JCM Verification Report Form

A. Summary of verification

A.1. General Information

Title of the project	Reduction of Energy Consumption by Introducing an Energy-Efficient Waste Paper Processing System into a Packaging Paper Factory in Bekasi, West Java.
Reference number	ID011
Monitoring period	01/07/2017- 31/08/2018
Date of completion of the monitoring report	21/12/2018
Third-party entity (TPE)	Japan Quality Assurance Organization (JQA) (TPE-ID-003)
Project participant contracting the TPE	Kanematsu Corporation
Date of completion of this report	24/01/2019

A.2 Conclusion of verification and level of assurance

Overall verification opinion	☒ Positive ☐ Negative
☒ Unqualified opinion	Based on the process and procedure conducted, JQA provides reasonable assurance that the emission reductions for Reduction of Energy Consumption by Introducing an Energy-Efficient Waste Paper Processing System into a Packaging Paper Factory in Bekasi, West Java. ✓ Are free of material errors and are a fair representation of the GHG data and information, and ✓ Are prepared in line with the related JCM rules, procedure, guidelines, forms and other relevant documents
(If overall verification opinion is negative, please check below and state its reasons.) ☐ Qualified Opinion ☐ Adverse opinion ☐ Disclaimer	<State the reasons>

A.3. Overview of the verification results

Item	Verification requirements	No CAR or CL remaining
The project implementation with the eligibility criteria of the applied methodology	The TPE determines the conformity of the actual project and its operation with the eligibility criteria of the applied methodology.	☒
The project implementation against the registered PDD or any approved revised PDD	The TPE assesses the status of the actual project and its operation with the registered/validated PDD or any approved revised PDD.	☒
Calibration frequency and correction of measured values with related requirements	If monitoring Option C is selected, the TPE determines whether the measuring equipments have been properly calibrated in line with the monitoring plan and whether measured values are properly corrected, where necessary, to calculate emission reductions in line with the PDD and Monitoring Guidelines.	☒
Data and calculation of GHG emission reductions	The TPE assesses the data and calculations of GHG emission reductions achieved by/resulting from the project by the application of the selected approved methodology.	☒
Avoidance of double registration	The TPE determines whether the project is not registered under other international climate mitigation mechanisms.	☒
Post registration changes	The TPE determines whether there are post registration changes from the registered PDD and/or methodology which prevent the use of the applied methodology.	☒

Authorised signatory:	Mr. ☒ Ms. ☐
Last name: Asada	First name: Sumio
Title: Senior Executive	
Specimen signature:	Date: 24/01/2019

B. Verification team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Tadashi Yoshida	JQA	Team leader	☒	Authorized	☒
Mr. ☒ Ms. ☐	Hiroshi Motokawa	JQA	Internal reviewer	☒	Authorized	☐

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 verification, findings and conclusions based on reporting requirements

C.1. Compliance of the project implementation and operation with the eligibility criteria of the applied methodology

<Means of verification>

The project was registered as a JCM project on 22/12/2017, which applied JCM approved methodology ID_AM012_ver01.0 "Reduction of Energy Consumption by Introducing an Energy-Efficient Old Corrugated Carton Processing System into a Cardboard Factory" under the scheme of Joint Crediting Mechanism between Republic of Indonesia and Japan.

The purpose of the project is to reduce CO_2 emissions from electricity consumption in the corrugated carton process of the packaging paper factory. The cardboard making process consists of mainly corrugated carton process (OCC line) and sheet forming process (PM line). In order to achieve the reduction of electricity consumption in the OCC process per unit of paper production, PT. Fajar Surya Wisesa Tbk. has introduced higher energy-efficient technology from Aikawa Iron Works Co., Ltd. into an OCC line (Line 8) newly installed as a JCM project. The new technology provides less electricity consumption in the operation of the OCC line (Line 8) compared to the existing OCC line (Line 5) while the new OCC line has produced 281,867 ton of the paper during the monitoring period.

The JCM website indicates that the starting date of the project operation is 01/04/2017 and this monitoring period is from 01/07/2017 to 31/08/2018. It is confirmed through the review of relevant documents, on-site assessment and the interview with the PPs that the monitoring actually started on 01/07/2017.

JQA has assessed whether the project implementation and operation during the monitoring

period complies with the eligibility criteria of the applied methodology. After desk review, an on-site assessment was conducted on 21/12/2018. JQA conducted a physical inspection and interviewed with the PPs listed in Section F of this verification report.

The assessment results regarding the eligibility criteria are summarized as below:

Criterion 1

The specific energy consumption of the project OCC line guaranteed by the manufacture is, at the minimum, less than the reference specific energy consumption set for the project factory.

Through the review of the monitored data and the interview with the PPs during on-site assessment, the project information of Criterion 1 in the PDD is confirmed as follows:

- Project specific energy consumption of Line 8 during the monitoring period was 0.1085 MWh/ton in 2017 and 0.0975 MWh/ton in 2018, which are much less than the reference specific energy consumption (SEC_{RE}) of 0.188 MWh/ton.

Hence, it is concluded that the project meets Criterion 1 with a satisfactory result during the monitoring period.

Criterion 2

The paper yield of the project OCC line(s) guaranteed by the manufacture is equal to or more than 90% at the range of designed production capacity.

Through the review of the monitored data and the interview with the PPs during on-site assessment, the project information of Criterion 2 in the PDD is confirmed as follows:

- The paper yield during the monitoring period was in a range of 97.1 – 99.5 %, which shows more than 90% at the range of designed production capacity.

Hence, it is concluded that the project meets Criterion 2 with a satisfactory result during the monitoring period.

Criterion 3

Production capacity of the project OCC line is no more than the twice as large as the capacity of the existing OCC line.

Through the review of the monitored data and the interview with the PPs during on-site

assessment, the project information of Criterion 3 in the PDD is confirmed as follows:

- The amount of paper production by the OCC Line 8 during the monitoring period was 596.6 t/d in 2017 and 708.2 t/d in 2018, which are much less than the twice as large as 1,150 t/d which is the maximum capacity of the existing OCC Line 5.

Hence, it is concluded that the project meets Criterion 3 with a satisfactory result during the monitoring period.

Criterion 4

Plan for regular adjustment, replacement, and improvement of project OCC line(s) are prepared (at least once every six months).

Through the review of the maintenance records and the interview with the PPs during on-site assessment, the project information of Criterion 4 in the PDD is confirmed as follows:

- The maintenance records on the stable operation of the OCC Line 8 during the monitoring period was provided by the PPs. It is confirmed that PT. Fajar Surya Wisesa Tbk. was advised by Aikawa Iron Works several times during the monitoring period for the adjustment, replacement and improvement of the project OCC line, in accordance with the Agreement signed on 28/08/2015.

Hence, it is concluded that the project meets Criterion 4 with a satisfactory result during the monitoring period.

Regarding Criterion 4, JQA raised CL 03 and this issue was resolved as explained in "Findings".

<Findings>

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

< *CL 03* >

Regarding the Criterion 4 , the PP is requested to provide the records on the advice and maintenance/replacement for the stable operation of the OCC Line 8 during the monitoring period,

< Resolution of CL 03 by the PPs >

Following information is provided by the PPs:

The Aikawa Iron Works' staff members have visited several times to check and to recommend possible improvement and replacement, if any, of the machine operation. No specific recommendations was made which requires improvement and replacement of the OCC Line 8. It is confirmed through the review of the maintenance records and the interview with the PPs

that the OCC Line 8 has been appropriately operated and maintained during the monitoring period under Aikawa's advice and support. Thus, CL 03 is closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

JQA concludes that the implementation and the operation of the proposed project are in compliance with four eligibility criteria of the applied methodology ID_AM012 during this monitoring period.

C.2. Assessment of the project implementation against the registered PDD or any approved revised PDD

<Means of verification>

JQA has assessed the status of the actual project and its operation with the registered PDD through the review of the relevant documents, on-site inspection and interviews with the PPs. The project is implemented by the project participants of PT. Fajar Surya Wisesa Tbk. from Republic of Indonesia and Kanematsu Corporation from Japan.

The assessment results are summarized as follows;

[Physical features of the project]

PT. Fajar Surya Wisesa Tbk., who is one of the leading companies of corrugated carton production in Indonesia, has introduced higher energy-efficient paper recycle technology from Aikawa Iron Works Co., Ltd. into an OCC line (Line 8) newly installed as a JCM project in order to reduce electricity consumption in the OCC process. The new technology provides less electricity consumption in the operation of the OCC line (Line 8) compared to the existing OCC line (Line 5). The commissioning of the project equipment was completed on 19/12/2017. The installation of these equipment complies with the description of the registered PDD.

JQA confirms through the on-site inspection for the first verification that the physical features of the project are in place and the PPs have implemented the project as per the registered PDD.

[Monitoring points]

Two monitoring parameters described below are measured by weight bridge and electricity meter, respectively, in accordance with the monitoring plan.

1. $PP_{j,p}$: Paper production measured at the PM line *j* during the period *p* [ton/p]
2. $EC_{PJ,j,p}$: Electricity consumption by the project OCC line *j* during the period *p* [MWh/p]

It is confirmed through the on-site inspection and interview with the PPs that the weight bridge has been installed at the end of the PM line to measure paper production weight and electricity meter has been installed to measure electricity consumption from pulper and coarse/fine screens in the OCC line 8. These two measuring equipment are located at the right position, respectively.

The paper production weight and electricity consumption are monitored hourly and recorded monthly for aggregation. Measured data is automatically transmitted to the server and double-checked by a responsible staff on a monthly basis to prevent the missing of data. Detailed information on the monitoring data of these parameters is described in Section C.4.

[Monitoring structure]

The monitoring structure has been established and the roles and responsibilities of the personnel are consistent with the description in Monitoring Structure Sheet. The staff training for operation, monitoring and maintenance of the system was conducted intermittently during the period of March - August 2017.

It is confirmed through the review of relevant documents and the interview with the PPs that the monitoring activity has been appropriately implemented during the monitoring period, in line with the monitoring plan of the registered PDD.

<Findings>

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

No issue was identified.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

JQA concludes that the project has been implemented in accordance with the registered PDD during the monitoring period, and no changes are found from the description of the registered PDD.

C.3. Compliance of calibration frequency and correction of measured values with related requirements

<Means of verification>

The measuring equipment used in the project activity is weight bridge (Toledo Model

IND331 Digital Indicator) made by Mettler and electricity meter (PowerLogic™ PM5300) made by Schneider Electric.

The weight bridge is calibrated yearly by Government of Karawang, Industrial and Trade Service, Regional Technical Implementation Unit for Metrology Legal, in compliance with international recommendation OIML R 76-1:2002. The additional calibration of electricity meter is not required according to the manufacturer's specification, as described in the MPS.

It is confirmed through the review of calibration certificates that the weight bridge has been calibrated annually during the monitoring period, in accordance with the international recommendation. Electricity meter does not require additional calibration after installation as specified by the manufacturer's specification.

Regarding the calibration of weight bridge, JQA raised CL 04 and this issue was resolved as explained in "Findings".

<Findings>

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

< CL 04 >

The PP is requested to provide the calibration certificate of weight bridge during the monitoring period.

< Resolution of CL 04 by the PPs >

The calibration certificates of the weight bridge on 22/08/2017, 04/11/2017 and 27/11/2018 were provided by the PPs. It is confirmed through the review of the calibration certificates that the first calibration of the weight bridge was delayed and conducted by UPTD Metrologi Legal under Industry, Trade, Mining and Energy Agency of Karawang District Government on 22/08/2017 after the operation of OCC Line 8 since 01/07/ 2017. As the error of the weight bridge stayed within ±5% in the result of the first calibration, the measured values of the paper production weight during the period of 01/07/2017 - 21/08/2017 were applied without correction in the calculation of emission reductions, according to the paragraph 40 (a) of JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_ID_GL_PDD_MR_ver03.0). Thus, CL 04 is closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

JQA concludes that the weight bridge has been calibrated annually after the first calibration by a qualified entity and its calibration frequency is in compliance with the

international recommendation OIML R 76-1:2002. No correction of the measured values during the period of 01/07/2017 – 21/08/2017 is required for the delayed calibration.

C.4. Assessment of data and calculation of GHG emission reductions

<Means of verification>

JQA has assessed the data and calculation of GHG emission reductions achieved by the project activity as follows:

(a) The corresponding Monitoring Report Sheet of the applied methodology has been used;

Through the review of the monitoring report for the project which is titled as JCM_ ID011_MP-rev4 211218.xlsx, it is confirmed that the Monitoring Report Sheets (MRS(input) 2017(7-12), MRS(calc_process) 2017(7-12), MRS(input) 2018(1-8) and MRS(calc_process) 2018(1-8)) of applied methodology ID_AM012 are appropriately used.

(b) A complete set of data for the monitoring period for all parameters monitored ex post was provided to the verification team in the form of several kinds of files.

Monitoring Report Sheet (MRS) provided by the PPs contains a complete set of the monitored data on paper production weight and electricity consumption during the monitoring period of 01/07/2017 - 31/08/2018. These data are separately provided for each year of 2017 and 2018. It is confirmed through the review of these monitored data that the paper production weight and electricity consumption are fully provided for the monitoring period.

(c) Information provided in the monitoring report has been checked with sources such as plant logbooks, inventories, purchase records, laboratory analysis;

JQA has reviewed the correctness of monitored data given in the MRS for paper production weight and electricity consumption through cross-checking them with the monthly data provided by the PPs.

Parameters	Monitored values	Method to check values in the monitoring report with sources
$PP_{j,p}$	109,777.0 (2017) 172,090.0 (2018)	The value of paper production weight in the MRS is cross-checked with monthly data which aggregates the daily data downloaded from the server.
$EC_{PJ,j,p}$	11,914.2 (2017)	The value of electricity consumption in the MRS is cross-checked with monthly data downloaded from the

	16,775.8 (2018)	server.

It is confirmed through the cross-check of the monitored data in the MRS with the monthly data that the values of paper production weight and electricity consumption in the MRS are fully consistent with the sum of their monthly data, and reference emissions ($RE_{j,p}$), project emissions ($PE_{j,p}$) and emission reductions ($ER_{j,p}$) in the MRS are correctly calculated.

(d) Any assumptions used in emission calculations have been justified;

Through the review of the MRS and the interview with the PPs, it is confirmed that no assumption has been used in the calculations of emission reductions and hence no justification is required.

(e) Appropriate emission factors, default values, and other reference values have been correctly applied.

Through the review of the MRS and the interview with the PPs, it is confirmed that CO_2 emission factor for consumed electricity (EF_{elec}) and reference specific electricity consumption of the OCC line (SEC_{RE}), which were determined at the time of validation and provided in the MPS, have been correctly applied in the calculation of reference emissions.

The data monitored and required for verification and issuance is to be kept and archived electronically for two years after the final issuance of credits.

Regarding the description in Table 1 of MRS and the difference in the emission reductions between the ex-ante and ex-post values, JQA raised CL 01 and CL 02 and these issues were resolved as explained in "Findings".

<Findings>

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

< CL 01 >

Following description in Table 1 of MRS is not appropriate:

1) "The estimated value below is annual one" in (i) Monitoring frequency of Table 1 for $PP_{j,p}$ and $EC_{PJ,j,p}$,

2) "In case a calibration certificate issued by an entity accredited under national/ international standards is not provided, such measuring equipment is required to be calibrated" in (h) Measurement methods and procedures of Table 1 for $EC_{PJ,j,p}$, because electricity meter does not require additional calibration as specified in the specs in "(j) Other comments".

< Resolution of CL 01 by the PPs >

The PPs has submitted the revised MRS so as to keep consistency. It is confirmed through the review of the revised MRS that the MRS is appropriately revised. Thus, CL 01 is closed.

< CL 02 >

The PP is requested to explain the difference in the emission reductions between the ex-ante and ex-post values.

< Resolution of CL 02 by the PPs >

Following information is provided by the PPs:

The difference between real/dynamic market and expectation at the time of PDD development caused the difference of the *ex-ante* and *ex-post* values. The largest contribution comes from the shift to the production of lighter papers driven by Chinese market. It is confirmed through the relevant document and the interview with the PPs that PT. Fajar Surya Wisesa Tbk. produces three kinds of corrugating medium paper and the higher density paper with a basic weight of 123-127 g/m^2 is made by the OCC Line 5 which was used for the calculation of the reference specific electricity consumption of the OCC Line 5 (SEC_{RE}) at the time of the validation. Due to the recent change of market circumstances, mainly driven by Chinese market, the demand on the lighter papers with a basic weight of 93-97 g/m^2 is increased. This change led to the reduction of paper production weight and electricity consumption compared to their *ex- ante* estimates and accordingly caused the lower emission reductions by about 20% than the *ex-ante* value. Thus, CL 02 is closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

JQA concludes that the monitored data and the project-specific parameters fixed *ex-ante* are appropriately and correctly applied in the calculation of GHG emission reductions achieved by the project activity, in accordance with the applied methodology ID_AM012 and the monitoring plan of the registered PDD.

C.5. Assessment of avoidance of double registration

<Means of verification>

It is confirmed that a written confirmation from the PPs regarding no registration under other international climate mitigation mechanisms was provided at the time of validation and the declaration letter signed by the PP's representative in the MoC was submitted to the Joint Committee. In addition, it is re-confirmed through the check of the relevant website and the

interview with PPs that the project has not been registered under any other mechanisms at the time of verification.

<Findings>

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

No issues was identified.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

JQA concludes that the project has not been registered under other international climate mitigation mechanisms.

C.6. Post registration changes

<Means of verification>

It is confirmed through the review of documents and the on-site assessment that the project has not been changed from the registered PDD and/or methodology.

<Findings>

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

No issue was identified.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

JQA concludes that the project has not been changed from the registered PDD and/or methodology.

D. Assessment of response to remaining issues

An assessment of response to the remaining issues including FARs from the validation and/or previous verification period, if appropriate

No issues including FAR from the validation are remained. As this is the first verification, no issues from the previous verification are also remained.

E. Verified amount of emission reductions achieved

Year	Verified Reference Emissions (tCO_2e)	Verified Project Emissions (tCO_2e)	Verified Emission Reductions (tCO_2e)
2013	-	-	-
2014	-	-	-
2015	-	-	-
2016	-	-	-
2017	13,742.5	7,934.8	5,807
2018	21,543.2	11,172.7	10,370
2019	-	-	-
2020	-	-	-
Total (tCO_2e)			16,177

Note: The verified emission reductions in each year are rounded down after the decimal point.

F. List of interviewees and documents received

F.1. List of interviewees

- Mr. Wimba Wibawa Wanadiardja	Director, PT. Fajar Surya Wisesa Tbk.
- Mr. Marco Hardy	Finance Manager, PT. Fajar Surya Wisesa Tbk.
- Mr. Shandy Koeswanto	Corporate Finance, PT. Fajar Surya Wisesa Tbk.
- Ms. Marsha	Finance, PT. Fajar Surya Wisesa Tbk.
- Mr. Muhammad Taufiq	Head, Electrical & Instrument Department, PT. Fajar Surya Wisesa Tbk.
- Mr. Naoki Matsuo	Senior Fellow, Institute for Global Environmental Strategies (IGES)

F.2. List of documents received

1. JCM Project Design Document (ID011) _ver1.2, 27/11/2017
2. JCM Validation Report (ID011), 29/11/2017
3. Monitoring Spreadsheet: JCM_ID011_MP-rev4 211218.xlsx (Monitoring period: 01/07/2017 - 31/08/2018)
4. JCM Modalities of Communication Statement Form (ID011) (JCM_ID_F_MoC_ ver01.0)
5. JCM Approved Methodology JCM_ID_AM012_ver1.0
6. JCM Glossary of Terms (JCM_ID_Glossary_ver02.0)
7. JCM Project Cycle Procedure (JCM_ID_PCP_ver05.0)

8. JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_ID_GL_PDD_MR_ver03.0)
9. JCM Guidelines for Validation and Verification (JCM_ID_GL_VV_ver01.0)
10. JCM Verification Report Form (JCM_ID_F_Vrf_Rep_ver01.1)
11. Monthly data report of electricity consumption for OCC Line 8 during the monitoring period (01/07/2017 - 31/08/2018)
12. Monthly data report of paper production weight by PM Line during the monitoring period (01/07/2017 - 31/08/2018)
13. Daily data of paper production weight during the monitoring period
14. Project specific energy consumption of OCC Line 8 during the monitoring period (Criterion 1)
15. Paper yield of the project OCC Line 8 during the monitoring period (Criterion 2)
16. Project production capacity of the OCC Line 8 during the monitoring period (Criterion 3)

17-1. Maintenance records of the OCC Line 8 (Criterion 4)

17-2. Workflow Procedure for Preventive Maintenance

18. Checklist for inspection and maintenance of OCC Line 8
19. Records and materials of operational staff training including attendee list
20. Schematic diagram of monitoring structure including information/ data flow for project activity
21. Specification of electricity meter installed at the monitoring point 2
22. Specification of weight bridge installed at the monitoring point 1
23. International Recommendation OIML R 76-1:2006, Part 1- Metrological and technical requirements – Tests
24. Calibration certificate of weight bridge dated 22/08/2017, 04/11/2017 and 27/11/2018
25. Specification of corrugating medium paper produced by PT. Fajar Surya Wisesa Tbk.

Annex Certificates or curricula vitae of TPE's verification 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.

Statement of competence

Name: Dr. Tadashi Yoshida

Qualified and authorized by Japan Quality Assurance Organization.

Function	Date of qualification
Validator	2014/12/22
Verifier	2014/12/22
Team leader	2014/12/22

Technical area within sectoral scopes	Date of qualification
TA 1.1. Thermal energy generation	2014/12/22
TA 1.2. Renewables	2014/12/22
TA 3.1. Energy demand	2014/12/22
TA 4.1. Cement and lime production	2015/11/12
TA 4.6. Other manufacturing industries	2014/12/22
TA 5.1. Chemical industry	2014/12/22
TA 10.1. Fugitive emissions from oil and gas	2014/12/22
TA 13.1. Solid waste and wastewater	2014/12/22
TA 14.1. Afforestation and reforestation	-

Statement of competence

Name: Mr. Hiroshi Motokawa

Qualified and authorized by Japan Quality Assurance Organization.

Function	Date of qualification
Validator	2014/12/22
Verifier	2014/12/22
Team leader	2014/12/22

Technical area within sectoral scopes	Date of qualification
TA 1.1. Thermal energy generation	2014/12/22
TA 1.2. Renewables	2014/12/22
TA 3.1. Energy demand	2014/12/22
TA 4.1. Cement and lime production	2014/12/22
TA 4.6. Other manufacturing industries	2014/12/22
TA 5.1. Chemical industry	-
TA 10.1. Fugitive emissions from oil and gas	-
TA 13.1. Solid waste and wastewater	2014/12/22
TA 14.1. Afforestation and reforestation	-