

Health & Safety Excellence Scheme

1 Introduction

- 1.1 The Health & Safety Excellence Scheme (HSES) involves the award of incentive payments to the Contractor and/or disincentive deductions from monies due to the Contractor based on the Contractor's Health & Safety Excellence (HSE) performance in the Contract. The cumulative incentive amounts or the cumulative disincentive amounts that can be awarded to the Contractor shall not exceed the Incentive/Disincentive Sum (IDS) of \$200,000. The HSES also involves the imposition of monetary penalty and deduction points for every dangerous occurrence or accident that resulted in fatality/major injury/minor injury at the Site.

2 Definitions

- 2.1 The following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:
- (a) "Major injury" means any injury arising from accident causing serious bodily harm to the person, which includes amputation of any limb; blindness; paralysis; multiple fractures or injuries; electrocution leading to loss of consciousness; asphyxia; and second degree and above burns.
 - (b) "Minor injury" means any injury to the person other than "major injury" that results in more than 3 man-days lost. In the case of injury to a member of the public, "minor injury" means any injury other than "major injury".
 - (c) "Dangerous Occurrence" means any occurrence which is specified in the First Schedule of the Workplace Safety and Health Act.
 - (d) "Occupational disease" means any disease specified in the Second Schedule of the Workplace Safety and Health Act.
 - (e) "Reportable incident" means any incident at the Site which requires the submission of a report to the Commissioner for Workplace Safety and Health under the Workplace Safety and Health (Incident Reporting) Regulations.
 - (f) "Senior management" of the Contractor means persons holding the appointment of Project Manager/Project Director and above.
 - (g) "Incentive/disincentive sum" (IDS) means the amount stated in Clause 1.1 above. The total of all incentive amounts or the total of all disincentive amounts awarded to the Contractor shall not exceed the IDS.

3 Implementation Period

- 3.1 The HSES shall be implemented from the date of site possession till the date of substantial completion of the Works. During this implementation period, the Contractor's HSE performance shall be assessed and scored monthly, while monetary penalty and deduction points shall be imposed on the Contractor for every

dangerous occurrence or accident that resulted in fatality/major injury/minor injury at the Site. The first HSE assessment month shall be the full calendar month after the date of site possession and the last HSE assessment month shall be the full calendar month before the date of substantial completion of the Works.

4 Methodology

4.1 It is acknowledged that for some contracts, the Works can be completed before their contract dates for completion while for others, the Works can be completed on time or after their original contract dates for completion. It is also acknowledged that contracts can have different low and high works activity periods. However, for the purpose of the HSES, the following approaches shall be adopted:

(a) Duration to complete the Works

The possible duration to complete the Works (hereinafter called the “Execution Phase”) shall be taken to be 1.25 times the contract period in months, with any fraction of a month ignored or rounded up to a full month as decided by the S.O., to facilitate the monthly award of incentive/disincentive amount as far as possible should the Works be completed after the original contract date for completion. The first month under the Execution Phase shall coincide with the first HSE assessment month under the HSES.

(b) Works Activity Periods

Taking into account the building up of works activities at the initial stage of the Contract and the tailing off of works activities as the Works near completion, the Execution Phase shall be made up of a low works activity period, followed by a high works activity period, and shall then end with another low works activity period.

The low works activity period at the initial stage and that at the end stage of the Contract combined shall not exceed 0.2 times the Execution Phase in months, with any fraction of a month ignored or rounded up to a full month as decided by the S.O. The number of months to be allocated to the low works activity period at the initial stage and that at the end stage of the Contract shall be decided by the Superintending Officer (S.O.) and approved by the Board. The S.O. may at his discretion use the programme for the Works submitted by the Contractor and accepted by the S.O. as a guide to make his decision.

(c) Incentive/Disincentive Sum (IDS)

The IDS shall consist of two components, as follows:

Component A:

Component A shall be 0.7 times the IDS.

A maximum incentive/disincentive amount shall be allocated to each of the HSE assessment months in the Execution Phase and this amount may be different from one HSE assessment month to another. The maximum incentive/disincentive amount allocated to each of the HSE assessment months in the Execution Phase shall be decided by the S.O. and approved by the Board, taking into account the following:

- (i) The maximum incentive/disincentive amount allocated to any HSE assessment month in the low works activity periods shall not be more than that allocated to any HSE assessment month in the high works activity period.
- (ii) The total of the maximum incentive/disincentive amounts allocated to all the HSE assessment months in the low works activity periods shall not exceed 0.1 times the IDS.
- (iii) The total of the maximum incentive/disincentive amounts allocated to all the HSE assessment months in the Execution Phase shall equal Component A.

The Contractor shall be awarded an incentive/disincentive amount for each of the HSE assessment months in the Execution Phase that has HSE assessment conducted. The incentive/disincentive amount awarded for each HSE assessment month shall be payable to the Contractor or deductible from monies due to the Contractor.

If the date of substantial completion of the Works is within the Execution Phase, the Contractor shall be awarded monthly incentive/disincentive amount from the first HSE assessment month in the Execution Phase to the HSE assessment month before the date of substantial completion of the Works in the Execution Phase. For each of these HSE assessment months, the incentive/disincentive amount awarded shall be based on the Contractor's HSE score in that HSE assessment month, with the amount not exceeding the maximum incentive/disincentive allocated to that HSE assessment month. The Contractor shall also be awarded an incentive/disincentive amount for those remaining HSE assessment month(s) in the Execution Phase that have maximum incentive/disincentive amount allocated but no HSE assessment conducted as the Works have been substantially completed. The computation of this incentive/disincentive amount is given in Clause 9.3.

If the date of substantial completion of the Works is after the Execution Phase, the Contractor shall be awarded monthly incentive/disincentive amount for every HSE assessment month in the Execution Phase based on the Contractor's HSE score in that HSE assessment month, with the amount not exceeding the maximum incentive/disincentive amount allocated to that HSE assessment month. The Contractor's HSE performance shall continue to be assessed and scored for each HSE assessment month after the Execution Phase till the last HSE assessment

month, which shall be the full calendar month before the date of substantial completion of the Works. No incentive/disincentive amount shall be awarded for each of these HSE assessment months after the Execution Phase. However, the Contractor's HSE score in each of these HSE assessment months shall be taken into account in the computation of the average HSE score in all HSE assessment months that have HSE assessment conducted. This average HSE score shall form part of the Final HSE Score to determine the award of the incentive/disincentive amount under Component B.

The difference between the maximum incentive/disincentive amount allocated to a HSE assessment month and the actual incentive/disincentive amount awarded for that HSE assessment month, if any, shall be deemed to have been utilised and shall not be taken into account in any other subsequent award of the incentive/disincentive amount.

Component B:

Component B shall be 0.3 times the IDS.

The Contractor shall be awarded an incentive/disincentive amount based on the Contractor's Final HSE Score. This incentive/disincentive amount awarded, which shall not exceed Component B, shall be payable to the Contractor or deductible from monies due to the Contractor after the issuance of the Certificate of Substantial Completion by the S.O.

5 HSE Assessment Team

- 5.1 The Contractor's HSE performance in each of the HSE assessment months shall be assessed and scored by a HSE Assessment Team comprising the S.O./ S.O.'s Representative, the Contractor's Project Manager, the Contractor's Workplace Safety & Health Officer/ Co-ordinator, and the PUB representative.

6 HSE Score in HSE Assessment Month

- 6.1 The assessment and scoring of the Contractor's HSE performance in a HSE assessment month shall be carried out within the month following the HSE assessment month, e.g. the assessment and scoring of the Contractor's HSE performance in the HSE assessment month (say, 1 March to 31 March) shall be carried out at any time in the following month (from 1 April to 30 April).

- 6.2 In a HSE assessment month, the Contractor shall score points for fulfilling each of the Key Performance Indicators (KPIs) listed under the 4 Sections in Annex I (Health & Safety Excellence Checklist). The 4 Sections and the maximum points allocated to each Section are as follows:

Section	Description	Maximum Points Allocated
1	Health & Safety Conformance	20
2	Incident Statistics	30
3	Environment Conformance and Public Safety	8
4	Health and Safety Excellence Elements	42

- 6.3 For each of the KPIs, the Contractor shall be awarded the maximum points if the KPI is fulfilled, or zero points if the KPI is not fulfilled or partially fulfilled. Fulfilling of each KPI, as determined by the HSE Assessment Team, shall be based on full or sample representation approach as required by S.O.
- 6.4 In a HSE assessment month, the Contractor shall incur a deduction of points for every dangerous occurrence or accident that resulted in fatality/major injury/minor injury at the Site.
- 6.5 The Contractor shall also incur a deduction of points for critical safety non-compliance(s) and minor safety non-compliance(s) found at the Site during any inspections in the HSE assessment month. The maximum deduction points that the Contractor can incur for minor safety non-compliances found at the Site in a HSE assessment month shall be 5. For the purpose of the HSE scoring, minor safety non-compliances are safety lapses other than those classified as critical safety non-compliances, and critical safety non-compliances shall comprise the following:
- (a) Failure to carry out risk assessment before hazardous work activity
 - (b) Failure to provide fall protection or adequate fall prevention measures where there is potential risk of fall from a height of 2 metres or more
 - (c) Failure to put in place adequate control measures including gas testing, good ventilation, rescue plan and set up before and during any confined space operation
 - (d) Failure to provide adequate shoring or other appropriate risk mitigation measures before working in an excavated trench exceeding 1.5 metres depth, as per the Workplace Safety and Health (Construction) Regulations
 - (e) Failure to perform lifting operation with lifting plan in place, proper access control into lifting zone, and equipment in functional conditions
 - (f) Failure to ensure that there is no risk of electrocution due to exposed wire as a result of electrical cables that are damaged or worn off due to fair wear and tear
 - (g) Failure to comply with PUB Life Saving Rules (namely, “do not work without a valid Permit to Work when required by law”, “do not smoke within Designated Hazardous Areas”, “do not work without Lock out-Tag out when isolation of energy is required”, “do not set off naked lights within Designated Hazardous Areas” and “do not work under the influence of alcohol”)

- 6.6 The HSE score in a HSE assessment month shall be the total points obtained for fulfilling the KPIs less the total deduction points incurred for accident(s) that resulted in fatality/major injury/minor injury, dangerous occurrence(s) and occupational disease at the Site, and critical & minor safety non-compliance(s) found in that HSE assessment month.
- 6.7 All HSE assessment months in the Execution Phase shall have HSE assessment conducted, unless the date of substantial completion of the Works is within the Execution Phase. In such a case, the last HSE assessment month shall be the HSE assessment month before the date of substantial completion of the Works, and the remaining HSE assessment months in the Execution Phase shall not require any HSE assessment to be conducted.
- 6.8 The KPIs listed in Annex I and the list of critical safety non-compliances under Clause 6.5 above may be revised by the Board at any time. The Board shall inform the Contractor of any revision to the KPIs and/or the list of critical safety non-compliances at least 21 days before the revised KPIs/list of critical safety non-compliances are used for the remaining HSE assessment months.

7 Final HSE Score

- 7.1 The Final HSE Score shall be determined by the S.O. The Final HSE Score shall be the total of four scores, namely, the Average Construction Safety Audit Scoring System (CONSASS) Audit Score (applicable for Contract Sum of \$30 million or more), Score for Accident Frequency Rate, Score for Accident Severity Rate, and Average HSE Score in all HSE assessment months that have HSE assessment conducted, minus the total deduction points incurred in all the HSE assessment months, if any, for having dangerous occurrence(s) and accident(s) that resulted in fatality/major injury/minor injury at the Site.

Depending on the Contract Sum, the maximum points that can be obtained under each of the four scores are as follows:

Contract Sum	Average CONSASS Audit Score	AFR Score	ASR Score	Average HSE Score	Total for the 4 Scores
≥ \$30million	10	15	15	60	100
< \$30million	N.A.	15	15	70	100

The four scores are as follows:

- (a) Average CONSASS Audit Score (Maximum 10 points)
(Applicable only if Contract Sum is \$30 million or more)

If the Contract Sum is \$30 million or more, the Contractor shall submit the Audit Score and the supporting audit documents for each CONSASS Audit conducted during the period from the date of site possession to the date of substantial completion of the Works to the S.O. within the period specified by the S.O. On completion of the last CONSASS Audit, the Contractor shall also compute and submit the average percentage obtained for each Band of the CONSASS Audit Scores to the S.O. for verification and acceptance within the period specified by the S.O.

At the discretion of the S.O., no points may be awarded for the Average CONSASS Audit Score should the Contractor fail to submit the Audit Scores and the supporting audit documents, or the computation of the average percentage obtained for each Band of the CONSASS Audit Scores in full to the S.O. or to the satisfaction of the S.O. within the period specified by the S.O.

Six (6) points shall be awarded if Level 1 is achieved (i.e. the average percentage for each of the first three Bands, namely, Band I, Band II and Band III is at least 70%), while ten (10) points shall be awarded if Level 2 is achieved (i.e. the average percentage for each of the first three Bands, namely, Band I, Band II and Band III is at least 70% and Band IV is at least 50%). No points shall be awarded if Level 1 or Level 2 is not achieved.

If the Contract Sum is less than \$30 million, the Average CONSASS Audit Score shall not apply, and the maximum points under “Average HSE Score in all HSE Assessment Months” shall be 70 points instead of 60 points.

(b) Score for Accident Frequency Rate (AFR) (Maximum 15 points)

Following the end of each calendar month for the period from the date of site possession till the date of substantial completion of the Works, the Contractor shall submit records of the number of man-hours worked and the number of reportable incidents at the Site in that month to the S.O. within the period specified by the S.O. The Contractor shall provide the supporting documents as and when required by the S.O. for S.O.’s verification of the records.

The Accident Frequency Rate (i.e. the total number of reportable incidents per million man-hours worked) for the period from the date of site possession to the date of substantial completion of the Works shall be computed and submitted by the Contractor to the S.O. for verification and acceptance within the period specified by the S.O. Points shall only be awarded if the AFR is at Level 1, 2 or 3 as follows:

Level	AFR	Points
1	≤ 0.75 but > 0.5	5
2	≤ 0.5 but > 0.3	12
3	≤ 0.3	15

At the discretion of the S.O., no points may be awarded for the Score for AFR should the Contractor fail to submit the records of the number of man-hours worked and the number of reportable incidents at the Site, the computation of the AFR and the supporting documents required by the S.O. in full to the S.O. or to the satisfaction of the S.O. within the period specified by the S.O.

(c) Score for Accident Severity Rate (ASR) (Maximum 15 points)

Following the end of each calendar month for the period from the date of site possession till the date of substantial completion of the Works, the Contractor shall submit records of the number of man-hours worked and the number of man-days lost for every accident at the Site in that month to the S.O., as well as updates on any additional number of man-days lost for the accident(s) in the previous months, where applicable, within the period specified by the S.O. The Contractor shall provide the supporting documents as and when required by the S.O. for S.O.'s verification of the records.

The Accident Severity Rate (i.e. the total number of man-days lost from the reportable incidents per million man-hours worked) for the period from the date of site possession to the date of substantial completion of the Works shall be computed and submitted by the Contractor to the S.O. for verification and acceptance within the period specified by the S.O. Points shall only be awarded if the ASR is at Level 1, 2 or 3 as follows:

Level	ASR	Points
1	≤ 35 but > 25	5
2	≤ 25 but > 20	12
3	≤ 20	15

At the discretion of the S.O., no points may be awarded for the Score for ASR should the Contractor fail to submit the records and supporting documents required by the S.O. in full to the S.O. or to the satisfaction of the S.O. within the period specified by the S.O.

(d) Average HSE Score in all HSE Assessment Months
(Maximum 60 points if Contract Sum is \$30 million or more)
(Maximum 70 points if Contract Sum is less than \$30 million)

The Contractor shall compute and submit the average HSE score in all HSE assessment months that have HSE assessment conducted to the S.O. for acceptance.

The Contractor shall be awarded points based on the average HSE score in all HSE assessment months that have HSE assessment conducted as follows:

Points awarded = $(A / 100) \times B$, where

A = Average HSE Score in all HSE assessment months that have HSE assessment conducted

B = 60 points if Contract Sum is \geq \$30 million,
or 70 points if Contract Sum is $<$ \$30 million

The points awarded shall be a whole number. If the computed figure for the points awarded is not a whole number, the points awarded shall then equal the next whole number.

8 Monetary Penalty and Deduction of Points

8.1 For every dangerous occurrence or accident that resulted in fatality/major injury/minor injury at the Site during the period from the date of site possession to the date of substantial completion of the Works, the Contractor shall incur a monetary penalty and a deduction of points in the HSE assessment month that the dangerous occurrence/accident takes place, as well as a deduction of points in the Final HSE Score as shown in Table 1. The amount of monetary penalty and the number of points to be deducted shall depend on the type of incident. The Contractor shall incur a higher monetary penalty if the type of incident occurs more than once.

Any incident that occurs before the first HSE assessment month shall deem to have occurred in the first HSE assessment month, and the monetary penalty and the deduction points incurred due to this incident shall apply to the HSE assessment of the first HSE assessment month. Any incident that occurs after the last HSE assessment month shall deem to have occurred in the last HSE assessment month, and the monetary penalty and the deduction points incurred due to this incident shall apply to the HSE assessment of the last HSE assessment month, in which case, the score in the last HSE assessment month may have to be re-computed to take into account the monetary penalty and the deduction points incurred due to this incident.

Table 1 – Monetary Penalty and Deduction of Points for Various Types of Incident

Type of Incident	Monetary Penalty			Points to be deducted in the computation of the HSE Score in the HSE Assessment Month in which the incident takes place, and in the computation of the Final HSE Score
	1 st Time	2 nd Time	≥3 rd Time	
Fatal Accident	\$75,000	\$100,000	\$125,000	-20
Accident resulting in major injury (as defined under Clause 2) to any person	\$50,000	\$75,000	\$100,000	-15
Dangerous Occurrence	\$4,000	\$6,000	\$8,000	-10
Accident resulting in minor injury (as defined under Clause 2) to any person	\$4,000	\$6,000	\$8,000	-3

8.2 In addition, for any accident that resulted in fatality, the Contractor shall not be awarded any incentive amount for the HSE assessment month in which the accident occurred and for each of the HSE assessment months in the Execution Phase thereafter regardless of the Contractor’s HSE score in each of these HSE assessment months. If the date of substantial completion of the Works is within the Execution Phase, the Contractor shall also not be awarded any incentive amount for those remaining HSE assessment month(s) in the Execution Phase that have maximum incentive/disincentive amount allocated but no HSE assessment conducted. The Contractor shall also not be awarded any incentive amount under Component B regardless of the Contractor’s Final HSE Score. However, the Contractor can still be awarded disincentive amount for the HSE assessment month in which the accident occurred and for each of the HSE assessment months in the Execution Phase thereafter based on the Contractor’s HSE Score in each of these HSE assessment months. If the date of substantial completion of the Works is within the Execution Phase, the Contractor can also be awarded a disincentive amount for the remaining HSE assessment month(s) in the Execution Phase that have maximum incentive/disincentive amount allocated but no HSE assessment conducted if the nett total of the incentive/disincentive amounts awarded for all the HSE assessment months with HSE assessment conducted is negative. The Contractor can also be awarded a disincentive amount under Component B based on the Contractor’s Final HSE Score.

9 Award of Incentive/Disincentive Amount under Component A

9.1 For each of the HSE assessment months in the Execution Phase with HSE assessment conducted, the Contractor shall be given a HSE Performance Rating based on the Contractor’s HSE score in that HSE assessment month. For each of these HSE assessment months in the Execution Phase, the Contractor shall be awarded an incentive amount if the Contractor’s HSE Performance Rating is A (Good), a disincentive amount if the Contractor’s HSE Performance Rating is D (Poor), or no incentive/disincentive amount if the Contractor’s HSE Performance Rating is B (Satisfactory) or C (Room for Improvement), as shown in Table 2.

Table 2 – Score in HSE Assessment Month/Final HSE Score and corresponding HSE Performance Rating and Award

HSE Score in HSE Assessment Month / Final HSE Score (Points)	HSE Performance Rating	Award
> 85	A (Good)	Incentive Amount
65-85	B (Satisfactory)	None
50-64	C (Room for Improvement)	None
< 50	D (Poor)	Disincentive Amount

- 9.2 The incentive/disincentive amount to be awarded for each of the HSE assessment months in the Execution Phase with HSE assessment conducted shall be computed by multiplying the maximum incentive/disincentive amount allocated to that particular HSE assessment month with Factor A in Table 3 that corresponds with the Contractor's HSE Score in that HSE assessment month.

Table 3 – HSE Score in HSE Assessment Month/ Final HSE Score and corresponding Factor A to apply to arrive at the Incentive/Disincentive Amount

Incentive Zone		Disincentive Zone	
HSE Score in HSE Assessment Month / Final HSE Score (Points)	Factor A	HSE Score in HSE Assessment Month / Final HSE Score (Points)	Factor A
86	0.5	≤ 30	-1
87	0.6	31	-0.96
88	0.7	32	-0.92
89	0.8	33	-0.87
≥90	1.00	34	-0.83
<u>Note:</u> Incentive/Disincentive Amount for each HSE Assessment Month = (Maximum Incentive/Disincentive Amount allocated to the HSE Assessment Month) x Factor A Incentive/Disincentive Amount under Component B = Component B x Factor A		35	-0.79
		36	-0.75
		37	-0.71
		38	-0.66
		39	-0.62
		40	-0.58
		41	-0.54
		42	-0.49
		43	-0.45
		44	-0.41
		45	-0.37
		46	-0.33
		47	-0.28
		48	-0.24
		49	-0.20

- 9.3 If the date of substantial completion of the Works is within the Execution Phase, the incentive/disincentive amount to be awarded for those remaining HSE assessment month(s) in the Execution Phase that have maximum incentive/disincentive amount allocated but no HSE assessment conducted as the Works have been completed shall be computed as follows:

Incentive/disincentive amount = $(X/Y) \times Z$, where

X = Nett total of the incentive/disincentive amounts awarded for all the HSE assessment months with HSE assessment conducted (i.e. from the first HSE assessment month to the last HSE assessment month before the date of substantial completion of the Works)

Y = Total of all the maximum incentive/disincentive amount allocated to each of the HSE assessment months in the Execution Phase with HSE assessment conducted

Z = Total of all the maximum incentive/disincentive amount allocated to each of the remaining HSE assessment months in the Execution Phase with no HSE assessment conducted

10 Award of Incentive/Disincentive Amount under Component B

- 10.1 The Contractor shall be given a HSE Performance Rating based on the Contractor's Final HSE score. The Contractor shall be awarded an incentive amount if the Contractor's HSE Performance Rating is A (Good), a disincentive amount if the Contractor's HSE Performance Rating is D (Poor), or no incentive/disincentive amount if the Contractor's HSE Performance Rating is B (Satisfactory) or C (Room for Improvement), as shown in Table 2.
- 10.2 The incentive/disincentive amount to be awarded under Component B shall be computed by multiplying Component B with Factor A in Table 3 that corresponds with the Contractor's Final HSE Score.

11 Illustration of the HSES

- 11.1 An illustration of the implementation of Health & Safety Excellence Scheme in a contract is at Annex II.