

Document Title:

Project Safety Management Plan

Document Number:

VIS-PLA-ATC-00001-0019

Issue:

3.0

Date:

16 July 2003

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Change Record

Issue	Date	Section(s) Affected	Description of Change/Change Request
			Reference/Remarks
0.1	24/08/01	N/a	First Issue
1.0	24/09/01	All	Comments from reviewers
2.0	26/03/02	All	Major Update
3.0	02/07/03	All	Major update including review points from I Sheffield and S Elder





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1 Introduction

1.1 Purpose of Document

This document outlines the Project Safety Management Plan (PSMP) for the VISTA Telescope Project. The purpose of this document is to describe the arrangements for management of safety throughout the life of the VISTA project. Individual responsibilities and planned safety management activities and procedures to reduce or eliminate hazards are detailed.

The PSMP shall be used by the Contractors as a contractual applicable document and is an explanation of what is expected to be included in the Contractor's Safety Management Plan.

1.2 Objective

The overall objective of the PSMP is to ensure that the levels of risk of accidental death, injury and or damage to property or to the environment, due to VISTA activities, are as low as reasonably practicable (ALARP). This applies to all persons during the manufacture, test, transport, installation, commissioning and acceptance phases and ultimately to (ESO) staff, visitors or other persons who will operate and maintain the facility.

The primary concern of Project Safety Committee (PSC) is the management of hazards: their identification; evaluation; elimination; and mitigation and control. This will be achieved through design and analysis and management procedures to cover all eventualities with regards to personnel, hardware and software whether on site at Paranal, Chile or at suppliers' premises or in transport.

Current safety practice is based on the principle of risk assessment as opposed to the earlier prescriptive approach. The principle of risk assessment is enshrined in the Management of Health and Safety at Work Regulations 1992 (1999), RD01. Under these regulations, employers have an absolute duty to carry out an assessment of the hazards and risks to which employees are exposed at work for the purpose of identifying the measures that need to be taken to comply with the relevant statutory provisions.

The Safety Management System describes how safety activities will be carried out in order to achieve the level of safety required from the VISTA Telescope and its ancillary equipment.

The VISTA Telescope will be designed and built to UK/EC and ESO standards (or equivalent, e.g. OSHA) as far as possible taking into account current legislative (including local Chilean) requirements, good engineering practice and changes thereto. Any equivalence's or non-compliance's agreed with ESO will be detailed in Justification Papers and minutes from meetings with ESO.





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2 Acronyms and Abbreviations

ALARP	As Low as Reasonably Practicable
AD	Applicable Document
CSM	Contractor Safety Manager
ESO	European Southern Observatory
FMEA	Failure Modes Effect Assessment
FTA	Fault Tree Analysis
HASAWA	Health and Safety at Work etc. Act 1974
HAZOP	Hazard & Operability Study
HSE	Health and Safety Executive
ISA	Independent Safety Auditor
MC	Main Contractor
OSHA	Occupational Safety and Health Administration (USA)
PM	Project Manager
PPARC	Particle Physics and Astronomy Research Council
PSM	Project Safety Manager
PSMP	Projects Safety Management Plan
PSC	Project Safety Committee
RD	Reference Document
RoSPA	Royal Society for the Prevention of Accidents
SMS	Safety Management System
WPM	Work Package Manager

3 Applicable and Referenced Documents

3.1 Applicable Documents

Reference	Document Title	Document No.	Date
AD01	ESO Safety Program	SAF-POL-ESO-00000-0001	01/09/97
AD02	Health and Safety at Work etc. Act (as amended)	ISBN 0 10 543774 3	1974
AD03	PPARC Safety Policy	9/99	1999

3.2 Reference Documents

Reference	Document Title	Document No.	Date
RD01	Management of Health and Safety	Made under the	01/01/93
	Regulations 1992 (as amended)	Framework Directive	(amended
		89/391/EEC	1999)





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4 ALARP CONCEPT

The ALARP (As Low As Reasonably Practicable) principle will form the basis for safety on the VISTA Telescope Project. A generally accepted definition of ALARP, can be summarised thus:

The principle that safety risks should be reduced to a level which are as low as reasonably practicable is the primary objective of the Safety Management System. It means that not only must risks be reduced to a tolerable level, but a further reduction must be achieved, provided that the penalties, in terms of cost, time and effort, are not disproportionate to the improvements gained.

This is illustrated in the 'ALARP Triangle', which is shown in Figure 1.



Note: Hazard Categories A, B, C and D shown within triangle.

Figure 1. The ALARP Triangle





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5 LEGAL ASPECTS

5.1 Statutory Health and Safety Law

UK statutory Health and Safety at Work Act 1974 (HASAWA) or EC/US equivalent standards will apply, with the provision to ESO reference contained within section 1.2. These standards set out in general terms the health and safety duties of employers, employees and manufacturers, suppliers and designers at work. The Contractor shall nominate his chosen standard.

5.1.1 Employers' Duties

Employers have to ensure, so far as reasonably practicable, the health, safety and welfare of their employees at work. This duty extends to include the following matters:

- The provision and maintenance of safe plant (which includes any machinery, equipment or appliance) and safe systems of work;
- Arrangements for the safe use, handling, storage and transport of articles and substances;
- The provision of information, instruction, training and supervision;
- The maintenance of a safe place of work;
- The provision and maintenance of a safe working environment;
- Employers also have to ensure, so far as reasonably practicable, that persons other than their employees (including members of the general public) are not adversely affected by their activities. This also covers the work of consultants who provide advice and technical support to their customers.

5.1.2 Employees' Duties

Employees have a duty to:

- Take reasonable care of the health and safety of themselves and others who may be affected by their work activities;
- To co-operate with their employers and others to enable them to comply with any duties laid upon them by statutory provisions;
- There is also a duty laid upon everyone not to intentionally or recklessly interfere with or misuse anything provided in the interests of health, safety or welfare in compliance with health and safety statutory provisions.





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5.1.3 Manufacturers and Others' Duties as Regards Articles for Use at Work

Section 6 of HASWA etc. places specific duties on those who can ensure that articles and substances are safe and without risks to health as it is reasonably practicable to make them before they are used and that articles are properly erected and installed. The following extract from Section 6 states;

"It shall be the duty of any person who designs, manufactures, imports or supplies any article for use at work to ensure, so far as reasonably practicable, that the article is so designed and constructed so as to be safe and without risks to health at all times when it is being set, used, cleaned or maintained by a person at work"

- to carry out or arrange for the carrying out of such testing and examination as may be necessary for the performance of the duty imposed on him by the preceding paragraph;
- to take such steps as are necessary to secure that persons supplied by that person with the article are provided with adequate information about the use for which the article is designed or has been tested and about any conditions necessary to ensure that it will be safe and without risks to health at all such as are mentioned above and when it is being dismantled or disposed of; and
- to take such steps as are necessary to secure, so far as is reasonably practicable, that persons so supplied are provided with all such revisions of information provided to them by virtue of the preceding paragraph as are necessary by reason of it becoming known that anything gives rise to a serious risk to health or safety.

Designers, manufacturers, suppliers and installers are required to make articles and substances without risks to health and safety that are reasonably foreseeable. Operator error or inattention, for example, is reasonably foreseeable and should be taken into account when seeking to ensure safety. The use of articles and substances for wholly inappropriate purposes is not reasonably foreseeable and does not need to be taken into account.

6 SAFETY MANAGEMENT AUDIT

The VISTA Telescope Project is subject to audit by a competent body under the instruction of the Particle Physics and Astronomy Research Council (PPARC) who is the authority responsible for the VISTA Safety Case and Safety Reports.

The Project Safety Manager (PSM), who will be the Construction Work Package Manager, is responsible for keeping the PPARC Safety Advisor informed of safety management activities throughout the VISTA Project.

The Project Safety Committee (PSC) will monitor, track and progress ownership for each risk or hazard.





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7 ROLES AND RESPONSIBILITIES

The VISTA Project Manager has overall responsibility for implementation of the safety plan. He will consult with the PSM and with the following personnel or organisations for general or specific advice on safety matters and will be kept informed of the progress of the VISTA Project. Their roles are briefly described:

- PPARC Safety Advisor. To be advised with respect to all safety matters as they arise and consulted by exception for advice and consultation.
- Health and Safety Executive (HSE) for advice on specific requirements.
- ESO on issues related to the ESO Safety Program Document Ref. AD01.
- Project Safety Committee (PSC). Will play its full part in managing all the safety management activities throughout the design and build phases of the Project.
- Project Safety Manager is the delegated person responsible for the implementation of the safety plan.
- Main Contractors (MC) shall play a full part in safety management throughout the design and build phases of the Project. Responsible for ensuring that all safety activities under the contract are carried out.
- Work Package Managers (WPM's) shall enforce safety requirements on (MC) by means of Technical Specifications and Statements of Work with appropriate project involvement during the complete contract cycle.
- Independent Safety Auditor (ISA). An ISA may be employed if any situation concerning safety arises that is outside the competence or experience of the PSM. The ISA may be invited to investigate/audit a Contractor.
- Other co-opted advisors as required.

Annexe B has a list of names and contact details.





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8 THE VISTA SAFETY CASE

The VISTA Safety Case will consist of the following main sections:

8.1 Unique Identification Number and Description

Each subsystem Safety Case will be given a unique identification number. The PSM/PSC will appoint an owner whose responsibility it is to ensure the Safety Case is progressed to a satisfactory conclusion (normally the WPM). A full detailed description of the Work Package under assessment will include interfaces with other systems, relevant performance or operation information, environment, operation envelope, levels of safety, safety margins, consequences of exceeding margins, etc.

8.2 Safety Requirements

The fundamental requirements for safety will be listed along with evidence showing how they have been achieved.

8.3 Safety Risk Hazard Analysis

The results of the safety risk hazard assessment will detail how all of the hazards have been reduced to a level that is ALARP. This will include details of the hazard log and all actions that were taken to identify and mitigate hazards.

8.4 Safety Management System

A description of the safety management system will include the organisations involved and their roles, the arrangements for auditing and accident/incident recording.

8.5 *Emergency/Contingency Arrangements*

Details of emergency procedures. This section will give procedures for dealing with, for example, fire, major structural damage, loss of stability, oil pollution, etc. the VPO will be responsible for formulating a template for this section of the Safety Case in accordance with AD01.

8.6 Safety Case Report

This describes the safety features of integrated telescope system and covers the Safety Management System and Emergency/Contingency arrangements. A copy of the Project Safety Case Report is to be held in the Project Office.



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9 HAZARD LOG

A hazard log database to record all hazards associated with VISTA will be set up by the PSM. The PSM is responsible for maintaining and updating the Project Hazard Log.

Hazards will be identified through individuals, Project Group and PSC meetings, Design Review meetings, Formal Safety Assessment exercises or any other process involved with the project.

Any individual or group of people who identifies a hazard is obliged to raise that hazard with the WPM or directly to the PSM, using the VISTA Hazard Identification form available in Annexe A or from the Project Office. The WPM or PSM will ensure the hazard is entered into the subsystem hazard log, if it has not already been recorded.

All hazards raised will be categorised, owners appointed and actions then taken to reduce them to ALARP.

The hazard log forms the basis of the Safety Management System and remains 'live' throughout the life-cycle of the project. The status of hazards is to be continually assessed, and new hazards added as appropriate. By keeping all hazards ALARP, the overall level of safety associated with the telescope should be ALARP.

The hazard log will be maintained in an electronic database. It will provide an auditable trail of all Hazards recorded, actions taken and persons involved at all stages of the process.





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10 ASSESSMENT AND MITIGATION OF HAZARDS

All hazards identified will be assessed for probability of occurrence, according to Table 1, and severity as in Table 2, by the PSC or by suitably experienced personnel (example: WPM with Contractor Safety Manager). The risk associated with a hazard is a product of the severity and probability of the hazard, and is split into five categories: Frequent, Probable, Occasional, Remote and Improbable. Table 3 shows how a hazard category is assigned to a hazard according to its probability and severity. Table 4 gives a descriptive definition of each of the four Risk Index categories.

Once a hazard has been defined, the appropriate action(s) to be taken to eliminate or reduce the hazard should be identified. The priority should be to remove the hazard, or to place it in a lower risk category if it cannot be removed. Once mitigating action has been taken, the hazard can be re-assessed to establish whether further action is needed, or whether the hazard has reached ALARP status. Once the hazard has been judged to be ALARP, no further action is required, but the hazard should be periodically reviewed throughout the life-cycle of the Project (or individual Contract) to ensure that it remains ALARP. If a hazard has been removed, for example by changing the design, it may be closed and need not be reviewed further, but a record of the hazard and the action taken must be kept.

Assessment and mitigation of hazards should only be carried out in hazard review meetings, although other groups may recommend actions to be referred to the hazard review meetings.

Definition	Description
Frequent	Likely to occur frequently
Α	$(\geq 6 \text{ times in } 25 \text{ years})$
Probable	It will occur several times during 25 years
В	(4-5 times in 25 years)
Occasional	Likely to occur during 25 years
С	(2-3 times in 25 years)
Remote	Unlikely but possible to occur during the lifetime (typically once in 25
D	years)
Improbable	So unlikely that the occurrence can be assumed not to be experienced
Ε	

Table 1: Definition of Hazard Probability





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Category	Personnel	Telescope / Systems
Catastrophic	Death	System Loss ¹
Ι		
Critical	Severe injury ² , major	Major system damage ³
II	occupational illness	
Marginal	Minor injury, minor	Minor system damage ⁴
III	occupational illness	
Negligible	Less than minor injury/occup	ational illness and minor system damage
IV		

Table 2: Hazard Severity Definitions.

- Notes: 1) System Loss: the system cannot be recovered at 'reasonable' costs (costs >£250k)
 - 2) *Severe Injury*: partial permanent disability of human beings
 - 3) *Major System Damage*; the system can be recovered (for cost of £100k £250k) but extensive industrial support is necessary and/or the system is out of operation for more than 3 weeks.
 - 4) *Minor System Damage*: the system can be repaired (for cost of £50k £100k) without support from industry and/or the system is less than 3 weeks out of operation

	Severity Category				
Frequency of Occurrence:	Catastrophic I (=5)	Critical II (=4)	Marginal III (=3)	Negligible IV (=1)	
Frequent A (=5)	25	20	15	5	
Probable B (=4)	20	16	12	4	
Occasional C (=3)	15	12	9	3	
Remote D (=2)	10	8	6	2	
Improbable E (=1)	5	4	3	1	

Table 3:	Risk Categories expr	ressed in Terms of	f Frequency and	Severity.
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Hazard	Assessment Criteria	
Risk Index		
10 - 25	Unacceptable. Mitigating action essential (Alarp Level A)	
4 - 9	Undesirable. Only accepted if risk reduction is impracticable (Figure 1).	
	VPO decision required (Alarp Level B)	
3	Tolerable subject to review by VPO (Alarp Level C).	
1-2	Tolerable (Alarp Level D).	

Table 4: Definition of Risk Index





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11 PROJECT SAFETY MANAGEMENT SYSTEM (SMS)

11.1 Introduction

The SMS forms one of the main parts of the Safety Case. This section describes the SMS for the VISTA Project and is the model to be applied for individual Work Packages.

The main areas of work required to enable the safety requirements to be met are described. The technical tasks to be undertaken are also listed, as safety will have to be considered in their execution.

11.1.1 The Objectives of the SMS are to:

Improve the level of safety through the identification of hazards and the introduction of control measures, to ensure that all hazards are continually reviewed, via the hazard log and maintained at ALARP, throughout the life of the telescope.

- Establish and maintain a safety culture among all persons involved with the Project, ensuring that safety becomes a routine part of everybody's work.
- Ensure that safety is reviewed throughout the life of the Project and that every effort is made to achieve as high a level of safety as possible on the VISTA Project in line with ALARP.
- Establish a hazard events database to appoint ownership, log, track and progress all incidents, accidents, near misses or "accidents waiting to happen" mapped into Safety Case reports where applicable for hand over for final acceptance by ESO.
- Establish procedures for identifying and recording hazards and taking mitigating action. Processes for 'top-down' and 'bottom-up' hazard analyses will be detailed, with the intention of determining how accidents could happen and how they may be avoided.
- Provide an audit trail for all safety-related decisions.

11.2 Key Safety Activities

11.2.1 Establish Hazard Log

Details of the hazard log will be issued by the PSM.





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11.2.2 Develop and Update Project Safety Management Plan

The PSM is responsible for writing and maintaining the PSMP. The PSMP will be reviewed at major milestones during the Project and updated as necessary. This document will describe all major safety activities to be carried out during the life of the Project and may be used as a reference to all staff associated with the Project who are involved with safety.

11.2.3 PSC Meetings

Provide the forum whereby safety activities are monitored and co-ordinated. PSC meetings are to be held on a regular basis at least every two months. Members of the PSC are given in section 12.3.3

11.2.4 Hazard Identification

Hazard identification is an ongoing process, but most of this work will be done during the design stage. Hazard identification will be done in several different ways.

11.2.5 Assessment

Concept designs have allowed some fundamental or high-level hazards associated with various design concepts to be identified.

11.2.6 Design Reviews

Responsible for noting any hazards associated with design features. Most of these hazards will be in the detail design. The primary objective will be to remove, or at least reduce, such hazards by re-design.

11.2.7 Other Formal Safety Assessments

Techniques, such as Failure Modes Effect Assessment (FMEA) and Fault Tree Analysis (FTA) will be used to identify potential hazards in telescope systems. The methods to be used on the VISTA project will be agreed with the contractor before contract award. These techniques will also allow weak-points in system designs to be identified, thus improving the reliability of the system. Safety and reliability are closely related, as poor reliability, particularly in major systems, can lead to hazards. Specialists may be involved in Formal Safety Assessment activities, as appropriate.





Any model testing or other experimental work, may be recommended by Hazard Review Meetings.

Identification of relevant certification will take place during the early stages of the Project. This will ensure that all major hazard areas are controlled.

11.2.8 Hazard Review Meetings

Hazard review meetings will be called as required and will be co-ordinated by the PSM for the project and WPM for the individual WP, and will provide the forum for formal identification of actions to be taken to remove or reduce hazards. Recommendations from hazard review meetings must be fed back into the design. Hazard review meetings will determine whether a hazard has reached ALARP status and if so, may conclude that no further work is required to reduce the hazard ('close' the hazard). Specialists and others will be invited to attend as appropriate. All actions and recommendations arising out of these meetings, such as they relate to specific hazards, will be recorded in the hazard log. Hazard review meetings will involve the contractor and Project equally and are likely to be held frequently during the design stage.

As there may be a delay in producing complete Safety Case documentation, hazard review meetings need to be held and in conjunction with the PSC to agree whether it is safe to proceed with, in particular but not limited to:

- Construction/Build phases
- Contractor trials
- Project team acceptance at manufacturers
- Shipping to Paranal
- Installation and integration
- Acceptance into service

11.2.9 Produce Safety Case Report

The Safety Case Report will be needed before the telescope is operated for the first time. This must be agreed by the PSC.

11.2.10 Produce Safety Case

The Main Contractors are responsible for producing the Work Package Safety Case to the satisfaction of VISTA Project Office. These then feed up to the Project Safety Case.





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12 SAFETY MANAGEMENT THROUGH LIFE

The operator (ESO) will be primarily responsible for safety management throughout the life of the telescope and will take over the Safety Management System on acceptance of the telescope. Principal tasks will be:

- Take ownership of Safety Case
- General maintenance and upkeep of the telescope to ensure continued optimum operability
- Review and update the hazard log
- Review, update and implement the Safety Management System
- Record all incidents and accidents and carry out remedial action where necessary.

12.1 Preparatory Tasks to be Undertaken

This section gives an outline of the technical tasks to be undertaken throughout the Project and the personnel responsible for implementing the tasks.

Project Team Members, specialist groups and other consultants have been used to carry out various feasibility studies. Working group meetings with various stakeholders were held to examine options. Industry was involved throughout and initial designs were produced by interested parties. The main safety activities following this stage are:

- PSM shall set up Project hazard log and enter any hazards which are identified. This is then the format of reference for the individual work package logs.
- Contracts and or Procurement will carry supplier audits as part of the tender selection process for contractor bid selection, for compliance to Health & Safety works and procedures.
- Project staff will examine design options and consider safety implications of options.
- PSM shall develop outline PSMP which includes a Safety Management System.
- Project staff will identify areas in which studies will be required to evaluate and reduce major Hazards.
- PSM shall ensure that all members of the Project are fully aware of their safety responsibilities.





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- PSM shall develop an outline Safety Case report (included in PSMP) which gives details of the most significant hazard areas.
- Project staff will identify relevant standards which will apply to the VISTA Project, with advice from specialist groups, user representatives, etc.
- Project staff will hold working-group meetings to discuss the design and identify solutions which will reduce or eliminate Hazards.
- PSM shall continue to enter hazards into the hazard log.
- PSM shall continue to hold PSC meetings and promote a safety culture on the project.
- PSM will contract ISA's to review the safety requirements as required.
- PSM shall document all safety decisions and maintain safety.
- PSM shall ensure that the PSMP is updated throughout.

12.2 Design, Build, Test, Transportation and Installation Phases

The Main Contractors will be responsible for the detailed design of the VISTA Telescope and associated systems including for example the Enclosure and Auxiliary building, but will work closely with Project staff, to ensure that the design satisfies the requirements of the Project and the statutory requirements. Other specialists will be consulted as necessary. All parties will be responsible for ensuring that the design incorporates the changes arising from Hazard review meetings. The main safety tasks during this Phase are:

- Main Contractor shall appoint a PM who will be responsible for the safety. He will act as the Contractor Safety Manager (CSM)
- VISTA PM and PSM will ensure that the contractor has the appropriate safety management structure in place in accordance with basic obligations and the Contract.
- WPM shall establish a working relationship with the Contractor's Safety Manager (CSM) as soon as the contract is awarded, to ensure that safety is considered right from the start.
- WPM and CSM shall continue to identify hazards through formal meetings, individual reporting, HAZOPs, and hazard analysis processes chosen by the contractor.
- WPM and CSM shall ensure that hazards are identified early and are addressed and mitigated at the design stage rather than during build, where possible.
- WPM and CSM shall set up an incident reporting system agreed by the PSM.
- WPM and CSM shall review and update the relevant Safety Case on a continuous basis.





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- WPM shall enforce Specification, Statements of Work, Testing and Compliance at the MC.
- All Project staff involved with plan approval and review of design documents will ensure that safety requirements are incorporated into the design.
- WPM and MC will define testing/verification/certification requirements.
- WPM and CSM will collect evidence to support the Safety Case and document in the Safety Case Report.
- ISA will give an independent review of safety evidence if required.
- VISTA PM shall endorse Safety Case Report.

12.3 Erection, Assembly and Integration Phase

The Main Contractor(s) will be responsible for building the VISTA Telescope, under the supervision of Project personnel. Commissioning and acceptance will create a significant amount of work. The main safety tasks are:

- PSM and CSM shall review and update hazard analysis and hazards in the hazard log. Ensure that practical measures are taken to eliminate or reduce all hazards.
- PSM shall review and update PSMP.
- PM and PSM will appoint relevant persons to carry out safety inspections and/or audits.
- Contractor(s) will ensure that safety-related information is included in operating, maintenance and training procedures.
- WPM (and PSM) and CSM shall review change proposals for impact on safety requirements.
- WPM (and PSM) and CSM shall collect evidence to support the Safety Case.
- WPM (and PSM) and CSM shall provide Safety Case report and hazard log to support acceptance into service.
- ISA will carry out independent review of safety evidence if requested.
- VISTA PM shall endorse Safety Case Report.
- Site Safety during construction, installation and commissioning will be in accordance with the relevant sections of AD01 or local Chilean safety standards, whichever are the higher.





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• Achievement of Safety Certification. Aim to have all certificates in place prior to acceptance.

12.4 In-service Phase

Operation and maintenance will be carried out by ESO.

12.5 Project Staff with Safety Responsibilities

All personnel involved with the VISTA Project have a basic responsibility to ensure safety at all times. General duties which apply to all staff are awareness, monitoring and reporting of project safety issues relating to their specialisation and any other safety issues which they discover or become involved with. Safety issues are to be reported to the PSM, who will assist with determining appropriate action.

12.5.1 Vista Project Manager

- Accountable for all aspects of safety on the VISTA Project.
- To ensure, through delegation, that all efforts have been made to achieve an acceptable level of safety in accordance with the ALARP principle.
- To ensure all staff tasked with safety work, with particular regard to Work Package Managers are adequately informed of their duties and responsibilities and are adequately trained.
- To review and authorise Safety Case documentation for the VISTA Telescope, taking advice from Project Technical Staff and the PSM as required.
- Safety issues that cannot be resolved are to be reported to the next level of management.
- To be a Chartered Engineer or equivalent.
- PM should have a letter of delegation detailing safety responsibilities.

12.5.2 Project Safety Manager

The role of Project Safety Manager will be carried out by the Construction Work Package Manager. A number of safety issues are related to the site and enclosure and as site manager, will be well placed to manage the issues.

- Responsible for managing and co-ordinating safety activities on the VISTA Project.
- Responsible for encouraging good liaison between the WPMs and the Contractor's Safety Manager to ensure that ESO and Contractor safety management activities are co-ordinated, and that the Contractor carries out their duties, agreed under the contract, with respect to safety.





- To report safety issues which cannot be resolved to the PM.
- PSM should have a letter of delegation detailing safety responsibilities from the PM.

12.5.3 Contractor's Safety Manager

- Responsible for ensuring that the Main Contractors carry out all their safety responsibilities in full, as agreed in the contract.
- Ensure that all of the Contractors' staff involved in safety matters are adequately trained and competent. Any safety issues and Hazards arising are to be reported to the WPM.

12.5.4 Project Safety Committee

The VISTA Project Safety Committee (PSC) is tasked with conducting periodic reviews of safety management activities and associated documentation. The PSC will also provide guidance to support the process of establishing and maintaining project Safety Cases.

Permanent membership of the VISTA PSC, before contract award, is given below:

VISTA PM	Chairman	Mr Alistair McPherson
VISTA DPM	UK ATC Chief Engineer	Mr Gary Rae
VISTA	Senior Systems Engineer	Mr Simon Craig
VISTA(PSM)	Construction Manager	Mr Bryan Little
VISTA	Secretary	Mrs Jackie McDougall

PSC meetings may not require attendance by all of the above. Staff will be invited to specific meetings as required. After contract award, the PSC will expand to include the ISA and the CSM, and other contractor safety staff.

Additional project staff, user representatives and others may be invited to attend.

12.6 Responsibilities, Resources and Interfaces

A RACI (Responsible, Accountable, Consult, Inform) chart will be prepared to show who is responsible and accountable for the various safety tasks, who needs to be consulted and who needs to be informed of the outcome.





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13 INTERNAL AND EXTERNAL AUDITS

The VISTA Project is subject to safety audits at any time, by PPARC or their delegated safety auditor. The PSM will make every effort to ensure that all documentation is available when requested.

13.1 Other Relevant Safety Documents and Reports

The safety-related documents detailed below will be available from the PSM:

- Justification Papers: These give the philosophy behind the various major design features of the VISTA Telescope, including any safety implications. Generally, the aim of the Justification Papers is to show that safety has been considered and that design solutions give the best compromise between safety and operability.
- Minutes and/or actions and agreements from VISTA PSC Meetings and notes from hazard review meetings
- Minutes and/or actions and agreements from relevant meetings
- Previous drafts of the PSMP
- VISTA hazard log

13.2 Design Changes

The procedure for incorporating design changes will be agreed with the chosen contractor at contract award. All design change proposals must be reviewed for their impact on safety. Specific test requirements relevant for safety will be implemented during acceptance phases.





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14 Annexes

Annexe A VISTA HAZARD IDENTIFICATION FORM

Date Raised:

Location/System/Sub System:

How was it identified:

Who Identified it:

Hazard Type: Hardware/Personnel/Environment

Description of Hazard:

Consequence:

Identifiers evaluation: -	Severity:	Probability:	Risk Category:
Safeguards/Mitigating Ac	ctions (field no	t mandatory):	
PSM/PSC evaluation: -	Severity:	Probability:	Risk Category:

Any Other Information:



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Annexe B VISTA SAFETY CONTACTS LIST

Position	Name	Telephone(s)	Other
Vista Project Manager	Alistair McPherson	44.131.668.8362	amm@roe.ac.uk
Project Safety Manager	Bryan Little	44.131.668.8436	bl@roe.ac.uk
Project Safety Committee - Secretary	Jacqueline McDougall	44.131.668.8411	jmd@roe.ac.uk
PPARC Safety Advisor	Angela Roythorne	44.1793.442.084	angela.roythorne@pparc.ac.uk
Health and Safety Executive	If required		http://www.hse.gov.uk/
Site Preparation WP Safety Manager	Osvaldo Urdangarin	56.55.314.696	
Telescope WP Safety Manager	David Porter	972.690.8865	david.porter@tripointglobal.com
Enclosure WP Safety Manager	Luigino Giacomel	39.041.531.7906	
M1 and M2 WP Safety Manager	Magomed Abdulkadyrov	7.095.552.3295	lzos@comail.ru
M2 Unit WP Safety Manager	Albert Thomas	34.93.860.9001	albert@nte.es
Instrument WP Safety Manager	David Kelsh	44.1235.445696	d.m.kelsh@rl.ac.uk
Coating Plant WP Safety Manager	Mike Swan-Taylor	44.1354 692391	m.swan-taylor@ metalcraft.ferrarisgroup.com
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