JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Introduction of High-efficiency Once-through Boiler in Film Factory
Reference number	ID021
Third-party entity (TPE)	Lloyd's Register Quality Assurance Limited (LRQA)
Project participant contracting the TPE	Mitsubishi Chemical Corporation
Date of completion of this report	24/09/2019

A.2 Conclusion of validation

Overall validation opinion	☒ Positive ☐ Negative

A.3. Overview of final validation conclusion

Only when all of the checkboxes are checked, overall validation opinion is positive.

Item	Validation requirements	No CAR or CL remaining
Project design document form	The TPE determines whether the PDD was completed using the latest version of the PDD forms appropriate to the type of project and drafted in line with the Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan and Monitoring Report.	☒
Project description	The description of the proposed JCM project in the PDD is accurate, complete, and provides comprehension of the proposed JCM project.	☒
Application of approved JCM methodology (ies)	The project is eligible for applying applied methodology and that the applied version is valid at the time of submission of the proposed JCM project for validation.	☒
Emission sources and calculation of emission reductions	All relevant GHG emission sources covered in the methodology are addressed for the purpose of calculating project emissions and reference emissions for the proposed JCM project.	☒
	The values for project specific parameters to be fixed *ex ante* listed in the Monitoring Plan Sheet are appropriate, if applicable.	☒
Environmental impact assessment	The project participants conducted an environmental impact assessment, if required by the Republic of Indonesia, in line with Indonesia's procedures.	☒
Local stakeholder	The project participants have completed a local stakeholder consultation process and that due steps were taken to engage	☒

Item	Validation requirements	No CAR or CL remaining
consultation	stakeholders and solicit comments for the proposed project unless a local stakeholder consultation has been conducted under an environmental impact assessment.	
Monitoring	The description of the Monitoring Plan (Monitoring Plan Sheet and Monitoring Structure Sheet) is based on the approved methodology and/or Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan, and Monitoring Report. The monitoring points for measurement are appropriate, as well as whether the types of equipment to be installed are appropriate if necessary.	☒
Public inputs	All inputs on the PDD of the proposed JCM project submitted in line with the Project Cycle Procedure are taken into due account by the project participants.	☒
Modalities of communications	The corporate identity of all project participants and a focal point, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories are included in the MoC.	☒
	The MoC has been correctly completed and duly authorized.	☒
Avoidance of double registration	The proposed JCM project is not registered under other international climate mitigation mechanisms.	☒
Start of operation	The start of the operating date of the proposed JCM project does not predate January 1, 2013.	☒

Authorised signatory:	Mr. ☒ Ms. ☐
Last name: Chiba	First name: Michiaki
Title: Climate Change Manager - Asia & Pacific	
Specimen signature: [redacted]	Date: 24/09/2019

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Michiaki Chiba	LRQA Ltd.	Team leader	☒	Technical competence authorised	☐
Mr. ☒ Ms. ☐	Cholid Bafagih	LRQA Indonesia	Team member	☒	Technical competence authorised	☒
Mr. ☒ Ms. ☐	Stewart Niu	LRQA China	Internal reviewer	☒	N/A	☐
Mr. ☐ Ms. ☐				☐		☐

Please specify the following for each item.

* *Function: Indicate the role of the personnel in the validation activity such as team leader, team member, technical expert, or internal reviewer.*

* *Scheme competence: Check the boxes if the personnel have sufficient knowledge on the JCM.*

* *Technical competence: Indicate if the personnel have sufficient technical competence related to the project under validation.*

C. Means of validation, findings, and conclusion based on reporting requirements

C.1. Project design document form

<Means of validation>

The PDD was checked and confirmed as complete against the JCM Guidelines for Developing Project Design Document (PDD) and Monitoring Report (MR) No. JCM_ID_GL_PDD_MR_ver03.0. A valid form of the JCM PDD Form as of the time of commencement of the public comment period No. JCM_ID_F_PDD_ver02.0 was used for the initial version of the PDD that was submitted for public comments started on 19/02/2019. It was re-checked for the revised PDD Version 2.0 dated 24/07/2019. The version is the final version on which the validation was completed.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issue was raised on the requirements of this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the PDD was completed using the valid version of the JCM

PDD Form and in accordance with the JCM Guidelines for Developing PDD and MR.

C.2. Project description

<Means of validation>

The project is to introduce a high-efficiency once-through boiler at a film factory of PT MC Pet Film Indonesia in Cilegon City, Banten Province of Republic of Indonesia. The film factory needs considerable energy and boilers consume significant amount of energy at the film factory. The project covers PET Film production process especially drawing process. The film factory introduced 4 ton/h high efficiency once-through boiler (fuel: dual fuel of gas or oil) with replacing existing 6 ton/h water tube boiler (fuel: oil), and increased the boiler efficiency and stable steam supply.

The project is implemented by PT MC Pet Film Indonesia from the Republic of Indonesia, Mitsubishi Chemical Corporation and Nippon Koei Co., Ltd. from Japan (the PPs).

The start date of project operation is on 01/11/2016 and the expected operational lifetime of the project is for 9 years. The PPs referred to the Statutory useful life for the calculation of depreciation and amortization for machinery and equipment issued by Japan's Ministry of Finance for the basis of the expected operational lifetime of the machinery and equipment for the plastic products production industries that covers the duration of the crediting period.

The project receives financial support for JCM model projects from the Ministry of the Environment, Japan. The project once-through boiler is supplied by Kawasaki Thermal Engineering (KTE) and KTE provides supports to PT MC Pet Film Indonesia direct instruction on proper operation of the boiler and effective periodical checks to maintain efficiency of the boiler.

The validation team assessed the PDD and the supporting documents, interviewed the PPs to validate the requirements concerning accuracy and completeness of the project description.

CL1 was raised as the resolution details below.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

Grade / Ref: CL 1

Nature of the issue raised: The PPs were required to clarify how the expected operational lifetime of the project is determined as 9 years. The Statutory useful life for the calculation of depreciation and amortization for machinery and equipment issued by Japan's Ministry of Finance submitted by the PPs as the supporting document for the expected operational lifetime indicates 8 years for the machinery and equipment of the plastic products production industries.

Nature of responses provided by the PPs: The PPs applied 9 years for the expected operational

lifetime of project in the revised PDD in consideration of the loss of operational time by a fire accident and consultation with the parties concerned including the Ministry of Environment, Japan.
Assessment of the responses: The validation team confirmed that the expected operational lifetime of project of 9 years is applied in consistent with the statutory useful life for the calculation of depreciation and amortization for machinery and equipment issued by Japan's Ministry of Finance noting that the factory of PT MC Pet Film Indonesia had a fire accident and the production was stopped from July 2018 to March 2019, and the extension of project lifetime would not materially change the outcomes of the project boiler.
The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team assessed the project description provided in the PDD with the supporting documents to the requirements on the accuracy and completeness. The validation team confirmed that the proposed JCM project in the PDD is described in accurate and complete manners that is understandable the nature of the proposed project activity.

C.3. Application of approved methodology(ies)

<Means of validation>

The project applied the approved methodology JCM_ID_AM015_ver01.0 Energy Saving by Introduction of High Efficiency Once-through Boiler, Version.01.0.
LRQA assessed if the selected methodology is applicable to the proposed project. The project applicability was checked against each eligibility criterion in the selected approved methodology. The steps taken to validate each eligibility criterion and the conclusions about its applicability to the proposed project are summarised as below.

Criterion 1: The project boiler is a once-through boiler with a rated capacity of 7 ton/hour per unit or less (equivalent evaporation).
Justification in the PDD: The project boiler is a once-through boiler with a rated capacity of 4 ton/hour (equivalent evaporation).
Steps taken for assessment: Document review was conducted on the project documentation, technical specification, the performance test report, and the on-site visit and interviews were conducted at the project site.
Conclusion: Based on the validation processes taken, the validation team confirmed that the project installed 4 ton/hour (equivalent evaporation) once-through boiler in the film factory and the criterion is met.

Criterion 2: Periodical check and maintenance by the manufacturer of boiler or authorized agent is implemented in accordance with the manufacturer's requirement.
Justification in the PDD: MC Pet Film arranges necessary periodical maintenance by authorized agent (PT Gikoko Kogyo Indonesia) and/or KTE in accordance with the requirement of KTE. It is carried out every 1 to 1.5 year.
Steps taken for assessment: Document review was conducted on the technical specification, diagrams, drawings, maintenance plan and records, and the on-site visit and interviews were conducted at the project site.
Conclusion: Based on the validation processes taken, the validation team confirmed that the periodical check and maintenance by authorised agent of the manufacturer has been implemented for the project boiler. Therefore, the criterion is met by the proposed project.

Criterion 3: Appropriate water purification/demineralization system such as Reverse Osmosis (RO) membrane treatment is installed.
Justification in the PDD: MC Pet Film purchases the demineralized water from PT Mitsubishi Chemical Indonesia for operation of project boiler: The boiler water is treated with Ultra Filtration, RO, mixed bed resin system and mixed bed ion exchange demineralization system.
Steps taken for assessment: Document review was conducted on the request for approval of the project, explanatory documents of the project, the technical specification, the performance test report, and the on-site visit and interviews were conducted at the project site.
Conclusion: Based on the validation processes taken, the validation team raised CL 2 as below. The criterion was confirmed being satisfied by the project after resolution of the finding.
The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.
<Findings>
Please state if CARs, CLs, or FARs are raised, and how they are resolved.
Grade / Ref: CL 2
Nature of the issue raised: The PPs were required to provide:
1) Confirmation that an appropriate water demineralization system such as Reverse Osmosis (RO) Membrane treatment has been installed at PT Mitsubishi Chemical Indonesia (MCCI) who supplies demineralized water to the project boiler, and
2) Analysis data for quality of demineralized water supplied to the project boiler to demonstrate status of compliance with the contract with MCCI dated 02/08/2010 for supply of water with conductivity less than 10 μS/cm and quantity of 260 m3/hour.
Nature of responses provided by the PPs:
1) The PPs clarified in the revised PDD that MC Pet Film Indonesia purchases demineralised water from MCCI for operation of project boiler that is treated with Ultra Filtration, RO, mixed

bed resin system and mixed bed ion exchange demineralization system and meets the quality requirement of conductivity less than 10 μS/cm under the utility supply agreement.
2) The PPs provided analysed conductivity data of the feed water at 0.94 μS/cm (dated 09/05/2019).
Assessment of the responses: The validation team reviewed the revised PDD and the supporting evidence including a written confirmation from MCCI and the boiler water process flow diagram and confirmed that the relevant water treatment systems including Ultra Filtration, RO, Mixed Bed Resin system, and Mixed Bed Ion Exchange (Cation and Anion Resin) system are installed for treatment of boiler water.
The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the project applied the valid version of the approved methodology and the applicability was demonstrated to the eligibility criteria as appropriate.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

The project supplies steam generated by 4 ton/hour once-through boiler installed to the existing film factory for the self-consumption replacing the existing 6 ton/hour water tube boiler.
The source of GHG emissions is fuel consumption by the reference boiler and CO2 emissions in the reference scenario are considered to determine the reference emissions (REs), and fuel consumption by the project boiler and CO2 emissions in the project scenario to determine the project emissions (PEs) in accordance with the applied methodology.
$REp = \Sigma i \Sigma j (FCp,i,j,PJ \times NCVi,j,PJ \times EF\_RE \times \eta i,PJ / \eta RE \times (100 - BFi,PJ) / (100 - BF\_RE))$
$PEp = \Sigma i \Sigma j (FCp,i,j,PJ \times NCVi,j,PJ \times EFi,j,PJ)$
The annual fuel consumption of the project boiler is estimated ex-ante at 1,468,116 Nm3 in a year without maintenance outage. The estimation is based on the monthly average of actual natural gas consumption in year 2017 excluding March in which maintenance outage took place at 122,343 Nm3 (122,343 x 12 = 1,468,116 Nm3 p.a.).
Net calorific value of natural gas fuel is 0.0331 GJ/Nm3 as provided by the supplier.
CO2 emission factor of fuel used by reference boiler (EF_RE) is determined as 0.0726 tCO2/GJ using IPCC default value at the lower limit in Table 1.4 of Chapter 1 of Vol. 2 from "2006 IPCC Guidelines for National Greenhouse Gas Inventories".
Efficiency of project boiler i (ηi,PJ) is 0.93 based on the specifications of the project boiler.
Efficiency of reference boiler (ηRE) is determined as 0.89 using the default value of the approved methodology.
Blow flow rate setting of project boiler i (BFi,PJ) is 2% as specified in the boiler water

treatment program for a water purification/demineralization system based on the test result.
Blow flow rate setting of reference boiler (BF_RE) is 2 % as specified in the boiler water treatment program for a water softener based on the test result.
CO2 emission factor of fuel used by project boiler i for the fuel type j (EFi,j,PJ) is determined as 0.0561 tCO2/GJ using IPCC default value in Table 1.4 of Chapter 1 of Vol. 2 from "2006 IPCC Guidelines for National Greenhouse Gas Inventories".
REp = 1,468,116 × 0.0331 × 0.0726 × 0.93 / 0.89 × (100 – 2) / (100 – 2) = 3,686.53 tCO2e
PEp = 1,468,116 × 0.0331 × 0.0561 = 2,726.16 tCO2e
ERp = REp – PEp = 3,686.53 - 2,726.16 = 960.37 tCO2e
The value is applied to years 2021 and 2024.
GHG emission reductions in years 2016 and 2017 are estimated using the actual natural gas consumption at 159,358 Nm3 and 1,393,421 Nm3 respectively. The project operation started from November 2016 and year 2016 covered 2 months and the project boiler was fully operated in year 2017 with normal maintenance outage.
Year 2016
REp = 159,358 × 0.0331 × 0.0726 × 0.93 / 0.89 × (100 – 2) / (100 – 2) = 400.16 tCO2e
PEp = 159,358 × 0.0331 × 0.0561 = 295.91 tCO2e
ERp = REp – PEp = 400.16 - 295.91 = 104.25 tCO2e
Year 2017
REp = 1,393,421 × 0.0331 × 0.0726 × 0.93 / 0.89 × (100 – 2) / (100 – 2) = 3,498.97 tCO2e
PEp = 1,393,421 × 0.0331 × 0.0561 = 2,587.46 tCO2e
ERp = REp – PEp = 3,498.97 - 2,587.46 = 911.51 tCO2e
GHG emission reductions in the years with normal maintenance outage are estimated using the average monthly natural gas consumption in year 2017 of 116,118 Nm3 (116,118 x 12 = 1,393,416 Nm3 p.a. slightly different from 2017 due to rounding) as below. The normal maintenance is planned every 18 month and the value is applied to years 2020, 2022 and 2023.
REp = 1,393,416 × 0.0331 × 0.0726 × 0.93 / 0.89 × (100 – 2) / (100 – 2) = 3,498.95 tCO2e
PEp = 1,393,416 × 0.0331 × 0.0561 = 2,587.45 tCO2e
ERp = REp – PEp = 3,498.95 - 2,587.45 = 911.50 tCO2e
There was outage time due to fire accident in the factory in years 2018 and 2019 that the annual GHG emission reductions are estimated as 50% of those in a year without maintenance outage, i.e. 960.37 x 50% = 480.19 tCO2e.
The GHG emission reductions in year 2025 are estimated for 10 months of a year with normal maintenance outage, i.e. 911.50 x 10 / 12 = 759.58 tCO2e
The validation team assessed the documented evidence and confirmed that all the relevant GHG emission sources covered in the applied methodology are addressed, and the steps taken and the equations applied to calculate REs and PEs for the proposed project comply with the

requirements of the approved methodology.
CAR 1, CAR 2 and CL 3 were raised through the validation processes as resolution details below.
The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

Grade / Ref: CAR 1
Nature of the issue raised: The project boiler is designed to use dual fuels of natural gas or diesel oil but information on use of diesel oil was not included in the figure of the PDD C.2. and the Monitoring spreadsheet.
Nature of responses provided by the PPs: The PPs confirmed diesel oil is used as back up fuel only and decided to omit it in the PDD and the Monitoring spreadsheet for conservativeness. The Monitoring spreadsheet was revised to clarify the treatment.
Assessment of the responses: The validation team reviewed the revised Monitoring spreadsheet and confirmed that the omission of diesel oil consumption from both REs and PEs results in conservative calculation of the ERs and acceptable.
The CAR was closed.

Grade / Ref: CAR 2
Nature of the issue raised: The Monitoring Plan Sheet (MPS) was not completed with the type of gas fuel applicable to the project, either natural gas or LPG, for the parameters FCp,i,j,PJ, NCVi,j,PJ, and EFi,j,PJ (ref. column (j) of Table 1 and column (f) of Table 2).
The estimated value for the parameter EFi,j,PJ was filled with the default value of 0.0543 tCO2/GJ but the value is for EF_RE according to the approved methodology.
Nature of responses provided by the PPs: The PPs submitted the revised MPS for review by the validation team.
Assessment of the responses: The validation team reviewed the revised MPS and confirmed that the type of applicable gas fuel is specified and the value of parameter EFi,j,PJ has been amended.
The CAR was closed.

Grade / Ref: CL 3
Nature of the issue raised: The estimated value for the parameter EF_RE was filled with the default CO2 emission factor of diesel. The PPs were required to provide evidence to confirm the fuel used by the existing boiler is diesel oil, or the values of the fuels used by the project boiler shall be applied.

Nature of responses provided by the PPs: The PPs confirmed that the existing boiler used heavy oil A but IPCC default CO2 emission factor of diesel oil is applied for conservative calculation of the ERs. The Monitoring spreadsheet was revised to clarify the treatment.
Assessment of the responses: The validation team reviewed the revised Monitoring spreadsheet and confirmed application of IPCC default CO2 emission factor of diesel oil results in conservative calculation of the ERs and acceptable.
The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that:

- The methodology was applied correctly to calculate PEs and REs and no other significant emission source was identified that would be affected and reasonably attributed by implementation of the proposed project but not addressed by the applied methodology;
- The choice of whether an emission source or gas is to be included where the applied methodology allows was reasonably justified by the PPs;
- The MPS was not altered and the fields were filled in as required so that all estimates of the REs could be replicated using the data and parameter values provided in the PDD;
- The values for the project specific parameters fixed ex ante listed in the MPS were appropriate with all the data sources and assumptions and the calculations were correct to the proposed JCM project;
- All assumptions and data used by the PPs were listed in the PDD, including their references and sources; and
- All values used in the PDD were considered reasonable in the context of the proposed JCM project.

C.5. Environmental impact assessment

<Means of validation>

The proposed project is to install 4 ton/hour once through boiler to the existing film factory and the PDD stated that an environmental impact assessment is not required by laws of the host country. The validation team assessed the applicable legal requirements in the host country using its local expertise.
Through the processes of validation taken, CL 6 was raised as resolutions details below.
The details of the persons interviewed and documents reviewed are provided in the Section E of this report.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

Grade / Ref: CL 6

Nature of the issue raised: The PPs were required to clarify the legal requirements for environmental impacts monitoring/management and fulfilment of the same regarding the below on site observations.

1) A report of environmental impacts monitoring/management is requested on six monthly basis, however, the report for second half of 2018 had not been submitted to the Government.

2) According to the operator interview, the authorised maintenance contractor PT Gikoko Kogyo confirmed that the monitoring of vibration is not required as the level of vibration is in an acceptable range and it is not a continuous vibration process. However, no record from PT Gikoko Kogyo was found to confirm the information.

Nature of responses provided by the PPs:

1) The PPs confirmed that the report of environmental monitoring/management for second half of 2018 was submitted on 18/03/2019.

2) The PPs found vibration of economiser exceeded the manufacturer's standards and the countermeasures were taken in July 2019.

Assessment of the responses: The validation team reviewed the clarification and the relevant supporting documents. The EIA report for second half of 2018 was submitted on 18/03/2019 and the countermeasures to the vibration of economizer that exceeded the manufacturer's standards have been taken.

The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed by assessing the relevant documents and using the local sources/expertise that the host country procedures for environmental impacts assessment has been followed and the PDD satisfies the requirements of the JCM.

C.6. Local stakeholder consultation

<Means of validation>

The PPs identified staff of PT MC Pet Film Indonesia, officials from the central and local governments as the main local stakeholders and held a consultation meeting. Representatives of the local stakeholders attended the meeting provided comments mainly related to the implementation of the project. The PPs agreed to continue monitoring of vibration in response to a comment received from the process.

The details of the persons interviewed and documents reviewed are provided in the Section E of this report.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issue was raised to the requirements of this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the PPs have invited comments to the proposed project from the relevant local stakeholders, the summary of the comments received is provided in the PDD in a complete manner and the PPs have taken due account of all the comments received from the local stakeholders as the processes described in the PDD.

C.7. Monitoring

<Means of validation>

The MP consisting of the MPS and Monitoring Structure Sheet (MSS) is based on the approved methodology.

The amount of fuel consumption of project boiler is directly and continuously measured by a fuel flow meter.

The roles and responsibilities of the persons are described in the MSS in accordance with the requirements of the applied methodology. The reading results of fuel flow meter are recorded, monthly checked by the responsible staff and checked the integrity on a monthly basis.

The validation team confirmed that the MP complied with the requirements in the approved methodology and that the PPs will be able to apply the MP following the monitoring arrangements described in it. CL 4 and CL 5 were issued that the details of resolution are as described below.

The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

Grade / Ref: CL 4

Nature of the issue raised: The PPs were required to describe specific information of the project on calibration requirements for each measuring instrument used in the MPS.

Nature of responses provided by the PPs: The PPs revised the Monitoring spreadsheet and confirmed that the manufacturer's specification has been prepared for the measuring instrument by the time of installation.

Assessment of the responses: The validation team reviewed the revised Monitoring spreadsheet with the supporting documents and confirmed that the manufacturer's specification for the measuring instrument has been prepared by the time of installation for fuel flow meter. The gas flow meter is not required to be replaced or calibrated at a regular interval according to the applied methodology.

The CL was closed.

Grade / Ref: CL 5
Nature of the issue raised: The PPs were required to clarify the responsible person assigned to manage the monitoring points, maintain and control the measuring instruments including calibration/regular inspection at the monitoring points.
Nature of responses provided by the PPs: The PPs submitted the revised MSS for review by the validation team.
Assessment of the responses: The validation team reviewed the revised MSS and confirmed that the relevant personnel is specified to be responsible for managing the equipment at the monitoring point.
The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the MP was described in compliance with the requirements of the approved methodology and the Guidelines for developing PDD and MR, and the PPs have demonstrated feasibility of the monitoring structure and their ability to implement the MP.

C.8. Modalities of Communication

<Means of validation>

The MoC was submitted to LRQA in the form JCM_ID_F_MoC_ver01.0. The MoC nominates Mitsubishi Chemical Corporation as the focal point entity and was signed by the authorized representatives of all the PPs with the contact details. The form used is the latest one as of the time of validation. The validation team assessed through reviewing the written confirmation from the PPs. The written confirmation was issued by authorized person of the PPs, and it confirms that all corporate and personal details including specimen signatures are valid and accurate as requested in the JCM Guidelines for Validation and Verification. The validation team also confirmed through reviewing the corporate information of the PPs and by meeting the persons representing the PPs that the information provided in the MoC is correct.
CAR 3 was raised through the validation process as the resolution details below.
The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

Grade / Ref: CAR 3
Nature of the issue raised: The MoC Statement Form was not correctly completed on the below points.
1) Title of the project was not indicated in the Section 1 as the same as in the PDD.
2) The Section 3 was not filled with information of the TPE.

Nature of responses provided by the PPs: The PPs submitted the revised MoC Statement Form for review by the validation team.
Assessment of the responses: The validation team reviewed the revised MoC and confirmed the completeness.
The CAR was closed.
<Conclusion based on reporting requirements>
Please state conclusion based on reporting requirements.
The validation team confirmed that the MoC was completed using the latest form after assessment conducted on relevance of the MoC in compliance with the requirements of the JCM Guidelines.

C.9. Avoidance of double registration

<Means of validation>
The validation team assessed and confirmed relevance of the written confirmation in the MoC from the PPs that the proposed JCM project was not registered under the other international climate mitigation mechanisms.
The team in addition to the interviews with the PPs checked publicly accessible information of Clean Development Mechanism (CDM), Joint Implementation (JI), Verified Carbon Standard (VCS) and Gold Standard (GS) and found no identical project as the proposed JCM project in terms of the name of entities, applied technology, scale and the location. The result of researches confirmed that the proposed project was not registered under the other international climate mitigation mechanisms than JCM and it will not result in a double counting of GHG emission reductions.
The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.
<Findings>
Please state if CARs, CLs, or FARs are raised, and how they are resolved.
No issue was raised to the requirements of this section.
<Conclusion based on reporting requirements>
Please state conclusion based on reporting requirements.
The validation team confirmed that the proposed JCM project was not registered under the other international climate mitigation mechanisms.

C.10. Start of operation

<Means of validation>
The start date for the operation of the proposed JCM project is indicated in the PDD as 01/11/2016.

The validation team confirmed correctness/relevance of the information by reviewing the supporting evidence, including but not limited to assessing of the contracts and commissioning report, and that the date is not before 01/01/2013 as required to be eligible as a JCM project.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issue was raised to the requirements of this section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the start date of operation of the proposed JCM project is 01/11/2016 and not before 01/01/2013 as required to be eligible as a JCM project.

C.11. Other issues

<Means of validation>

No issue was identified as relevant element not covered above.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

Not applicable

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Not applicable

D. Information on public inputs

D.1. Summary of public inputs

In line with the JCM Project Cycle Procedure, the PDD is to be made publicly available for 30 days to invite public comments. The PDD was made publicly available in line with the requirements of the procedure for the period of 19/02/2019 to 20/03/2019 as per https://www.jcm.go.jp/id-jp/projects/62.

D.2. Summary of how inputs received have been taken into account by the project participants

No comment was received during the above period to receive public inputs.

Thus no action was required to be taken by the PPs to satisfy the JCM requirement.

E. List of interviewees and documents received

E.1. List of interviewees

PT MC Pet Film Indonesia
Osamu Fukunaga, Factory General Manager
Masao Tanaka, MECH Section Manager

Nippon Koei Co., Ltd.
Tetsuya Saito, Associate Senior Staff, Environmental Science & Engineering Dept., International Consulting Operations
Fumiya Hayashi, Environmental Science & Engineering Dept., International Consulting Operations

E.2. List of documents received

Category A documents (documents prepared by the PP)
- PDD Version 1.0 dated 20/10/2018 with the monitoring spreadsheet
- Revised PDD Version 2.0 dated 24/07/2019 with the monitoring spreadsheet
- MoC submitted dated 13/02/2019
- Revised MoC dated 15/02/2019 and 13/09/2019
- MFI One-through Boiler Specification & photograph
- Outline of PT. MC PET FILM INDONESIA
- Introduction of project
- Proposal for JCM subsidy program
- Project Idea Note
- Site location and Single Line Diagram
- Structure of Once Through Boiler (IF, KF)
- Confirmation letter on MoC from Mitsubishi Chemical
- Confirmation letter on MoC from PT. MC PET FILM INDONESIA
- Confirmation letter on MoC from Nippon Koei
- Project implementation schedule
- On site trial operation report
- Useful lifetime based on the act of Japan's Ministry of Finance for calculation of useful lifetime for depreciation and amortization
- PO
- Completion certificate

- Check report from PT. GIKOKO KOGYO INDONESIA
- Boiler Water Spec.
- Boiler attachment flow diagram
- Test Certificate / Calibration Certificate for DY VORTEX FLOWMETER
- Fuel meter photo
- JCM monitoring procedures
- Boiler checklist
- Boiler operation procedures
- WWTP Permit 2017
- Outlet WWTP monitoring (Jan. '19)
- MFI Boiler Permission 2018
- Meeting Minutes of local stakeholder consultation meeting dated
- List of LSC attendees
- Letter from PT. MC Pet Film Indonesia dated 24/05/2019 concerning responses to validation findings
- Specification of fuel flow meter, Tokyo Denki Sangyo Co., Ltd
- Written confirmation on water demineralization system from PT Mitsubishi Chemical Indonesia dated 09/07/2019
- Boiler water (BW) process flow diagram, Mitsubishi Chemical Indonesia
- Report on countermeasures to the vibration of economizer
- Estimation of fuel consumption and emission reductions in each year without maintenance outage and with maintenance outage

Category B documents (other documents referenced)
- JCM_ID_AM015_ver01.0 Energy Saving by Introduction of High Efficiency Once-through Boiler, Version 01.0
- Additional Information for the Proposed Methodology "Energy Saving by Introduction of High Efficiency Once-through Boiler"
- JCM Project Cycle Procedure JCM_ID_PCP_ver05.1
- JCM Guidelines for Validation and Verification JCM_ID_GL_VV_ver01.0
- JCM Guidelines for Developing PDD and MR JCM_ID_GL_PDD_MR_ver03.0
- JCM Guidelines for Developing Sustainable Development Implementation Plan and Report JCM_ID_GL_SDIP_IR_ver01.0
- JCM Glossary of Terms JCM_ID_Glossary_ver02.0
- JCM PDD Form JCM_ID_F_PDD_ver02.0
- JCM MoC Statement Form JCM_ID_F_MoC_ver01.0
- JCM Validation Report Form JCM_ID_F_Val_Rep_ver01.0

- Proposed and registered projects under CDM, VCS, Gold Standard, and the other international schemes

Annex Certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers

Please attach certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers.

Certificate of Appointment is attached to this report.

Joint Crediting Mechanism Certificate of Appointment

Title of Project: Introduction of High-efficiency Once-through Boiler in Film Factory

We hereby certify that the following personnel have engaged in the validation process that has fully satisfied the competence requirements of the validation of the JCM project.

Name of Person	Assigned Roles
Michiaki Chiba	Team Leader
Cholid Bafagih	Team Member
Stewart Niu	Technical Reviewer

Signed by

[redacted]

Michiaki Chiba
Climate Change Manager – Asia & Pacific
29/01/2019