Appendix 11.4.2

Derivation of Failure frequencies

Derivation of Event Frequencies

1 Kerry DG Godown

Site visits have been conducted to collect information from the operator, however, specific information such as key detail on the inventory, unit quantities, storage practices and number of movements etc for the Godown were not made available. The following assumptions, based on engineering judgement have therefore been applied to the evaluation in order to facilitate the evaluation. A cautious best estimate approach has been applied throughout.

Table 1 DG Warehouse Assumptions

Item	**Quantity**
Stores	22
Category 2 stores	5
Category 'other' stores	17
Floors	6
Non – Category 2 inventories nominally pentane	214,800 units as 50 kg containers
Category 2 – nominally Chlorine containers	200 units as 50kg containers
Category 2 – nominally Ammonia containers	2000 units as 50kg containers
Category 2 – nominally LPG containers	500 units as 50kg cylinders

1.1 WAREHOUSE FIRES

Warehouse (Godown) fires are considered to be the most dominant major hazard associated with warehouses historically. Several of the hazardous scenarios identified for the godown involve this type of fire, which can lead to both thermal effects and effects associated with toxic release from combustion productions.

Limited amount of information on the Kerry DG Godown or its systems is used to establish a detailed assessment of the potential for warehouse fire taking into account all specific features of the operations. Where specific features have been provided in the information gathered, these have been included in the assessment. The study has been made specific to the maximum extent possible, given the information available.

Generic warehouse fire frequencies derived from historical warehouse fire events and consideration of warehouse populations have been applied as a basis to the assessment and factored against the specific features of the warehouse to derive estimates for each warehouse fire scenario given in [1], updated to take account of [2]. Causal factors of warehouse fires given in [1] have been accounted for in the assessment, with consideration of the known features and safety measures at the facility.

For the purposes of this assessment, and in the absence of some key specific information on the Kerry DG Godown, and its safeguarding features, all fire events have been conservatively assumed to lead to loss of inventory area as a minimum (ie frequencies associated with scenarios D-LF-CI, D-LF-CE, D-PF-CI, D-PF-CE have been assigned to the equivalent loss of area scenarios). Smaller fires, not considered to have any offsite impact are excluded from the study.

A number of references are available which provide estimates of generic major warehouse fires (ie significant loss of/damage to warehouse), based on historical event data. These are summarised in Table 2:

Table 2 Generic Major Warehouse Fire Frequencies

Reference	Description	Frequency/warehouse yr
Hymes/Flynn [3]	General Warehouse	1x 10^{-2} to 1 x 10^{-3}
Qest [6]	DG Warehouse	1x 10^{-3} to 1 x 10^{-4}
Purple Book[5]	DG Warehouse	1.8 x 10^{-4}
UK [4]	Warehouse fire – Urban	2.5 x 10^{-2} to 5 x 10^{-3}

The likelihood of a warehouse fire depends on the location of the warehouse, site security, safety management culture, sources of ignition, presence of flammable or combustible materials inside the warehouse, use of flammable materials in construction, and hazardous processes close to the warehouse.

Of the above [3] is the most detailed reference. This was based on extensive research conducted on behalf of the UK HSE into historical warehouse fires and warehouse populations in the UK primarily. Consideration was also given to worldwide evaluations in the research. This reference is considered the most appropriate base for the analysis.

1.1.1 Modification of Generic Frequency for Kerry DG Godown

The following factors have been considered to account for the specific features of the DG warehouse compared to generic warehousing facilities

1. **Dangerous Goods Warehouse**: From [3] the lower bound estimate of 10^{-3} /yr is recommended as appropriate for this assessment given that the warehouses on which the generic data are based range from unclassified to Dangerous Goods warehouses, and Dangerous Goods warehouses can be considered to be subject to controls (safety management licensing stipulations etc), above those in unclassified warehouses.
2. **Warehouse design**: The warehouse is an established facility which cannot be considered new or recent. The data of [3] was based on data to 1990, largely based on UK warehousing facilities. No specific information is available on the godown design and it is not considered the godown would be designed to significantly better standard than those established in the UK. Since the godown is not a new facility, no benefit can be taken to assume that the design of the dangerous goods godown is considerable different from those considered in [3].
3. **Causal Factors**: [1] summarises historical causal factors for warehousing events. Review of the factors has been conducted and all are considered of relevance to the DG godown. Also the warehouse is not considered to be located in an area which would suggest particular enhanced/decreased exposure, compared to generic warehouses. No action can therefore be taken to modify the overall estimate by elimination or enhancement of any of the factors.
4. **Probability of Storing Toxic Gas Inventories and 50kg LPG Cylinders**: Toxic inventories such as Chlorine and Ammonia as well as 50kg LPG cylinders have not been stored at the Kerry DG Godown recently, nor it is the intention that such storage would ever take place. However, the license does not specifically prohibit their storage in future the operational considerations could theoretically change and such inventories (Chlorine, Ammonia and 50kg LPG cylinders) could potentially be stored. By considering the local use

and application of Chlorine and Ammonia, storing Chlorine, Ammonia or 50kg LPG cylinders at the Kerry DG Godown is a rare event. A nominal probability of 2.74×10^{-4}, based on total number of 3650 records over the past 10 years, is therefore applied to the study for the potential for such storage over a year.

5. **Event Distribution**. Not all fires would escalate to the entire warehouse, given that a fire suppression system exists in each store and walls have some form of fire resistance for 4 hours of protection. Outcomes may range from loss of a single store to loss of an area (within a store or out on the loading bay). The specific features of the facility have therefore been applied to the generic frequency estimates to account for the probability of a warehouse fire developing into each outcome. These have been based on probabilities recommended in [7], which considers the potential for escalation of an initial fire given a range of safety measure controls. The level of assessment has been commensurate with the information provided on the Kerry DG Godown systems. The assumptions applied to the evaluation are given below:

   - It is understood an automatic fire suppression (BTM) system is in place in the store actuated on fire/smoke detection. Ref [7] suggests a 0.9 probability for successful heat and smoke detection and a 0.94 probability of successful suppression where 'Halon' type systems is applied. For the Kerry DG Godown, the suppression system is set to manual while the store is occupied and therefore potential exists for a fire to be initiated in a store which is occupied or where the switch has not been returned to automatic, followed by a failure of the control room to manually initiate the system. A probability of failure 0.05 is applied to account for this failure, based on judgment of similar systems and an assumption that the control room would be alerted to the fire and status of the suppression system, and would be trained to initiate the system manually. This leads to an overall probability of successfully isolating the fire to the store by use of the suppression system of 0.8. It is assumed that where the suppression system operates successfully, the fire would be limited to a single area of a store (D-LF-AI, D-PF-AI).

     Applying these factors the estimate for (D-LF-AI, D-PF-AI) of contained single store fire = $1 \times 10^{-3} \times 0.8 \times 0.9 \times 0.8 = 5.76 \times 10^{-4}$/yr.

   - Ref [7] suggests a probability of success of passive systems in compartments maintaining segregation as 0.81 for masonry segregation. It is understood that the warehouse is fire resistant for 4 hours. However, no information is given on whether this applies to each store or for what type of fires the protection is designed. Besides, an opened fire door or fire damper may also reduce the effectiveness of compartmentalisation. Therefore, a nominal probability of 0.5 is therefore applied for the control of the fire being maintained due to physical compartmentalisation. It is assumed that where the fire suppression system has failed, but the integrity of the store has been maintained, fires would be limited to loss of a single store (D-SF).

   - From the Willis Review [8], approximately 80% of events can be considered to start within a compartment. For the purposes of the study all other events (20%) have been assumed to lead to loss of multiple stores. The factors outlined above have therefore been applied to the 80% of fires which are assumed start within a single store.

   - In extreme initialising events such as earthquake leading to building collapse, likelihood for those events is assumed 1×10^{-6} /yr. Hazardous

scenarios warehouse fire (D-WF-EX), LPG release (D-LF-EX) and pool fire (D-PF-EX) under this extreme environment are considered separately.

- All other events which either impact multiple stores simultaneously, or are not controlled to a single store/area due to failure of suppression or passive systems are assumed to impact the entire warehouse (D-WF).

Applying the above factors gives the following estimates for the events:

D-LF-AI + D-PF-AI = Freq of warehouse fire x probability of detection x probability of successful suppression = 1 x 10^{-3} x 0.8 x 0.9 = 7.20 x 10^{-4}/yr.

The ratio of dedicated Category 2 stores (5) to the overall warehouse stores (22) is used to derive the probability of the event resulting in either D-LF-AI or D-PF-AI scenarios.

Therefore:

D-LF-AI = (7.20 x 10^{-4}) x (5/22) x 2.74x10^{-4}= 4.48 x 10^{-8}/yr.

D-PF-AI = (7.20 x 10^{-4}) – (4.48 x 10^{-8}) = 7.20 x 10^{-4}/yr

D-SF = Freq of warehouse fire x probability event impacts only a single store initially x (1-(probability of detection x probability of successful suppression)) x probability PFP integrity maintained

= (1 x 10^{-3}) x 0.8 x (1-(0.9 x 0.8)) x 0.5 = 1.12 x 10^{-4}/yr.

D-WF = Freq of warehouse fire - (Freq D-SF) - (Freq D-LF- AI + Freq D-PF- AI) = (1 x 10^{-3}) – (1.12 x 10^{-4}) – (7.20 x 10^{-4}) = 1.68 x 10^{-4}/yr.

For extreme events,

D-WF-EX = Freq of extreme initialising event

= 1 x 10^{-6} /yr

D-LF-EX = [Freq of extreme initialising event x Number of LPG Cylinders x Probability of Storing 50kg LPG Cylinders]^(number of cylinders for instantaneous release with offsite impact)

= (1 x 10^{-6} x 500 x 2.74x10^{-4})^5 ≈ 0.00 /yr.

D-PF-EX = Freq of extreme initialising event

= 1 x 10^{-6} /yr.

The frequencies calculation illustrated in the above section is summarised in Table 4.

1.2 WAREHOUSE FIRES IN LOADING BAY

Fires in the loading bay area have been considered in the analysis. The causes of such fires were shown [1] to include spontaneous/generic failure, failures due to impacting vehicles/forklifts or vehicle fires escalating to nearby inventories. The discussion below applies to scenarios (D-LF-AE, D-PF-AE).

The failure of cylinders/storage inventories in the warehouse is therefore the sum of the generic failure contributions, modified by additional contribution due to the practices at the warehouse eg movement of inventories and external events (note catastrophic external events are also considered but discussed separately in [1].

1.2.1 Generic release

The likelihood of a generic/spontaneous loss of pressurized flammable inventory has been taken as the rupture frequency for a single cylinder. From [1], this is estimated to be 6.8×10^{-6} per vessel year. It is nominally assumed an average of 100 x 50kg cylinders would be placed in the loading area awaiting storage and 10 cylinders per pallet.

The same argument is applied to non pressurised flammable inventories, assuming a rupture frequency of 5×10^{-6} per vessel year [1] and an average of 100 x 50kg vessels would be placed in the loading area awaiting storage.

The above provides estimates of overall release frequency to which an ignition probability must be applied. An ignition probability of 0.1 has applied to the above release frequency (based on Cox, Lees and Ang data [9] for a rupture in an industrial/refinery environment).

This leads to an overall estimated failure frequency of 6.80×10^{-5} /yr ($100 \times 0.1 \times 6.8 \times 10^{-6}$) for pressurised cylinder and 5×10^{-5} /yr ($100 \times 0.1 \times 5 \times 10^{-6}$) for non pressurised flammable drum. However, probability for simultaneous failure of multiple, say 5, LPG cylinders tends to zero at 1.45×10^{-21} /yr. Hence, simultaneous failure of 10 LPG cylinders (1 pallet) is assumed zero.

Since the containers stored in the warehouse are of approved design as are those of the generic failure estimates and because they arrive from a number of sources, no specific factoring can be applied for the warehouse estimate for the spontaneous/generic failure.

1.2.2 Impact

Limited information is available on impacts in warehouses. Spill event in warehousing is considered the most appropriate data to use that it estimates a spill frequency of 1×10^{-5} per handling [5]. This is considered to be based on generic warehouse operations involving mainly uncategorised substances. A probability of 0.1 has been applied to the above handling probability to reflect the assumed dangerous goods practises and packaging at the warehouse, which may be conservative, depending on the actual practices at the warehouse.

Assuming 10 forklifts operate throughout a 12 hour day for 6 days per week, and 15 minutes per handling to establish a frequency for release from impact scenarios. This gives an estimated 150,171 handlings a year, of which 0.33 (3 to 4 forklift trucks) have been assumed to take place outside of the stores. It is also important to estimate how many of these potential releases would involve Category 2, or other flammable inventories. Number of movements involving each type is estimated according to the proportion of each flammable inventory type (25te Category 2 flammable inventory and 8015 te other flammable inventories) compared to the overall inventory of the warehouse (13979.5 te).

The above provides estimates of overall release frequency to which an ignition probability must be applied. An ignition probability of 0.01 has applied to the above release frequency (based on Cox, Lees and Ang data [9] for a continuous 1kg/s release in an industrial/refinery environment).

This leads to an overall estimated failure frequency for Category 2 flammable inventories due to impact of $(1 \times 10^{-5}) \times 0.1 \times (150171 \times 0.33) \times 0.01 \times (25/13979.5) = 8.86 \times 10^{-7}$ /yr.

And an overall estimated failure frequency for ‘pentane’ (ie other flammable) inventories due to impact of $(1 \times 10^{-5}) \times 0.1 \times (150171 \times 0.33) \times 0.01 \times (8015/13979.5) = 2.84 \times 10^{-4}$ /yr.

1.2.3 Vehicle fires

The potential for vehicle fires (including truck/forklift), has been estimated in [6] at 2.9×10^{-4} per vehicle year. In the absence of site specific information, it is assumed 10 forklifts and 5 trucks at any time leading to an overall fire frequency of 4.35×10^{-3}/yr. It has also been taken into account the operational hours of the warehouse by assuming 12-hour a day, 6-day a week operation.

Distribution among Category 2 flammable inventory and other flammable inventory is based on the proportion of each flammable inventory type (25te Category 2 flammable inventory and 8015 te other flammable inventories) compared to the overall inventory of the warehouse (13979.5 te).

This leads to an overall estimated failure frequency for Category 2 flammable inventories due to vehicle fires of $(4.35 \times 10^{-3}) \times (12/24) \times (6/7) \times (25/13979.5) = 3.33 \times 10^{-6}$ /yr.

And an overall estimated failure frequency for ‘pentane’ (ie other flammable) inventories due to vehicle fires of $(4.35 \times 10^{-3}) \times (12/24) \times (6/7) \times (8015/13979.5) = 1.07 \times 10^{-3}$ /yr.

1.2.4 Probability of storing 50kg LPG cylinders

This has been described in Section 1.1.1. The probability of storing 50kg LPG cylinders is estimated 2.74×10^{-4} /yr.

1.2.5 Summary

The above factors are grouped into events D-LF-AE and D-PF-AE.

D-LF-AE $= 2.74 \times 10^{-4} \times [(3.33 \times 10^{-6}) + (8.86 \times 10^{-7}) + (0.00)]$ /yr

$= 1.16 \times 10^{-9}$ /yr

D-PF-AE $= (1.07 \times 10^{-3}) + (2.84 \times 10^{-4}) + (5 \times 10^{-5})$ /yr

$= 1.40 \times 10^{-3}$ /yr

1.3 TOXIC WAREHOUSE RELEASES

Toxic hazards associated with combustion products from warehouse fires are considered as part of Section 1.1 . Additional scenarios were identified in [1], which relate to a loss of containment from pressurised toxic inventories (nominally Chlorine and Ammonia, see Table 12 of [1] and the associated discussion).

The failure of cylinders/storage toxic inventories in the warehouse is therefore the sum of the generic failure contributions, and additional contribution due to the practices at the warehouse eg movement of inventories and external events (note catastrophic external events (eg seismic/aircraft crash) are also considered but discussed separately in [1]).

1.3.1 Probability of toxic inventories

This has been described in Section 1.1.1. The probability of storing toxic inventory is estimated $2.74x10^{-4}$ /yr.

1.3.2 Loss of containment of full toxic inventory (DG-CT-W and DG-AT-W)

Instantaneous loss of the entire toxic inventory is considered to be a very unlikely event. A generic approach has been taken to estimate those events which may lead to large scale toxic continuous release through a leak, without associated fire, in the absence of specific Kerry DG Godown information. An estimate of 1 x 10^{-6}/yr is applied to the potential for catastrophic loss of a toxic inventory (nominally 2 inventories are considered; Chlorine and Ammonia). The estimate can be favourably compared against reported information in [10] for seismic activity of 1 x 10^{-5} per year, based on 0.4g ground acceleration, to which a 0.1 probability of roof collapse was assigned and the generic rupture frequency for a single pressurised vessel of 6.8 x 10^{-6} /yr based on historic data, of which a small proportion would be associated with multiple failure events.

The estimated frequency for each event is therefore (1 x 10^{-6})/yr x (2.74 x 10^{-4}) = 2.74 x 10^{-10}/yr to account for the probability of the toxic being present).

1.3.3 Loss of containment of single container in store (DG-CT-CI and DG-AT-CI)

The likelihood of a generic/spontaneous loss of pressurised toxic container has been taken as the rupture frequency for a single cylinder. From [1], this is estimated to be 6.8 x 10^{-6} per vessel year for Ammonia. For Chlorine, contribution frequency from medium releases is also included since these are shown in [1] to produce hazard ranges of similar orders to the 50kg rupture cases, particularly in nighttime conditions. Smaller releases are assumed effectively to be contained by the building. A base frequency for chlorine events of 6.38 x 10^{-5} /yr is therefore derived. Based on the assumed maximum inventories of 10te for Chlorine and 100te for Ammonia, and nominally assuming 50kg containers throughout, leads to an estimated 200 Chlorine cylinders and 2000 Ammonia cylinders. The probability of $2.74x10^{-4}$ for a toxic inventory is also applied leading to an associated failure frequency of ($6.38x10^{-5}$) x 200 x ($2.74x10^{-4}$) = $3.5x10^{-6}$/yr for Chlorine and ($6.8x10^{-6}$) x 2000 x ($2.74x10^{-4}$) = 3.73 x 10^{-6}/yr for Ammonia.

Account is taken of any potential containment of the release by the warehouse store. Owning to limited information on the size of venting and no specific toxic detectors being installed, only limited benefit can be taken for detection/isolation. In the absence of detection the fans would continue to run discharging toxics to the environment.

Given the above, it has been assumed that in 50% of the cases the release is detected early and the fan shutdown (natural ventilation with 2 air changes per hour); in the remaining 50% of cases it is assumed the detection has failed (natural ventilation with 6 air changes per hour). Currently it is understood that the godown is not equipped with toxic detectors. In any case consideration must be given to the potential for failure of the detection system and failure of the fan to shutdown, even if appropriate systems are installed. Also it is not known whether in the event of storage of chlorine/ammonia type inventories toxic detection systems would be specifically installed/or indeed whether more comprehensive levels of containment may be implemented. An approximation of 50% therefore allows for both cases.

1.3.4 Loss of containment of single container in loading bay (DG-CT-CE and DG-AT-CE)

For generic/spontaneous loss of containment of toxic pressurised cylinders in the loading bay, a similar approach to that described in Section 1.3.3 has been applied, assuming a generic failure rate of 6.8×10^{-6} per cylinder year for Ammonia and 6.38×10^{-5} /yr for Chlorine. A nominal 5 cylinders (250kg) are assumed to be at the loading bay being handled at any one time for the Chlorine and Ammonia scenarios.

An allowance of 2.74×10^{-4} has again been included for toxic inventories being present.

This leads to an overall estimated failure frequency for each of the toxic inventories,

DG-AT-CE = $(6.8 \times 10^{-6}) \times 5 \times (2.74 \times 10^{-4}) = 9.32 \times 10^{-9}$ /yr

DG-CT-CE = $(6.38 \times 10^{-5}) \times 5 \times (2.74 \times 10^{-4}) = 8.74 \times 10^{-8}$ /yr

1.3.5 Impact in loading bay and in store (DG-CT-AE, DG-AT-AE, DG-CT-AI, DG-AT-AI)

The potential for impact has been estimated for toxic inventories applying the same approach as described in Section 1.2.2. Estimation on number of movements involving each type of nominal toxic inventory have been based on the proportion of each inventory type (10te Chlorine and 100te Ammonia) compared to the overall inventory of the warehouse (13979.5 te). An allowance of 2.74×10^{-4} has again been included for toxic inventories being present.

A probability of 0.1 has been applied to the handling probability to reflect the assumed dangerous goods practises and packaging at the warehouse, which may be conservative, depending on the actual practices at the warehouse. This leads to an overall estimated failure frequency of:

DG-CT-AE $= (1 \times 10^{-5}) \times 0.1 \times (150171 \times 0.33) \times (10/13979.5) \times (2.74 \times 10^{-4})$ /yr

$= 9.71 \times 10^{-9}$ /yr

DG-AT-AE $= (1 \times 10^{-5}) \times 0.1 \times (150171 \times 0.33) \times (100/13979.5) \times (2.74 \times 10^{-4})$ /yr

$= 9.71 \times 10^{-8}$ /yr

DG-CT-AI $= (1 \times 10^{-5}) \times 0.1 \times (150171 \times 0.67) \times (10/13979.5) \times (2.74 \times 10^{-4})$ /yr

$= 1.97 \times 10^{-8}$ /yr

DG-AT-AI $= (1 \times 10^{-5}) \times 0.1 \times (150171 \times 0.67) \times (100/13979.5) \times (2.74 \times 10^{-4})$ /yr

$= 1.97 \times 10^{-7}$ /yr

1.4 SUMMARY OF DG WAREHOUSE FREQUENCIES

Table 3 Summary of Kerry DG Godown Frequencies by Scenario

ID	Description	Estimated Frequency
D-WF	Major Warehouse Fire	1.68E-04
D-SF	Fire in Single Store	1.12E-04
D-LF-AI	LPG Fire Loss area Internal (no offsite effect)	4.48E-08
D-LF-CI	LPG Fire Loss cylinder Internal (no offsite effect)	- Note 1
D-LF-AE	LPG Fire Loss area External	1.16E-09
D-LF-CE	LPG Fire Loss cylinder External (no offsite effect)	- Note 1
D-PF-AI	Pentane fire Loss Area Internal (no offsite effect)	7.20E-04
D-PF-CI	Pentane fire Loss drum Internal (no offsite effect)	- Note 1
D-PF-AE	Pentane fire Loss Area External	1.40E-03
D-PF-CE	Pentane fire Loss drum External (no offsite effect)	- Note 1
DG-CT-W	Chlorine toxic release (building collapsed)	2.74E-10
DG-AT-W	Ammonia toxic release (building collapsed)	2.74E-10
DG-CT-AI	Chlorine–Loss of Area Internal	1.97E-08
DG-CT-CI	Chlorine–Loss of Cylinder Internal	3.50E-06
DG-AT-AI	Ammonia–Loss of Area Internal	1.97E-07
DG-AT-CI	Ammonia–Loss of Cylinder Internal	3.73E-06
DG-CT-AE	Chlorine–Loss of Area External	9.71E-09
DG-CT-CE	Chlorine–Loss of Cylinder External	8.74E-08
DG-AT-AE	Ammonia–Loss of Area External	9.71E-08
DG-AT-CE	Ammonia–Loss of Cylinder External	9.32E-09
D-WF-EX	Major Warehouse Fire (building collapsed)	1.00E-06
D-LF-EX	LPG Fire Loss Area (building collapsed)	0.00E+00
D-PF-EX	Pentane fire Loss Area (building collapsed)	1.00E-06

Note 1: not further considered due to no offsite effect.

Table 4 Event Tree Analysis of Kerry DG Godown Fire Frequencies

Generic Warehouse Fire										Result	No risk	Single store keep integrity	Major Warehouse Fire
1.00E-03	detected	0.9	not auto suppressed	0.2	single store	0.8	loss integrity	0.5		single store loss integrity	0	0	7.20E-05
							keep integrity	0.5		single store keep integrity	0	7.20E-05	0
											0	0	0
					multi store	0.2	loss integrity	0.5		multi store loss integrity	0	0	1.80E-05
							keep integrity	0.5		multi store keep integrity	0	0	1.80E-05
											0	0	0
			auto suppressed	0.8						no risk	7.20E-04	0	0
											0	0	0
	not detected	0.1	single store	0.8			loss integrity	0.5		single store loss integrity	0	0	4.00E-05
							keep integrity	0.5		single store keep integrity	0	4.00E-05	0
											0	0	0
			multi store	0.2			loss integrity	0.5		multi store loss integrity	0	0	1.00E-05
							keep integrity	0.5		multi store keep integrity	0	0	1.00E-05

Scenarios	Total Frequency
No risk	**7.20E-04**
Single store keep integrity	**1.12E-04**
Major warehouse fire	**1.68E-04**

2 References

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