

These tables set out the operational controls required to achieve the objectives and targets set out in Environmental Program 10 Noise and Vibration Control. BBA will, as a minimum, implement the control activities and performance measures set out below.

Table OCO 10.1 Noise and Vibration Control

## **Table OCO 10.1 Noise and Vibration Control**

Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check				
INDU	INDUCTION AND TRAINING										
1.	Design Consultant briefing	CEMP 10	The Design Consultants will be briefed on the design aspects of this Control Document	Design Director	Prior to start of design.	Briefing record					



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
2.	Project and site induction	CEMP 13	All employees, consultants and subcontractors involved will be inducted into the environmental aspects and controls related to this Control Document. The induction will emphasise:	Construction Director or Project Manager, as applicable	Prior to personnel commencing work on site	Induction records	
			The importance/mechanisms of minimising noise and vibration impacts and reporting potential noise or vibration incidents.	Start up Manager for Early Works			
			The importance of minimising after hours noise.				
			No dogs to be allowed within the area of any construction zones.				
			Machinery must be checked for native wildlife prior to use.				
			All rubbish must be removed from construction sites.				
			Native wildlife may not be fed.				
			Fires must not be deliberately lit on any construction site.				
			Movement of vehicles at night must reduce speed and actively attempt to avoid collision with native wildlife where practicable and maintaining safety to operators.				
3.	Staff Construction Environmental Management Plan induction	CEMP 13	All relevant staff will be inducted into the requirements of the Construction Environmental Management Plan and all associated documents.	Construction Director or Project Manager, as applicable	Prior to staff commencing work on site	Induction records	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
4.	Briefings	CEMP 13 CEMP 14	Environmental briefings shall emphasize site-specific noise and vibration control requirements.	General Superintendent	Prior to working in a specific area	Record of Briefing (eg SEP Briefing)	
5.	Complaints handling protocol	CEMP 12.4	All supervisors shall be trained in correct protocol for handling complaints received directly from the public.	Construction Director	Before supervisors commence work on project	Training records	
DESIG	SN .				1		
6.	Noise attenuation design	LU1, Part 3, Sect 2, 2NC1.1- 1.11, pg 79, (Seq pg 92)	Any required construction noise attenuation design shall demonstrate compliance with the specified performance criteria.	Design Director	Design Phase	Validated design Monitoring records	
7.	Consultation with DTAE	LU1, Part 3, Sect 2, 2NC1.1- 1.11, pg 79, (Seq pg 92)	Potential interactions with any sensitive open space shall be identified in consultation with DTAE, and treatments resolved during detail design.	Environmental Manager	Design Phase	Validated design Monitoring records	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
PRE-	CONSTRUCTION						
8.	Conduct background noise and vibration monitoring	LU1, Part 3, Sect 1, definitions, pg 45, (Seq pg 58)	The location of sensitive receptors shall be identified and background monitoring conducted. Note: Noise sensitive area means:  (a) domestic premises; (b) caravan parks and camping grounds; (c) urban parks, urban reserves, public gardens and urban outdoor recreational areas (other than spectator sporting venues); (d) hospitals; (e) sanatoria, rehabilitation centres, and the like; (f) premises used for child care; (g) premises used for aged care; (h) educational institutions - schools, colleges, universities, technical and further education institutes, academies, lecture halls, and other premises used for the purpose of instruction; (i) premises used for public religious worship; (j) hotels, clubs, lodges, and the like which provide accommodation to the public; (k) prisons and detention centres; or (l) libraries.	Environmental Manager	Prior to work starting	Monitoring records	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
9.	Pre-blasting condition surveys	LU1, Part 2, 2.19, pg 15, (Seq pg 28) LU1, Part 2, 2.40, pg 24, (Seq pg 37) LU1, Part 2, 2.68, pg 38, (Seq pg 51) LU3, Part 2, 2.17, pg 9, (Seq pg 248) LU4, Part 2, 2.19, pg 10, (Seq pg 299)	Condition surveys shall be undertaken by an accredited building surveyor at dwellings or non-project infrastructure within 150 m of proposed blasting activities.	Project Manager	Prior to work starting	Condition survey	
10.	Blast Management Plan	LU1, Part 3, Sect 2, 2NC4.1- 4.4, pg 84, (Seq p 97)	A Blast Management Plan will be prepared for approval by the Director of Environmental Management prior to blasting commencing	Environmental Manager	Prior to blasting	Approved plan	
11.	Underwater Blasting Plan	LU1, Part 3, Sect 3, 3MR3.1, pg 133, (Seq pg 146) LU3, Part 3, NC10.1, pg 39, (Seq pg 278) EM1, CN1.1, pg 17, (Seq pg 358) EPBC 30	No underwater blasting is permitted unless an Underwater Blasting Plan has been approved by the Director of Environmental Management and the Minister for EPBC	General Superintendent	Before underwater blasting	Plan approved and implemented	
CONS	TRUCTION						
12.	Noise limits for construction activities at the mill site, landfill site and quarry site	LU1, Part 3, Sect 2, 2NC2.1- 1.11, pg 79, (Seq pg 92)	The noise limits shown in Table 1 will be met for construction activities at the mill site, landfill site and quarry site	General Superintendent	Ongoing	Limits met	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
13.	Pipeline construction periods within 200 m of sensitive premises	LU1, Part 3, Sect 5, 5NC1.1, pg 155, (Seq pg 168) LU1, Part 3, Sect 5, 5NC4.1, pg 156, (Seq pg 169) LU1, Part 3, Sect 6, 6NC1.1, pg 164, (Seq pg 177) LU1, Part 3, Sect 6, 6NC4.1, pg 165, (Seq pg 178)	Pipeline construction activities within 200 metres of noise sensitive premises will only occur 0700hrs to 1800hrs Monday to Friday; and 0800hrs to 1300hrs Saturday unless the written consent of the occupant and occupiers of these premises will be notified at least 24 hours before hand.	General Superintendent	Ongoing	Time periods met	
14.	Noise limits for pipeline construction activities	LU1, Part 3, Sect 5, 5NC2.1- 2.3, pg 156, (Seq pg 169) LU1, Part 3, Sect 6, 6NC2.1- 2.3, pg 164, (Seq pg 177)	The noise limits shown in Table 2 will be met for pipeline construction activities	General Superintendent	Ongoing	Limits met	
15.	Blast air overpressure and ground vibration limits	LU1, Part 3, Sect 2, 2NC5.1, pg 85, (Seq p 98) LU1, Part 3, Sect 5, 5NC7.1, pg 157, (Seq pg 170) LU1, Part 3, Sect 6, 6NC7.1, pg 165, (Seq pg 178) LU3, Part 3, NC6.1, pg 39, (Seq pg 278)	When measured at the nearest noise sensitive premises, air blast and ground vibration will comply with the following guidelines:  (a) for 95% of blasts, air blast over pressure must not exceed 115dB (Lin Peak);  (b) air blast over pressure must not exceed 120dB (Lin Peak);  (c) for 95% of blasts ground vibration must not exceed 5mm/sec peak particle velocity; and  (d) ground vibration must not exceed < 2mm/s (PPV) at heritage buildings.  < 10mm/s (PPV) at commercial buildings.	General Superintendent	Ongoing	Limits met	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
16.	Blasting hours for pipeline installation	LU1, Part 3, Sect 5, 5NC5.1, pg 156, (Seq pg 169) LU1, Part 3, Sect 6, 6NC5.1, pg 165, (Seq pg 178) LU1, Part 3, Sect 7, 7BL1.1, pg 169, (Seq pg 182) LU3, Part 3, NC5.1, pg 39, (Seq pg 278) LU4, Part 3, NC5.1, pg 40, (Seq p 329)	Blasting for the water and wastewater pipelines and the quarry may only occur between 1000 and 1600 hours Monday to Friday (no blasting on Saturdays, Sundays and public holidays. (Hours for quarry blasting may be varied with approval of Director of Environmental Management).	General Superintendent	Ongoing	Hours met	
17.	Blasting near historic places	LU1, Part 3, Sect 2, 2HH1.2, pg 96, (Seq pg 109) LU3, Part 3, HH1.2, pg 45, (Seq pg 284) LU4, Part 3, HH1.2, pg 48, (Seq pg 337)	Specific management measures must be developed is blasting is within 50 m of any historic cultural heritage place	General Superintendent	Before blasting	Measures approved and implemented	
18.	Silencers on pneumatic tools	Vic EPA Guideline TG302/92 s12	All pneumatic tools operated near a residential area shall be fitted with an effective silencer on their air exhaust port.	General Superintendent	Before use	Silencers in place	
19.	Use lowest noise rating equipment near noise sensitive locations	Vic EPA Guideline TG302/92 s12	Noise labels shall be affixed to new mobile air compressors and pavement breakers. The unit with the lowest noise rating that meets the requirements of the job shall be used where work is likely to affect a noise sensitive location.	General Superintendent	Before use	Noise label in place and supervisor has clearly made an effort to select quietest machine	
20.	Noise suppression on mechanical plant	Vic EPA Guideline TG302/92 s12	All mechanical plant shall be silenced by best practical means using current technology. Noise suppression devices shall be maintained to the manufacturer's specifications. Internal combustion engines shall be fitted with a suitable muffler in good repair.	General Superintendent	Before use	Silencer / muffler in place and in good condition	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
21.	Temporary noise barriers	Project Requirement	Where construction noise is likely to cause a prolonged (more than 4 hours) environmental nuisance, temporary noise barriers will be installed if topography and circumstances allow.	General Superintendent	Before works	Barriers in place if warranted and practicable	
22.	Truck engines not to idle in residential areas	Vic EPA Guideline TG302/92 s12	Where practicable, no truck associated with the project will be permitted to be left standing with its engine operating in a street adjacent to a residential area.	General Superintendent	For duration of project	No trucks left running in residential streets	
23.	Equipment turned off when not in use	Project Requirement	Where practicable, noisy equipment in the vicinity of sensitive receptors will be turned off when not in use.	General Superintendent	For duration of project	No equipment running when not in use	
24.	Arrange loading to avoid reversing	Vic EPA Guideline TG302/92 s12	Where practicable, arrange loading activities to avoid reversing, reducing the use of reversing beepers.	General Superintendent	For duration of project	Loading arrangements minimise reversing	
25.	Site layout to avoid sensitive locations	Vic EPA Guideline TG302/92 s12	Site buildings, access roads, plant and stockpiles shall be positioned as far as possible from noise sensitive locations.	General Superintendent	As required	Evidence that noise sensitive locations have been considered during placement	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
26.	Vehicle movement hours near residential premises	Vic EPA Guideline TG302/92 s12	Vehicular movements to and from sites within 100 m of residential premises without notification shall only be permitted during the hours  Monday to Friday – 7.00 am to 6.00 pm  Saturdays – 7.00 am to 1.00 pm  Any vehicle movements in these areas outside these hours shall only occur after the local community has been advised via a letter drop advising the nature, times and duration of the movements.	Project Manager	As required	Local community advised by letter drop, etc.	
27.	Reversing beepers	Project Requirement	Design truck loading areas in the vicinity of residential areas to minimise the need for reversing. Consider alternatives to standard reversing beepers if undertaking work out of hours (see above) within 100 m of residential premises.	Senior Project Engineer	For duration of project	Site set up and out of hours work to consider noise impact of reversing beepers	
28.	Maintenance and servicing of equipment	Vic EPA Guideline TG302/92 s12	All plant and equipment shall be maintained and serviced according to manufacturer's requirements. Inspections and subcontractor evaluations shall confirm correct maintenance is being performed.	Senior Project Engineer	For duration of project	Inspection checklists / subcontractor evaluations	
29.	Blasting frequency	DIIS	Blasting will be limited to twice per day, timed to minimise impact on the community	General Superintendent	For duration of project	Blasting records	
30.	Crushing	Project Requirement	Crushing plants will be located away from sensitive receptors to minimise noise impacts	General Superintendent	For duration of project	Inspection records	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
31.	Concrete batching	Project Requirement	Concrete batching plants will be located away from sensitive receptors to minimise noise impacts	General Superintendent	For duration of project	Inspection records	
32.	Workers noise protection	Project Requirement	Workers will be supplied with appropriate hearing protection	General Superintendent	For duration of project	Inspection records	
33.	Pile driving	DIIS	Where practicable, sonic or vibration piling will be used instead of impact piling	General Superintendent	During pile driving	Piling records	
34.	Pile driving consultation	DIIS	Prior to pile driving, aquaculture industries that could be impacted will be consulted about pile driving dates and times.	Environmental Manager	Prior to piling start	Consultation records	
COM	MUNITY LIAISON						
35.	Blasting notices	LU1, Part 3, Sect 2, 2NC7.1, pg 85, (Seq pg 98)	Prior to blasting commencing, the blasting schedule must be advertised in a local newspaper on 2 consecutive Saturdays.	Environmental Manager	2 weeks before commencing activities	Advertisements	
36.	Advise nearby residents at least 2 days before blasting or noise generating activities	LU1, Part 3, Sect 2, 2NC7.1, pg 85, (Seq pg 98) LU3, Part 3,NC4.1, pg 39, (Seq pg 278) LU4, Part 3, NC4.1, pg 40, (seq pg 329)	Advise residents via letterbox drops at least 24 hours before commencing noise generating activities within 100 m or undertaking blasting within 200 m of noise sensitive receptors.	Community Relations Manager	2 days before commencing activities	Letterbox drop	
37.	Investigate noise and vibration complaints within 24 Hours	Project Requirement	Noise and vibration complaints to be investigated by Community Relations Manager / Site Environmental Officer within 24 hours of complaint receipt. Check monitoring records if available or conduct monitoring at complainant's boundary to determine whether noise limits are being exceeded. Take corrective action as necessary.	Community Relations Manager	Within 24 hours of receiving complaint	Complaint incident records on HSE Reporting System. Monitoring records.	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check			
38.	Use complaints management procedure and register complaint as an incident	CEMP 12.4	Record complaint details and corrective action in accordance with BBA complaints management procedure. Register complaint as an incident in the HSE Reporting System and investigate and report in accordance with incident procedures.	Site Environmental Officer	Within 48 hours or receiving complaint	Complaint incident records on HSE Reporting System. Effective corrective / Preventive action.				
INCID	INCIDENTS									



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
39.	Potential environmental harm	CEMP incident response procedures	Class 1: An actual adverse effect on the health or safety of human beings that is of a high impact or on a wide scale; an actual adverse effect on the environment that is of a high impact or on a wide scale; an actual loss or property damage of an amount, or amounts in aggregate, exceeding ten times the threshold amount (\$5,000); an environmental nuisance of a high impact or on a wide scale; an actual adverse effect on the health or safety of human beings that is not negligible; an actual adverse effect on the environment that is not negligible - cease relevant activities across all sites until the problem is fully understood and rectified; follow incident response procedures  Class 2: The emission of a pollutant that unreasonably interferes with, or is likely to unreasonably interfere with, a person's enjoyment of the environment; any emission specified in an environment protection policy to be an environmental nuisance; an actual loss or property damage of an amount, or amounts in aggregate, exceeding the threshold amount (\$5,000) - cease relevant activities at the site of occurrence until the problem is rectified; follow incident response procedures	Environmental Manager	Ongoing	Incident response records	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
40.	Potential permit breach	CEMP incident response procedures	Class A: A permit condition has been breached and either the environmental consequences are significant or the breach is due to a wilful or negligent failure to attempt to satisfy the condition – cease relevant activities across all sites until the problem is fully understood and rectified; follow incident response procedures  Class B: A permit condition has been technically breached but the intent of the condition has been or will be achieved and environmental consequences of the breach are not significant – cease relevant activities at the site of occurrence until the problem rectified; follow incident response procedures  Class C: Compliance with the permit has been raised as an issue but the intent and requirements established by the permit condition have been met – examine the significance and potential for corrective action; follow incident response procedures	Environmental Manager	Ongoing	Incident response records	
EVAL	UATING PERFORM	ANCE					
41.	Conduct background noise monitoring	DIIS	Background noise monitoring shall be conducted at sensitive receptors (such as residential areas) in close proximity to the proposed works.	Site Environmental Officer	Prior to construction	Monitoring records	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
42.	Construction noise monitoring in vicinity of sensitive receptors	LU1, Part 3, Sect 2, 2NC3.2-3.7, pg 83, (Seq pg 96)	Noise monitoring shall be conducted when noise generating activities could potentially cause an environmental nuisance. Monitoring will include, but is not exclusive to; spot measurements at sensitive receptors, attended noise surveys every 3 months during construction at the Mill site, and attended surveys immediately after the beginning of each phase of construction at the Mill site. Noise monitoring and analysis of the noise monitoring data will be in accordance with the Noise Measurement Procedures Manual (July 2004)	Site Environmental Officer	For the duration of the project activity or until the noise levels are confirmed to be below acceptable levels.	Monitoring records Noise Survey Reports	
43.	Use appropriate noise monitoring equipment	LU1, Part 3, Sect 2,2MN1.1, pg 61, (Seq pg 74) LU1, Part 3, Sect 5, 5NC7.1, pg 157, (Seq pg 170) LU1, Part 3, Sect 6, 6NC7.1, pg 165, (Seq pg 178) LU3, Part 3, NC7.1, pg 39, (Seq pg 278) LU4, Part 3, NC7.1, pg 40, (Seq pg 329)	Equipment that will be used for the noise and vibration monitoring program will include:  Sound level meters for attended monitoring  Noise data loggers for unattended monitoring, if required  Vibration loggers  Vibration / blast monitors.  This equipment will be calibrated as per the Quality Assurance Procedure of the engaged noise and vibration consultants, in accordance with relevant NATA Standards.	Environmental Manager	For duration of project	Monitoring records	



Ref	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
44.	Blast monitoring	LU3, Part 3, NC8.1, pg 39, (Seq pg 278) LU4, Part 3, NC8.1, pg 40, (Seq pg 329)	Blast monitoring will be in accordance with ANZECC 1990 Technical basis for guidelines to minimise annoyance due to blast overpressure and ground vibration. The blast contractor is responsible for monitoring all blasts, and providing the data for reporting to the Director of Environmental Management, DTAE.	Environmental Manager	For duration of project	Blast Reports	
45.	Vibration monitoring during activities that could potentially affect dwellings/ non-project infrastructure	LU1, Part 3, Sect 5, 5NC7.1, pg 157,(Seq pg 170) LU1, Part 3, Sect 6, 6NC7.1, pg 165, (Seq pg 178) LU3, Part 3, NC6.1, pg 39, (Seq pg 278)	Vibration monitoring shall be undertaken during all blasts, piling activities and other activities that could potentially cause particle accelerations in the limits listed below at the nearest dwelling / non-project infrastructure to demonstrate compliance with the following vibration limits:  • < 2mm/s (PPV) at heritage buildings.  • < 10mm/s (PPV) at residential buildings.  • < 25mm/s (PPV) at commercial buildings.	Site Environmental Officer	During blasting, piling or other activities potentially causing damaging vibrations.	Monitoring records	
46.	Inspections	CEMP 16	Inspect the condition of protection and control measures and arrange maintenance, as required.	Site Environmental Officer	Daily	Weekly Checklist	
47.	Assess monitoring results	CEMP 19	Evaluate and assess monitoring results against specified targets.	Environmental Manager	Ongoing	Reports	
48.	Reporting.	CEMP 17	Report on the implementation of this EP in the environmental section of the monthly Project Report.	Environmental Manager	Ongoing	Monthly Report	
49.	Corrective action.	CEMP 19	Take corrective action, where required.	Project Manager	As required	Action taken	

### Table 1 – Noise limits to be achieved for mill site, landfill and quarry construction

### a. General limits (not applicable if (b) applies)

			Limits	
Location	Measure	0700-1800 hours	1800-2200 hours	2200-0700 hours
Pulp mill, landfill activity and quarry except within Noise Limit Area A (see map)	Combined noise emissions from construction activities in relation to the pulp mill activity, landfill activity and quarry activity when measured at any noise sensitive premises and expressed as the equivalent continuous A-weighted sound pressure level	45 dB(A)	40 dB(A)	35 dB(A)
Noise Limit Area A (see map)	As above	45 dB(A)	40 dB(A)	38 dB(A)

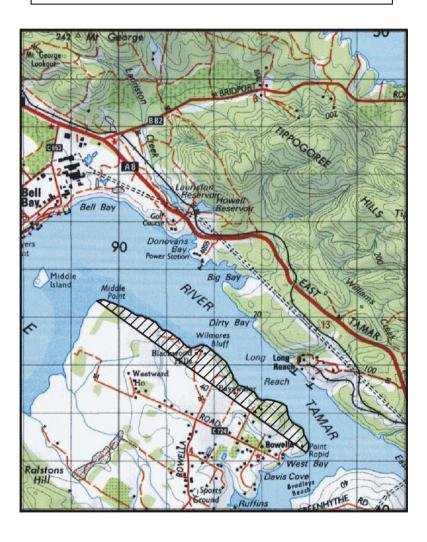
### b. Forty week period\* limits

		Limits				
Location	Measure	0700-1800 hours (Mon-Sat inclusive)	0700-1800 hours (Sundays and public holidays)	1800-2200 hours (Mon-Sat inclusive)	2200-0700 hours (Sundays and public holidays)	
Pulp mill, landfill activity and quarry except within Noise Limit Area A (see map)	Combined noise emissions from construction activities in relation to the pulp mill activity, landfill activity and quarry activity when measured at any noise sensitive premises and expressed as the equivalent continuous A-weighted sound pressure level	50 dB(A)	45 dB(A)	40 dB(A)	35 dB(A)	
Noise Limit Area A (see map)	As above	50 dB(A)	45 dB(A)	40 dB(A)	38 dB(A)	

<sup>\*</sup>The forty week may consist of one single continuous period or, if approved in writing by the Director of Environmental Management, several separate periods. The person responsible must advise the Director at least three days in advance of periods, which must not be less than one week, during which the in (b) will apply. A record of the periods during which these limits will apply must be maintained.



# Noise Limit Area A shown hatched (see Table 1)



# Table 2 – Noise limits to be achieved for pipeline construction

# a. General limits (not applicable if (b) or (c) apply)

Location	Measure	Limits
Pipelines	Construction activities in relation to the wastewater pipeline activity, when measured at any noise sensitive premises and expressed as the 10-minute equivalent continuous Aweighted sound pressure level	Greater of 35 dB(A) and the ambient sound pressure level from all other noise sources plus 5 dB(A).

# b. Six consecutive month period limits

		Limits
Location	Measure	0700-1800 hours Monday to Friday and 0800-1300 hours Saturdays
Pipelines	Construction activities in relation to the wastewater pipeline activity, when measured at any noise sensitive premises and expressed as the 10-minute equivalent continuous Aweighted sound pressure level	Greater of 45 dB(A) and the ambient sound pressure level from all other noise sources plus 10 dB(A).

# b. Six consecutive week period limits

		Limits
Location	Measure	0700-1800 hours Monday to Friday and 0800-1300 hours Saturdays
Pipelines	Construction activities in relation to the wastewater pipeline activity, when measured at any noise sensitive premises and expressed as the 10-minute equivalent continuous A-weighted sound pressure level	Greater of 60 dB(A) and the ambient sound pressure level from all other noise sources plus 20 dB(A).



### **Revision Status**

Revision	Date	Revision Description	Prepared	Reviewed	Approved
A0	27 April 2007	Draft for BBA review	IW		
A1	9 May 2007	Draft for DTAE review	IW		
В0	22 October 2007	Revised for submission to DTAE following auditor's comments	IW	JD	JC
B2	7 January 2008	Revised following DTAE comment	IW	JD	JC
В3	21 January 2008	Revised following DTAE comment	JRD	JD	CF