</i> sends a request to the <i>IMO</i> for an amendment to the “Market Surveillance Data Catalogue”.	Upon determination by a <i>market participant</i> that an amendment is necessary.	Request for amendment and statement of proposed amendment. “Market Participant Request/Comments for Amendment to the Market Surveillance Data Catalogue”.	Electronically via an e-mail form, via hard copy in some cases or via the <i>IMO</i> Help Centre.	Request and proposed amendment sent to the <i>IMO</i> .
5C.02	Receive request for data catalogue amendment.	The <i>IMO</i> receives the request for an amendment to the “Market Surveillance Data Catalogue”.	Following Step 5C.01.	None	None	Request and proposed amendment received by the <i>IMO</i> .
5C.03	Acknowledge receipt of request.	The <i>IMO</i> sends an acknowledgement message to the <i>market participant</i> that the request was received.	Following Step 5C.02.	Acknowledgement of receipt.	Electronically via e-mail, if possible, or by letter.	Acknowledgement sent to the <i>market participant</i> .

Table 3–3: Procedural Steps for Amending the Market Surveillance Data Catalogue

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5C.04	Receive acknowledgement.	The <i>market participant</i> receives an acknowledgement of receipt from the <i>IMO</i> .	Following Step 5C.03.	None	None	Acknowledgement received by the <i>market participant</i> .
5C.05	Evaluate proposed amendment(s) or evaluate data catalogue.	The <i>market assessment unit</i> , the <i>market surveillance panel</i> , and the Chair of the <i>IMO Board of Directors</i> evaluate the proposed amendment and determine whether such an amendment is in order. The <i>market surveillance panel</i> may also direct the <i>market assessment unit</i> to perform an evaluation of the “Market Surveillance Data Catalogue”.	Following Step 5C.03, or as directed by the <i>market surveillance panel</i> .	None	None	Decision made to either <i>publish</i> an amendment to the “Market Surveillance Data Catalogue” or to take no action.
5C.06	Send denial of request.	The <i>IMO</i> sends a denial of the request for the data catalogue amendment to the <i>market participant</i> .	Following Step 5C.05, if it is determined that the amendment is not required.	Denial of request.	Mail	Denial of request sent.
5C.07	Receive denial of request.	The <i>market participant</i> receives the request denial.	Following Step 5C.06, if denied.	None	None	Denial of request received.

Table 3–3: Procedural Steps for Amending the Market Surveillance Data Catalogue

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5C.08	<i>Publish</i> proposed amendments on <i>IMO</i> Web site and notify all <i>market participants</i> .	The <i>IMO publishes</i> notice to <i>market participants</i> and the proposed amendments to the data catalogue on the <i>IMO</i> Web site for comment by <i>market participants</i> . The <i>IMO</i> may directly notify all <i>market participants</i> that the proposed amendment has been published at the discretion of the <i>market surveillance panel</i> and/or the <i>market assessment unit</i> Director.	Following Step 5C.05, if an amendment is in order, and following Step 5C.13.	Proposed amendments to the data catalogue and notice to <i>market participants</i> .	<i>IMO</i> public Web site for notice and publication. Electronic e-mail or letter of notification directly to <i>market participants</i> at the discretion of the <i>market surveillance panel</i> and/or the <i>market assessment unit</i> Director.	Notice of proposed amendments sent to <i>market participants</i> .
5C.09	Receive notice of proposed amendments.	<i>Market participants</i> receive notice that proposed amendments have been published for their review and comment.	Following Step 5C.08.	None	None	Notice of proposed amendments received by <i>market participants</i> .

Table 3–3: Procedural Steps for Amending the Market Surveillance Data Catalogue

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5C.10	Provide comments on proposed amendments, if desired.	<i>Market participants</i> review and provide comments on proposed amendments.	Following Step 5C.09.	Comments on proposed amendments. “Market Participant Request/Comments for Amendment to the Market Surveillance Data Catalogue Form”	Electronically via an e-mail form or by hardcopy in certain cases.	Comments from <i>market participants</i> on proposed Data Catalogue amendments sent to the <i>IMO</i> .
5C.11	Receive comments on proposed amendments.	The <i>IMO</i> receives comments from <i>market participants</i> on proposed amendments to the Data Catalogue.	Following Step 5C.10.	None	None	Comments on proposed data catalogue amendments received by the <i>IMO</i> .
5C.12	Evaluate comments on proposed amendments.	The <i>market surveillance panel</i> and the <i>market assessment unit</i> evaluate the proposed amendments and comments received and choose to adopt or revise the proposed amendment.	Following Step 5C.11.	None	None	Amendment adopted as published, or a requirement to revise the amendment identified.

Table 3–3: Procedural Steps for Amending the Market Surveillance Data Catalogue

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5C.13	Revise proposed amendment.	The <i>market surveillance panel</i> and <i>market assessment unit</i> revise the proposed amendment (if required) and republish it for comment by <i>market participants</i> .	Following Step 5C.12, if revisions required.	None	None	A revised proposal for amendments to the data catalogue is published on the <i>IMO</i> Web site.
5C.14	<i>Publish</i> notification of revisions to data catalogue and possibly notify <i>market participants</i> .	The <i>IMO</i> provides notification of revisions to the “Market Surveillance Data Catalogue” in the form of a press release on the <i>IMO</i> Web site. <i>Market participants</i> may be notified directly at the discretion of the <i>market surveillance panel</i> and the <i>Market Assessment Unit</i> Director.	Following Step 5C.12.	Notification of revision to the data catalogue posted on the <i>IMO</i> Web site, and direct notification (at the discretion of the <i>market surveillance panel</i> and <i>Market Assessment Unit</i> Director).	<i>IMO</i> public Web site for posting notification, and electronically via e-mail or in writing for direct notification of <i>market participants</i> .	Notification of revision to data catalogue posted on the <i>IMO</i> Web site and direct notification of revisions optionally provided to <i>market participants</i> .
5C.15	Receive notification of revision to data catalogue	<i>Market participants</i> receive notice (if sent) of revisions to “Market Surveillance Data Catalogue”.	Following Step 5C.14, if notification sent.	None	None	Notification of revisions received by <i>market participants</i> .

Table 3–3: Procedural Steps for Amending the Market Surveillance Data Catalogue

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5C.16	<i>Publish data catalogue on IMO Web site and notify market participants.</i>	Following adoption of all required amendments, the <i>IMO</i> publishes the “Market Surveillance Data Catalogue” on the <i>IMO</i> Web site, and notifies <i>market participants</i> that the revised data catalogue is available.	Following Step 5C.14, and once all proposed amendments are adopted or rejected.	Revised <i>Market Surveillance Data Catalogue</i> and notification for <i>market participants</i> .	<i>IMO</i> public Web site for publication of <i>Market Surveillance Data Catalogue</i> . Notification sent electronically, if possible, or in writing.	<i>Market Surveillance Data Catalogue</i> published and <i>market participants</i> notified of its publication.
5C.17	Receive notification that Data Catalogue published.	<i>Market participants</i> receive notification that the revised <i>Market Surveillance Data Catalogue</i> is published.	Following Step 5C.16.	None	None	Notification that the revised “Market Surveillance Data Catalogue” has been published received.

3.4 Publishing the Catalogue of Monitoring Indices

Market participants may submit comments on the “Catalogue of Monitoring Indices”, if the *independent directors* decide to *publish* the catalogue. The steps described in the following table are illustrated in Section 2, Figure 2–4.

Table 3–4: Procedural Steps for Publishing the Catalogue of Monitoring Indices

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5D.01	<i>Publish</i> “Catalogue of Monitoring Indices” and request comments.	The <i>IMO publishes</i> the “Catalogue of Monitoring Indices” and request comments on the catalogue. The notification process can be achieved through a number of mechanisms.	Upon determination by the <i>independent directors</i> of the <i>market surveillance panel</i> that the catalogue should be published.	Notification to <i>market participants</i> of Market Surveillance “Catalogue of Monitoring Indices” publication and request for comments.	<i>IMO</i> public Web site or e-mail or mail.	“Catalogue of Monitoring Indices” published and request for comments made.
5D.02	Receive notification of request for comments and submit comments (including recommended changes).	The <i>market participant</i> receives the notification of publication and a request for comments. If the <i>market participant</i> has any comments, if submits these to the <i>IMO</i> within the specified time period.	Following Step 5D.01.	Comments on “Catalogue of Monitoring Indices”, if desired.	E-mail, fax or mail	Comments received.

Table 3–4: Procedural Steps for Publishing the Catalogue of Monitoring Indices

Ref.	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
5D.03	Acknowledge receipt of comments.	The <i>IMO</i> sends an acknowledgement message to the <i>market participants</i> that the comments were received.	Following Step 5D.02.	Acknowledgement of receipt.	Electronically via e-mail, if possible, or by fax or letter.	Acknowledgement sent to the <i>market participant</i> .
5D.04	Receive acknowledgement.	The <i>market participant</i> receives an acknowledgement of receipt from the <i>IMO</i> .	Following Step 5D.03.	None	None	Acknowledgement received by the <i>market participant</i> .
5D.05	Assess whether amendments are required.	The <i>IMO</i> and the <i>market surveillance panel</i> evaluate the proposed amendment and determine whether such an amendment is in order.	Following Step 5D.03.	None	None	Decision made to either <i>publish</i> an amendment to the “Catalogue of Monitoring Indices” or to take no action.
5D.06	Revise and <i>publish</i> “Catalogue of Monitoring Indices”.	The <i>IMO</i> revises and publishes the “Catalogue of Monitoring Indices” in line with the amendments that were assessed as being required.	Following Step 5D.05, if it is determined that an amendment is required.	“Catalogue of Monitoring Indices”.	<i>IMO</i> public Web site.	Process completed.

– End of Section –

Appendix A: Forms

This appendix contains a list of forms associated with the current procedure. The forms included are as follows:

Form Name	Form Number
Data Catalogue Submission Form	IMO - FORM-1449
<i>IMO</i> Request for Surveillance Data/Information	IMO-FORM-1317
Market Participant Request/Comments for Amendment to the Market Surveillance Data Catalogue	IMO-FORM-1321
Market Participant Request for Market Surveillance Data/Information Form	IMO-FORM-1318
Market Participant Request for Amendment to Market Surveillance Catalogue of Monitoring Indices	IMO-FORM-1325

– End of Section –

Archive

Appendix B: Market Surveillance Data Catalogue

B.1 Data Catalogue

This Appendix contains the Market Surveillance Data Catalogue and Glossary of Terms, as follows.

Archive

Type of Data		Resolution	Submitted	Time Period	Comments	
Historical Data	Hydro Data	Water Transfer information for Hydroelectric <i>generators</i> at the international boundary	Day	One Time	Since 1999	By Resource ID MWhr
	Fossil Data	Nitrogen Dioxide (NOX) actual for coal fire units greater than 150Mw	Quarter	One Time	since 1990	By Resource ID Tons with the date of major equipment changes affecting emissions
		SO2 actual for coal fire units greater than 150Mw	Quarter	One Time	since 1990	Tons with the date of major equipment changes affecting emissions
	Injection	Sales (By interface for New York, Hydro Quebec, Michigan, Manitoba, Minnesota)	Year	One Time	since 1990	MWhr
	Off takes	Purchases (By interface for New York, Hydro Quebec, Michigan, Manitoba, Minnesota)	Year	One Time	since 1990	MWhr
	Hydro Outage Data	Equivalent <i>Forced Outage Rate</i> (EFOR)	Year	One Time	since 1995	By Resource or Unit ID For the plant or unit size greater than 20MW
		<i>Planned Outage Factor</i> (POF)	Year	One Time	since 1995	For the plant or unit size greater than 20MW
	Fossil Outage Data	<i>Planned Outage Factor</i> (POF)	Year	One Time	since 1998	By Resource ID For the unit or plant greater than 145 MW
		Equivalent <i>Forced Outage Rate</i> (EFOR) or equivalent	Year	One Time	since 1998	For the unit or plant greater than 145MW
	Nuclear Outage Data	Operating Capacity Factor (OCF)	Year	One Time	since 1998	By Resource ID Operating Capacity Factor defined as the actual generation calculated as a percentage of maximum generation during periods between <i>planned outages</i> .
<i>Planned Outage Factor</i> (POF)		Year	One Time	since 1998		
CTU Outage Data	Utilization <i>Forced Outage Probability</i> (UFOP)	Year	One time	since 1998	By Resource or Unit ID Provide data on registered units where available	

Type of Data		Resolution	Submitted	Time Period	Comments
	Hydroelectric <i>generators</i> at the international boundary				By Resource or Unit ID
	Turbine Unit (CTU)				By Resource ID supplied to IMO
Nuclear					By Resource ID
Hydro	(EFOR)				By Resource or Unit ID
Fossil					By Resource ID
Data	<i>Equivalent Forced Outage Rate (EFOR)</i>	Year	Annually		For the unit or plant greater than 145 MW
	Average Annual Cost of Emission Credits used (\$)	Year	Annually		Dollars
Nuclear Outage Data	Operating Capacity Factor (OCF) <i>Planned Outage Factor (POF)</i>	Year Year	Annually Annually		By Resource ID
CTU Outage Data	Utilization <i>Forced Outage Probability (UFOP)</i>	Year	Annually		CTU's registered in the market, provide data where available

Type of Data		Resolution	Submitted	Time Period	Comments
Unit Characteristic Data	Hydro Data	MW per unit @ efficiency flow	N/A	One time and when change	By Resource and Unit ID The power generated at a station when all units are operated at their maximum economy factor for the specified normal head. Economy factor, is the ratio of electrical power generated to water flow discharged.
		MW per unit @ maximum flow	N/A	One time and when change	The power generated at a station when all units are operated at their maximum capacity for the specified normal head
		Normal Storage	N/A	One time and when change	MW hr
		Storage for Citizenship and Dates of limitations	N/A	One time and when change	MW hr
		Speed-No-Load (SNL) – equivalent <i>energy</i> consumption per hour at the efficiency point	N/A	One time and when change	Speed-No-Load is a condition wherein the turbine is providing only enough <i>energy</i> (driving torque) to overcome machine losses.
	Nuclear Data	Shallow Maneuver Capability, Length of Time	N/A	One time and when change	By Resource and Unit ID Any information regarding these capabilities will be accepted
		Deep Maneuver Capability, Length of Time	N/A	One time and when change	Any information regarding these capabilities will be accepted
		Incremental Fuel Cost	N/A	One time and when change	\$/MWhr; Any information regarding these capabilities will be accepted
	Fossil Data	Typical restrictions on daily running cycles	N/A	One Time and when change	By Resource and Unit ID Dual fuel units should be treated as separate units
		Fuel Consumption Curve Coefficients	N/A	One Time and when change	The Fuel Consumption Curve is given by: $FC = A + BxS + CxS^2$. Where S is generation output (MW per hour), FC is fuel consumption per hour (Gigajoule), and A,B,C are the coefficient of the input/output function.

Type of Data		Resolution	Submitted	Time Period	Comments
Unit Characteristic Data	Fossil Data	Cold Start Up Fuel Consumption	N/A	One Time and when change	Gigajoule per start up
		Warm Start Up Fuel Consumption	N/A	One Time and when change	Gigajoule per start up
		Hot Start Up Fuel Consumption	N/A	One Time and when change	Gigajoule per start up
		Cold Start Up Time	N/A	One Time and when change	Minimum Notification (or startup time) for hot, warm, and cold startups (hours)
		Warm Start Up Time	N/A	One Time and when change	Hours
		Hot Start Up Time	N/A	One Time and when change	Hours
		Minimum Shutdown Time	N/A	One Time and when change	Hours
		Variable O&M costs excluding the fuel cost	N/A	One Time and when change	\$/MWh
	Combined Cycle / Combined Cycle Cogeneration / Combustion Turbine Unit (CTU) Data	Net Plant Heat Rate	N/A	One Time and when change	mmBTU/hour; By Facility/Unit ID. Type ID=1, if Combined Cycle Facility Type ID=2, if Combined Cycle Cogeneration Type ID=3, if Combustion Turbine Unit (CTU) The heat rate for the cogeneration is the effect of steam to generate electricity.
	Self-Schedule Data	Net Plant Heat Rate	N/A	One Time and when change	mmBTU/hour; By Facility ID

– End of Section –

Archive

Glossary of Terms

EFOR – (Weighted) Equivalent *Forced Outage Rate* = $(\Sigma[(FOH + EFDH) \times NMC] / \Sigma[(FOH + SH + EFDHRS) \times NMC]) \times 100$ (%)
(see *NERC* definition)

Where: FOH (*Forced Outage Hours*) = the sum of all hours experienced during *forced outages*

EFDH (Equivalent Forced Derated Hours) = Product of the forced derated hours and the size of reduction, divided by the NMC

NMC (Net Maximum Capacity) = Capacity a unit can sustain over a specified period when not restricted by ambient conditions or equipment deratings, minus the losses associated with *station service* or auxiliary loads

POF – (Weighted) *planned outage factor* = $\Sigma (POH \times NMC) / \Sigma (PH \times NMC)$

Where: POH = the sum of all *planned outage* hours

NMC = Net Maximum Capacity

PH (Period Hours) = Number of hours the unit was available in the active state. A unit generally enters the active state on its commercial date

UFOP – the Utilization *Forced Outage Probability*. It is the probability that a generating unit will not be available when required.
(see *CEA* definition)

For Historical Data:

$$UFOP = f(FO + FEMO + FEPO) / [f(FO + FEMO + FEPO) + O + O(SD) + O(FD)]$$

For Actual Data:

$$UFOP = f(FO) / [f(FO) + O + O(SD) + O(FD)]$$

Where $f = \text{Demand Factor} = (1/r + 1/T) / (1/D + 1/r + 1/T)$

where $r = \text{Average Forced Outage Time}$

$D = \text{average in-service time per occasion of demand}$

$$= [O + O(FD) + O(SD)] / [SR \times \text{Total Attempted Starts}]$$

SR (*Starting Reliability*) = $[\text{number of starting success}] / [(\text{number of starting success} + \text{number of starting failure})] \times 100$

$T = \text{average reserve shutdown time between periods of need, exclusive of periods for maintenance or other planned unavailability.}$

$$D + T = [O + O(FD) + O(SD) + ABNO + ABNO(FD) + ABNO(SD)] / [\text{Total Attempted Starts}]$$

Definition of Times (see *CEA* definitions)

O: the number of hours the generating unit was in the Operating State during the period.

O(FD): the number of hours the generating unit was operating under a Forced Derating during the period.

O(SD): the number of hours the generating unit was operating under a Scheduled Derating during the period.

ABNO: the number of hours the generating unit was in the Available But Not Operating State.

ABNO(FD): the number of hours the generating unit was in the Available But Not Operating – Forced Derating State.

ABNO(FD): the number of hours the generating unit was in the Available But Not Operating – Scheduled Derating State.

FO: the number of hours the generating unit was in a *Forced Outage* State.

FEMO: the number of hours the generating unit was in a Forced Extension of a Maintenance *Outage* State.

FEPO: the number of hours the generating unit was in a Forced Extension of a *Planned Outage* State.

PO: the number of hours the generating unit was in a *Planned Outage* State.

Hot/Warm/Cold Start – are categories of starts depending on combinations of turbine metal temperatures and boiler temperatures. In general, there are more than 3 categories. For example, there might be 2 or 3 cold starts depending on temperature/pressure combinations. These limits vary for individual units. Thus, it is suggested that *generators* identify the typical hot/warm/cold startup ranges that are specific to each unit being reported.

Minimum shutdown time – the minimum time required before a start can commence after desynchronization. In some instances, this limit is based on an advance notice of an upcoming start which is required to accelerate the boiler-turbine temperature match.

Incremental fuel cost – Represents the incremental fuel cost associated with an increase in the output of a nuclear unit from its current target output level to a slightly higher output level for a short duration. (Conversely, the decremental fuel cost represents the savings associated with a decrease in the output of a nuclear unit from its current target output level to a slightly lower output level for a short duration.)

Operating Capacity Factor (OCF) – is defined as the actual generation calculated as a percentage of maximum generation during periods between *Planned Outages*.

Heat Rate – is defined as the amount of fuel-heat input required to generate a KWhr of electricity.

Net Plant Heat Rate – is measured as the power delivered to the transmission line leaving the station as basis for calculations.

– End of Section –

Archive

Appendix C: Catalogue of Market Monitoring Indices

1 Available Generation

- 1.1 Total Capacity of Resources
- 1.2 Total MW on Planned Outage by Resource Id
- 1.3 Total MW on Forced Outage by Resource Id
- 1.4 Total Available Ontario Generation on an Hourly Basis
- 1.5 Market Participant Summary Outage Frequency
- 1.6 Frequency of Resource Outages by Time Period, by Demand Conditions
- 1.7 Comparison of Actual to Historical Outage Frequencies
- 1.8 Correlation Between Outage Frequency and High Load Periods
- 1.9 Correlation between Available Ontario Generation to MCP
- 1.10 Comparison of Historical Water Transfers to Actual

2 Ontario Electricity Market Volumes

- 2.1 Total MW Offered on an Hourly Basis
- 2.2 Total MW Bid on an Hourly Basis
- 2.3 Total Dispatchable Load Bid
- 2.4 Total Dispatchable Load Accepted
- 2.5 Dispatchable Load Market Year over Year Average
- 2.6 Total Hourly Injections Offered and Scheduled
- 2.7 Total Hourly Off-takes Bid and Scheduled
- 2.8 Import and Export Volume Change Year over Year

3 Ontario Market Demand

- 3.1 Hourly Load MCQ
- 3.2 Comparison of Hourly Load to Pre-Dispatch Load 6 and 3 Hours Ahead of Each Hour

4 Ontario Prices

- 4.1 Market Clearing Prices and Intertie Zonal Prices for Energy and Operating Reserve
- 4.2 Frequency of MMCP and MORP
- 4.3 Correlation between Price and Load
- 4.4 Comparison between MCP and Pre-Dispatch Forecasted MCP
- 4.5 Comparison between HOEP and Pre-Dispatch Prices 6 and 3 Hours Ahead of Each Hour

5 Ontario Nodal Prices

- 5.1 Hourly Energy Nodal Prices
- 5.2 Maximum Energy Nodal Price
- 5.3 Price Ranking across Nodes

6 Price Cost Margins

- 6.1 Resource Specific Price-Cost Margins

7 Comparative Prices and Loads for Surrounding Power Markets

- 7.1 Hourly Prices for each System DAM, HAM and Real Time
- 7.2 Hourly Loads for each System
- 7.3 Net Injections / Off-takes between Ontario and each System
- 7.4 Comparison of Injections / Off-takes to Arbitrage Opportunities between Markets
- 7.5 Comparison of Scheduled to Actual Transactions by Intertie Zone
- 7.6 Comparison of Scheduled to Actual Transactions by Market Participant
- 7.7 Spot Market Energy Prices for Oil, Natural Gas and Coal
- 7.8 Frequency and Volume of Intertie Transactions not Scheduled due to Net Intertie Ramp Limit

8 Offers

- 8.1 Resource Offer / Supply Curves
- 8.2 Market Participant Aggregate Offer / Supply Curve
- 8.3 System Aggregate / Supply Curve
- 8.4 Resource Offer Curves by Fuel Type
- 8.5 Comparisons of Resource Offer Curves to Historical Offer Curves
- 8.6 Comparison of Market Participant Offer Curves to Historical Offer Curves
- 8.7 Comparison of System Offer Curve to Historical Offer Curves

9 Dispatch

- 9.1 Identification of Resource Setting MCP and MORP
- 9.2 Frequency of Individual Resources Setting Price
- 9.3 Frequency of Resources Receiving Dispatch Instructions
- 9.4 Deviations from Requested Dispatch by Resource Id
- 9.5 Calculated Ramp Rates by Resource by Time Period
- 9.6 Comparison of Actual versus Offered Ramp Rates
- 9.7 Comparison of Offered Ramp Rates to Offered AGC Ramp Rates
- 9.8 Comparison of OR Offered Ramp Rates to Energy Ramp Rates

10 System Operations

- 10.1 Frequency of Administered Prices
- 10.2 Frequency and Duration of Market Suspensions
- 10.3 Comparison of Total Load (including Losses) in the Real-time Unconstrained vs Real-time Constrained Dispatch Solutions
- 10.4 Frequency of Manual Intervention by IMO Operators in Issuing Dispatch Instructions (average MW, number of intervals per month)
- 10.5 Frequency of Emergency Purchases
- 10.6 Frequency of OR Reductions in Relation to Available OR

11 Constrained On / Off

- 11.1 Total Constrained On MW for Period
- 11.2 Total Constrained On Payments for Period
- 11.3 Frequency of a Resource being Constrained On
- 11.4 Total Constrained Off MW for Period
- 11.5 Total Constrained Off Payments for Period
- 11.6 Frequency of a Resource being Constrained Off
- 11.7 Dispatchable Load Constrained Events Year over Year

12 Transmission

- 12.1 Intertie Capability Comparison Year over Year
- 12.2 CMSC Cost for Internal Transmission Constraints Year over Year
- 12.3 Percentage of Time Intertie are Limited Year over Year

AGC	Automatic Generation Control
CMSC	Congestion Management Settlement Credit
DAM	Day Ahead Market
HAM	Hour Ahead Market
MCP	Market Clearing Price
MCQ	Market Clearing Quantity
MMCP	Maximum Market Clearing Price
MORP	Maximum Operating Reserve Price
HOEP	Hourly Ontario Energy Price
OR	Operating Reserve

References

Document ID	Document Title
MDP_RUL_0002	Market Rules
MDP_MAN_0002	Market Manual 2: Market Administration, Part 2.0: Market Administration Overview
MDP_PRO_0023	Market Manual 2: Market Administration, Part 2.7: Treatment of Market Surveillance Issues
MDP_PRO_0014	Market Manual 1: Market Entry, Maintenance and Exit, Part 1.1: Participant Authorization, Maintenance and Exit

– End of Document –