

Halley Launch Event - 29th June 2004

Matters Arising/Response to Questions

The Science

Q - Why would anyone want to build in an environment that is so inaccessible, harsh and potentially dangerous?

A - Because the science is worth it. Ground-breaking research from Halley led to the discovery of the ozone hole - that changed our world. Antarctica may be 10,000 miles away from the UK, but it gives us an understanding into how the Earth works.

Q - What is the biggest challenge facing construction projects at Halley?

A - The Brunt Ice Shelf is perfect for scientific observations but buildings placed on the surface will quickly become buried by snow and ice and will eventually break off as icebergs. Radical solutions are required to work in this requirement.

Q - What about the human impact on Antarctica's pristine environment?

A - The Antarctic Treaty and its Environmental Protocol protect the continent. All nations operating Antarctic research stations must comply with the Treaty. For BAS this means carrying out environmental assessments before projects are allowed to go ahead, removing all our waste, cleaning up former stations and having a strict environmental policy. We see the new Halley as an opportunity to build a more environmentally efficient station, with a greater use of renewable energy and a reduction in fossil fuels. At the end of its design life we will need to remove it so concepts of recycling and disposal will be considered now.

Q - Why is BAS going down the route of having a design competition, rather than simply briefing an architect with experience in prefab?

A - We want to attract innovation and new thinking. We have a great deal of experience building in this environment but we believe that a fresh, focussed look can give us new insights. Making this creative and competitive will we hope, generate some ingenious solutions.

Budget

Q - Is the cost of de-commissioning Halley V included in the £19m budget?

A - No, this work is carried out under another budget and programme.

Q - Will life-cycle costs be taken into account?

A - The lifespan for the new building is expected to be 20 years (the location of new site has been chosen to avoid risk of calving for 20 years). Schemes that reduce life cycle costs over 20 years will be looked at more favourably.

Q - How much did Halley V cost prior to shipping and how much will Halley VI cost prior to shipping and installation?

A - Halley V cost £11 million. Allowing for a 4% increase would equate to £16-17m in today's terms. In addition to these costs and within the £19m budget are the costs of shipping and plant, which we estimate add £2.5 million.

Q - Please provide more information of how the £19m was reached

A - £19 million is the target budget, based upon the cost of Halley V and following extensive research by BAS staff. Further information will be provided at the next stage.

Q - Construction cost is presumably a lot higher in the Antarctic?

A - This very much depends on the nature of the work, which is why we have made no limitations on the construction approach.

The Competition / Programme

Q - In view of all the technical experience at BAS' disposal, isn't there a danger of all the teams arriving at the same solution in the design development stage (stage 3)?

A - We do not think so and we considered this carefully in setting up the competition. The BAS technical advice is intended to support ideas rather than provide solutions. Teams can draw on a wealth of experience, data and information to assist in the development of their design concepts. Knowledge available will be shared but innovational ideas will not be disclosed to other teams.

Q - What about post-installation adjustment and commissioning? How will the design team engage in the later stages?

A - Design teams will be involved throughout, as design excellence is a primary consideration. We will consider the use of performance incentives to encourage the design teams to think about the impact of their design in use.

Q - Why has BAS teamed up with the RIBA for the competition?

A - Constructing a research facility in one of the Earth's most extreme environments requires technological innovation and creativity. It's hoped the competition will attract the best multi-disciplinary design teams to tackle the challenge. The competition process will not only deliver the best team but will demonstrate BAS's professional approach that is in line with its aspirations as world-leader in Antarctic Research.

Q - What do you mean by design and build?

A - This is more accurately develop and construct. We anticipate that the three selected designs after concept proposals will take their designs to RIBA Stage D/E (until we have teams on board it is difficult to be accurate about the exact scope of work). This approach will ensure that the design quality aspect of the design is fully developed to the satisfaction of BAS, RIBA and the competitor. In parallel with the design selection, BAS are advertising and interviewing for a dedicated shortlist of constructors. This list will be made available to the three selected teams who will be asked to establish a consortium approach with one of the constructors allowing BAS to receive, again in parallel, developed tender offers alongside the final design.

Q - Some might question why BAS would want to commission a style statement when there's no one there to see it - what would be your response?

A - We are definitely not commissioning a 'style statement' - we recognise that our research station is located in one of the most challenging environments on Earth and we want a facility that can not only withstand the elements but also meet all of our needs of people and our science programmes with the minimum environmental impact. Although few people will be able to see the station in Antarctica images of it will appear on the BAS website, in public information and on television.

Environmental Issues

Q - Please clarify what will happen following submission of the Environmental Impact Assessment (EIA).

A - BAS will prepare both a draft and final EIA, which will be co-ordinated by the BAS Environmental Office. The EIA will be prepared in accordance with the requirements of the Environmental Protocol to the Antarctic Treaty. The three short-listed concept proposals will be considered in the draft EIA. This will be sent to the UK Foreign & Commonwealth Office who will circulate it to the Antarctic Treaty nations for comment and advice by the end of January 2005. The draft EIA will then be discussed at the international Antarctic Treaty Consultative Meeting (ATCM) in Stockholm, Sweden in early June 2005. A final EIA will then be prepared by BAS following the Treaty meeting, which will address any comments and advice received from individual Treaty nations and collectively from the ATCM, and will also provide further details of

the winning design. The approval of the final EIA will be made by the UK Foreign & Commonwealth Office.

Q - The new environmental protocol, does it affect the type of plant that can now be used?

A - Yes. Full details will be provided in the next stage competition brief.

Q - Do you foresee communications technology/renewable energy sources having an impact on the design of the building?

A - Much of our research looks at the role Antarctica plays in the world's climate system and the impact that human activity has on this system. It is important for us to incorporate efficient energy-saving technology that makes use of renewable energy sources. It is part of our mission to minimise our human impact on Antarctica's pristine environment so we are keen to reduce the amount of power generated by fossil fuels.

Modern communications technology providing 24/7 phone, data and Internet will have a crucial role to play in the new station, allowing us to minimise fuel and personnel whilst maximising the availability of our science output.

Questions about Halley V / Other Examples

Q - Can any lessons be learnt for Halley V1 from the experience of other motion's bases in the Antarctic?

A - The American station at the south pole - originally built in 1975 is undergoing a massive re-build (scheduled for 2007 completion). This is on a bigger scale and there are differences such as much lower levels of precipitation (30cm/yr), colder temperature.

The Germans are also intending to build a new facility near Halley. The French/Italians are building but on a much smaller scale and not on floating ice shelf, and lower precipitation amounts.

During the design phases of the competition BAS will provide the teams with as much relevant information that has been gained from shared knowledge with other countries.

Q - It looks as though Halley V is containerised. Why not move it?

A - This has been researched and isn't an option. It is built on pre-fabricated panels – resin impregnated plywood and would be very difficult to pull apart and move. Also it was designed before environmental protocol came into force.

Q - Could you use it (Halley V) as fuel?

A - This isn't a possibility. The removal of Halley V is separate issue to be considered outside of the competition, and continuity of research work between Halley V and VI is a factor.

Q - In terms of the technology (scientific apparatus) could it continue to be housed in Halley V?

A - Halley V has significant maintenance overheads (e.g. jacking up). Also there is the risk of calving.

Q - What are the shortcomings of Halley V?

A - It is perfectly functional. There are no fundamental problems with the current buildings as such, although it is a 20-yr old design that is coming towards the end of its life. It would require major upgrades, but the facility is maintainable in the extreme environment, it is comfortable, is fitted out with the sophisticated scientific labs and equipment and is fit for purpose. However, because it is on a floating ice shelf that is moving seawards, the current site will ultimately break off to become an iceberg - so the station must be removed and rebuilt before then. Ideally the next station should require less maintenance engineers to visit in the summer thus allowing the opportunity for more scientists to visit.

At this point it's worth mentioning that BAS are not looking to re-build Halley V.

Q - What will happen to Halley V?

A - We will remove it from Antarctica by 2010 under a separate project and contract. This will be a major undertaking in itself. BAS has been leading the way in recent years to remove legacy facility and waste dumps that were left in Antarctica before the international community agreed the Environment Protocol to the Antarctic Treaty.

Construction

Q - Please give details on construction programme.

A - This will take place over two austral summers (late Dec to late Feb) 06/07 and 07/08. The plan is to fit out the interior during the second winter. Then hand over to BAS in Dec 2008 to install scientific equipment.

Q - Re the maintenance issue associated with jacking. Are you anticipating than the next Halley structure will be jackable?

A - There are three types of structure at Halley station:

- 1- Sub – surface – definitely not wanted for Halley VI,
- 2- Jackable platforms,
- 3- Moveable structures on skis, such as the garage.

There are no pre-conceived ideas for Halley VI and BAS are open to new solutions.

Q- Re the geology, isn't there a solid mass somewhere?

A - The nearest rock outcrops are some 200km in-land in areas unsuitable for a large amount of the science being carried out. There are no rock outcrops on the Brunt Ice Shelf (the location of Halley V and VI): it is a floating ice shelf 100m to 200m thick.

Lifestyle/General

Q - What is the average age of the occupants, how much time do they spend there and what is the male/female ratio?

A - People with scientific backgrounds tend to be straight out of University, typically 22 year olds. The average age is probably 27. Mechanics/ radio operatives tend to be up to the age of 40. Occupants are mainly male, with 4 or 5 females out of a 16 strong permanent staff. Numbers rise up to 52 over the 6 or 7 week summer period.

Q - What's it like to live there? Why shared occupancy rooms and what kind of personal space do people need?

A - Traditionally BAS has gone for 4 and 2-person occupancy during the busy summer months. In winter most staff have their own rooms. Rooms are small and most people would appreciate more personal space. A more pleasant place to live in would be desirable.

Q - What effect do you hope that a well-designed building will have on staff and their work?

A - Halley is 10,000 miles from the UK and the station is a home as well as workplace for our staff. It's hoped we have an ergonomically sound design solution that our staff enjoy living and working in, especially through the months of winter darkness. And of course, as well as fulfilling our aspirations for the environmental protection of Antarctica.

Q - Based on your experience of living at Halley, what are the most rewarding and most frustrating aspects of life on the station.

A - The most rewarding aspects of Halley life is living and working with a multi-disciplinary team who are highly motivated and committed, delivering front-line outputs in the face of a very hostile environment. I have often stood looking at the current Halley station filled with wonder (and not a little pride) at what the UK get for its money. The most frustrating thing? Everything at Halley is influenced by it.

