

Nuclear

Nuclear Related Projects

Schedule of Involvement of the Company and its Personnel

<u>Project</u>	<u>Client</u>	<u>Description</u>
DML Dockside Cranes	DML	Assessment and verification of the racking and slewing gear on the SRC 80 tonne refuelling crane
SILWR	Qualter Hall	Design of waste screening system to BNFL Environmental Services, Equipment Functional Specification for the Sorting Table
Shiplift Modelling	Owen Williams	IPR & ITA of Shiplift modelling at Devonshire Docks, Barrow-in-Furness
EHJ Mooring at RNAD Coulport	SKF	Static strength analysis - 10,000-year storm and full 100 year storm fatigue evaluation of EHJ structure.
DML Dockside Cranes	Butterley	Blast analysis of Dockside Crane at Devonport Docks (D154 Project)
BNFL EOT Cranes	Wellman Booth	Seismic validation of 2 EOT Cranes
Load Follower Device ITA	Hydrax	Used for the RAH at Devonport Docks
Dungeness Gas Circulator Crane	Butterley	Seismic analysis & structural calculations
DML Dockside Cranes	Butterley	Seismic Design & Validation of 7 Dockside Cranes at Devonport Docks (D154 Project)
Dungeness B Superheater	Taywood Engineering	Thermal analysis of super heater outlet header & seals
BNFL Shield Doors	Butterley	Design & Seismic analysis of Shield Doors & restraints
Piping Systems at Sizewell B	Kvaerner Boving	Design & Analysis of ACW & ECW Piping Systems
BNFL Lifting Rig	Butterley	Design of 4 te Lifting Attachment
BNFL EOT Cranes	Butterley	Seismic validation of several EOT Cranes
Torque Tightening Machine	Butterley	Design & Seismic validation of lifting bogie for reactor head torque tightening machine
Sizewell B Flask Handling	Butterley	ITA of Flask Handling rig
BNFL Shield Door	Butterley	Design & Seismic validation of Shield Door
Submarine Lifting Frame	NNC	Seismic validation of lifting frame for nuclear submarines
Decay Stores Assessment	NNC	Impact assessment within the AGR Decay stores
Fuel Charging Machine for AGRs	NNC	Dynamic modelling and seismic analysis of fuel charging machine and fuel assemblies for the AGRs at Hinkley Point, Torness & Heysham
Sizewell B Polar Crane	NNC	Seismic analysis of Polar Crane, Servicing Reactor

Other Nuclear Related Projects work on by Bennett staff in previous employment

- Mechanical Seals for Cooling Pumps BNFL
- Mechanical Seals for Cooling Pumps CEBG Berkeley
- Thorp Project BNFL - Seismic Analysis of Structural Modules, Pressure Vessels, Piping & Glove boxes



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8.9.3 Munitions stowed within a submarine pressure hull will only be vulnerable to RATTAM attack during loading/unloading operations in harbour when they become exposed to potential terrorist attack. Munitions stowed externally to the pressure hull and above the waterline are potentially vulnerable at all times in harbour or elsewhere on the surface when a terrorist threat is present. It is considered reasonable to assume that where the munition is screened so that the terrorist cannot select the munition as an aiming point then the risk of effective bullet attack is very low. Loading /unloading operations in the Explosives Handling Jetty (EHJ) will require the latest intelligence on probabilities of attack to be determined with appropriate measures taken as required.

8.10 Guidance - BR 862 and other Safety and Environmental Management Systems (SEMS)

8.10.1 BR 862 is the onboard document that specifies the explosives safety management system (SMS) to be followed by the ship's company. To ensure consistency of practices and safe systems of work across the Fleet and to avoid differences in training needs, all WSC/magazine, Designated Danger Area and adjacent compartment designs should be consistent with BR 862.

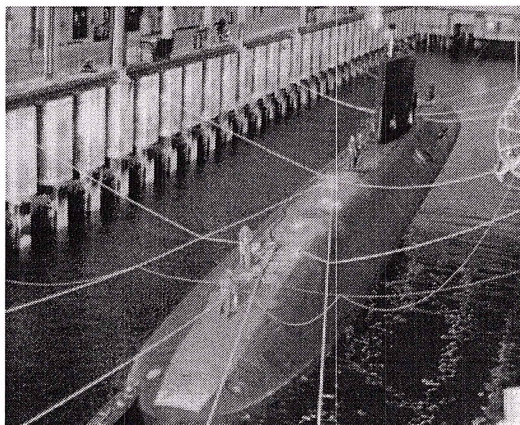
8.10.2 JSP 430 specifies other key hazards that are regulated by Naval Authorities and that require certification (e.g. Fire Certification). The design of WSC/magazines, Designated Danger Areas and adjacent compartments should also meet these key hazard requirements and other appropriate safety and environmental management systems that may specify design requirements for implementation in all ship compartments. Typical examples are NBCD requirements and ship structural, insulation, ventilation, electrical and lighting requirements. This standard identifies in Paragraphs 9 to 20 where specific requirements unique to explosives safety apply, but specifies that otherwise the general requirements appropriate to a compartment of that type in a submarine of that type apply.

When the boat comes in

Docking a nuclear submarine in the shiplift or alongside the explosives handling jetty at Coulport is a high risk task. Up to 45 people can be brought in from other jobs on the base to handle this – so, for efficiency and safety, it is essential that their training is up to speed. That's the responsibility of Chief Petty Officer Martin Oliver, currently on secondment to BNS and the training liaison manager and manpower co-ordinator for these 'evolutions', as they are called.

When he took over the job, Martin inherited a spreadsheet listing the training of everyone involved. As it did not give all the vital information he needed to know about the team's skill levels, he immediately set about redesigning it. Six months on it is up and running successfully. "The type of work we do here is very high risk and we are required to have regular nuclear audits," said Martin. "That means looking at the training packages to ensure we have suitably qualified and experienced persons doing the work."

The team handling an evolution might comprise people normally working elsewhere on the base. "We have an



'evolution' every three weeks and the job they doing here will not be their normal trade job mechanic, joiner, gardener, cleaner – and away from their daily routine," said Martin. an electrician may well find himself working as an operator for the duration of the evolution.

Because there is no civilian accreditation for this work, Martin's new database has to capture everyone's existing skills and the new ones they learn, as well as ensuring these new skills are kept updated. "It's on-site training," explained Martin. "Someone new will go with an experienced person and we have a self-regulating, self-teaching system that works very well, but skills are being reappraised from the top down, and we all have to go through a process of reinvigoration," said Martin, which is where the computer package comes into its own.

Submarines and catamarans at HMNB Clyde Another Hunt Class refit at Rosyth

Cats tale proves valuable lesson

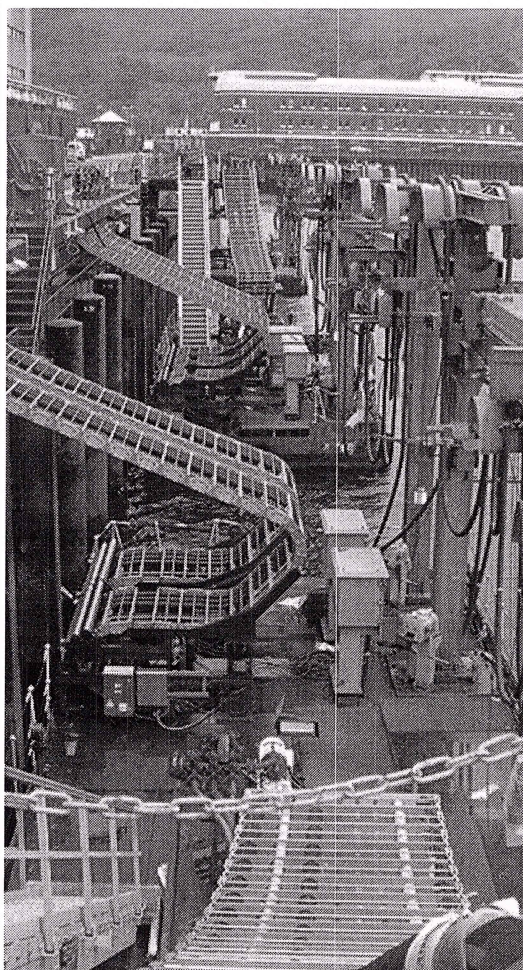
The cats in question are a very much sleeker and faster breed than their single-hulled cousins and, for their preservation, are much happier being left in the water. On the second phase of a major re-preservation contract on the northern area catamarans, BNS is employing an innovative approach that allows the cats to stay in the water while the work is carried out – saving an enormous amount of time and cutting the cost by 50%.

The work currently underway involves removing and replacing the paint on the decks, which in turn means that all the mechanical and electrical shore supplies have to be removed first to avoid damage by shot-blasting. The paint systems in the ballast and void tanks, which keep the cats level on the high seas, are also being re-preserved.

Technical Support Engineer Alan Cowan is managing the project: "Paint systems break down over time and this was expected. The original planning involved removing the cats from the water and doing the work ashore. We did that with one and it took nine months to complete. Now, from the lessons learned, we aim to do the remaining eight in the same time!"

Three cats will have a 12-week refurbishing period and a further two will be worked on over eight weeks. The final three will then be completed over another 12-week period.

Alan Cowan is convinced a major contribution to meeting the time challenge is the fact that a project team, made up of a variety of skills from different areas of the base, will be retained to work on all the cats. "BNS has never done that before and it's proving very successful. The team is working exceptionally well together, they are well motivated and determined to prove they can handle complex projects such as this."



HMS Atherstone proceeds full-ahead

HMS Atherstone has undocked as her refit proceeds ahead at a rate of knots. Work started on the Hunt Class vessel in mid-July 2005 and an extremely demanding schedule will see the refit completed in mid-December. By then she will have completed the renewal of her main and auxiliary engines, an air-conditioning plant upgrade and installation of new external communications, including a high-frequency transmitter update, together with an improved habitability package.

HMS Atherstone was our third Hunt Class vessel to win since competition began. BES Marine Development Manager, John Mitchell: "The team was delighted with our work on previous projects and we like to think our past performance played a part in the Ministry's decision-making process."



HMS Ledbury was handed over in 2004 after a successful refit.

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