

COMAH Competent Authority Workstream

## **Secondary and Tertiary Containment of Bulk Hazardous Liquids at COMAH Establishments**

(Operational Delivery Guide)

the Competent Authority



### 1. Purpose

- 1.1 To ensure that operator's adequately discharge their duty under Regulation 4 to take all measures necessary to prevent major accidents and limit their consequences to persons and the environment with regard to the measures set out in the Containment Policy and the Process Safety Leadership Group (PSLG) final report.
- 1.2 Buncefield follow up: Secondary and Tertiary Containment of Bulk Hazardous Liquids at COMAH Establishments is a Competent Authority Strategic Management Group (CASMG) priority topic for 2010-2011 and 2011-12. The results from the intervention will be recorded on COIN and reported to CASMG at the end of the work year. The results will be used to inform future interventions.

### 2. Scope

- 2.1 This guidance applies to the secondary and tertiary containment systems on:
  - all Buncefield 'in-scope' gasoline tanks covered by the Control of Major Accident Hazard regulations 1999 (as amended 2005) (COMAH) (as defined on page 13 of the PSLG Final Report); and
  - tanks storing petroleum products (a) gasolines and naphthas, b) kerosines (including jet fuels), c) gas oils (including diesel fuels, home heating oils and gas oil blending streams) in bulk covered by Section 2 of the Containment Policy at other COMAH sites.

### 3. Justification

- 3.1 The Buncefield Major Incident Investigation Board (BMIIIB) was established following the Buncefield incident in December 2005 and issued a series of reports prior to publishing its final report in December 2008.
- 3.2 In February 2008 the Competent Authority (CA) published its Containment Policy. The policy establishes good practice for primary, secondary and tertiary containment for tanks storing petroleum products in bulk. With regard to secondary and tertiary containment the Policy responds to Recommendations 17 and 18 of the BMIIIB's report 'Recommendations on the design and operation of fuel storage sites' – (published March 2007) and the CA's 'Report on the findings of the Oil/Fuel Depot Safety and Environmental Reviews' [March 2007] and evidence from other incidents.
- 3.3 The Process Safety Leadership Group (PSLG) was formed in 2007, made up of CA, industry and trade unions. The purpose of the PSLG was to take forward the BMIIIB recommendations, to promote process safety and, in particular, to ensure that major hazard industries demonstrated leadership in these matters. The final report of the PSLG was published on 11th December 2009. It provides clear guidance on the safety and environmental standards required of fuel storage sites and Part 4 contains requirements for engineering against loss of secondary and tertiary containment.

- 3.4 It is anticipated that the BMIIIB may reform in the future to review progress in implementing its recommendations. In addition, PSLG continues to monitor progress with the implementation of any upgrades required. The CA is likely to be criticised if it fails to secure satisfactory compliance.

#### **4. Main actions**

- 4.1 The main purpose of this Delivery Guide is to ensure that the Containment Policy is implemented in a consistent manner within the UK and to set out how compliance will be measured.
- 4.2 The guide is also intended to set out the time scales for:
- the assessment of existing arrangements on each site,
  - the production of an action plan to address shortfalls in the standards in place, and
  - the implementation of the action plans.

#### **5. Core intervention issues**

- 5.1 EA and SEPA officers need to assess the level of compliance with the Containment Policy of the secondary and tertiary containment systems for tanks within the scope of this Delivery Guide. Where necessary, an action plan should be agreed for:
- 5.1.1 In England and Wales: All tanks in scope of this Delivery Guide.(The action plans should, in the main, already be in place through implementation of the Containment Policy, however the additional requirements of the PSLG Final Report will need to be considered.)
- 5.1.2 In Scotland: All Buncefield in scope tanks and in scope tanks at sites prioritised for inspection over the period April 2010 – March 2012 using the CA risk ranking.
- 5.1.3 For sites requiring an action plan, the plan should describe the extent of the improvement work required and detail the timescales for the work. Action plans for Buncefield in scope tanks should be agreed by 11 September 2010 and for other tanks within the scope of this Delivery Guide, should generally be agreed within 6 months of the inspection identifying shortfalls in the standards in place.
- 5.1.4 In Scotland action plans should be agreed provisionally with operators until primary containment has been inspected by the HSE and a CA action plan agreed covering improvements required to primary, secondary and tertiary containment. Wherever possible a joint inspection should be undertaken to avoid unnecessary delay. However, if the site poses a high risk to the environment there should be no delay in implementing the action plan.
- 5.1.5 The Containment Policy requires that all of the necessary improvements are completed within 10 to 20 years of its publication (i.e. from February 2008). EA policy is that sites posing the highest risk will be expected to make improvements within 2 to 5 years of that date, as far as is reasonably practicable. For SEPA there is no specific policy on timescales, but it is expected that the timescales for implementation of any improvements required at each site will reflect the risk to the environment they pose and be fully justified.

- 5.1.6 Specific reference should be made to Part 4 of the PSLG final report to obtain further guidance on detailed implementation of the policy.
- 5.2 For sites with an action plan already in place progress against the action plan should be assessed annually by November (to allow the results of the assessment to feed into the following years intervention plans). Note that in England and Wales all in scope tanks at oil terminals and refineries should by now have an agreed action plan in place.
- 5.3 EA and SEPA officers should use the containment scorecard to record the level of compliance with the Containment Policy and the improvement work required at each site. Progress at sites that already have an action plan in place should be reviewed against the containment scorecard and the scorecard updated. An example scorecard is attached in **Appendix 2**.
- 5.4 Operator performance should be assessed using the methodology described in **Appendix 1** with the results recorded on the IRF tab on COIN following the intervention (be that an inspection or a desk based review of progress against the action plan).

**Note:** this Delivery Guide applies to work years 2010-11 and 2011-12

## 6. Supporting information

- 6.1 The standards which should be used to achieve the above goals are:
- CA Containment Policy and supporting guidance and regulators guidance;
  - PSLG final report;
  - PPG 28 Pollution Prevention Guidelines: Controlled Burn.

## 7. Success criteria

- In England and Wales baseline action plans agreed for all sites in scope of this delivery guide.
- In Scotland baseline action plans agreed for all Buncefield in-scope tanks and Containment Policy in scope tanks at sites prioritised for inspection using the CA ranking system.
- Progress against action plans reviewed annually.
- Improvements have been implemented by operators in accordance with agreed action plans.

## 8. Judging success and moving on

- 8.1 Information on measuring operator performance is contained in **Appendix 1**

### 9. COIN IRF scoring

9.1 The COIN Inspection Rating Form (IRF) tab on the COMAH Intervention Plan Service Order is used to record the operators performance in the "Secondary/Tertiary Containment" line

Site Ranking						
Type	*Base	Population	Societal	Sensitivity	Pathway	Total
Environmental	<input type="text"/>			<input type="text"/>	<input type="text"/>	
Safety	<input type="text"/>	<input type="text"/>	<input type="text"/>			

Performance Rating											
Topic	Relevant	Rating	Date	Rating	Date	Rating	Date	Rating	Date	Rating	Date
Ageing Plant	No										
Emer. Prepared Off-Site	No										
Emer. Prepared On-Site	No										
Future Strategic Topics	No										
Key Performance Indicators	No										
Overfill Protection	No										
Second/Tertiary Containment	No										

Inspection Rating		
*Rating Type	*Score	*Date
<input type="text"/>		

9.2 Progress should be recorded following each intervention on the basis of the information in [Appendix 1](#), Table 3

## Appendix 1

### Assessment of operator performance

The scorecard provides a record of how well an operator complies with the standards set out in the Containment Policy and PSLG final report. For each of the Containment Policy measures it records the number of bunds (within the scope of the Containment Policy) on site that fully comply with that measure. This column on the scorecard is used as the basis for assessing operator performance.

The scoring system has three main elements:

1. Calculate the current level of compliance against the Containment Policy and PSLG final report.
  - The compliance score is based on the number of Containment Policy in scope bunds in the site which are compliant with that individual measure (this is not a measure of work in progress this is just that those bunds are fully compliant with that measure). Noting that Buncefield in scope tanks are a subset of Containment Policy in scope tanks.
  - The number of compliant bunds is divided by the total number of in scope bunds and multiplied by 100, to give a percentage compliance figure for each of the measures.
  - The percentage compliance figures for each individual measure relevant to the site are then averaged over all relevant measures to give a percentage compliance figure for the site.
  - This figure is then converted to the compliance score by reading from Table 1.

**Table 1 Site Percentage Compliance**

Compliance percentage (%)	Compliance Score
0 - 49	5
50 - 74	4
75 - 89	3
90 - 99	2
100	1

2. Assess progress towards becoming compliant with the Containment Policy and PSLG final report
  - The next operation allocates a progress score based on the site action plan and whether the plan is being followed. This score is a direct read from Table 2.

**Table 2 Action Plan Progress Score**

No plan of the current non-compliance	5
Work delayed (no justification)	4
Work delayed (justified)	3
Work progressing to plan	2
All actions complete/none required	1

3. Use the compliance and progress scores to determine the operator performance rating.
  - The compliance score and progress scores are added together. The total score is used in Table 3 to establish the operator performance rating for entry into COIN (IRF screen).

**Table 3 Operator Performance Rating**

Sum of compliance and progress score	Performance Rating	Standard	Description
2	10	Exemplary	Proactive in identifying and implementing improvements. Good practice or above in all respects. All success criteria fully met. No action required.
3 or 4	20	Good	More than minimum legal or industry standard. Good practice in most respects. Most success criteria met. Provision of advice or confirmatory letter only with no plans for follow up.
5	30	Broadly Compliant	Meets minimum legal requirement of industry standard. More effort necessary. Some success criteria not fully met. May not preclude close out depending on scope of improvements required and operator attitude. Will need confirmation (at least with a letter) of work required. May need follow up.
6	40	Poor	Almost meets minimum legal or industry standard. More effort necessary. Several success criteria not fully met. Follow up may be required and possible need for enforcement action.
7 or 8	50	Very Poor	Somewhat below minimum legal or industry standard. Many success criteria not met or not fully met. A lot more effort required. Enforcement action likely.
9 or 10	60	Unacceptable	Well below standard. Enforcement action required. Poor operator attitude to required improvements.

- The scorecard also provides the common CA description of what each performance rating broadly reflects. These should be used as guidelines to verify the appropriate performance rating has been derived.
- Final decisions on compliance and Enforcement need to be taken in accordance with the CA Enforcement policy .



Control of Major Accident Hazards

## **Contacts**

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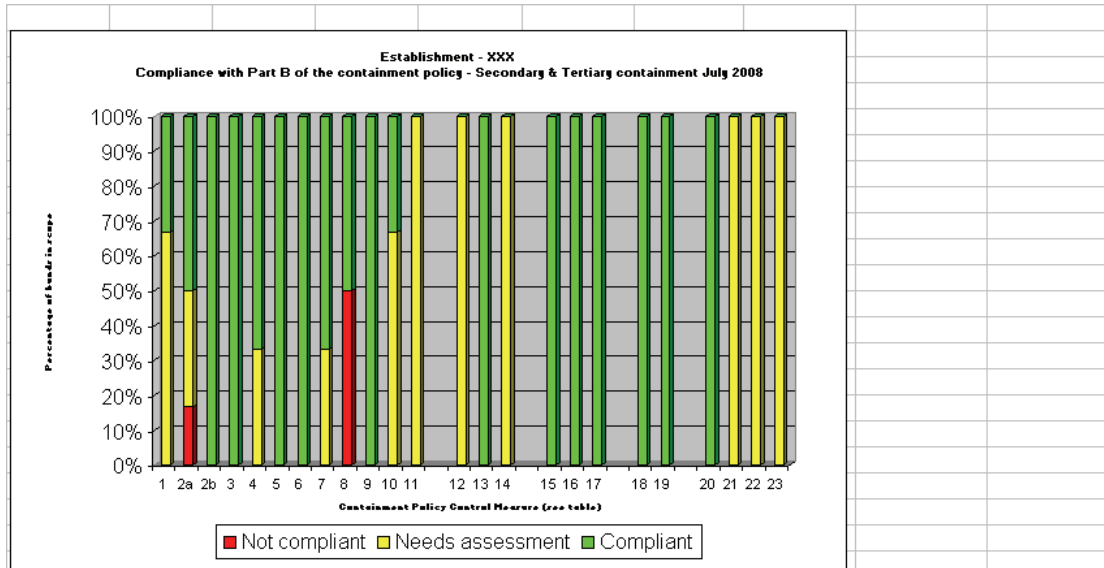
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**Appendix 2** Scorecard (example extracted from full excel spreadsheet)

Appendix 2 Scorecard

	Establishment	XXX			
	Date of Scorecard	XXX			
	Scorecard completed by	Operator	CA	(delete as appt.)	
	EA Category	Original		Current	
	Containment Policy Control Measure	No. of Bunds in scope		6	Percent compliant & worst case
	Bunding of above ground storage tanks -ASTs (section 6)	Not compliant (work required)	Needs assessment	Compliant (see column K-M)	
1	ASTs shall be banded to provide secondary containment.		4	2	33
2a	Bunds shall be impermeable (walls and floors)	1	2	3	50
2b	Bunds shall be impermeable (tank bases)			6	100
3	Bunds shall have adequate corrosion resistance.			6	100
4	Bunds shall have adequate strength and durability.		2	4	67
5	Bunds shall have the minimum number of tanks within each bund in line with good practice			6	100
6	Bunds shall have incompatible materials stored in separate bunds			6	100
7	Bunds shall have sufficient capacity to allow for tank failure and firewater management. This will normally be a minimum capacity of either 110% of the capacity of the largest tank or 25% of the total capacity of all the tanks within the bund whichever is the greater.		2	4	67
8	Bunds shall have either no rainwater drain or the drain is into a contained and enclosed system requiring positive action for operation	3		3	50
9	Bunds shall have no pipework that penetrates through the bund floor			6	100
10	Bunds shall have no pipework that penetrates through the bund walls as far as reasonably practicable otherwise it shall be with adequate sealing and support.		4	2	33
11	Bunds shall be subject to periodic inspection and certification by a competent person regarding their condition and performance.		6	0	0
	<b>Bunding and fire controls (section 7)</b>				
12	Bunds shall have adequate capacity and design to allow fire prevention and control measures to be taken.		6	0	0
13	Bunds shall have fire resistant structural integrity, joints and pipework penetrations.			6	100
14	Bunds shall have a means of removing fire water from below the surface of the liquid in the bund (for dangerous substances which are not miscible with water and have a lower density than water).		6	0	0
	<b>Underground storage tanks - USTs (section 8)</b>				
15	USTs shall be double skinned or banded			6	100
16	USTs shall have any access chambers designed to provide secondary containment			6	100
17	USTs shall have a primary containment failure monitoring and alarm system			6	100
	<b>Underground Pipework (section 9)</b>				
18	Underground pipework shall not be located in the same secondary containment system as pipelines containing incompatible materials			6	100
19	Underground pipework shall have a primary containment failure monitoring and alarm system and either be double skinned or have secondary containment trenches			6	100
	<b>Tertiary Containment (section 10)</b>				
20	Tertiary containment plans for establishments storing or using liquid dangerous substances or that may have firewater containing dangerous substances shall be prepared, having regard to the ground and location characteristics of the site			6	100
21	Tertiary containment measures shall minimise the consequences of a loss of primary containment from equipment that is not provided with secondary containment		6	0	0
22	Tertiary containment measures shall minimise the consequences of a major incident that causes the failure of or exceeds the storage capacity of secondary containment		6	0	0
23	Tertiary containment measures shall enable additional measures to be deployed in time if an incident escalates		6	0	0



<b>Avg compliance</b>	<b>58</b>	<b>Progress (see below)</b>	<b>work progressing to plan</b>
<b>Compliance score</b>	<b>4</b>	<b>Progress score</b>	<b>2</b>
Avg compliance	Score	progress	score
0 - 49	5	no plan for current non-compliance	5
50 - 74	4	work delayed (not justifiable)	4
75 - 89	3	work delayed (justifiable)	3
90 - 99	2	work progressing to plan	2
100	1	all work complete / none required	1
<b>Total score</b>	<b>6</b> (compliance + progress score - max 10)		
<b>Performance rating</b>	<b>40</b> (max 60)		
<b>Total score</b>	<b>Performance rating</b>	<b>Standard*</b>	<b>Description*</b>
2	10	Exemplary	Proactive in identifying and implementing improvements – Good practice or above in all respects. All success criteria met. No action required.
3 or 4	20	Good	More than minimum legal standard or industry standard, good practice. Good practice in most respects. Most success criteria met. Provision of advice or confirmatory letter only with no plans for follow-up.
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9 or 10	60	Unacceptable	Well below standard, enforcement action required. Poor operator attitude to required improvements.
* Standard and Description included for guideline purposes only to help verify performance score			