Carbon Credits (Carbon Farming Initiative—Designated Verified Carbon Standard Projects) Methodology Determination 2015

I, Greg Hunt, Minister for the Environment, make the following determination.

Dated 17:3:2015

Greg Hunt

Greg Hunt
Minister for the Environment

Contents

Part 1—Preliminary

1 Name

This is the *Carbon Credits (Carbon Farming Initiative—Designated Verified Carbon Standard Projects) Methodology Determination 2015*.

2 Commencement

This determination is taken to have come into force on 1 January 2013.

3 Authority

This determination is made under subsection 106(1) of the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

4 Duration

This determination remains in force for the period that:

(a) begins when this instrument commences; and

(b) ends on the day before this instrument would otherwise be repealed under subsection 50(1) of the *Legislative Instruments Act 2003*.

5 Definitions

In this determination:

Act means the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

baseline (BSL)means the scenario in which harvest events meeting the requirements of sections 14 to 16 would occur in the project area if the project were not carried out.

biomass means vegetation-derived organic matter.

carbon stock means an amount of carbon.

C means carbon.

CO_2-e means carbon dioxide equivalent.

debris means above-ground dead plant material.

designated Verified Carbon Standard project—see section 6.

forest means land of a minimum area of 0.2 of a hectare on which trees:

(a) have attained, or have the potential to attain, a crown cover of at least 20% across the area of land; and

(b) have reached, or have the potential to reach, a height of at least 2 metres.

harvest date means the calendar year in which a land parcel would be harvested if the project were not carried out.

harvested wood product means pulpwood or sawlog.

land parcel means an area of land at no specific location in a stratum in which a harvest event would occur in a particular year of the crediting period if the project were not carried out.

Note For example, a 50 hectare land parcel in Stratum A, which has an area of 100 hectares, could be any 50 hectares of Stratum A that would be harvested in 2022 if the project were not carried out.

logging slash means debris from a harvest event remaining in a land parcel.

merchantable volume means the maximum amount of timber that could be extracted for sale.

National Inventory Report means the most recently published document that is:

(a) known as the National Inventory Report; and

(b) prepared by the Department in fulfilment of obligations that Australia has under the Climate Change Convention.

NGER Measurement Determination means the applicable determination made under subsection 10(3) of the *National Greenhouse and Energy Reporting Act 2007*.

NGER Regulations means the *National Greenhouse and Energy Reporting Regulations 2008*.

project scenario (PRJ) means the avoidance of all harvest events in all land parcels in the crediting period.

stratum means an area of land in the project area.

Student t-test means a statistical hypothesis test in which the test statistic follows a Student's *t* distribution if the null hypothesis is supported.

Validation Report means an independent report of that name assessing a Verified Carbon Standard project against a Verified Carbon Standard methodology.

Verification Report means an independent report of that name assessing a Verified Carbon Standard project's actual emission reductions against a Verified Carbon Standard methodology.

Verified Carbon Standard means the independent, non-profit organisation generally known as the 'Verified Carbon Standard'.

Verified Carbon Standard modelling period means the period over which the project's carbon stocks were modelled when it was a Verified Carbon Standard project.

Verified Carbon Standard project means a project approved, or previously approved, by the Verified Carbon Standard.

Verified Carbon Standard project start date means the day on which a Verified Carbon Standard project started.

Verified Carbon Unit means a unit issued by the Verified Carbon Standard to Verified Carbon standard projects.

Note Other words and expressions used in this determination have the meaning given by the Act. These include:

crediting period

eligible carbon abatement

eligible offsets project

emission

greenhouse gas

natural disturbance

offsets project

offsets report

project

project area

project proponent

Regulator

reporting period

sequestration offsets project.

Part 2—Designated Verified Carbon Standard projects

6 Designated Verified Carbon Standard projects

(1) For paragraph 106(1)(a) of the Act, this determination applies to a sequestration offsets project that:

(a) is a designated Verified Carbon Standard project for the purposes of sub-item 388A(1) of Schedule 1 to the *Carbon Farming Initiative Amendment Act 2014*; and

(b) results in eligible carbon abatement; and

(c) was registered under the Verified Carbon Standard before 18 June 2014.

(2) A project covered by subsection (1) is a ***designated Verified Carbon Standard project***.

Part 3—Project requirements

Division 1—General requirements

7 Operation of this Part

For paragraph 106(1)(b) of the Act, this Part sets out requirements that must be met for a designated Verified Carbon Standard project to be an eligible offsets project.

Division 2—Information provided to Regulator

8 Information supported by evidence

(1) The information provided to the Regulator in accordance with this Division must be supported by evidence.

(2) The evidence may comprise maps, spreadsheets or other documents.

(3) The evidence must be contained or referenced in:
  (a) the Validation Report for the project; or
  (b) a Verification Report for the project.

9 Spatial information

The project proponent must provide the Regulator with the following spatial information:
  (a) the location of each stratum in the project area;
  (b) the area, in hectares, of each stratum;
  (c) the location of each sample plot in each stratum;
  (d) the stratum each land parcel is in;
  (e) the area in hectares of each land parcel.

10 Tree species information

The project proponent must provide the Regulator with the following information for each tree species harvested in the baseline:
  (a) the basic wood density, in tonnes of dry matter per cubic metre, of each species in the project area; and
  (b) the merchantable volume, in cubic metres, of each tree species in each sample plot in each stratum.

11 Baseline harvest information

The project proponent must provide the Regulator with the following baseline harvest information:
  (a) the year in which each land parcel would be harvested if the project were not carried out;
  (b) the proportion of each harvested wood product extracted from each land parcel;
  (c) the proportion of biomass extracted from each land parcel;
  (d) the projected growth, in cubic metres per hectare, in each land parcel before the harvest in the land parcel;

(e) the annual average rate of carbon stock increase, in tonnes C per hectare per year, in each land parcel.

12 Project scenario information

The project proponent must provide the Regulator with the following project scenario information:

(a) the carbon stock, in tonnes C per hectare, in each land parcel at the end of the Verified Carbon Standard modelling period;

(b) the carbon stock, in tonnes C per hectare, in each land parcel at the harvest date.

Division 3—Other requirements

13 Verified Carbon Units

The project proponent must provide the Regulator with evidence of:

(a) the most recent day in respect of which Verified Carbon Units were issued for the project; and

Note For example, if Verified Carbon Units were issued for the project for abatement occurring between 1 July 2011 and 30 June 2012, the most recent day in respect of which Verified Carbon Units were issued for the project is 30 June 2012.

(b) the number of Verified Carbon Units issued for the project; and

(c) the Verified Carbon Standard project start date; and

(d) the Verified Carbon Standard modelling period.

14 No re-harvest events

In the baseline, a land parcel may only be scheduled to be harvested in one year in the crediting period.

Note For example, if a land parcel is to be harvested in 2014 in the baseline scenario, it cannot be scheduled to be re-harvested in any other year in the crediting period.

15 No land conversion events

In the baseline, a land parcel must not have a scheduled harvest event with the result that the land parcel is converted to a non-forest land use.

Note For example, a land parcel cannot be scheduled to be harvested and converted to grazing land.

16 No harvest events after 2028

In the baseline, a land parcel must not be scheduled to be harvested after 31 December 2028.

17 Removal of biomass and thinning

(1) Live trees and other live biomass must not be removed from the project area.

(2) Dead wood may be removed from the project area.

(3) Thinning is not permitted in the project area.

Part 4—Net abatement amount

Division 1—Operation of this Part

18 Operation of this Part

For paragraph 106(1)(c) of the Act, this Part specifies the method for working out the carbon dioxide equivalent net abatement amount for a reporting period for a designated Verified Carbon Standard project that is an eligible offsets project.

19 References to factors and parameters from external sources

(1) If a calculation in this determination includes a factor or parameter that is defined or calculated by reference to another instrument or writing, the factor or parameter to be used for a reporting period is the factor or parameter referred to in, or calculated by reference to, the instrument or writing as in force at the end of the reporting period.

(2) Subsection (1) does not apply if:
  (a) the determination specifies otherwise; or
  (b) it is not possible to define or calculate the factor or parameter by reference to the instrument or writing as in force at the end of the reporting period.

Division 2—Project commencement

20 Project commencement

(1) The project proponent must determine the day on which the project commences in accordance with this section.

(2) The project commences on the later of:
  (a) January 2013; or
  (b) the day after the most recent day in respect of which Verified Carbon Units were issued for the project.

Note For example, if Verified Carbon Units were issued for the project in respect of abatement occurring until 31 March 2013, the project commences on 1 April 2013.

Division 3—Calculating net baseline emissions

Subdivision 1—General

21 General

(1) The project proponent must calculate the project's net baseline emissions by completing the equations in this Division.

(2) The information provided to the Regulator in accordance with Part 3 and listed in the left-hand column of Table A must be used when completing the equations in the right hand column.

Note The information provided to the Regulator set out in Table A must be supported by evidence contained or referenced in a Validation Report or Verification Report for the project. See subsection 8(3).

Table A

Information provided to Regulator	Parameter	Equation
Area, in hectares, of each stratum	A_j	25
Area, in hectares, of each land parcel	A_p	13, 15, 19, 25
Basic wood density, in tonnes of dry matter per cubic metre, of each tree species in the project area.	D_i	5
Projected growth before harvest, in cubic metres per hectare, in each land parcel.	PR_p	2B
Merchantable volume, in cubic metres, of each tree species in each sample plot in each stratum.	$V_{i,j,sp}$	1
Proportion of biomass extracted from each land parcel.	EX_p	3
Year in the crediting period in which each land parcel would be harvested if the project were not carried out.	th_p	6, 9, 12, 31
Proportion of each harvested wood product extracted from each land parcel.	PC_k	8
Average annual rate of carbon stock increase, in tonnes C per hectare per year, in each land parcel.	$\overline{RGR}_p$	12
Number of Voluntary Carbon Units issued for the project before project commencement.	VCU_{issued}	17
Carbon stock, in tonnes C per hectare, in each land parcel at the harvest date.	$C_{harv,p}$	18
Carbon stock, in tonnes C per hectare, in each land parcel at the end of the Verified Carbon Standard modelling period.	$C_{END,p}$	18

Subdivision 2—Carbon stock extracted from project area

22 General

(1) The carbon stock extracted from the project area in the baseline is calculated in accordance with this Subdivision.

(2) Unless otherwise specified, for the purposes of this Part, projected growth in a land parcel is taken to be a species (i).

23 Mean merchantable volume of each species in each stratum

(1) The mean merchantable volume of each species in each stratum must be calculated using the following equation:

$$\bar{V}_{i,j\|BSL} = \frac{1}{SP} \times \sum_{sp} \frac{V_{i,j,sp}}{A_{sp}}$$	**Equation 1**

Where:

$\bar{V}_{i,j|BSL}$ = the mean merchantable volume, in cubic metres per hectare, of species i in stratum j.

SP = the total number of sample plots in stratum j.

$V_{i,j,sp}$ = the merchantable volume, in cubic metres, of species i in sample plot sp in stratum j—provided to the Regulator in accordance with Part 3.

A_{sp} = the area, in hectares, of sample plot sp.

(2) Subsection (1) does not apply to projected growth.

24 Mean merchantable volume in each land parcel

(1) The mean merchantable volume of each species in each land parcel must be calculated:

(a) if the mean merchantable volume of the species in a stratum was calculated using Equation 1—using Equation 2A; or

(b) if projected growth was provided to the Regulator in accordance with Part 3—using Equation 2B.

$V_{i,p\|BSL} = \bar{V}_{i,j\|BSL}$	**Equation 2A**

Where:

$V_{i,p|BSL}$ = the mean merchantable volume, in cubic metres per hectare, of species i in land parcel p.

$\bar{V}_{i,j|BSL}$ = the mean merchantable volume, in cubic metres per hectare, of species i in stratum j in which the land parcel p is located—from Equation 1.

$V_{i,p\|BSL} = PR_p$	**Equation 2B**

Where:

$V_{i,p|BSL}$ = the mean merchantable volume, in cubic metres per hectare, of species i in land parcel p.

PR_p = the projected growth before harvest, in cubic metres per hectare, in land parcel p—provided to the Regulator in accordance with Part 3.

(2) The mean merchantable volume of all species in each land parcel must be calculated using the following equation:

$V_{p\|BSL} = \sum_i V_{i,p\|BSL}$	**Equation 2C**

Where:

$V_{p|BSL}$ = the mean merchantable volume, in cubic metres per hectare, of all species in land parcel p.

$V_{i,p|BSL}$ = the mean merchantable volume, in cubic metres per hectare, of species i in land parcel p—from Equation 2A or 2B.

25 Mean volume of extracted timber for each species in each land parcel

The mean volume of extracted timber for each species in each land parcel must be calculated using the following equation:

$V_{EX,i,p\|BSL} = V_{i,p\|BSL} \times EX_p$	**Equation 3**

Where:

$V_{EX,i,p|BSL}$ = the mean volume of extracted timber, in cubic metres per hectare, for species i in land parcel p.

$V_{i,p|BSL}$ = the mean merchantable volume, in cubic metres per hectare, for species i in land parcel p—from Equation 2A or 2B.

EX_p = the proportion of biomass extracted from land parcel p—provided to the Regulator in accordance with Part 3.

26 Mean carbon stock of harvested biomass for each species in each land parcel

The mean carbon stock of harvested biomass for each species in each land parcel must be calculated using the following equation:

$C_{HB,i,p\|BSL} = V_{EX,i,p\|BSL} \times BCEF \times CF$	**Equation 4**

Where:

$C_{HB,i,p|BSL}$ = the mean carbon stock of harvested biomass, in tonnes C per hectare, for species i in land parcel p.

$V_{EX,i,p|BSL}$ = the mean volume of extracted timber, in cubic metres per hectare, for species i in land parcel p—from Equation 3.

$BCEF$ = biomass conversion and expansion factor, in tonnes of dry matter per cubic metre—from Table B.

CF = 0.5, being the fraction of carbon in biomass.

27 Biomass conversion factor

The biomass conversion factor for each species in each land parcel is given in the following table:

Table B

The mean merchantable volume, in cubic metres per hectare, of all species in land parcel p—from Equation 2C	**Biomass conversion and expansion factor ($BCEF$)**
<20	3
21–40	1.7
41–100	1.4
100–200	1.05
>200	0.8

28 Mean carbon stock of extracted timber for each species in each land parcel

The mean carbon stock of extracted timber for each species in each land parcel must be calculated using the following equation:

$C_{EX,i,p\|BSL} = V_{EX,i,p\|BSL} \times D_i \times CF$	**Equation 5**

Where:

$C_{EX,i,p|BSL}$ = the mean carbon stock of extracted timber, in tonnes C per hectare, for species i in land parcel p.

$V_{EX,i,p|BSL}$ = the mean volume of extracted timber, in cubic metres per hectare, for species i in land parcel p—from Equation 3.

D_i =
(a) for projected growth in a land parcel—basic wood density is 0.63 tonnes of dry matter per cubic metre; and
(b) otherwise—basic wood density, in tonnes of dry matter per cubic metre, of species i—provided to the Regulator in accordance with Part 3.

CF = 0.5, being the fraction of carbon in biomass.

Note Projected growth in a land parcel is taken to be a species in this Part. See subsection 22(2).

29 Carbon stock of logging slash in each land parcel

The mean carbon stock of logging slash remaining as debris at the end of the crediting period in each land parcel, in tonnes C per hectare, must be calculated using the following equation:

$C_{DWSLASH,p\|BSL} = \sum_i \left(\left(C_{HB,i,p\|BSL} - C_{EX,i,p\|BSL} \right) \times (1 - DF_d)^{th_p} \right)$	**Equation 6**

Where:

$C_{DWSLASH,p|BSL}$ = the carbon stock of logging slash, in tonnes C per hectare, remaining as debris at the end of the crediting period for all species in land parcel p.

$C_{HB,i,p|BSL}$ = the mean carbon stock of harvested biomass, in tonnes C per hectare, for species i in land parcel p—from Equation 4.

$C_{EX,i,p|BSL}$ = the mean carbon stock of extracted timber, in tonnes C per hectare, for species i in land parcel p—from Equation 5.

DF_d = 0.1 being the debris decay factor.

th_p = the number of years between the harvest in land parcel p and the end of the crediting period.

30 Carbon stock of extracted timber from each land parcel

The carbon stock of extracted timber from each land parcel must be calculated using the following equation:

$C_{EX,p\|BSL} = \sum_i C_{EX,i,p\|BSL}$	**Equation 7**

Where:

$C_{EX,p|BSL}$ = the carbon stock of extracted timber, in tonnes C per hectare, for all tree species in land parcel p.

$C_{EX,i,p|BSL}$ = the mean carbon stock of extracted timber, in tonnes C per hectare, for species i in land parcel p—from Equation 5.

31 Carbon stock for each harvested wood product in each land parcel

The carbon stock of each kind of harvested wood product, in tonnes C per hectare, for each land parcel must be calculated using the following equation:

$C_{EX,p,k\|BSL} = C_{EX,p\|BSL} \times PC_k$	**Equation 8**

Where:

$C_{EX,p,k|BSL}$ = the carbon stock of harvested wood product k, in tonnes C per hectare, resulting from the harvest in land parcel p.

$C_{EX,p|BSL}$ = the carbon stock of harvested wood products, in tonnes C per hectare, for all tree species in land parcel p—from Equation 7.

PC_k = the proportion of harvested wood product k extracted from land parcel p—provided to the Regulator in accordance with Part 3.

Subdivision 3—Carbon stock in existence in harvested wood products at end of crediting period

32 General

(1) The total carbon stock in existence in harvested wood products at the end of the crediting period is calculated in accordance with this Subdivision.

(2) The project proponent must use the values in Table C in Equations 9 and 10 in this Subdivision.

Table C

Harvested wood product (k)	Wood waste (WW)	Decay factor (DF)	Minimum carbon stock in existence at end of crediting period (MD)
Sawlog	0.19	0.033	0.8
Pulpwood	0.19	0.333	0.1

33 Carbon stock in harvested wood products in existence at end of crediting period—decay factor method

For each harvested wood product from each land parcel, the carbon stock in existence at the end of the crediting period must be calculated using the following equation:

$C_{WP,p,k} = C_{EX,p,k\|BSL} \times (1 - WW_k) \times (1 - DF_k)^{th_p}$	**Equation 9**

Where:

$C_{WP,p,k}$ = the carbon stock of harvested wood product k, in tonnes C per hectare, from land parcel p in existence at the end of the crediting period.

$C_{EX,p,k|BSL}$ = the carbon stock of harvested wood product k, in tonnes C per hectare, resulting from harvest in land parcel p—from Equation 8.

WW_k = the proportion of biomass carbon lost from wood products after milling operations for harvested wood product k—from Table C.

DF_k = the decay factor for harvested wood product k—from Table C.

th_p = the number of years between the harvest in land parcel p and the end of the crediting period.

34 Carbon stock in harvested wood products in existence at end of crediting period—maximum loss method

For each harvested wood product, the minimum carbon stock remaining in each land parcel at the end of the crediting period must be calculated using the following equation:

$C_{WPMIN,p,k} = C_{EX,p,k\|BSL} \times (1 - WW_k) \times MD_k$	**Equation 10**

Where:

$C_{WPMIN,p,k}$ = minimum carbon stock for harvested wood product k, in tonnes C per hectare, remaining in land parcel p at the end of the crediting period.

$C_{EX,p,k|BSL}$ = the carbon stock of harvested wood product k, in tonnes C per hectare, resulting from the harvest in land parcel p—from Equation 8.

WW_k = proportion of biomass carbon lost from harvested wood products after milling operations for wood product k—from Table C.

MD_k = the minimum proportion of harvested wood product k remaining at the end of the crediting period—from Table C.

35 Calculating carbon stock in harvested wood products in existence at end of crediting period—conservative estimate

(1) For each harvested wood product extracted from each land parcel, a conservative estimate of the carbon stock in the harvested wood product in existence at the end of the crediting period must be made in accordance with this section.

Note The conservative estimate takes the higher of the values calculated using Equation 9 and 10. This is conservative because the more carbon stock exists at the end of the crediting period, the lower the emissions in the baseline and therefore the lower the emissions that have been avoided in the project scenario.

(2) If the value calculated using Equation 9 is greater or equal to the value calculated using Equation 10, the carbon stock in the harvested wood product in existence at the end of the crediting period ($C_{WP,p,k|BSL}$) is the value calculated using Equation 9 ($C_{WP,p,k}$).

(3) If the value calculated using Equation 9 is less than the value calculated using Equation10, the carbon stock in the harvested wood product in existence at the end of the crediting period ($C_{WP,p,k|BSL}$) is the value calculated using Equation 10 ($C_{WPMIN,p,k}$).

36 Carbon stock in existence in harvested wood products at end of crediting period

The carbon stock in existence in all harvested wood products at the end of the crediting period must be calculated using the following equation:

$C_{WP,p\|BSL} = \sum_{k} C_{WP,p,k\|BSL}$	**Equation 11**

Where:

$C_{WP,p|BSL}$ = the carbon stock, in tonnes C per hectare, of all harvested wood products from land parcel p present at the end of the crediting period.

$C_{WP,p,k|BSL}$ = the carbon stock of harvested wood product k, in tonnes C per hectare, resulting from harvest in land parcel p—determined in accordance with section 35.

Subdivision 4—Carbon stock in forest regrowth after harvest

37 General

The carbon stock in forest regrowth after harvests in the baseline is calculated in accordance with this Subdivision.

38 Carbon stock in regrowth each land parcel

For each land parcel, the carbon stock in regrowth in the crediting period, in tonnes C per hectare, after the harvest in the land parcel must be calculated using the following equation:

$C_{RG,p\|BSL} = \overline{RGR}_p \times th_p$	**Equation 12**

Where:

$C_{RG,p|BSL}$ = the carbon stock in regrowth, in tonnes C per hectare, in the crediting period after the harvest in land parcel p.

$\overline{RGR}_p$ = the average annual rate of carbon stock increase, in tonnes C per hectare per year, in land parcel p—provided to the Regulator in accordance with Part 3.

th_p = the number of years between the harvest in land parcel p and the end of the crediting period.

39 Carbon stock in regrowth in all land parcels

The carbon stock in regrowth, in tonnes C, in all land parcels must be calculated using the following equation:

$C_{RG\|BSL} = \sum_{p} (A_p \times C_{RG,p\|BSL})$	**Equation 13**

Where:

$C_{RG|BSL}$ = the carbon stock in regrowth, in tonnes C, in the crediting period in all land parcels.

A_p = the area, in hectares, of land parcel p—provided to the Regulator in accordance with Part 3.

$C_{RG,p|BSL}$ = the carbon stock in regrowth, in tonnes C per hectare, after a harvest in land parcel p—from Equation 12.

40 Carbon stock of harvested biomass for all species in each land parcel

The mean carbon stock of harvested biomass for all species in each land parcel must be calculated using the following equation:

$C_{HB,p\|BSL} = \sum_{i} C_{HB,i,p\|BSL}$	**Equation 14**

Where:

$C_{HB,p|BSL}$ = the mean carbon stock of harvested biomass, in tonnes C per hectare, for all species in land parcel p.

$C_{HB,i,p|BSL}$ = the mean carbon stock of harvested biomass, in tonnes C per hectare, for species i in land parcel p—from Equation 4.

41 Loss from logging slash and harvested wood product decay over the crediting period

The loss of carbon stock, in tonnes C, from all land parcels over the crediting period must be calculated using the following equation:

$C_{Loss\|BSL} = \sum_{p} \left(A_{\mathrm{p}} \times \left(C_{HB,p\|BSL} - C_{DWSLASH,\mathrm{p}\|BSL} - C_{WP,\mathrm{p}\|BSL}\right)\right)$	**Equation 15**

Where:

$C_{Loss|BSL}$ = the loss of carbon stock, in tonnes C, from all land parcels over the crediting period.

A_p = the area, in hectares, of land parcel p—provided to the Regulator in accordance with Part 3.

$C_{HB,p|BSL}$ = the mean carbon stock of harvested biomass, in tonnes C per hectare, for all species in land parcel p—from Equation 14.

$C_{DWSLASH,p|BSL}$ = the carbon stock of logging slash, in tonnes C per hectare, remaining as debris at the end of the crediting period for all species in land parcel p—from Equation 6.

$C_{WP,p|BSL}$ = the carbon stock, in tonnes C per hectare, of all harvested wood products from land parcel p present at the end of the crediting period—from Equation 11.

Subdivision 5—Net baseline emissions

42 General

Net baseline emissions are calculated in accordance with this Subdivision.

43 Net carbon stock change—all land parcels

The net carbon stock change in all land parcels over the crediting period must be calculated using the following equation:

$C_{NET\|BSL} = C_{Loss\|BSL} - C_{RG\|BSL}$	**Equation 16**

Where:

$C_{NET|BSL}$ = the net carbon stock change, in tonnes C, in all land parcels over the crediting period.

$C_{Loss|BSL}$ = the loss of carbon stock, in tonnes C, from all land parcels over the crediting period—from Equation 15.

$C_{RG|BSL}$ = the carbon stock in regrowth, in tonnes C, in the crediting period in all land parcels—from Equation 13.

44 Net baseline emissions—all land parcels

For each reporting period, net baseline emissions must be calculated using the following equation:

$GHG_{NET,r\|BSL} = \frac{\left(C_{NET\|BSL} \times \frac{44}{12}\right) - \left(VCU_{issued} - GHG_{NET,bc}\right)}{x_{total}} \times n_r$	**Equation 17**

Where:

$GHG_{NET,r|BSL}$ = the net greenhouse gas emissions, in tonnes CO_2-e, in the baseline scenario in reporting period r.

$C_{NET|BSL}$ = the loss of carbon stock, in tonnes C, from all land parcels over the crediting period—from Equation 16.

VCU_{issued} = the number Voluntary Carbon Units issued for the project—provided to the Regulator in accordance with Part 3.

$GHG_{NET,bc}$ =
(a) the net greenhouse gas emissions, in tonnes CO_2-e, in the period bc between the Verified Carbon Standard project start date and project commencement—from section 45 if section 45 applies; or
(b) otherwise—zero.

x_{total} = the number of years in the crediting period.

$n_r =$ the number of years in reporting period r.

Note The factor $^{44}/_{12}$ represents the ratio of molecular weights of carbon dioxide to carbon.

Note VCU_{issued} is equivalent to an amount in tonnes CO_2-e

45 Emissions before project commencement

(1) This section applies if there is a land parcel in the project area with a harvest date earlier than project commencement.

(2) The project proponent must calculate the greenhouse gas emissions before project commencement, in tonnes CO_2-e, from all land parcels with harvest dates earlier than project commencement ($GHG_{BC,P}$) by completing every relevant equation in this Part for those land parcels.

(3) For the purposes of subsection (2):

(a) where an equation contains the subscript r, the project proponent must substitute bc for r, where bc is the period between the Verified Carbon Standard project start date and project commencement; and

(b) references to the reporting period are taken to be references to the period between the Verified Carbon Standard project start date and project commencement; and

(c) the project proponent must provide the Regulator with the information prescribed by Division 2 in relation to each land parcel with a harvest date earlier than project commencement; and

(d) the project proponent must not complete Equation 17; and

(e) instead of completing Equation 17, the project proponent must complete the following equation:

$GHG_{NET,bc} = \frac{\left(C_{NET\|BSL} \times \frac{44}{12}\right)}{x_{total}} \times n_{bc}$	**Equation 17A**

Where:

$GHG_{NET,bc} =$ the net greenhouse gas emissions, in tonnes CO_2-e, in the period bc between the Verified Carbon Standard project start date and project commencement.

$C_{NET|BSL} =$ the loss of carbon stock, in tonnes C, from all land parcels over the crediting period—from Equation 16.

$x_{total} =$ the number of years in the crediting period.

$n_{bc} =$ the number of years in the period bc between the Verified Carbon Standard project start date and project commencement.

Note The factor $^{44}/_{12}$ represents the ratio of molecular weights of carbon dioxide to carbon.

(4) If the project proponent does not provide the Regulator with the information prescribed by Division 3.2 in relation to a land parcel with a harvest date earlier than project commencement, the value for $GHG_{BC,P|BSL}$ is zero.

Division 4—Calculating net project emissions

Subdivision 1—General

46 General

The project proponent must calculate the project's net emissions in the project scenario by completing the equations in this Division.

Subdivision 2—Net sequestration

47 General

Carbon stock increases in the project scenario are calculated in accordance with this Subdivision.

48 Average growth rate in land parcel

For each land parcel, the annualised growth rate after harvest must be calculated using the following equation:

$C_{FG,p\|PRJ} = \frac{(C_{END,p} - C_{harv,p})}{x_{total}}$	**Equation 18**

Where:

$C_{FG,p|PRJ}$ = the annualised growth rate after harvest, in tonnes C per hectare per year, for land parcel p.

$C_{END,p}$ = the carbon stock, in tonnes C per hectare, in land parcel p at the end of the Verified Carbon Standard modelling period—provided to the Regulator in accordance with Part 3

$C_{harv,p}$ = the carbon stock, in tonnes C per hectare, in land parcel p at the harvest date—provided to the Regulator in accordance with Part 3

x_{total} = the number of years in the crediting period.

49 Carbon stock increases due to growth in project scenario

For each reporting period, carbon stock increases in the project area in the project scenario must be calculated using the following equation:

$GHG_{Seq,r\|PRJ} = \sum_{p} (C_{FG,p\|PRJ} \times A_p) \times n_r \times \frac{44}{12}$	**Equation 19**

Where:

$GHG_{Seq,r|PRJ}$ = the carbon stock increases since harvest, in tonnes CO_2e, in the project scenario in reporting period r.

$C_{FG,p|PRJ}$ = the annualised growth rate after harvest, in tonnes C per hectare

per year, for land parcel p—from Equation 18.

A_p= the area, in hectares, in land parcel p—provided to the Regulator in accordance with Part 3.

n_r = the number of years in reporting period r.

Note The factor $^{44}/_{12}$ represents the ratio of molecular weights of carbon dioxide to carbon.

Subdivision 3—Natural disturbances

50 General

(1) Emissions from biomass killed by natural disturbances in the project area are calculated in accordance with this Subdivision.

(2) The project proponent must calculate the emissions from biomass killed in the natural disturbance before submitting the next offsets report.

51 Detection of natural disturbances

(1) This section applies if:
  (a) a natural disturbance has been detected; and
  (b) the natural disturbance has, or is likely to have, killed trees in more than 5% of the project area.

(2) The project proponent must:
  (a) identify the natural disturbance on a map; and
  (b) calculate the area, in hectares, of land in each stratum that has been affected by the natural disturbance.

(3) The natural disturbance is taken to have led to canopy decline in the area affected by the natural disturbance unless the project proponent is able to assess, in accordance with subsection (4), that there has been no canopy decline.

(4) For subsection (3):
  (a) the assessment must be based on remotely-sensed image of the affected area from:
    (i) no earlier than 6 months before the natural disturbance; and
    (ii) no later than 6 months after the natural disturbance; and
  (b) the resolution of the images must be at least 30m × 30m.

(5) The proportion of biomass killed by the natural disturbance is:
  (a) if there has been no canopy decline—zero;
  (b) if there has been canopy decline:
    (i) if the project proponent estimates the proportion of biomass killed by sampling the area affected in accordance with sections 53 to 55—the proportion given by Equation 20; or
    (ii) otherwise—100%.

(6) In this section:

canopy decline means a loss of an area of canopy cover equivalent to at least 5% of the project area.

52 Establishing a grid overlay

(1) This section applies if the project proponent elects to estimate the proportion of biomass killed in accordance with sections 52 to 55 (see subparagraph 50(5)(b)(i)).

(2) A grid overlay over the affected area must be established in accordance with this section.

(3) The grid must consist of square cells.

(4) There must be at least 5 grid intersects within each affected area in each stratum.

(5) An anchor point for the grid must be obtained by randomly selecting an easting and northing within the ranges of easting and northing coordinates for the affected area.

(6) The easting and northing coordinates referred to in subsection (4) must be from the Map Grid of Australia, known as MGA94, or any Australian standard that replaces MGA94.

(7) The orientation of the grid must be determined by randomly selecting an angle between zero and 89 degrees.

(8) Each grid intersect must be assigned a unique identifier.

53 Sample plots

(1) This section applies if the project proponent elects to estimate the proportion of biomass killed in accordance with sections 52 to 55 (see subparagraph 50(5)(b)(i)).

(2) Sample plots must be located at each grid intersect established in accordance with section 52.

(3) Plots must have:
  (a) a fixed orthogonal area; and
  (b) a minimum size of 0.01ha.

(4) All plots in the affected area must have the same shape.

(5) The plots must be either circular or rectangular.

(6) If the plots are circular, they must be established so that:
  (a) the centre of the plot is the actual plot location; and
  (b) the boundary of the plot is defined by the circumference.

(7) If the plots are rectangular, they must be established so that the actual plot location has the same relative position in each rectangular plot in the disturbed area.

(8) In this section:

relative position means the most north-westerly, north-easterly, south-easterly or south-westerly corner of a rectangular plot.

orthogonal area means the area in a horizontal plane, not a sloping plane. Any measurements of length (e.g. the length of the side of a rectangular plot) must be the horizontal distance, not the slope distance.

54 Calculating biomass proportion

(1) This section applies if the project proponent elects to estimate the proportion of biomass killed in accordance with sections 52 to 55 (see subparagraph 50(5)(b)(i)).

(2) Every living tree and every dead tree in a sample plot must have its stem diameter measured at 1.3m aboveground (DBH) and status (dead or living) recorded:
  (a) no earlier than 6 months after the detection of the natural disturbance; and
  (b) not before it is safe to enter the area affected by the natural disturbance.

(3) Subsection (1) does not apply in relation to trees belonging to a class that was not included in biomass surveys conducted under the Verified Carbon Standard.

Note For example, if trees in a sample plot with a diameter of less than 20cm were excluded from a biomass survey of the same sample plot conducted under the Verified Carbon Standard, those trees do not have to be counted.

(4) The basal area of each measured tree must be calculated using the following equation:

$BA_{Q,sp,dis,j,r} = \frac{\pi \times {DBH_{Q,sp,dis,j,r}}^2}{4}$	**Equation 20A**

Where:

$BA_{Q,sp,dis,j,r}$ = the basal area of tree Q in sample plot sp in disturbed area dis in stratum j in reporting period r.

$DBH_{Q,sp,dis,j,r}$ = the stem diameter of tree Q in sample plot sp in disturbed area dis in stratum j in reporting period r.

(5) The proportion of biomass killed within each sample plot must be calculated using the following equation:

$P_{sp,dis,j,r} = \frac{\sum_{Dead\ Trees_{sp,dis,j,r}} \left(BA_{Q,sp,dis,j,r}\right)}{\sum_{All\ Trees_{sp,dis,j,r}} \left(BA_{Q,sp,dis,j,r}\right)}$	**Equation 20B**

Where:

$P_{sp,dis,j,r}$ = the proportion of biomass killed in sample plot sp in disturbed area dis in stratum j in reporting period r.

$BA_{Q,sp,dis,j,r}$ = the basal area of tree Q in sample plot sp in disturbed area dis in stratum j in reporting period r.

(6) In this section, ***class*** means a group of trees sharing a common characteristic such as species or stem diameter.

55 Calculating average tree proportion

The average proportion of biomass killed must be calculated for each stratum using the following equation:

$\overline{P}_{dis,j,r} = \frac{\sum_{sp_{dis,j,r}} P_{sp,dis,j,r}}{SP_{dis,j,r}}$	**Equation 21**

Where:

$\overline{P}_{dis,j,r}$ = the average proportion of biomass killed in disturbed area dis in stratum j in reporting period r.

$sp_{dis,j,r}$ = a sample plot *sp* within the disturbed area dis in stratum j in reporting period r.

$P_{sp,dis,j,r}$ = the proportion of biomass killed in sample plot sp in disturbed area dis in stratum j in reporting period r—from Equation 20B.

$SP_{dis,j,r}$ = The total number of plots within the disturbed area dis in stratum j in reporting period r.

56 Calculating margin of error for tree proportion

The margin of error for the proportion of biomass killed must be calculated for each stratum using the following equation:

$ME_{P,dis,j,r} = t_{0.05} \times \frac{\sigma_{P,dis,j,r}}{\sqrt{N_i}}$	**Equation 22**

Where:

$ME_{P,dis,j,r}$ = the margin of error for the proportion of biomass killed in disturbed area dis in stratum j in reporting period r.

$t_{0.05}$ = the critical value of the t-distribution for a Student t-test, using n-1 degrees of freedom at the P=0.05 level of significance.

$\sigma_{P,dis,j,r}$ = the standard deviation of the average proportion of biomass killed in disturbed area dis in stratum j in reporting period r.

N_i = the total number of plots in disturbed area dis in stratum j in reporting period r.

57 Calculating probable limits of error for tree proportion

The probable limits of error at the P=0.05 level of significance for the proportion of biomass killed must be calculated for each stratum using the following equation:

$L_{P,dis,j,r} = \left(\frac{ME_{P,dis,j,r}}{\overline{P}_{dis,j,r}}\right) \times 100$	**Equation 23**

Where:

$L_{P,dis,j,r}$ = the probable limits of error for the proportion of biomass killed (P) at the P=0.05 level of significance in disturbed area dis in stratum j in reporting period r.

$ME_{P,dis,j,r}$ = the margin of error for the proportion of biomass killed in disturbed area dis in stratum j in reporting period r—from Equation 22.

$\overline{P}_{dis,j,r}$ = the average proportion of biomass killed in disturbed area dis in stratum j in reporting period r—from Equation 21.

Note The factor of 100 converts $L_{P,dis,j,r}$ into a percentage.

58 Calculating conservative estimate of tree proportion

The conservative estimate of the proportion of biomass killed in each stratum must be calculated using the following equation:

$\tilde{P}_{dis,j,r} = \overline{P}_{dis,j,r} + ME_{P,dis,j,r}$	**Equation 24**

Where:

$\tilde{P}_{dis,j,r}$ = the conservative estimate of the proportion of biomass killed in disturbed area dis in stratum j in reporting period r.

$\overline{P}_{dis,j,r}$ = the average proportion of biomass killed in disturbed area dis in stratum j in reporting period r—from Equation 21.

$ME_{P,dis,j,r}$ = the margin of error for the proportion of biomass killed in disturbed area dis in stratum j in reporting period r—from Equation 22.

59 Proportion of biomass killed

(1) The proportion of biomass killed in each disturbed area in each stratum in each reporting period ($P_{dis,j,r}$) must be determined in accordance with this section.

(2) If the probable limits of error ($L_{P,dis,j,r}$) at the P=0.05 level of significance are:

(a) equal to or less than 10%—the proportion of biomass killed is the average proportion of biomass killed in disturbed area dis in stratum j in reporting period r—from Equation 21;

(b) between 10% and 50%—the proportion trees of killed is the conservative estimate of the proportion of biomass killed in disturbed area dis in stratum j in reporting period r—from Equation 24;

(c) equal to or greater than 50%—either:

(i) the sampling process must be continued with an additional grid; or

(ii) the proportion of biomass killed is 100%.

60 Notional area of biomass killed in land parcel

For each land parcel in a stratum affected by a natural disturbance, the extent, in hectares, of the notional area of biomass killed by a natural disturbance must be calculated using the following equation:

$A_{dis,p,r} = \frac{A_p}{A_j} \times \left(A_{dis,j,r} \times P_{dis,j,r}\right)$	**Equation 25**

Where:

$A_{dis,p,r}$ = the area, in hectares, of land in land parcel p affected by natural disturbance dis in reporting period r.

A_p = the area, in hectares, of land parcel p—provided to the Regulator in accordance with Part 3.

A_j = the area, in hectares, of stratum j—provided to the Regulator in accordance with Part 3.

$A_{dis,j,r}$ = the area, in hectares, of land in stratum j affected by natural disturbance dis—from paragraph 51(2)(b).

$P_{dis,j,r}$ = the proportion of biomass killed in disturbed area dis in stratum j in reporting period r—from section 59.

61 Carbon stock in debris pool following natural disturbance

For each land parcel in a stratum affected by a natural disturbance, the carbon stock, in tonnes C, in the debris pool following the natural disturbance must be calculated:

(a) if the natural disturbance was a fire—using Equation 26A; or

(b) if the natural disturbance was not a fire—using Equation 26B.

$DB_{p,r\|PRJ} = C_{EX,p\|BSL}$	**Equation 26A**

Where:

$DB_{p,r|PRJ}$ = the carbon stock, in tonnes C per hectare, in the debris pool following a natural disturbance in land parcel p in reporting period r.

$C_{EX,p|BSL}$ = the mean carbon stock of extracted timber, in tonnes C per hectare, in land parcel p—from Equation 7.

$DB_{p,r\|PRJ} = C_{HB,p\|BSL} + \left(C_{FG,p\|PRJ} \times td\right)$	**Equation 26B**

Where:

$DB_{p,r|PRJ}$ = the carbon stock, in tonnes C per hectare, in the debris pool following a natural disturbance in land parcel p in reporting period r.

$C_{HB,p|BSL}$ = the mean carbon stock of harvested biomass, in tonnes C per hectare, for species i in land parcel p—from Equation 14.

$C_{FG,p|PRJ}$ = the annualised growth rate after harvest, in tonnes C per hectare per year, for land parcel p—from Equation 18.

td = years between start of crediting period and start of reporting period r in which natural disturbance occurred.

62 Carbon dioxide emissions

Note If a natural disturbance occurs, carbon dioxide emissions from the resulting debris pool are subtracted from the net abatement amount in every reporting period for the rest of the crediting period, not only in the reporting period in which the natural disturbance occurs. See Equation 28.

(1) The annualised carbon dioxide emissions, in tonnes of CO_2-e per year, for each land parcel must be calculated using the following formula:

$CO2_{p,r} = \left(\frac{\left(DB_{p,r\|PRJ} - \left(DB_{p,r\|PRJ} \times (1 - DF_d)^{tr}\right)\right)}{tr} + C_{FG,p\|PRJ} \right) \times \frac{44}{12}$	**Equation 27**

Where:

$CO2_{p,r}$ = the annualised carbon dioxide emissions, in tonnes CO_2-e per hectare per year, due to natural disturbance in land parcel p in reporting period r.

$DB_{p,r|PRJ}$ = the carbon stock, in tonnes C per hectare, in the debris pool following a natural disturbance in land parcel p—from Equation 26A or 26B.

DF_d = 0.1 being the debris decay factor.

tr = years between start of reporting period r in which natural disturbance occurred in land parcel p and the end of the crediting period.

$C_{FG,p|PRJ}$ = the annualised growth rate after harvest, in tonnes C per hectare per year, for land parcel p—from Equation 18.

Note The factor $^{44}/_{12}$ represents the ratio of molecular weights of carbon dioxide to carbon.

(2) For each reporting period, the annualised carbon dioxide emissions, in tonnes CO_2-e per year, from all natural disturbances in the reporting period must be calculated using the following equation:

$$CO2_r = \sum_p \left(CO2_{p,r} \times A_{dis,p,r}\right)$$	**Equation 28**

Where:

$CO2_r$ = the annualised carbon dioxide emissions, in tonnes CO_2-e per year, in reporting period r.

$CO2_{p,r}$ = the annualised carbon dioxide emissions, in tonnes CO_2-e per hectare per year, due to natural disturbance in land parcel p in reporting period r—from Equation 27.

$A_{dis,p,r}$= the area, in hectares, of land in land parcel p affected by natural disturbance dis in reporting period r—from Equation 25.

(3) The annualised carbon dioxide emissions from natural disturbances in all reporting periods must be calculated using the following equation:

$$CO2_{total} = \sum_r CO2_r$$	**Equation 29**

Where:

$CO2_{total}$ = the annualised carbon dioxide emissions, in tonnes CO_2-e per year, from natural disturbances in all reporting periods.

$CO2_r$ = the annualised carbon dioxide emissions, in tonnes CO_2-e per year, in reporting period r—from Equation 28.

(4) For each reporting period, the total carbon dioxide emissions from all natural disturbances must be calculated using the following equation:

$$CO2_{total,r} = CO2_{total} \times n_r$$	**Equation 30**

Where:

$CO2_{total,r}$ = the total carbon dioxide emissions, in tonnes CO_2-e, from all natural disturbances in reporting period r.

$CO2_{total}$ = the annualised carbon dioxide emissions, in tonnes CO_2-e per

year, for all reporting periods—from Equation 29.

$n_r =$ the number of years in reporting period r.

63 Emissions from carbon stock burnt

Note If a fire occurs, methane and nitrous oxide emissions from the fire are subtracted from the net abatement amount in the reporting period in which the fire occurs. See Equation 32.

(1) This section applies if the natural disturbance was a fire.

(2) For each land parcel in a stratum affected by a fire, the amount of carbon stock burnt must be calculated using the following equation:

$FB_{p,r\|PRJ} = \left(C_{DWSLASH,p\|BSL} \times (1 - DF_d)^{-th_p}\right) + \left(C_{FG,p\|PRJ} \times td\right)$	**Equation 31**

Where:

$FB_{p,r|PRJ} =$ aboveground biomass stock, in tonnes C per hectare, in the project scenario assumed to be combusted during a fire event for parcel p, in current reporting period r.

$C_{DWSLASH,p|BSL} =$ the carbon stock of logging slash, in tonnes C per hectare, remaining as debris at the end of the crediting period for all species in land parcel p—from Equation 6.

$DF_d =$ 0.1 being the debris decay factor.

$th_p =$ the number of years between the harvest in land parcel p and the end of the crediting period.

$C_{FG,p|PRJ} =$ the annualised growth rate after harvest, in tonnes C per hectare per year, for land parcel p—from Equation 18.

$td =$ years between start of crediting period and start of reporting period r in which natural disturbance in land parcel p occurred.

(3) Emissions of methane from the burnt carbon stock must be calculated using the following equation:

$CH4_{p,r} = FB_{p,r\|PRJ} \times Z_{ft} \times EF_{CH_4} \times MM_{CH_4} \times GWP_{CH_4}$	**Equation 32**

Where:

$CH4_{p,r} =$ emissions from methane (CH_4), in tonnes CO_2-e per hectare, due to fire in land parcel p in reporting period r.

$FB_{p,r|PRJ} =$ aboveground biomass stock, in tonnes C per hectare, in the project scenario but absent in the baseline assumed to be combusted during a fire event for land parcel p in reporting period r—from Equation 31.

$Z_{ft} =$ the burning efficiency for wildfires in the National Inventory Report.

$EF_{CH_4} =$ emissions factor for methane, in tonnes of CH_4 per tonne of element in fuel burnt, from forest biomass burning in the National Inventory Report.

$MM_{CH_4} =$ elemental to molecular mass conversion factor for methane in the National Inventory Report.

$GWP_{CH_4} =$ global warming potential of methane as specified in the NGER Regulations.

(4) Emissions of nitrous oxide from the burnt carbon stock must be calculated using the following equation:

$N2O_{p,r} = FB_{p,r\|PRJ} \times Z_{ft} \times EF_{N_2O} \times MM_{N_2O} \times GWP_{N_2O} \times NC$	**Equation 33**

Where:

$N2O_{p,r}$ = emissions from nitrous oxide (N_2O), in tonnes CO_2-e per hectare, due to fire in land parcel p in reporting period r.

$FB_{p,r|PRJ}$ = aboveground biomass stock, in tonnes C per hectare, in the project scenario but absent in the baseline assumed to be combusted during a fire event for land parcel p, in current reporting period r—from Equation 31.

Z_{ft} = the burning efficiency for wildfires in the National Inventory Report.

EF_{N_2O} = emission factor for nitrous oxide, in tonnes of N_2O per tonne of element in fuel burnt, from forest biomass burning in the National Inventory Report.

MM_{N_2O} = elemental to molecular mass conversion factor for nitrous oxide in the National Inventory Report.

GWP_{N_2O} = global warming potential of nitrous oxide as specified in the NGER Regulations.

NC = nitrogen to carbon mass ratio in the National Inventory Report.

Note The values in the right hand column of Table D, which correspond to the parameters in the left hand column, are from section 7.14 in Volume 2 of the *National Inventory Report 2012*. Table D is for information only, as the values may be updated in subsequent National Inventory Reports.

Table D

Parameter	Value
Z_{ft}	0.72
EF_{CH_4}	0.0054
MM_{CH_4}	1.33
EF_{N_2O}	0.0077
MM_{N_2O}	1.57
NC	0.011

(5) The total emissions from the carbon stock burnt in the reporting period in which the fire occurred must be calculated using the following equation:

$GHG_{FR,r\|PRJ} = \sum_{p} \left(\left(CH4_{p,r} + N2O_{p,r} + \left(FB_{p,r\|PRJ} \times \frac{44}{12} \right) \right) \times A_{dis,p,r} \right)$	**Equation 34**

Where:

$GHG_{FR,r|PRJ}$ = the net greenhouse gas emissions, in tonnes CO_2-e, resulting from fire in reporting period r.

$CH4_{p,r}$ = the emissions from methane (CH_4), in tonnes CO_2-e per hectare, due to fire in land parcel p in reporting period r—from Equation 32.

$N2O_{p,r}$ = the emissions from nitrous oxide (N_2O), in tonnes CO_2-e per hectare, due to fire in land parcel p in reporting period r—from Equation 33.

$FB_{p,r|PRJ}$ = aboveground biomass stock, in tonnes C per hectare, in the project scenario but absent in the baseline assumed to be combusted during a fire event for land parcel p, in current reporting period r.

$A_{dis,p,r}$ = the area, in hectares, of land parcel p affected by natural disturbance dis in reporting period r—from Equation 25.

Note The factor $^{44}/_{12}$ represents the ratio of molecular weights of carbon dioxide to carbon.

64 Net project emissions

For each reporting period, net emissions in the project scenario must be calculated using the following equation:

$GHG_{NET,r\|PRJ} = (GHG_{FR,r\|PRJ} + CO2_{total}) - GHG_{Seq,r\|PRJ}$	**Equation 35**

Where:

$GHG_{NET,r|PRJ}$ = the net greenhouse gas emissions, in tonnes CO_2-e, in the project scenario in reporting period r.

$GHG_{FR,r|PRJ}$ =
(a) the net greenhouse gas emissions, in tonnes CO_2-e, resulting from fire in reporting period r—from Equation 34 if section 63 applies; or
(b) otherwise—zero.

$CO2_{total}$ = the total carbon dioxide emissions, in tonnes CO_2-e, in reporting period r—from Equation 30.

$GHG_{Seq,r|PRJ}$ = the carbon stock increases since harvest, in tonnes CO_2-e, in the project scenario in reporting period r—from Equation 19.

Subdivision 4—Carbon dioxide equivalent net abatement amount

65 Carbon dioxide equivalent net abatement amount

(1) If:
(a) the reporting period is the first reporting period; or
(b) the net abatement amount for the previous reporting period was zero or greater than zero;

the carbon dioxide equivalent net abatement amount for the project in relation to a reporting period must be calculated using the following equation:

$GHG_{CDTS,r} = (GHG_{NET,r\|BSL} - GHG_{NET,r\|PRJ}) \times (1 - LF)$	**Equation 36A**

Where:

$GHG_{CDTS,r}$ = the carbon dioxide equivalent net abatement amount, in tonnes CO_2-e, in reporting period r.

$GHG_{NET,r|BSL}$ = the net greenhouse gas emissions, in tonnes CO2-e, in the baseline scenario in reporting period r—from Equation 17 or 17A.

$GHG_{NET,r|PRJ}$ = the net greenhouse gas emissions, in tonnes CO_2-e, in the project scenario in reporting period r—from Equation 35.

$LF =$ 0.1, being the leakage factor.

(2) If the net abatement amount for the previous reporting period was less than zero, the net abatement amount must be calculated using the following formula:

$GHG_{CDTS,r} = \left(GHG_{NET,r\|BSL} - GHG_{NET,r\|PRJ}\right) \times (1 - LF) + GHG_{CDTS,rp}$	**Equation 36B**

Where:

$GHG_{CDTS,r} =$ the carbon dioxide equivalent net abatement amount, in tonnes CO_2-e, in reporting period r.

$GHG_{NET,r|BSL} =$ the net greenhouse gas emissions, in tonnes CO2-e, in the baseline scenario in reporting period r—from Equation 17 or 17A.

$GHG_{NET,r|PRJ} =$ the net greenhouse gas emissions, in tonnes CO_2-e, in the project scenario in reporting period r—from Equation 35.

$LF =$ 0.1, being the leakage factor.

$GHG_{CDTS,rp} =$ the carbon dioxide equivalent net abatement amount, in tonnes CO_2-e, in the previous reporting period rp—from previous offsets report.

Part 5—Reporting, record keeping and monitoring requirements

Division 1—General

66 Application

For subsection 106(3) of the Act, a project proponent of designated Verified Carbon Standard project that is an eligible offsets project is subject to the monitoring and record-keeping requirements in this Part.

Division 2—Monitoring requirements

67 Project monitoring

The project proponent must take reasonable steps to monitor the project area for natural disturbances.

Note 1 'Natural disturbance' is defined in section 5 of the Act.

Note 2 If a natural disturbance occurs in the project area, section 81 of the Act and subregulation 6.10(1) of the *Carbon Credits (Carbon Farming Initiative) Regulations 2011* apply.

Division 3—Record-keeping requirements

68 Records that must be created and kept

The project proponent must create and keep records of the data used for and the result of every calculation completed in accordance with Part 4.

Note Other record-keeping requirements are prescribed in the legislative rules.

Division 4—Offsets report requirements

69 Determination of certain factors and parameters

If, in the circumstances described in paragraph 19(2)(b), a factor or parameter is defined or calculated for a reporting period by reference to an instrument or writing as in force from time to time, the offsets report about the project for the reporting period must include the following information for the factor or parameter:

(a) the versions of the instrument or writing used;

(b) the start and end dates of each use;

(c) the reasons why it was not possible to define or calculate the factor or parameter by reference to the instrument or writing as in force at the end of the reporting period.