
It was a new world

# BUILDING SIZEWELL A NUCLEAR POWER STATION

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# PREFACE

This pamphlet is the fourth to be produced as part of a two-year University of Westminster research project, entitled 'Constructing Post-War Britain: Building Workers' Stories, 1950-1970', which began in August 2010. The project is funded by the Leverhulme Trust and aims to collect oral history testimonies from construction workers who were employed on five of the highest profile sites and developments of that era: Stevenage New Town; Barbican development, City of London; South Bank arts complex; Sizewell A power station; and the M1 motorway. The aim of the research is both to gain a greater understanding of the processes of change within the construction industry during these decades and to highlight the role that construction workers played in the creation of the post-war built environment.

For more information see project website **www.buildingworkersstories.com**

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The research for this pamphlet was conducted between January and November 2011. Ten former workers were interviewed.

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interviewed in Hoxne on 16 November 2011

Bill Howard
former fitter,
interviewed in Leiston on 18 January 2011

Dick Nettlingham
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interviewed in Leiston on 31 January 2011

Pat Cable
former diver and rigger,
interviewed in Aldeburgh on 1 February 2011

Patrick O'Kane
former concrete worker and tunneler,
interviewed in Leiston on 3rd March 2011

Kenny Tye
former boatman,
interviewed in Leiston on 10 May 2011

Jim Ward
former fitter,
interviewed in Lowestoft on
13 September 2011

Ian Roberts
former welder,
interviewed in Kesgrave on
14 September 2011

George Garnham
former scaffolder,
interviewed in Ipswich on
14 September 2011

John Mittel
former welder,
interviewed in Kesgrave on 12 October 2011

# INTRODUCTION

Upon its completion in 1966, Sizewell A was hailed as potentially the most powerful nuclear power station in the world. The construction of the station, which was spread out over twenty-four acres, was a vast undertaking, lasting five years and combining both conventional and new approaches to civil engineering with some of the more specialist aspects of construction engineering, and those specific to the demands of nuclear power engineering. The consortium that built Sizewell A reflected this and comprised Taylor Woodrow Construction, a company with significant experience in building and civil engineering, along with two notable heavy engineering firms, Babcock and Wilcox; and English Electric. The construction of Sizewell A involved the deployment of some of the newest technology available to the industry and innovative construction techniques, including new underwater construction methods, as well as the establishment of completely clean working conditions for the building of the reactors. Sizewell set a new trend in nuclear power construction and was more compact, the first to link two reactor houses under one roof, with all of the control and instrumentation services positioned between them in a common equipment building and control annexe.[1] This made refuelling quicker and easier. Sizewell also posed significant and uncommon logistical challenges in the construction process and linked together engineering workshops in the West of Scotland with a construction site in East Anglia, as well as off-shore and on-shore workers on Sizewell itself.

[1] *Construction News*, 28 March 1963; *The Times*, 25 November 1960

Bill Herrington

Bill Howard

Dick Nettlingham

Pat Cable

Patrick O'Kane

At its peak, there were over 2,000 workers employed on the construction of Sizewell A power station. This included different types of machine operators, fitters, carpenters, concrete gangs, electricians, welders, platers, laggers, scaffolders and many other categories of operative. The process of building the station involved the shifting of around 700,000 cubic yards of earth, and the application of approximately 300,000 cubic yards of formwork, 5000 tons of steel and 200,000 cubic yards of concrete. It was work that was hard and at times dangerous and hazardous, often requiring great skill and precision and provoking considerable public interest. The 1961 August bank holiday, for example, drew a crowd of 3,000 visitors to an observation platform that had been specially built to allow members of the public watch the construction process [2]. The men who built Sizewell A worked in compressed air in underwater tunnels, at great heights, in the freezing cold mud and in the extreme heat. Some were locals, working on their first construction job, while others were from far-flung parts of Britain and Ireland and experienced in various aspects of engineering construction. Many of the men lived in camp accommodation for the duration of the job and saw little of their families. Together, they helped bring to life one of the biggest and, at a final cost of £62 million, most expensive construction projects of the 1960s.

[2] *The Times,* 21 September 1961

Kenny Tye

Jim Ward

Ian Roberts

George Garnham

John Mittel

# BACKGROUND

Sizewell A's origins lie in the 1955 White paper *A Programme of Nuclear Power*, which outlined a ten-year plan for the construction of 12 stations at a cost of £300 million, producing 2000 MW output. [3] In March 1957, this was adjusted upwards, with the target now being between 12-14 stations, producing in the region of 5000-6000MW by 1965. A financial squeeze later that same year led to a new planned completion date of 1966, but the aim remained high. However, in the summer of 1960, influential voices began to sound words of caution. Sir Christopher Hinton, the chairman of the Central Electricity Generating Board (CEGB), co-authored a paper arguing that the existing designs of nuclear power stations made their electricity far more expensive than that produced by conventional power stations. The paper also predicted that coal prices would rise more slowly than had previously been expected. [4] H.G Nelson, the chairman of English Electric also weighed in, arguing that the greater availability of coal and oil, along with the 'rapid growth in size and efficiency' of conventional power stations would reduce the number of nuclear power stations. [5] On the whole, however, faith in the concept of nuclear power remained high and, whilst in 1960 there were just two nuclear power stations, by the end of the decade there would be ten in operation. Decision-making, research and design of the entire programme was vested solely in the hands of the Atomic Energy Agency (AEA), which was at the time committed to the development of the Magnox type of reactor, using natural uranium with plutonium as a by-product, graphite as a moderator and carbon dioxide as a coolant. [6] The detailed design and construction of each reactor, based on the AEA prototype, was carried out by a number of consortia consisting of private sector firms and the completed reactors were then handed over to the CEGB, which became responsible for their running and maintenance.

Sizewell A was built by Nuclear Design and Construction (NDC), until 1965 known as EE/B &W/TWC, the initials of the three consortia partners, a consortium which also built Hinckley Point A in Somerset as part of the Magnox programme. Frederick Gibberd was the consulting architect and the tender price was £55 million. The location was chosen because of its suitable geological formation, able to take the weight of the station (c.65,000 tons), proximity to the sea as a source for cooling water for the turbines and position near to a source of high demand for electricity (the South East). The 230-acre area that had been set aside for Sizewell A was also seen as being large enough for additional power stations in the future.[7] Sizewell was a fishing village consisting of a pub and a short row of terraced cottages, with the nearest town of Leiston a mile and half inland. Leiston, population 4,111 in 1961, is a small industrial town in a largely agricultural area, where local wages for unskilled workers were about £10 a week. The main employer in the 1960s was a small engineering works called Garretts. The wider region, from Lowestoft to the north, Ipswich inland and Felixstowe to the south, was renowned for very low wages and high unemployment due to long-term changes in farming and the fishing industry.

[3] Ministry of Fuel and Power, *A Programme of Nuclear Power,* Cmnd. 9389, HMSO, 1955
[4] *The Times,* 18 June 1960
[5] Ibid
[6] For more on this see: Burn, *Nuclear Power and the Energy Crisis,* London: MacMillan, 1978; MacKay and Thompson (eds) *Something in the Wind:* Politics after Chernobyl, London: Pluto, 1988; Wynne, *Rationality and Ritual. Participation and Exclusion in Nuclear Decision-making,* London: Earthscan, 2011.
[7] *Electrical Times,* 2 October 1960.


*Fig. 1. General view of Sizewell location for a 650 MW nuclear power station, showing the heathland and wooded nature of the countryside*


Aerial photograph of site from *Electrical Times* 2nd October 1958.
Source: National Archives

CEGB map showing location of Sizewell site.
Source: National Archives

# STARTING WORK ON SIZEWELL A

Sizewell A was built by a combination of locally recruited labour and travelling workers, many of whom were skilled with considerable experience in this type of work, who frequently moved from one large site to another in pursuit of the higher earnings that could be obtained. Pat O'Kane, from County Derry in Ireland, was just 21 when he started on Sizewell. Like many young Irishmen, he found there were few jobs back home and had been working on and off in Britain for a short period, before getting the start on Sizewell A.

Well, I was working in Belfast, and the work ceased. So I came to work in Newport, in Monmouthshire, in South Wales, and I got a job there, and I worked there for a few months. That was the October of 60….'62, and then I didn't go home that year. I went and stopped with my relations up in Yorkshire, near Leeds, and I came back, and I met two friends, and they said they were leaving and they were coming to work in London, for Taylor Woodrow, so I decided to come with them, and this is what we done. We came to London, and we couldn't find proper accommodation. So anyway, the firm said there was work on Sizewell Power Station, so we came down to Sizewell A Power Station. I think that was the 12th of January 1963.

Others got a start on Sizewell as a result of their previous sea experience.

Pat O'Kane on scaffolding. Source: Patrick O'Kane

Well, we all knew it was in the offing…I'd only just been married a month, and I thought, well, better wages, …I could work down at Sizewell, and went on the offshore down there. Only reason I think I got the job, because I used to go occasionally with Whiteman on his boat, the Southern Cross, just to fish and help…and I think, because I had to put it on my…job thing. They said, "Well, go and stand over there," and so I was in a different batch of people and I thought what is going on, and they said, "Well, because you're a boatman…"

*Did you go down to the Labour Exchange then for jobs at Sizewell or did they have a special office that they recruited you from?*

They recruited us, I believe, as I said, we just arrived in a group, and you stand there, and they sorted us out – I suppose they'd got some literature, you know, of what we'd been doing and that sort of thing, and I suppose they were wanting men on the water.
(Dick Nettlingham)

Boat used for off-shore work. Source: Kenny Tye

Jim Ward found a job with English Electric after realising that the money was better than he was earning as a driver for a company delivering gravel to Sizewell.

I was then working as a driver for the gravel pit at Reydon. They had a big gravel pit there, and we carted stone into Sizewell Power Station. That's when I had the first contact and I realised that there was more money to be earned, far away from home admittedly, but there's more money to be earned working on the site than there was driving onto the site. So, luckily, they were recruiting at that time. They'd done all the groundwork by this time, and English Electric were advertising…or, well, I heard they wanted people, and I started with them, on the site, with English Electric.

Scaffolder George Garnham got his start through contacts within the Construction Engineering Union (CEU), which was a powerful force on some of these large sites:

Out of the Army, I came…and went to Sizewell then, because the brothers were there, and I wanted to follow where the money was. I'd just recently got married and…I said, right. He said, "Well, you'll have to go to the Duke of Gloucester," which was a pub on the old Gainsborough estate, see the shop steward, because that was his office. He would tell you where all the work was, and you'd buy him a pint, and he would say, right, you go and see so-and-so….that was CEU, Construction Engineering Union. And he also had his finger in the pie with the Boilermakers. He was Baldy Jack, was a clever old boy.

Ian Roberts, who had been working for a local welding firm in Ipswich before starting on Sizewell A, recalls the arrival of the travelling welders onto the site:

A lot of the people, a lot of the welders, after we got there, came up from Hinckley Point. In Somerset–yeah - a lot of the welders that they'd kept on.

Jim Ward also recalled these travelling welders:

There wasn't many local people at the time, welding up to that point. There was some from the shipyards locally, but of course, some of them wanted to stay on the shipyards here. So most of them were travelling men. Most of the site workers were travelling men. Now, I wouldn't like to say how many were employed locally. I wouldn't hazard a guess… into [four] figures, but most of them were travelling, what they would call travelling men, site workers.

Crane towering over site huts. Source: Charlie Dennis


3

# THE CONSTRUCTION PROCESS

The buildings at Sizewell A fell into three main categories: the reactor buildings and turbine house; the administration group and associated workshops; and the switchgear house, clad mainly with ribbed aluminium sheeting and patent glazing. [8] The first stage of the building of Sizewell was the construction of a reinforced concrete foundation, approximately 225 ft x 110 ft. x 8ft. The two reactors were built on top of this, each consisting of a sphere 63ft. 6 in. in diameter, with 4in. steel walls, which would be welded on site and ultimately house a graphite core supported on an orthogonal lattice grid of warren girders. The reactors were surrounded by a concrete biological shield, 5½ ft. in thickness and sealed in by an 11ft. 9 in thick roof over the reactor. The walls of the shield formed a dodecagon rising 96 ft. above the foundations and with an internal diameter of around 72 ft. The building that housed the reactors and the common equipment building was around 200 ft. high, 400 ft. long and 225 ft. wide. The turbine house, which contained two turbine alternators, was a steel framed building with glass and aluminium cladding, 385 ft x 155 ft, divided across by a line of stanchions, into a 100 ft wide turbine hall and 50 ft wide mechanical annexe. [9] The station was expected to have an output of 580MW, 80MW more than Hinckley Point, which was also being built by the same consortium at that point, making it the most powerful station in the world and one that would produce nearly four times as much power as both the Calder Hall stations, which had been opened in 1956. [10]

Construction of reactor building c. 1963.
Source: Magnox Limited

[8] Much of this information is taken from a lecture on the construction of Sizewell A given by Trevor Branton to the IET Anglia Coastal group in Great Yarmouth on March 2011.
[9] NA, AB 16/3825, Babcock and Wilcox, English Electric, Taylor Woodrow Atomic Power Group press release, 'New Atomic Power Station at Sizewell', 24 November 1960
[10] Ibid

After the construction of the reinforced foundation, work began on the two tunnels for bringing seawater in and two for the outflow of water. Patrick O'Kane worked on this, and other concreting work on Sizewell. These are some of his recollections of concrete work in general during that period, and the Sizewell tunnels in particular:

*In the '60s, when it came to a concrete pour, was it piped in or did you have to shovel it in?*

Well, the majority of it was all shovelled in, but then there was pipework – there was a lot of pipework. The main big pours was pipework, was all pumped into the various parts of the site. The same as Sizewell, you were pumping concrete from about 40 or 50 yards, maybe 80 yards away through steel pumps.

Well, we would have to level it by hand and then [laughing]…and shovelling it and level it all off and vibrate it and all this. You'd have to work all hours God sent down to try and get it finished, you know, in the middle of the night. (Patrick O'Kane)

Well, the first tunnel I went in, it was at Sizewell. You sunk a shaft down, at a certain diameter, and then you had a machine in there, which you called a shield, and the shield pushes forward, by hydraulic rams, and hydraulic power, and you build rings behind that. But I wasn't there very long. But that was one of the first jobs that was ever done in this country with what you call the [jack-ups]. You went out there and

Outfall tunnel during construction phase.
Source: Magnox Limited

then you come up onto the sea, broke up onto the sea… it was quite difficult….head engineers used to do all of that, you know. That was a very difficult job.

So was it dangerous, this work?

Yes, you could get injured. And if you did get injured, it was a bad injury as well. In them years, there were no specialised men doing it. It was just some men come along and went down and done it, you know what I mean, and that was it. The majority of the men were nearly all Irishmen that done that.

The procedure that Patrick O'Kane refers to here was, as he points out, both innovative and difficult to execute. It was a new method of shaft raising, where, at a distance of 1400 feet out to sea, and 20 feet under the seabed, an underwater shaft was raised from a tunnel driven under the seabed by the use of massive, 150-ton hydraulic jacks. These tunnels, which provided the intake of water for the cooling system, ran a total distance of 1800 ft out to sea and were lined with cast iron segments, 11 ft in diameter, and finished internally with a smooth concrete. The shaft was 7ft in diameter and was built up from 14 steel rings successively jacked up beneath the cap. The rings were specially strengthened, and assembled in the tunnel, and each of them was raised 18 inches at a time before a further one was introduced. The operation proceeded until the shaft was six feet above the sea-bed, having been forced through about 20ft of sand. It was completed in 2½ working days, in compressed air conditions. When all of the shafts were completed on the intake and outtake tunnels, they were fitted with bell-mouths and coarse screens, by crane, from the off-shore platforms. [11]

These platforms and a concrete ramp were positioned at the end of the tunnels and built by an 'off-shore section', which included Dick Nettlingham, Pat Cable and Kenny Tye. This group of men spent two years working together. Pat Cable was one of the first to be recruited and he gathered a group of local men who had 'experience of the sea' as part of the gang. They remained quite separate from 'top-site', being based on the beach with very primitive facilities and under the management of engineers experienced in marine salvage work. Pat Cable described working on the construction of the raft and platform.

We were building the actual slipway and the platform that goes out to sea for the cooling....the concrete slipway, we built into the sea, and built this particular platform here. This is when it's out of sea...that was all built on land. We built the slipway, built the actual [pontoon] on the slipway, then launched it down the slipway out to sea, and then pulled the actual rig into its position it needed to be in, by laying anchors all round and winchers coming off the boat and that, pulled itself into position really.

I had 14 in my gang, but I was not the only gang working on it. There were main site crane drivers and things like that. Altogether, I suppose…there was…between 25 and 30 of us on that particular project. Because that was actually classed a little bit different from the top site – we were a different entity from those up there, if you know what I mean [laughing].

*So that's quite a range of tasks you must have been doing?*

[11] *Construction News,* 31 January 1963

... had to build the form work....Yes, we built all that. That was during my labouring days, when we first went there. They tipped up six cubic yards of concrete, and they'd give you a shovel [laughing], and we'd got to get that concrete into that copper [laughing], and there we were. After a fortnight, I thought I can't stick it, I'll have to go back to sea, but we got through it!...We used to work up to 12 hours a day on that...but that was our section. The main hours on site was eight hours.

*So the offshore section worked longer hours than the main site?*

Well yes, because, a lot of the time, we had to work with tides, you see. So if you're building a slipway into the sea, you've got to go right on the dead low waters and then of course, when we floated it, we have to float it on the dead high waters.

The off-shore sections of the raft had been built in sections, which had to be bolted together underwater, out at sea. Pat Cable worked on this, and also on the bolting of the bell-mouths to the tunnel shaft. It was work for which he had received no training at all.

No, I never had any training for it... My general foreman was a Dutchman who was a naval wartime salvage diver, and he just said to me one day, "Have you done any diving?" So I said "No." He said, "Do you want to have a go?" So [laughing], I said, well, try anything...so he said, "Well, put the suit on and go down and see what you think of it." So I did and....and I was down

Pat Cable in diving gear with Kenny Tye on the right.
Source: Pat Cable

there for a while, and he said, "Well, how are you getting on?" "Alright." He said, "Well, go for a walk round," because you can't see nothing... we were in about 30-odd foot. He said, "Go for a walk round," so I went for a crawl round and suddenly saw the...water getting brighter, and I'd come up onto the sandbank, had crawled on the sandbank [laughing], and when I stood up, because you crawl around when you're in them things, when I stood up, my head come out the water! It was quite...quite [amusing] actually. Then, after that, he said, "Well, while you're down there, you might as well do some work," so that was how it started.

Pat described the challenges of working underwater:

This here is a safety line, airline, and telephone line. It all goes into your helmet there, and if you want to increase your pressure, you just turn your valve up on your helmet, which would increase the pressure. If you get too much and find you're starting to bounce about, there's a knock valve in the helmet where you put your head against and let some of the air out to keep you [working] heavy, because when the tide is running, you have to either lay down or work really heavy, otherwise the tide just pushes you away. So most of the work was done sort of lying down.

*Isn't that physically very tiring?*

It is, but time…seems to go… the longest I was down was just on eight hours, in one go, and didn't seem as if you'd been down two or three hours because you were constantly doing something, busy, kept on the go.

*And did you have a light on the helmet then?*

No, everything was done by feel.

Kenny Tye, a former merchant seaman became his handler based above the water and in control of the air supply and communication:

*So, when you were…your main job on that, on the rig, was keeping an eye on the divers, was it?*

Pat Cable being lowered into the sea.
Source: Pat Cable

Guys like Pat would be on the bottom, he'd be talking to me, and I'd be telling the crane driver what to do, where to lower, take it up, jib that way or that way.

*Oh I see, oh right…a bit like a banksman?*

Well, it is a banksman but- talking and…and he's on the bottom.

*And did you have to keep an eye on his air supply?*

Yeah,

For those who worked the boat between the rafts and the shore, the task could often be challenging.

Oh yeah. When we eventually floated the rigs off, the one closest to shore and that… we'd just have to go and take the men out to it in the boat and take the men to and from this rig, men from Lowestoft who were working on the rig, and taking them out. If it was rough, we had to go and bring them back in, you know, and say anybody who want to go home tonight, get back on the boat. Apart from that, if it was rough, we could just take them a flask of…coffee or something out, and like if we couldn't land, if we couldn't get to the rig, you know what I mean, because there's no water there really – that's why it's so rough. (Dick Nettlingham)

Kenny Tye skippering off-shore boat with construction site and one of the platforms in the background.
Source: Kenny Tye

Meanwhile, Babcock and Wilcox was responsible for much of the internal work, including the boilers, which were built at their Dalmuir plant in the West of Scotland. As a result of concerns over the ability of the existing road network in the region to handle the kind of loads that would be coming down to Sizewell, [12] it was decided to ship the boilers in sections to Lowestoft before being transported the twenty-four miles or so to Sizewell, where they were welded together. There were eight boilers, four for each reactor. This was four less than Hinckley Point, but, in a sign of the speed of the technical developments that were taking place in this type of engineering, the slightly larger Sizewell boilers were each capable of generating over 50% more steam.[13]

Babcock and Wilcox was also responsible for the reactor vessels and the reactor caps, which were constructed of heavy plate steel and which again were welded together on site, as well as for the gas system. Ian Roberts had ten years experience as a welder, including heavy plate welding, at Ipswich firm Ransome and Rapier, but still had to go onto a special training course before he could start work on Sizewell.

[12] NA, POWE 14/1406, Meeting of Ministry of Power, HQ Committee on the Siting of Nuclear Power Stations, 18 September 1958

[13] NA, AB 16/3825, press release from Taylor Woodrow; English Electric; and Babcock and Wilcox, Atomic Power Group, Atomic Power Station at Sizewell, 24 November 1960

I applied to Babcock and Wilcox and got a reply from them, could I go up to Tipton in Staffordshire to do a test, and the test lasted four weeks, to ascertain whether you were suitable for welding on pressure vessels. At that particular time, they were building the largest in the world, and it was all heavy engineering, and heavy plate welding. So I thought, well, I've done it here, and I don't see any reason why I couldn't do it at a nuclear power-station, so I applied for the job and got it and went up to Tipton, with several other welders, and you were up there for four weeks, doing tests to ascertain whether you could do the job. Some got taken on, some didn't. I was one of the lucky ones that got through the test. And then, the insurers, Lloyds, were on-site at Sizewell, and then you went – when you'd finished your test at Tipton, in Birmingham, you'd go to Sizewell and you'd do a Lloyds' test to ascertain whether you were suitable for doing the reactors and all other ancillary works, you know.

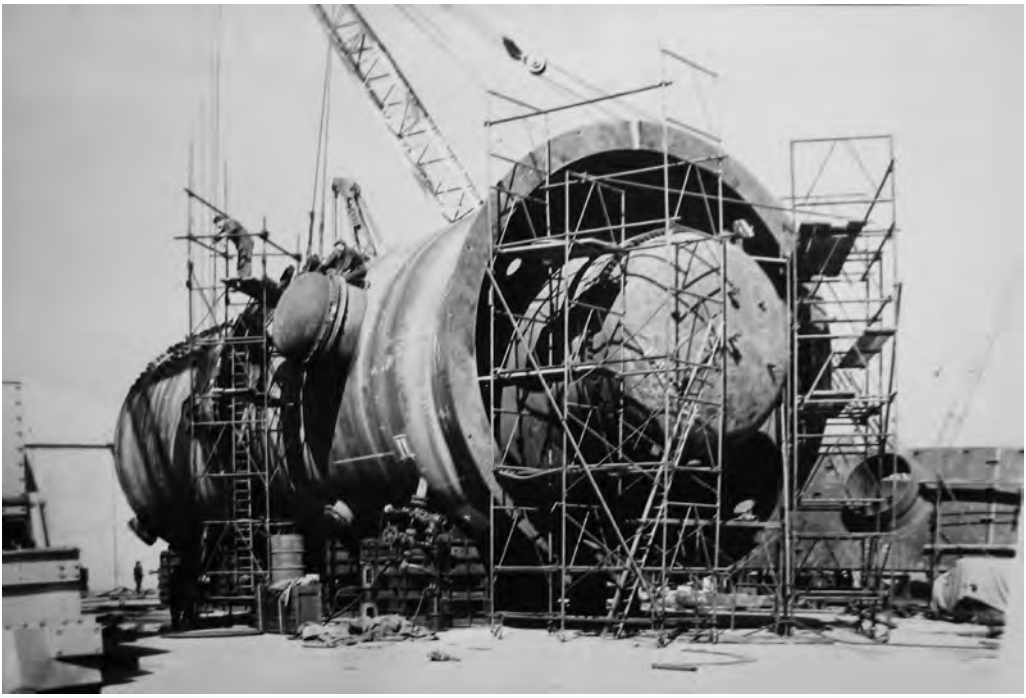
It was quite a difficult process because all the welds were 100% x-rayed, so they couldn't… afford to have anybody who couldn't keep up with the…pace. And I passed the Lloyds' test, and from there, we graduated to working on the reactors. Of course the reactors were [four inch] thick plate, steel plate.

He described a typical working day on the site:

Well, we started at eight. There was transport supplied from Ipswich, and the bus turned up about seven o'clock. You got on-site, clocked-in, got to your site, the foreman comes in, "Okay, it's time to get going!" dead on eight, no messing about, straight onto site. The reactor was a dome, or an egg-shaped, structure, round about 90 foot tall, by about 30 foot wide, or something like that. And the plates were all pre-heated up to about 200, 250 degrees Centigrade, before welding could commence, and it was very hot…these circumferential seams, they were all divided into five foot sections, and each welder had a section, and it was stamped with your number on, so that when the job was finished, if there was a defect in any joint, they'd know who did the weld and if you got too many defects, they took you off and retested you.

John Mittel also worked for Babcock and Wilcox on the reactor as a machine fitter, his job being to machine the opening for the reactor tubes - piercing the dome of the reactor to precise dimensions of within three thousandths of an inch. He remembers:

You'd got this gigantic steel dome...that's about 90 feet across that, and from the base, there, to the top, is about 30 feet high, and then, in there, you've got this massive great dome. This is it, actually in its finished state …being lifted up from the ground, where we were working, into position… If you can imagine this dome is just a dome, 4.25 inch thick steel, and so you've got a giant dome, sitting on the ground, in a big shed, massive great shed, and it's plain – there's nothing to it at all – and the object is, is you've got to drill…or not drill…we'd got to put all these holes in which are about, what three feet wide, diameter – they vary in diameter, because this is where the uranium rods are…on the top of the reactor. This is the top of the actual reactor and then the



SRU under construction. Source: Charlie Dennis

uranium rods are coming through. So, our particular project was to machine them. I've got one here, that's a close-up study of the injectors, where the uranium rod is going to be lowered through, and you can see where this is painted red, and that's…white rather, and that's where the weld, it goes in. Now, you've got to imagine, if it's in a sort of profile of this, you've got a hole, haven't you, and you've got the dome, and…there's the steel, so this is four…and we've cut a hole… They cut a hole in this by burning it through, and having got the hole, this is then just 4.25 inches thick, from there to there, and so you've just got a straight hole. Now, that's got to be machined. You've got a cutter… If that's the hole, you've got to cut there, and cut down, and because the weld's…the pipe's going to come in here, and this weld, in, with his little welding stick, has got to weld this pipe into position… our job was, having got the pipe, got the hole, we'd then got to machine this hole to a precise measurement.

Babcock and Wilcox foreman engineer Bill Herrington remembered the degree of precision this work required.

The reactor had to have all these holes drilled in, and I'm talking about large holes, and so underneath, lower down, in the reactor, was a dia-grid system as we called it, and at each section might be a space about 2 to 2.5 feet then, would be a target, which was lit up, and then, up on the crown of the reactor itself, you had this machine set up with a Taylor Hobson unit, which was a sight-finder, and you looked through that and you had two split bubbles and they both worked at two different tangents, and you had to look through the telescope, eye up the target, and get those bubbles [dead] in the tramlines as we called it, and then they were accepted by the inspection and then signed off, and the machine was taken away. And the machine that actually cut the hole out was mounted on the same bracketry and then that went and bored them out.

John Mittel recalled details of how this part of the site work was organised:

There would be 20 welders, about 20 machinists, and don't forget, with double-shifting this, so there would be about… that's 40, and then you've got other ancillary trades, because, having got a dome in here, you've got to build up platforms for the men to work off. So, there would be about 10 or 12 scaffolders, who were constantly moving boards and equipment, so that you could work. Because it's rather…if you look at that lampshade, just imagine that as a great big dome of steel, and then it's 90 feet across, and there's all this scaffolding, and then there's the welders there, and you've got a mass of electrical equipment – all the welding equipment, the wires, etc. terrific voltages in there, and then there's us fitters, with the machines, and we're all connected up to electricity, and then all the scaffolding inside it. So, I'd say…what, have we got…Twenty welders and 20 fitters, well, that's 40, and then there would be about another 20 other trades in there working away. A lot of men in that space.

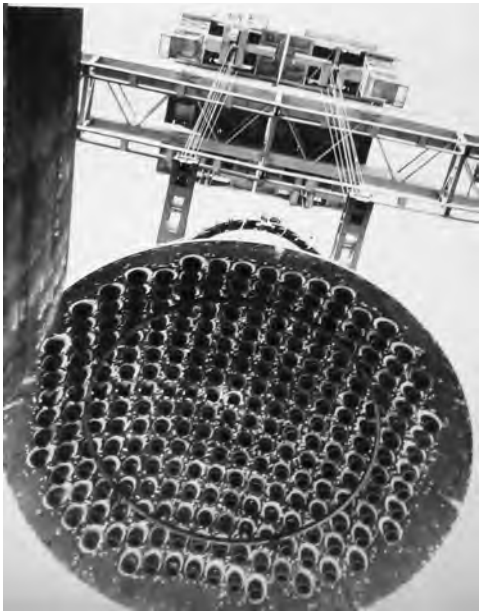
The lifting and positioning of the boilers and reactor caps required significant cranage. The boilers were each 91ft long by 22 ft in diameter, whilst the reactor caps weighed over 300 tons. To meet these demands, Babcock and Wilcox dismantled its 400-ton Goliath crane, which had been in operation at Hinckley Point power station, and sent it in fleets of lorries for re-erection at Sizewell. Goliath was the largest of its kind in the world, had a span of over 250 feet and an overall height of 248 feet. It was a mobile crane, set on rails, and was capable of transporting these loads from the fabrication area to the reactor building, which was over 1000 feet away. Because of its height and span, Goliath could straddle the reactor building and position its load wherever required. [14] Bill Herrington's first job on Sizewell was to assist in the erection of this crane, a process that normally took around six months. He recalled some of the other details of the lifting work.

We had workshops down here, where we had the caps for the reactor. You know, you're talking about 96-foot diameter vessels, they were, and when the stage was set, we'd pick that cap up, trundle it along, and drop it down there, because they were tested to over 400 tons. And then of course, this other photograph you've got here, that's the SRUs [15] being slung [over] by the…the overhead Goliath crane, and they were stood up… Once they got into the vertical then they were lifted up and they were taken down and dropped onto bases in these corners. That's how they were done…

In addition to Goliath, there were also two 10-ton capacity mobile Peine tower cranes, capable of operating at heights of 220 feet. These cranes were used for the civil engineering work on the site and had been designed and constructed in Germany, in line with Taylor Woodrow's requirements. [16]

The construction work at Sizewell A had obvious similarities to the construction of conventional power stations, but there were also some major differences, including the need for dust-free conditions when working in the reactors. Scaffolder George Garnham, who worked for a large London subcontractor carrying out pipe installation, recalled this:

[14] *Construction News,* 29 March 1962
[15] Steam raising units, or boilers
[16] *Construction News,* 28 March 1963



View from below of reactor cap being positioned. Source: Charlie Dennis

Reactor cap lifted into position. Source: Charlie Dennis

We worked for Matthew Hall, who done all the pipe work from the boilers all the way through the station. We were doing the job, rigging the pipes, ready for the welders to come in, because all the jointing in them days was all pre-heat welding, whereby they put the two pipes together and they'd wrap it in an electrical cable heat the pipes up, and then weld them like that. You had, you know, a slide system, and what used to happen they would start off at the ground level and once [the start] to the [towers started], they would go 24 hours a day, seven days a week, no break. You had your shifts on, and as that moved up, that was all done on hydraulics, you built your lifts up further and further each time, so nothing was at the bottom [bar]…to let the concrete breathe again.

*Sizewell was metal scaffolding, wasn't it?*

Oh yes, inside especially in the reactor rooms, everything had to be brand-new aluminium. Yeah, that had to be completely dust-free. You had dust-free suits on. All your tools had to be shot-blasted. You couldn't take normal scaffolding in. Everything was shot-blasted.

Jim Ward worked on various tasks. His first job on site was preparing the concrete plinths, for the stand-by diesel generators. It was tedious work:

The main part of that job was very boring actually. We'd smooth the concrete plinth because these diesels had to be set down very accurately and level. So… all the pads where the diesels were going to stand had to be very smooth and very level and when we finished – we started off with normal concrete, and by the time we'd finished, they were almost shining. Well, the stone shone, [coming to the] concrete, because we had to polish them virtually.

*So what were you polishing them with?*

Well, there's a thing called a scrabbler, which is an air-driven, hand-held machine, which literally – I'm just demonstrating, by the way – scrabbled the…rough concrete, Then, it was finished off by hand-rubbing with carborundum stone.

Jim Ward later worked on the pressure testing of the reactor vessels.

They filled, these huge vessels up with water, and you know water can't be compressed, so you filled them up and then to it and then what you did, you then pumped compressed air into them, to see whether they would burst or not! And these compressors were in a block-house, because we were right near the reactor …the building itself…they put what they call strain gauges on this, on these vessels, and we were…in radio contact with them, and because they would fill up with water and we had to pump the air into there, and …they got what they called a lemon, "We think we've got a lemon", which means you had to stop…stop the compressors, which had to be done sort of quickly. You couldn't mess around. It was not one of these jobs you could go off and read a book with. You had to be there. So that was interesting and exciting, I suppose, because we spent a long time doing that, particularly, when they [thought they'd got a lemon] because a bulge in there would have been… disastrous really.

Ian Roberts recalled such a disaster taking place.

Interior scaffolding. Source: Pat Cable

There was only one problem, which...was kept hush-hush at the time. They had one of the boilers on test, and they got up to almost 200 pounds PSI, it was all filled with water, and it was pumped up to 200 PSI, and blew a blooming great lump out the side of the boiler! Oh, that was a bit of a hassle, because they had to get a new section in from Renfrew, up in Scotland, and they had to get it done in double-quick time.…They got it all in-situ and ready for welding, and we had to do the whole job in one go, and I think we worked three shifts, straight through … to get this job done.

After the off-shore work was finished, some of those involved in it moved to the main site. Pat Cable left Taylor Woodrow and got a start with English Electric, building up the graphite core in the reactor vessels.

In each reactor, there's 11 layers of graphite blocks, and the blocks are about three foot tall, about a foot diameter, and there's 11 layers of them in each reactor, and there was 3,000-some-odd blocks in a layer, and we used to have to lay all these blocks in a certain sequence, because…there was a chart that you had to lay them to, to make up a certain pattern, because they're all machined…Once you'd done the whole layer, which you used to do in about two 12-hour shifts, …one shift would lay about half of them, and the other shift would lay about the other half, and they were all in… one [layered partition], and then there was integral steelwork that went all the way round the outside to keep them all clamped together, and then you went and done your next layer, and so it went on till you got to the top.

# TRAINING

As the above examination of the construction process shows, building a nuclear power station requires a highly skilled workforce, capable of performing a wide range of complex and technical tasks. A major report published by the National Economic Development Office (NEDO) in 1970 entitled *Large Industrial Sites* also indicated this, when it estimated that, of the 50,000 or so workers then employed on these types of sites – power stations, oil refineries, chemical works and gas terminals, around 70% were regarded as skilled, 20 % semi-skilled, and just 10% were unskilled. [17] But the testimonies of many of the Sizewell workers also reveal another basic truth about the construction industry in this period, namely that a considerable portion of the workers were undertaking skilled work while remaining classed as labourers and without being offered any training.

*Do you remember whether anybody trained you or showed you – how did you find out how to do the work?*

No, you just picked it up as you went along.

*And did they offer you any training or any sort of way of improving yourself in the firm?*

No, I was just made up - was a chargehand with them, was a ganger man, was a supervisor, and you just pick it up. If a foreman or a head supervisor thought you were good enough for the job, they made you up and… that was the way it was. (Patrick O'Kane)

*Did anybody offer you any training in anything when you were there?*

Pat Cable (far right) and a group of workers standing on top of the reactor building. Source: Pat Cable

No, we were sort of just chucked in. (Dick Nettlingham)

Pat Cable carried out numerous tasks on the building of Sizewell A, including building the offshore platforms, bolting them together underwater, and then building up the graphite core in the reactors. We have already seen how he received no training for his diving work. This was also the case with the other tasks he performed on site.

*Did anybody train you and show you what to do?*

No, you just had to look at the plans. You had your site engineer overlooking you all the time of course, and your general foreman, but you just got on with it. You were never really taught to do anything in particular.

[17] NEDO, *Large Industrial Sites*, p11

Jim Ward, by his own account, 'did a bit of everything' at Sizewell, including building the graphite core and pressure testing the reactor vessels, but again, it was work for which he received no formal training.

John Mittel moved from being a machinist in Crane's, which was a well-known engineering firm in Ipswich, to carrying out precision cutting on reactor caps. His experience at Cranes meant he already had skills as a fitter, but, as these comments show, he did not have to display very much of this ability to get a job at Sizewell.

His name was John Lace...he was a Director... and so I had this interview with him, and he asked me about various aspects of engineering, and he said, "What do you do?" I said, "Well, I'm a machinist." He said, "Well, can you read a micrometer?" I said, "Yes, of course." He said, "Well, here you are – read it!" So , I looked at this, and of course, it's a fairly simple piece of equipment, and he said, "Well, when can you start?"

John went on to carry out highly skilled work at Sizewell, but appears to have received no formal training for this. In fact, as we shall see below, the only training he did receive at Sizewell was totally useless to him, and designed to pass the time during a welders' strike.

George Garnham worked as a scaffolder on Sizewell A and later became a rigger. His comments on the training process for both of those occupations would have been recognisable to many other types of operative in this era.

*So how did the lads learn to become scaffolders then, in those days?*

Well, they normally started off as the labourer, Labradors we called them, and, they would learn all the different fittings – a couplet, a double, a swivel, a spigot, and from there, learning the different sizes.

*When you moved from scaffolding to steel-erection, when you were talking about the buildings, did you just pick it up as you went along, or did you go on any training?*

No, once again, you start off as a bolt-boy, first year improver, you learn all your bolts and what have you, all your different size... and then you learnt how to throw them up to the erector, so he caught him...And from there, you started going up and working with an erector...And then, once you've done that...for three years, three years' improver, you would then be a…be an erector, and you would get your card…from the union then. [18]

By the late 1960s this approach to training was recognised at short-sighted and Bill Herrington was involved in setting up an on-site training scheme, supported by the CEGB, for welders, pipe-fitters and platers during the construction of Wylfa power station. This was later replicated at the Sizewell B site.

[18] In response to the training crisis, the CEU and the Water-Tube Boilermakers Association set up a 3–year on-site improver training scheme in 1965 for riggers/erectors. But this was designed to cater for only 200 improvers per year. For more on this, and training initiatives with other occupations, see NEDO, *Large Industrial Sites*, 1970, p31

# WORKING CONDITIONS

Sizewell A was built during an era which saw high levels of death and injuries in the construction industry. In 1964, there were 271 deaths and 40,941 reported accidents (accidents which killed or kept workers off work for 3 or more days) in building and civil engineering. [19] Working conditions on Sizewell A were both challenging and dangerous and it is no surprise to find that workers died during its construction. Jim Ward recalled at least four during his time on site, two of whom were workers who fell off the Goliath crane.

I think they were from Bristol, the two blokes. Because the crane came from Bristol to Sizewell. But they slipped off. As far as I know, it was a bit windy, and I got an idea that one of them started to go and the other one went to grab, and I think they came off together. That happened because I know it was the first… time we had a day out because of it, because basically the site shuts down with a death. That's what makes me think there was…I've got six in the back of my mind, but I can't see the other two, definitely not.

Injuries and accidents were also not uncommon.

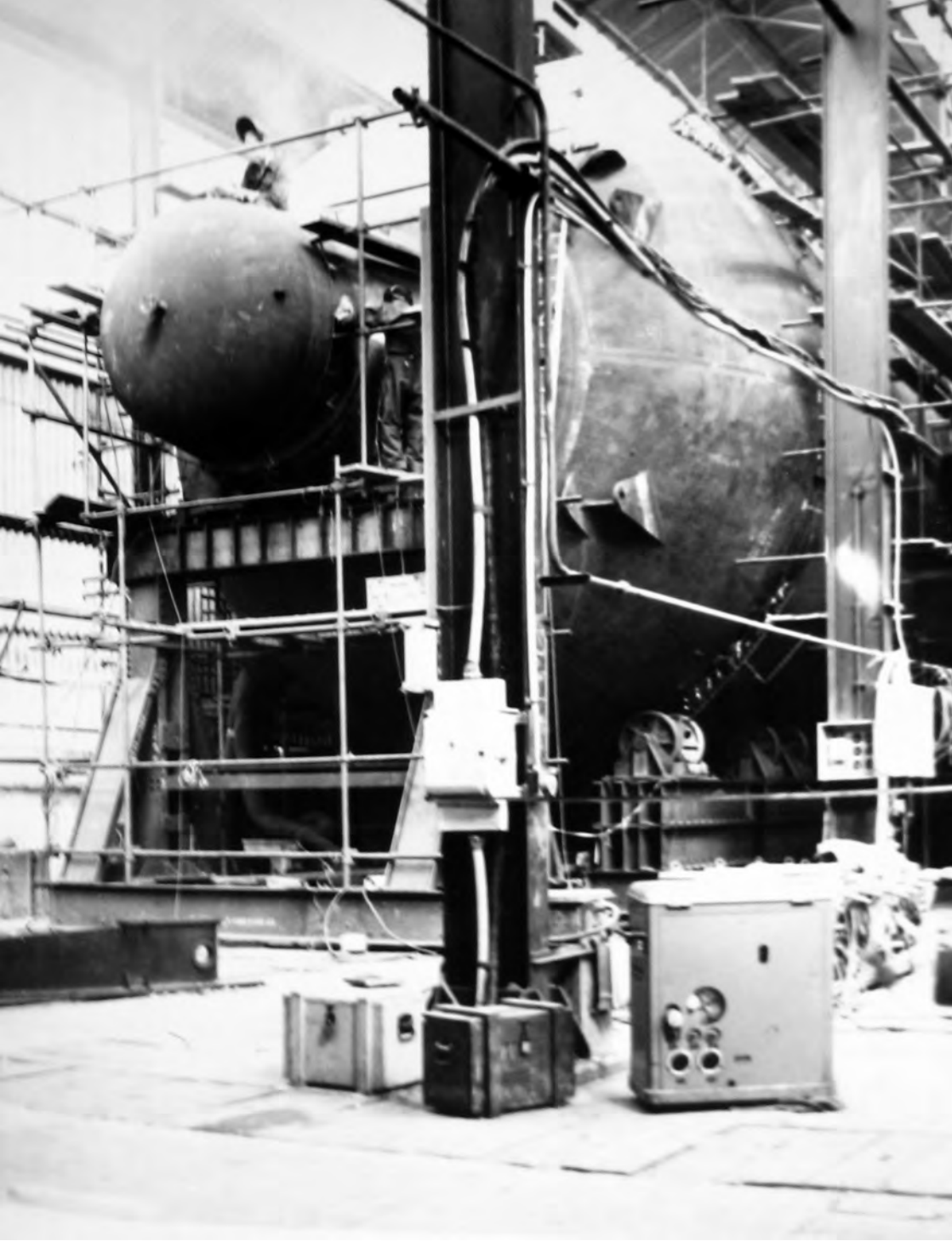
We were there when the building was all being done, and then I tried the tunnel, I went into the tunnel for a little while, and then I got me hands burnt in the tunnel…I got grout coming from the tunnel. They'd grout up behind the [segments] to keep the water out from the tunnel, and they'd compressed air in there, and I got my hands badly burnt, so I had to go for some convalescing in the hospital. (Patrick O'Kane)

This was about 20 [foot], if that. No, what happened was, I was doing this work, just somewhere down about here, I think, and the lights went out, and there was scaffolding round there, and I, for some reason – you'll never believe this – put my foot out, thinking it was a piece of scaffold, put it on, and it wasn't, it was a shadow! Just went down. And I caught my ribs, here, this right rib, on a great big bolt, because everything in Sizewell is big, you know! And that cracked it, and as you say, no, I was strapped up for a few days, wasn't I? (John Mittel)

The work could often be hazardous and potentially damaging to the health of the workers.

You mustn't have a nervous disposition, let's put it that way! No, the main problems, I suppose were… Well, the worst one I had was when I split my suit – this was a rubberised suit, a canvas-backed rubberised suit, and I …split the leg of it on some wire …on the seabed, and of course, the water coming and… you were alright, as long as you keep standing upright, because the air obviously goes to the highest point. You would never have drowned as long as you stayed upright because the water would stop because of the air coming in…would keep the water out, as far as here, but below that, you lost.. So you were getting wet, and you could feel the water gradually creeping up your body and…try and make yourself about six foot tall! (Pat Cable)

[19] *Construction News,* 16 September 1965



Welding work on the boilers. Source: Charlie Dennis

The plates, at certain stages of the operation, were so hot that you had to lay on the plates, in some situations. Anyway, they supplied you with these asbestos mats… about.eight inches deep, sprung mattress, all covered in blue asbestos, so that you didn't have to lay on the heated plates, and that was a bit uncomfortable, the sweat and that!
(Ian Roberts)

The welders themselves were working under very stringent and very hot conditions. It wasn't all money for honey, if you like. No. It was very constrained. You have to imagine like a round [ball], and what they called nozzles were centred, and they all had to be drilled out – a special system, we had for that – and they were let down and then they were pre-heated. So we had a temperature problem before they even started welding, and they were on excessive amounts of salt tablets and other types of…well, anti-sweat problems, they used to have, and they could only work so long…like, an hour and a half, two hours, and then they'd have to be changed out for another welder to go in and carry on.
(Bill Herrington)

Ian Roberts also highlighted some of the other health and safety hazards of his trade:

The masks they use now for welding, they've all got fresh air blowing in, so you're breathing fresh air all the time. But, with me, or the welders that worked with us, or me, at that particular time, you had nothing like that. When you were working inside the boilers, you had one big main extractor, extracting all the fumes out, but there was nothing…no fresh air…You weren't breathing fresh air. You were just breathing welding fumes mainly…all your welding life.

*Do you know anybody who did get ill or any of your friends suffer anything to do with the job?*

I knew one or two that died of asbestosis, and I often wonder whether that's going to be my lot, at the end, but, at the moment, I'm okay, touch wood!

John Mittel remembered the excruciating levels of noise during the work on the boilers and the reactor caps, and how there were no health and safety provisions to deal with this:

And then the other thing was that the machines we were using were…we were cutting metal. Now, as you know, when you go into a machine shop and you've got…this cutting device cutting, the noise is quite intense. It is really is, when the machines are…all 20 of the machines, blasting away! So, you've got horrendous noise!

*Did you have ear-protectors?*

Health and safety didn't exist, in those days! I remember one guy went to his doctor because he said, "I can't hear," and the doctor looked at him and he said, "Whatever's happened," he said, "your eardrums," he said, "are absolutely messed up," and he had to stop

working there. So it did affect the hearing. You and I could not speak to one another in that noise. If you wanted to speak to me, you'd have to come up to here. And no ear-muffs! (John Mittel)

One worker recalled the hazardous effects of the epoxy resin paint he was using on the off-shore platforms and the difficulties he had in obtaining protective cream for this job:

We were enclosed in this…tube, about that wide, which was…[of course] what the platform would stand up out the seabed on, and they'd got baffle plates round inside every foot, and we had to paint them. You'd got an electric hand-lamp, and you were painting, with this epoxy resin paint, and you'd come out in the sunshine and…all the skin dropped off…that was just a reaction from the chemicals in the paint. I went to my doctors, at Saxmundham, old Dr Collins, old gentleman he was, and he said…I sent away for some ointment for you, but we can't get it for about three or four days. So my mate John, he was the same. I was down on the site one day, and there was a delegation of men came across, the group inspectorate I was talking about, and a Dr. who used to be here, and let's say I'd caused a lot of trouble.

*Just because you'd been to the doctor?*

Yeah. Well, unbeknown to me, Dr Collins had sent away and reported this – no barrier cream and stuff like that, you see, which we weren't familiar with or knew anything about anyway. We knew, on the Leiston Works, you had to have a little bit of protection against [cutting] oil and things like that, but this was a totally different [matter]. My doctor had… made [thunder] a little bit, over the site after me, and I explained "Well, if that's the fault, no barrier cream and that issued, and that sort of thing," I said, "why weren't it,?" Dr. said there was this sort of thing in the ships years ago, where they had these Chinese…crew and they got issued with all this sort of stuff, and he said they got too slap-happy with it, …took advantage, had it on and they were less careful sort of thing because they'd put this on, and he said that's why you didn't get your barrier cream, because people would get too familiar with it, and use it and take it for granted sort of thing.

View of cold water pump house under construction.
Source: Clive Warneford

*Did you get the barrier cream, in the end?*

Ah yes we did and it worked fine. I didn't know there was such a thing. Well, we hadn't…experienced it, had we? (Dick Nettlingham)

In other respects, working conditions on Sizewell A were different from what workers had experienced before. As Pat Cable recalled, those working in the reactor vessels had to maintain a totally clean, dust-free environment:

It was all clean conditions, where you changed all your clothing – underwear, overalls, you wore hats and silk gloves and everything, to work inside the reactor. You had to be in complete clean conditions.

*Did they supply all the clothes?*

This was all supplied, yeah….They washed them……they were washed nearly every shift.

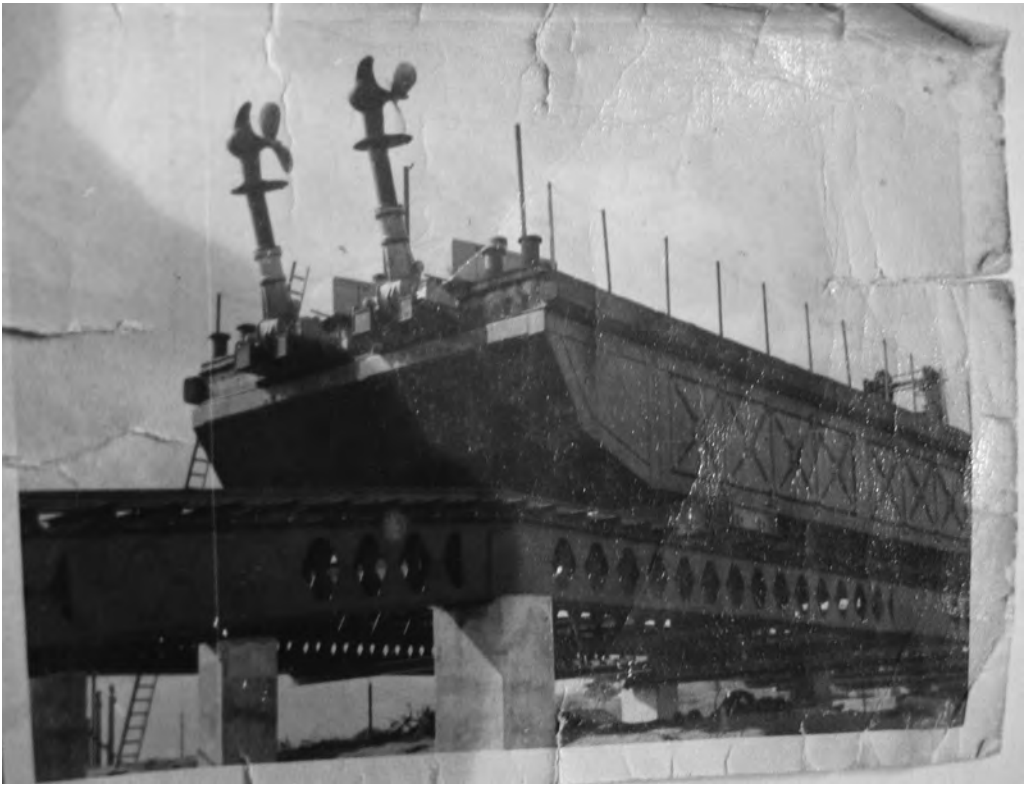
Many of the construction operations at Sizewell, and in particular those involving the reactors and boilers, were heavily supervised by engineers and inspectors:

There was Lloyds' inspectors walking round all the time, and your foreman and the chargehands, all walking around to make sure everything was on line. All the electrodes that we used, when you got them out of the store, they were heated, and you had to have an oven. It was a small tubular thing, worked by electricity. You had to have an oven by your side, with your electrodes in there, and you couldn't take an electrode out unless you were going to use it straightaway, and if any electrodes were left to get cold, there was trouble...There was quite a lot of supervision, in that respect. (Ian Roberts)

There was…a group called the group inspectorate who used to inspect everything you done… if you were taking nuts and bolts …into the reactor – and you'd only have one entrance in – they'd count all the nuts and bolts that you needed for the job, you would be given the nuts and bolts for that particular job, and when you got through that inspectorate, you'd go to do the job and there'd be another inspector there to see that you used all the nuts and all the bolts on that particular part of that job. If one went missing or you hadn't got enough to make them up, there was… a big hunt on to try and… find the one that you might have dropped or something. (Pat Cable)

According to Jim Ward, this high level of supervision could bring problems of its own:

We had one particularly, he was a very nice bloke, but they couldn't work manually and they were dangerous because of that. You preferred them to stand and watch and say, "Can you do this?" rather more than be involved. One particular case...when we were moving these big diesels in, we had these manual jacks...it was on a ratchet, and…you had to lift so far off the ground to get the rollers under, you see. And when you…reached the bottom of the…lift, where the handle is – it was just like an ordinary car…it was like a car-jack, only of course it was…that principle, on a ratchet. And when you reached the bottom, you had to lock the handle down anyway. There was a ratchet on it to lock the handle down. Well, he didn't do it, and



Pat Cable's photograph of off-shore pontoon under construction on the beach. Source: Pat Cable

his handle flew – because this thing shot – because all the weight, because these diesels were several tons, and this thing shot down, the actual foot shot down, and of course, this handle shot in the air, went straight across and hit the concrete! Anybody being in the way, it would have killed them …and we decided that he shouldn't remain doing what he was doing, just to go away and... so we got on with it and did it . Some were alright. It's just that, when they come out of university, straight out of university, civil engineers never worked manually, you see – that was the big snag, and...you've got to learn to work manually. The worst thing in the world is to work with somebody manually who's never worked manually, because …you don't have to talk to one another even – you just know what you're going to do. There's no discussions really – you just get on with it.

# LIVING CONDITIONS

With a large percentage of the workforce made up of travelling workers, camp accommodation was set up by the contractors. This was recalled by Pat O'Kane:

*What were the sleeping arrangements like?*

There was four in…where you're sitting now, there was two people there, slept in there, and there was two people slept in here, two separate beds, and there was a little hatch where you could talk over to one another and speak to one another, at the end of the day. That's what it was. It used to be…two in a cubicle, but you could speak to one another… over the hatch, more or less. It was like…some animals could look over in a shed where they were living there!

*Like cattle?!*

Yes. And then…you had a bar on the site as well, at Sizewell. There was a bar there…and there was a bar at various camps all over the country. That was a private company ran the bars….And then there was a post office as well there. So…if you…lived in Ireland or you wanted to send any money home, you could send it from there.

*And did that happen a lot?*

Oh yes, a lot of people sent money home, because they were married and they had their wives and family there.

Pat O'Kane also recalled how the Irish workers built a Catholic Church in Leiston:

During the period we were there, Taylor Woodrow decided they would pay some money towards building a new Catholic Church in Leiston. So we got together, a good few of us, and we done all the ground foundations, all the digging and the excavation for the groundwork, and I done some collection of money for it myself, and we had a grand opening day from the Bishop of Northampton, which I've got the photographs and all here. We used to come at… night-time and work for two or three hours, late at night. (Patrick O'Kane)

Patrick O'Kane with friend outside camp accommodation. Source: Patrick O'Kane

The off-shore workers had their own separate and, by comparison, quite poor conditions:

*So what were the facilities like on the site in terms of washing and canteens?*

Well, there was …no such thing as washing facilities. No. There was main toilets up on the main site, but down on our site, you had... the type of boxes you used to have outside, wooden things. That was about it. The eating facilities, you had a tea-hut which was just… one of these like cardboard hut things, with a table in, and we had a tea-boy who made your tea.

*No hot dinners, no canteen.?*

There was on top site…Not offshore. (Pat Cable)

There appears to have been much social contact between local workers, travelling workers, and the local population generally:

That was a local man, called Brian Finch, used to have the taxis here, and he used to bring us in and out of there, his cars. And then…and every village all around this area, because they had never seen travelling men before – the first job that was ever here – and we used to go to dances all over the place, and play darts and everything. We all had a dart team and played …in the local pubs, and went to dances on Friday nights and whenever the dances ever came up. That's where we met all the girlfriends and all. We were…all young boys at that time. (Pat O'Kane)

A lot of them [the travelling welders] brought caravans or took flats, if they were married, but if they were single, they stayed in the camp. The restaurant there, or the feeding facilities, were very good. You know, the food was excellent...you got a really good meal for about two and sixpence…Anybody…from on-site could use the restaurant. It was very… very good.

Patrick O'Kane (third from right) and fellow volunteers at site of the Catholic Church in Leiston.
Source: Patrick O'Kane

*Did you mix much with those men or did you stick…?*

Oh yeah, you mixed in with them. One of the chaps, he was a local bloke, but he used to travel with Babcock's. His name was Ray Brooks. He's dead now, but he used to organise dinner dances...locally and everybody used to go and have a fine old time. (Ian Roberts)

Jim Ward believed that the mix of different workers, local and travelling, had positive effects:

Generally speaking, the East Anglian workforce were more... peaceful, peaceable, than the travelling men, who were used to the hard, rough way of working and…and getting what they wanted, and I think the two things…helped each other. There was the reticence…of the local, earning good money and…there was the… hardness, if you like, of the travelling men, and the two went together very well, I thought.

# TRADE UNIONS AND THE WAGE SYSTEMS

NEDO's Large Industrial Sites, a report that was concerned mainly with industrial relations problems on these developments, noted that:

Each site is seen as a unique and once-for-all-job and the overwhelming need is for its completion. In reality, what happens on that particular site has an impact on others. [20]

This was especially true in terms of wages; one of the main findings of the report was the wide disparity in wages paid to the same construction occupations both between sites and within the same site. [21] Wage-related issues, including bonus, were responsible for 41% of strikes on these sites, making them the biggest single factor behind the rising levels of industrial relations conflict. National wage agreements were regarded as being of little importance and seen as only the starting point 'for a tangled structure of further payments'. [22] The nuclear power station sites in particular also revealed excessive amounts of over-time being worked – up to 30 hours per week in some trades such as welding.

Sizewell A was typical of the large industrial sites prior to the NAECI agreement, as described in the NEDO report. There were a large number of different unions on site, including general unions such as the Transport and General Workers Union (TGWU) and more specialist organisations, such as such as the Amalgamated Engineering Union (AEU), Electrical Trades Union (ETU), the Boilermakers Society (BMS) and the CEU. As the report pointed out, these unions were not only party to different national agreements with either the Civil Engineering Contractors or the Engineering Employers Federation, but also struck deals with contractors on individual sites on wages and conditions.

The results of this were very uneven. Wage levels on Sizewell were generally higher than on most construction sites, albeit still lower than on other major comparable sites such as the M1 motorway, where mechanical excavators were regularly earning over £35 per week and shuttering carpenters anything up to £90-£100, depending on hours worked, but they still varied markedly depending on the employer, the occupation, and the union to which a worker belonged. However, the one thing all workers on Sizewell had in common was that the work was hard and the hours were long:

Yes, it was very hard work. Well, you had to work long hours to try and get a week's wages. you had to work seven days for £20 a week, £18 a week...

*Did they give you travelling money?*

No, they gave us subsistence, accommodation money...and once every...two months, they paid your way to the boat, or the nearest port of call boat.

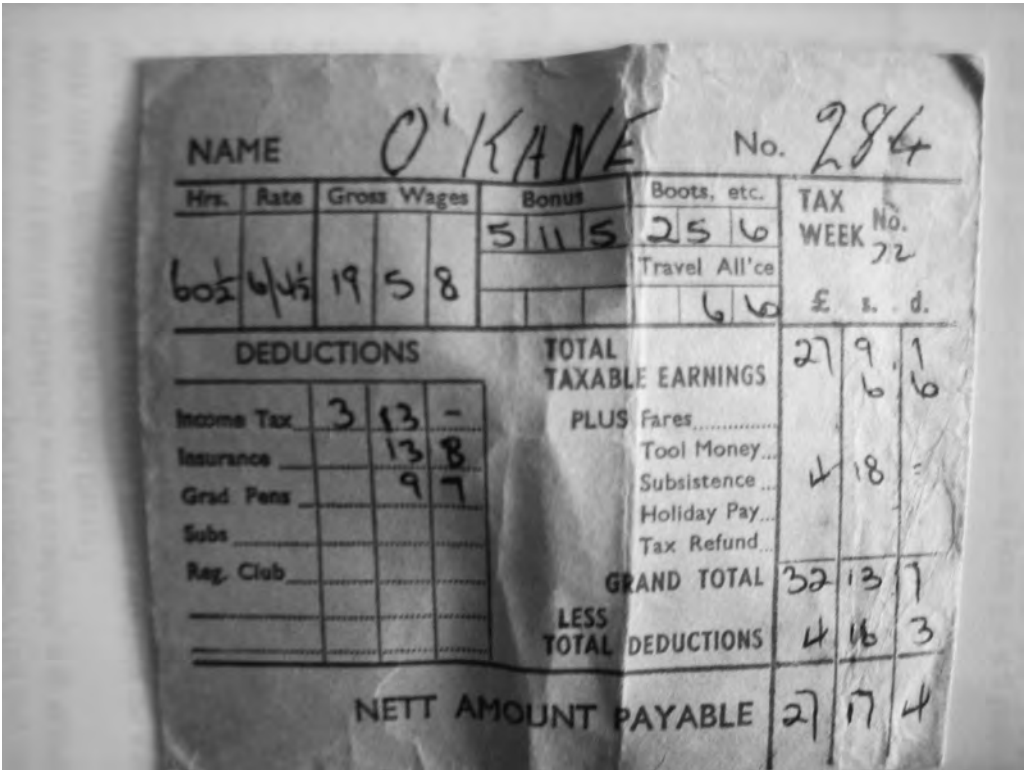
*To go to Ireland?*

Yes, Ireland. (Patrick O'Kane)

Wage levels for some workers were determined not by bonus measurements, but hours worked:

Well your ganger man, your chargehand, your foreman, used to make it up, and the engineers...how much was done, at that time.

[20] NEDO, *Large Industrial Sites*, 1970, p39
[21] Ibid
[22] NEDO, *Large Industrial Sites*, 1970, p39



NAME O'KANE No. 284

| Hrs. | Rate | Gross Wages | Bonus | Boots, etc. | TAX WEEK No. 72 |
|---|---|---|---|---|---|
| 60½ | 6/4½ | 19 5 8 | 5 11 5 | 2 5 6 | |
| | | | | Travel All'ce 6 6 | £ s. d. |

| DEDUCTIONS | | | | | |
|---|---|---|---|---|---|
| Income Tax | 3 | 13 | - | TOTAL TAXABLE EARNINGS | 27 9 1 |
| Insurance | | 13 | 8 | PLUS Fares | 6 6 |
| Grad Pens | | 9 | 7 | Tool Money | |
| Subs | | | | Subsistence | 4 18 - |
| Reg. Club | | | | Holiday Pay | |
| | | | | Tax Refund | |
| | | | | GRAND TOTAL | 32 13 7 |
| | | | | LESS TOTAL DEDUCTIONS | 4 16 3 |
| | | | | NETT AMOUNT PAYABLE | 27 17 4 |

NAME O'KANE No. 284

| Hrs. | Rate | Gross Wages | Bonus | Boots, etc. | TAX WEEK No. 71 |
|---|---|---|---|---|---|
| 32½ | 6/4½ | 10 8 - | 3 13 2 | 1 16 - | |
| | | | | Travel All'ce 5 5 | £ s. d. |

| DEDUCTIONS | | | | | |
|---|---|---|---|---|---|
| Income Tax | | | | TOTAL TAXABLE EARNINGS | 16 2 5 |
| Insurance | | 13 | 8 | PLUS Fares | 5 5 |
| Grad Pens | | 6 | 11 | Tool Money | |
| Subs | | 4 18 | - | Subsistence | 9 18 - |
| Reg. Club | | | | Holiday Pay | |
| | | | | Tax Refund | 4 - |
| | | | | GRAND TOTAL | 26 8 - |
| | | | | LESS TOTAL DEDUCTIONS | 5 18 7 |
| | | | | NETT AMOUNT PAYABLE | 20 9 5 |

Patrick O'Kane payslips. Source: Patrick O'Kane

*So was it based on the hours you did or the amount of work…the concrete you laid?*

Well, it was more or less based on the hours you worked, and then you had condition money as well…. (Patrick O'Kane)

However, other groups of workers were dependent on bonus schemes to access the higher wages:

*You said, when you were on Sizewell, you got spot bonus. How did that work out then?*

Well, the pipe-fitters would…have their own bonus. They would say, right, we've got to put in so many yards of pipe today...you'll be on, x amount of money. The riggers will rig the pipes up ready for you to come in and either screw them or weld them, whatever the case may be, and then we used to negotiate, say, look, we've got to lift up on, on chain lifts, this will take us so long, we want a little bit more than, two and six an hour, and then they would say, "Well, we'll give you five shillings," and then our… our shop steward would say, "No, no, five shillings isn't enough! They want…" "Well, we'll offer you seven and six." "No, no!" "Alright, 10 shillings." "Right, you're on, my boys will do it." He done everything. If he liked it, we done it; if he didn't like it and we liked it, we still had to, you know,…go for his. Bonuses was always done on the amount of…pipework you put in, and when…all the trouble sort of died down, it's incredible the amount of pipework what went in. (George Garnham)

As a welder, Ian Roberts was among the highest paid workers on the site. His move from Ransome and Rapier's to Sizewell A had resulted in a massive increase in pay:

I think the wages in Ipswich were around about £18 a week, you know. The power-station, the wages went up considerably to somewhere around £60 or £70 a week…There was a bonus, but it was a collective bonus between the whole…site, or Babcock and Wilcox workers, they were on a collective bonus. But, it was mainly made up with…overtime. We used to work a six-day week. We used to get Saturdays off, but we used to go in on all day Sunday and all that was double time, and that used to boost the money up.

John Mittel also saw a big jump in his earnings and also recalled a collective bonus scheme for the fitters employed by Babcock and Wilsox:

I went from £12 a week to nearly £30 plus...I think there was a target set of how much should be done…when they start a power station, Babcock's themselves, they would say, right, we've got all the groundwork to do and the machining to do, and…somebody would sit down and allocate the number of hours for each job. I don't know how many hours were allocated to the construction, Babcock's side of the construction, but say it was two million hours, then they would put up on a board two million hours, and then they would sort of put the dates… each project started, and finished, and the number of hours allocated to it, and if you achieved those hours – say, for instance, they'd allocated 100 hours to doing, say, 10 of these or something like that, then …if you done it in the 100 hours, you would be paid a bonus. But don't ask me exactly how they…they calculated it…

Worker on site. Source: Patrick O'Kane

*And that was just then divided amongst all the people working on that project?*

The fitters had their own bonus, and the welders had their own bonus, I'm sure. I could be corrected on that, but I'm sure that's the way it went. It's a long time, 60 years!

The wide variations in pay rates can be glimpsed with the experiences of Pat Cable, who performed many different tasks on the construction of Sizewell and was paid different rates of pay for them all. When building the concrete platform that was towed out to sea, he earned around £20 per week, which seems to have been the going rate for Taylor Woodrow's concrete gangs. But his wages rose sharply when he started the underwater diving work:
*So did the diving give you any extra money?*

Oh yes…used to get…it was more or less the equivalent of three times your normal wage.

*So you were getting about £60 a week.*

That was quite a bit of money in '61, '62.

Pat worked on the diving for 18 months or so. When it was finished, he left Taylor Woodrow and got a start with English Electric, building the reactor core. His pay there was less than he had received for the diving, but could be boosted by bonus:

Sometimes the bonus would work out nearly as much as the wage, if not more…It was an incentive bonus, you see. You were given so many hours to do the job, and if you done it under, you got paid what was left.

*What was the basic wage - can you remember how much a week it was?*

I know it was a lot less than it was when I was on offshore. I think it was somewhere about £17.

There do not appear to have been any major or serious industrial relations disputes at Sizewell. The CEU's London organiser, John Baldwin, who was responsible for negotiations, hinted at this in 1965 when he paid tribute to departing CEU Sizewell convenor, John Whitmarsh, for his 'excellent' work, and the fact that there had been 'no time lost through industrial disputes ' on the site. [23] But numerous smaller disputes and strikes over wages and conditions did of course occur. In October 1962, over 120 Babcock and Wilcox welders, members of the BMS, were threatened with the sack, following their initiation of a work-to-rule in response to the company's refusal to move on the union demand of a one shilling per hour rise. [24] This appears to have been in response to other welders on site earning more money. ETU members struck in May 1964, following what appears to have been a dispute over shift patterns, [25] and five months later over 500 members of that union were sacked 'after they banned overtime, in support of a claim for a £1 increase as a special site allowance' [26]. Of all the trade unions operating on Sizewell, it was the boilermakers who were reckoned to be the most formidable.

The strongest union on the site of course was the Boilermaker Union, and they were working for Babcox and Wilcox…they had the strength. They were the…big, strong union – there's no two ways about that, and nobody crossed them, and they knew it. But then again,… they worked hard, and it was a rough job they were doing…dangerous, and of course, another short working life. I think, after about sort of…40 or so, round about that age, it was noticeable, at that age, that you'd get a little bit of a shake on…which you don't realise in normal work…so, it was a short working life for most. (Jim Ward)

[23] *CEU Journal*, December 1965
[24] *The Times*, 2 October 1962
[25] *The Times*, 30 May 1964
[26] *The Times*, 3 October 1964

The welders…the boilermakers were the kingpins. They held the key to the salaries… (John Mittel)

Ian Roberts was a member of the boilermaker's union and recalls some of the disputes the union was involved in.

We were off for about eight weeks, and that was the only strike we had…We wanted the showers, plus we wanted extra money for what they called heat-money, working …under the heat conditions, and I think… they gave us about thruppence an hour or something like that, on top of our wages, for heat-money, and we got the showers. And… there was one other little strike – I can't remember what that was over. And we went on…a work to rule strike and we were on that for about, oh, about a couple of weeks or so, something like that, and that strike... we were allowed to… burn eight electrodes an hour, which was very minimal.

Both John Mittel and Bill Herrington also recalled one relatively lengthy strike by the boilermakers' union at Sizewell, which is probably the same one that Ian Roberts referred to. From John Mittel's perspective, it was a strike that had quite unexpected consequences:

When we arrived …this is quite relevant, at Sizewell, we'd been there about a fortnight and we'd started to get ourselves…because it takes a long time to get all these guys together and get the machinery and the welders and everything else, but the welders had got other jobs to do, and they'd… gone on a go-slow. And I think Babcock's got a little bit fed up with this and said, "Look, you know, we're not having it," so…I think what happened was, they said, "Right, we're going to fire you." Well, that's sort of sudden death. Now, don't forget, the majority of these boilermakers were not from this area. They were coming from the shipyards in the North, and…Glasgow – a lot of them, Glaswegians, and there was some militant trade unionists amongst them. So, there was, obviously, a shop steward there, and …I can remember him now, a fiery sort of character, …very eloquent! And he had a meeting, and then the next thing is…the boilermakers all went out on strike. So... we've got …I don't know, about a hundred of us, altogether, working in different areas, in the CEU … what were they going to do with us? We couldn't do anything without them, and they couldn't do anything without us! So, we got sent to Birmingham, to a welding school… to fill in time, really. There wasn't much for us to do. We were camped in an old Italian prisoner of war camp, would you believe?! I remember it now! The chap in charge of the camp, he'd only got one arm and we used to call him Wingie and we were in this Italian prisoner of war camp for about…six weeks or something like that.

*Yeah. Did you learn anything useful?*

Not really. Cleaned things and moved around, that sort of thing…no…proper training at all. (John Mittel)

*Do you remember much disruption on Sizewell A?*

On Sizewell A, there was a minimum. I think we were out only once for six weeks. And [the manager], there, he was a strict... disciplinarian and …he said, "I'm not …messing with unions – shut them down and pay them off!" Well, they…could stand a week or two, but they couldn't stand too long, and they were glad to come back again. And then, because we had the choice of some of the troublemakers, we just didn't re-employ them. (Bill Herrington)

Jim Ward was the senior steward for the English Electric workers, and a member of the TGWU. Interestingly, given that many of them were in the same union, he said that he had very little contact with the Taylor Woodrow workers, the only exception to this being the time when a section of the biological shield had to be re-done as a result of poor quality aggregate in a particular batch of concrete. His comments indicate an absence of organisational unity amongst trade unionists on the site:

I must make this clear: there was no sympathy strike action. We all had our own problems …and there was never a... meeting of minds whereby we all got together and decided that we…stop the site for a particular reason. It never happened.

*So there were never any whole site meetings?*

No.

*It was all individual…unions…?*

Oh yes.

Leiston has a long history of local radical politics, partly because A S Neill set up the progressive school Summerhill there in the 1930s, attracting a number of prominent communists to the area. Leiston Urban District Council (UDC) fielded a Communist Party Councillor from 1934 up until the 1980s. The UDC welcomed the siting of Sizewell A nearby, hoping it would alleviate chronic unemployment, while Paxton Chadwick, the Secretary of the local CPGB group, although not objecting, wrote to the AEA expressing detailed concerns about safety, the monitoring of the reactor and the long-term effects on the development of Leiston. [27] According to Jim Ward, one of the CEU stewards at Sizewell A, Norman Clews (or Klaus) was a member of the CPGB and the local branch of the ETU to which the Sizewell electricians belonged was also led by a Party member. However, it also seems to have been the case that there was little contact between workers at Sizewell and this small communist group in Leiston:

I think his name was Norman Klaus, Clews, something like that...he was a Communist, actually...he was always trying to...persuade me to…join the Communist Party. He was a very nice bloke, very genuine man...

*The town Communist group, did they have anything to do with the construction site?*

He wasn't local, but no, there was no political interference, if that's the right word.

[27] National Archives, POWE 14/1406, Paxton Chadwick to EJ Turner, Secretary CEGB, 18 March 1959.

The following comments, made by a former CEGB employee at Sizewell, Bill Howard, suggest this lack of contact between Sizewell workers and the Leiston communists continued after the station was completed:

*Were there any other workers from Sizewell politically involved in Leiston? In the Communist Party and generally…*

Amazingly, most of the people that worked at the power station did come from outside of Leiston. I've always been quite surprised at how few got involved in local life, actually, and in fact, several of them, when they've retired, have gone back to their place of birth, which I find quite amazing, because it's quite a lovely little town….We got deeply involved in local life so…

*You were unusual as a Sizewell worker?*

I would guess we were. (Bill Howard)

Jim Ward also highlighted a sinister feature of industrial relations on Sizewell that was not particularly well-known, but one that was becoming increasingly important to the government and the state [28]:

The other thing that might be interesting… of course, we had undercover policemen working on the site as well…they always did, apparently.

*Which sites in particular – just the power stations or everywhere?*

The big construction sites, yeah.

*How did you find out?*

Well, I was working…and this bloke was with Kilpatrick's, this particular bloke I'm going to tell you about now. He was a Liverpool lad. We were talking one day… because he was talking about coming over to English Electric . And he said, "I've been…blacklisted," he said. So I said, "Have you?" So he said, "Yeah. I can't work in the North-West at all," he said. And they had a blacklist of people that for whatever reason, if you got on the blacklist, then you didn't work in that area. "Well," he said, the Liverpool people are a bit militant anyway, and so we were just talking and he said, "And you see that bloke over there?" So I said, "Yeah." He said, "He's a policeman…he did me up in Liverpool." So I sort of thought…Well, I knew…I had heard it went on, but I wasn't an expert on these big construction sites… It turned out this bloke was a policeman because we were talking one day, and he said he was on the move. He told me himself. He said, "I've got to go on another site…I'm undercover." So I said, "Yeah, I've been told you were." He said, "What?" and he said this bloke's name, and he said, "Did he tell you?" So I said, "Yeah, he told me a couple of weeks ago." He said, "Yeah," he said, "it's because of him I've got to go"…. Some of them were proper tradesmen. This bloke was an electrician. They were undercover people, they were policemen, but they worked on the sites… and they gave information over to the authorities…as they do now, of course. They weren't there for crime. Oh, they were there for political reasons.

[28] In his *Enemy Within: MI5, Maxwell and the Scargill Affair,* Verso: 1994, pp248-287, Seumus Milne traces the growing intervention into and sabotage of the labour movement by British intelligence agencies..

The civil engineering works at Sizewell were completed by the summer of 1965. Fuel was also being loaded into the station at this point, and by early 1966 power was being generated by both reactors. The station was formally opened the following year. In 1969, Sizewell's generating capacity was reduced to 420MW to arrest the rate of oxidation of reactor core components. Bill Howard recalled this and other remedial work that had to be carried out after the station was operational:

Well, when I arrived, I think it was supposed to be a 500-megawatt site. That had been reduced to 300-and-something megawatts, about 350, because they were starting to have problems with the steelwork inside the boilers and reactor, so…they reduced the operation temperature I think it is and, consequently, the power output.

*And was that a construction fault or just the quality of the steel or…?*

I would guess it was a design fault...we had to cut certain parts, which weren't essential to the safety of the reactor, but we cut out ladder-work that was inside the gas ducts. That was quite a nasty job...you ended up on a rope ladder...it was probably about 60 foot down the pipes …that carried the gas from the reactor to the boilers and you were grinding off...

*Did you have to wear breathing…?*

Yes. Breathing apparatus and extra overalls to stop you getting contamination…rubber gloves….so you were on a rope ladder with a grinder, grinding off the lugs and…

*Why were you doing that? Shouldn't they have been done in the construction process?*

Well, they were left in I think for examination purposes, the ladders, and apparently they... were...distorting the gas current going through the pipes. (Bill Howard)

Despite these teething problems Sizewell A was operational for far longer than the expected 20-30 years and continued to produce power until December 2006, when decommissioning began. Its performance during those 40 years shows it to have been a well-designed and constructed station. In 1980, it became the first nuclear power station in the world to generate 50 billion kWh of electricity, at a rate 10 million kWh per day (around 0.5% of the UK electricity generating capacity). The longest uninterrupted generation run was reactor 2, which remained at power for 653 days between August 1975 and 1977 before it was shut down for overhaul. This established a civilian nuclear reactor reliability record. The longest uninterrupted run of reactor 1 was nearly 500 days between 2004 and April 2006. In April 2005 Sizewell A became the first industrial site anywhere in the world to be awarded level 10 on the International Safety Rating System developed by consultancy Det Norske Veritas. [29] It followed this with level 10 on the International Environmental Rating System, but would later narrowly avoid a potential major disaster,

Sizewell A today. Source: Christine Wall

following an un-noticed radioactive water leak from one of the cooling ponds, just a few days into the decommissioning process. [30]

By this stage, there were two nuclear power stations in Sizewell, with the construction of Sizewell B beginning in the late 1980s. In a sign of the increased concerns over the safety of nuclear power stations – a mood influenced by the Chernobyl nuclear power station explosion in 1986, which released huge quantities of radioactive fall-out into the European atmosphere – Sizewell B was ratified only after a controversial three-year public inquiry. But the huge costs associated with nuclear power station construction, including the massive subsidies to the industry and serious doubts over economic efficiency, as well as safety concerns, has meant that Sizewell B, which took seven years to move from ratification to operation, is still at this point the last nuclear power station to be built in the UK. In recent years, successive British governments have outlined plans for a new programme of wholly private sector-funded nuclear power station construction. This includes a third station for Sizewell, to be built by the French company EDF Energy, but this programme has yet to be started.

[29] All of these statistics on the performance and record of Sizewell A are taken from Nuclear Engineering International, 2 April 2007, http://www.neimagazine.com/story.asp?storyCode=2043403, accessed on 28 February 2012

[30] For more on this incident, which occurred in early January 2007, see article on the report of the Nuclear Installation Inspectorate, *Guardian,* 11 June 2009

# THE WORKERS POST-SIZEWELL

Some of the men who worked in the construction of Sizewell A were later employed by the CEGB at the plant. Included here were Pat Cable, who worked as a plant operator for 27 years before retiring at the age of 56, and Jim Ward, who worked also a plant operator for seven years before transferring to Fawley power station. Jim Ward remained involved in the TGWU, before eventually leaving as a result of its failure to support the National Union of Mineworkers (NUM) during the 1984-85 strike:

The trade union was against. In fact, the local union bloke,...He actually came to a meeting that I was at, and was very disparaging ... about the dispute, and whereas both myself and my two sons, we supported...they did some charity work for the miners as well... so I knew what was going on up there.

For many others, Sizewell A was the gateway to a future in the construction industry. Pat O'Kane followed up his work on Sizewell with employment on some of the highest-profile civil engineering sites in Britain over the next twenty five years or so:

I was the leading miner in the Loop Line Tunnel then, in Liverpool. I worked also… in Sullom Voe in the Shetlands, in the oil refinery… then I worked on….the [Thames] Barrier project...In 1986, I become an Inspector of Works in the Lake Lothing [River] Tunnel at Lowestoft, and I done various other projects, tunnelling work, travelling about as usual, from job to job. I ended up as a Clerk of Works on the Jubilee Line extension in London…and then from there, I moved to Heathrow Airport, Terminal 4, in the tunnelling contract there, in the concourses.

The job before I went to Heathrow Airport, I spent four years on the Channel Tunnel as Inspector of Works.

Kenny Tye, who had no experience in construction prior to Sizewell, went on to work in a number of construction occupations, including as part of a concrete gang on Felixstowe docks and as a rigger on the Marsham Post Office tower and complex, now run by British Telecom. Over the years, he worked for a range of major firms, including Laing, Kier, Balfour Beatty and Taylor Woodrow. John Mittel, who prior to Sizewell had tried his hand at farming before getting work as a machinist in Cranes, got a permanent job with Babcock and Wilcox and worked at a number of power stations, including Kilkenzie and Wandsworth. He eventually ended up as a sales engineer, travelling the world on behalf of American company, Claydon, which had patented a new type of heater for the agricultural market. Dick Nettlingham, who also contributed to the research, left Sizewell when it was completed and, after a short time working at barn building, joined the local Council and worked on the highways until he retired. He commented that it was only when he joined the Council that he received any formal training. George Garnham moved from scaffolding to rigging,

before getting a job as a steel-worker on the railways. But a serious accident in his late fifties saw him end his working life in an office job, working as a health and safety officer. Ian Roberts worked for several major firms, including Mitchell Construction; Laing; and John Brown on the gas pipelines after finishing at Sizewell. This work paid higher wages than Sizewell but required additional training, which he had to pay for himself:

Well, when I left Sizewell…the gas pipelines came up. It was a different process altogether, in as much as it wasn't a conventional weld. You started at the top – a conventional weld, you'd start underneath the pipe and go from, bottom to top, but with [soil] pipe welding, you start at the top and go to the bottom, and I hadn't done any of that before, and there was a special school set up in Lowestoft to train welders for pipeline welding….But you had to pay for it yourself. I tried to get a grant for it, but I couldn't get a grant. So I paid for it myself. ……there was a company called SLP… Sea and Land Pipelines… they operated out of Lowestoft, and they started this welding school for welders. You had to know what you were doing as regards welding, but there was…another four-week course, and I think the course was £100 a week….So, I went and did the course, and they said, at the end of the course, they'd help us to find work, but they didn't and you had to find your own work, so, I had to write round to all the companies that were employed on, laying the pipelines, and got on from there.

SRU in vertical position. Source: Charlie Dennis

# REFLECTIONS

Although Sizewell A was a short contract in the long working lives of the men we spoke to, it seemed to hold strong memories, particularly of the harsh conditions and long hours but also of the camaraderie experienced:

It was an experience, you know! I did think about going back onto the B Station, but I thought, no, I'm too long in the tooth for it… I could have gone back there, I suppose, but I didn't fancy the long hours. That's probably why most of the people are youngsters…on these projects, because of the long hours.
(Ian Roberts)

Well, it was an eye-opener and an experience, hell of an experience, because I hadn't worked with those sort of men and that before sort of thing, and I suppose we were…sort of broadened your outlook a bit but I still think the job…on the offshore was the best lot of boys I worked with.
(Dick Nettlingham)

Some of the men would, say, Taylor Woodrow's, or, you know, Babby's or…whoever it was and… Especially in the winter, if there was snow about, then the snowballs would start and… we would behave like children. You know, we'd start laying traps for them …yeah!
(George Garnham)

There was also awareness of the role that nuclear power held in the post-war era. One Sizewell worker who would later leave the plant because of his concerns over the safety of nuclear power, described the very different view that prevailed when he started there in 1966:

Of course, nuclear power had already been pushed in the national press and the television and the radio as being the free energy of the future – clean, safe – so you thought you were coming to a new world really. (Bill Howard)

And Patrick O'Kane, who remembers being a young Irishman newly arrived in England, living on site and working for Taylor Woodrow 1963-66:

It was a new world when Sizewell A started …It was a new world for the people here. It was a new world at the end of the day.

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p. 31 Pat Cable's photograph of off-shore pontoon under construction on the beach. Source: Pat Cable
p. 32 Patrick O'Kane with friend outside camp accommodation. Source: Patrick O'Kane
p. 33 Patrick O'Kane (third from right) and fellow volunteers at site of the Catholic Church in Leiston. Source: Patrick O'Kane
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The men who built Sizewell A worked in compressed air in underwater tunnels, at great heights, on the sea and under the sea, in the freezing cold mud and in extreme heat. Some were locals, working on their first construction job, while others were from far-flung parts of Britain and Ireland. Many of the men lived in camp accommodation for the duration of the job, and saw little of their families. Together, they helped bring to life one of the biggest construction projects of the 1960s. This pamphlet relates the stories of some of the welders, concrete workers, crane drivers, divers, boatmen, riggers and fitters who helped build one of Britain's first nuclear power stations.

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