

**ARTICLE**

# Living on with Sellafield: Nuclear infrastructure, slow violence, and the politics of quiescence

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**Abstract**

Communities living with nuclear infrastructures have widely been positioned as quiescent and accepting of the risks posed. Drawing on ethnographic data collected in 2008 in the village of Seascale, which neighbours the UK's Sellafield nuclear site, and on recent thinking on nuclear and toxic geographies, this paper troubles the idea of nuclear quiescence. In doing so, it critically engages with a long tradition of geographical research on nuclear communities, much of which adopts a risk-perception paradigm, foregrounding the presence (or absence) of localised concern. Within this body of work, interest has centred on the apparent paradox that those spatially exposed are also most quiescent, pointing to the play of economic dependency, risk denial, and familiarity with nuclear infrastructure. This paper addresses the slow violence inherent in living on with nuclear infrastructure: drawn-out effects and affects of nuclearity on place that are barely visible in the routines of everyday life. I locate these expressions of social and geographic damage in techno-political relations that obscure the exceptionalism of the nuclear industry. The analysis challenges passive renderings of toxic victimhood by emphasising modes of pragmatic resistance – subtle and contingent ways in which residents challenge the identity and structural relations of being nuclear. I stress the need for geographers to find alternative ways of theorising the unjust relationship between nuclear economies, infrastructures, and places in situations of political-economic dependency and domination. I argue that policy instruments aimed at securing social justice in nuclear infrastructure planning will need to more fully, and openly, grapple with questions around the socio-political relations of care that might sustain a “good life” for places that have very long histories and even longer futures with toxicity.

**KEYWORDS**

nuclear communities, pragmatic resistance, quiescence, seascale, sellafield, slow violence

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## 1 | INTRODUCTION

There is now a sizeable and diverse body of research that takes as its focus the community or place-based impacts of nuclear installations – much of which has explored the construction of individual or community risk perceptions (e.g., Edwards et al., 2019). Proximity to nuclear sites has been associated with the paradox of higher levels of public support and quiescence, with anthropologist Françoise Zonabend (1993) pointing to the apparent indifference of the local community to the presence of the nuclear reprocessing plant at La Hague, France. There are three, connected, explanations that have been offered to account for this anomaly. First, that acceptance of the risks, by those living close to nuclear infrastructure, stems from the perceived economic benefits, particularly where a community is geographically peripheral (Blowers, 2010). Second, several authors problematise the view of local quiescence, stressing that in fact local populaces play down, bury, or repress nuclear dangers (Wynne, et al., 2007) – as Zonabend puts it, “le nucléaire exude forgetfulness” (1993, p. 123). Third, Parkhill et al. (2010), in a study that explores “risk biographies” in two UK communities living in proximity to nuclear power facilities, argue that nuclear infrastructures are rendered ordinary through familiarity (the structure had always been there) and the normalising or attenuation of risk (e.g., through comparison with other industries). These perspectives are important in making visible the ambivalences that are intimately connected to the notion of quiescence. However, all three accounts rest on the ontological primacy of risk in the experience of living with nuclear infrastructure, and quiescence is conceptualised primarily as an outcome of psychological processes, in which residents are positioned as complicit actors in their toxic suffering. In this paper, I draw on a now substantial body of work on toxic geographies and slow violence to theorise the connections between quiescence and the gradual and barely visible effects and affects of nuclearity on place and people, which I trace back to the politics of the nuclear industry and nuclear exceptionalism. My key point is that the slow violence of nuclear presences is generative of place identities characterised by endurance, defiance, and resistance (Alexis-Martin & Davies, 2017; Dawney, 2019; Lora-Wainwright, 2017; Stawkowski, 2016), rather than passivity, through which the inevitability (and invisibility) of toxic damage is challenged.

In the next section I explore these key ideas around slow violence, toxic invisibility, and slow resistance. I then turn to the fieldwork site – the community of Seascale, adjacent to the UK Sellafield nuclear site, and part of a region that is widely cited as quiescent (Wynne et al., 2007). The analysis addresses three central concerns: first, I briefly review the ways in which accounts of living on with Sellafield can be read as a form of quiescence; second, I make links to processes and experiences of slow violence that are rooted in institutional relations and practices of nuclear invisibility; and finally, I argue that these progressive harms are generative of circumscribed or pragmatic expressions of resistance.

## 2 | SLOW VIOLENCE, TOXIC INVISIBILITY, AND THE POLITICS OF QUIESCENCE

In recent years, researchers from across the social sciences and humanities have developed novel conceptual approaches to studying toxic communities and toxic suffering (e.g., Liboiron et al., 2018; Mah & Wang, 2019; Nading, 2020). Nixon (2011) and others (Davies, 2018, 2019; Mah & Wang, 2019) have notably used the concept of slow violence to make clear the gradual and less visible brutalities that toxic communities endure over time. These barely noticed forms of disruption and harm, that are temporally dispersed and “not typically viewed as violence at all” (Nixon, 2011, p. 2), differ from the spectacular and visceral transformations that tend to be the focus of media and public attention (toxic explosions, leaks, and accidents). It is a reading of environmental harm that is characterised by chronicity and barely visible disasters – climate change, radioactive aftermaths (cf., Branningan et al., 2019; Hecht, 2018), and acidifying oceans that fail to manifest in an event or clear-edged representation – hindering action and resistance (Liboiron et al., 2018; Nixon, 2011). In this regard, authors have powerfully argued that researching slow violence must extend beyond the biophysical impacts of, say, radiation to include forms of disruption to social and spatial relations (Kaur, 2021; Mah & Wang, 2019). Davies, in ethnographic research in a region of Louisiana dominated by petrochemical industries and nicknamed “Cancer Alley”, presses the need to “expand our imaginations of what constitutes harm. [To] take seriously forms of violence that have, over time, become unmoored from their original causes” (2019, p. 2). Nading, similarly, observes “toxicity is never just an empirical characteristic of one or another substance” (2020, p. 210) and that some toxic effects may be more like affects. It is this intersection between the material and the affective that is critical to capturing what it is to live (on) in toxic environments. Gabrielle Hecht’s (2012) concept of nuclearity is helpful here in capturing the contingency in how infrastructures, spaces, or people become defined as nuclear, through techno-political relations rather than innate material qualities. I use

nuclearity to explore how particular configurations of infrastructure, relations, and practices render nuclear exceptionalism in/visible and in so doing (re)configure everyday life in ways that can be read as forms of toxic suffering.

Crucially, for this paper, Davies (2018) draws on his ethnography of “Cancer Alley” to argue against a framing of slow violence as entirely invisible and residents somehow passively accepting of their fate, pointing to the political and economic structures that discount and marginalise the situated knowledges of inhabitants and reinforce geographic vulnerability and quiescence (cf., Hecht, 2018; Kuchinskaya, 2013; Lora-Wainwright, 2017; Mah & Wang, 2019). Developing this point, several authors working on toxic geographies have argued that the capacity of hazardous infrastructures – and their geographic and corporeal effects – to fade from view is not inevitable but requires ongoing work. Stawkowski (2016), for instance, shows how residents living near the Semipalatinsk Test Site in Kazakhstan, the primary site for the Soviet Union’s nuclear weapons testing, adopted a kind of “mutant subjectivity” – embracing radiation and its slow violence. The invisibility of slow violence was tied to uncertainty about low-dose radiation exposure, associated misinformation, and official denial and a lack of routes to social and political recognition (such as compensation). In an extended ethnography of Flammable, an Argentine shantytown adjacent to the country’s largest petrochemical compound, Auyero & Swistun refer to the “labor of confusion” performed by corporations and states – that is, how state officials “averted [their] gaze” (2008, p. 371) over the effects of contamination, which contributed to widespread expressions of uncertainty, confusion, and ambivalence among the community. The authors stress that community members’ perceptions of toxic risk (or safety) were anchored in place-based social relationships, crucially the practical and discursive interventions of powerful actors (Auyero & Swistun, 2007, p. 144). Landa’s (2016) ethnography of Poza Rica – a Mexican town dominated by the oil refining industry – also makes clear how through corporate practices (for instance, safety slogans visibly located outside installations) different residents were able to render invisible the harmful presence of oil and its infrastructure. Simmons (2003) likewise notes how, in the UK context, the apparent invisibility of stigmatised industrial activities within neighbouring communities cites dominant institutional performances of safety, which create a pacified social space. In this body of work, then, we can read quiescence very clearly as an expression of structural relations and inequalities that actively undermine the visibility of toxicity.

As already noted, nuclear and toxic quiescence have widely been read as symptomatic of passive, or even complicit, suffering in the face of unequal risk exposures (cf., Graeter, 2020). However, there are a number of recent studies that point to more active, if partial, expressions of political engagement by residents. Petryna’s (2002) widely cited study of biological citizenship, in the long aftermath of Chernobyl, exemplifies how socio-political contexts created a political field in which the harms of living on with nuclear trauma were made all too visible as citizens made claims of damaged biology to access limited state compensation. Other accounts of life with toxic infrastructures have also signalled the ways in which practices of domesticity, care, silence, boredom, and the ordinary can (and should) be read as strategies for ethical endurance and resistance. For instance, Lora-Wainwright (2017) challenges the invisibility of concerns over pollution in industrialising areas of rural China. She reads the normalisation of toxic natures and the toxicity of human bodies among residents, in which they adapt to pollution’s presence rather than directly challenge it through collective action, as a resigned mode of activism. Critically, she makes clear the link between structural violence, the marginal political-economic position of residents, and the slow violence of their exposure to pollution. Stawkowski’s example of mutant subjectivities can also be read as demonstrating geographic defiance, with residents asserting not only that they can survive radiation but that it helps them to thrive, challenging the hegemony of “nuclear victimhood” (2016, p. 145) in the face of political and cultural marginality. Tironi (2018) coins the phrase hypo-interventions to characterise hushed modes of knowing, resisting, and relating – cleaning plants of industrial dust or caring for a sick partner – which enable people and places subjected to different kinds of slow violence to persevere. The author carefully makes the point that these small acts of care, at the same time, display a partial and situated awareness of the political economy of industrial landscapes and their futures.

I work with these ideas of slow violence, toxic invisibility, and contingent and partial forms of resistance to interrogate the debate around quiescence in nuclear communities, through an ethnography of Seascale. The following section provides a brief history of nuclearity and Seascale, and details the research methodology.

### 3 | SEASCALE – LIVING ON WITH NUCLEAR INFRASTRUCTURE

The fieldwork is focused on Seascale in West Cumbria – a village of around 2,000 residents that sits, administratively, in the borough of Copeland.<sup>1</sup> Seascale lies approximately three kilometres south of Sellafield, Europe’s largest nuclear complex (NDA, 2019), which is the dominant employer in the region (Oxford Economics, 2017). Apart from the nuclear

industry, all other major industrial activities have wound down to very low levels, and West Cumbria itself remains largely disconnected from regional economies found elsewhere in the north-west of England.

The site, originally known as Windscale, was chosen in 1947 for Britain's first atomic reactors – Pile 1 and Pile 2 – built in great haste during the early years of the Cold War to produce plutonium for the nation's first atomic warheads. The potential of nuclear power as a cheap, safe alternative to coal-fired electricity was instrumental in the construction of a prototype power station (Calder Hall) in 1956 – with four reactors in place by 1958. Sellafield holds the largest stockpile of civil plutonium in the world (Gill, 2015) and houses two reprocessing (i.e., fuel recycling) works and a plant for making mixed uranium and plutonium fuel called MOX. The Windscale piles were shut down in 1957 following a reactor fire in Pile 1 that showered radioactive ash over the surrounding area. Pile 2 was subsequently dismantled, but Pile 1 has remained a longstanding challenge to decommissioning; it is now partially dismantled. In 2008 its chimney still dominated the skyline (see Figure 3). Sellafield has begun a long-term decommissioning programme, with a speculative end-date of 2120 (Cockburn, 2018), which includes the complex business of dismantling infrastructure and decontaminating the environment. Many of the site's buildings are, consequently, holders for processed and highly hazardous waste awaiting permanent disposal. The Nuclear Decommissioning Authority (NDA), a non-departmental public body created in 2005, holds responsibility for decommissioning at Sellafield and other UK nuclear sites, and for implementing policy on the long-term management of nuclear waste. West Cumbria is also a possible site for a Geological Disposal Facility (GDF) for high-level nuclear waste, with a timeline for construction alone in excess of a hundred years, which once built will be in place for several thousand years (Department for Business, Energy and Industrial Strategy [BEIS], 2018). The two borough authorities have commenced working partnerships with Nuclear Waste Services [and previously Radioactive Waste Management]<sup>2</sup> (RWM, 2021) to explore hosting this facility, which follows unsuccessful attempts to site it in the region in 1997 and 2013. Sellafield is also a proposed site for a new nuclear power station (Department for Business, Innovation and Skills [BIS], 2013).

There are other kinds of infrastructure connected with the de facto exceptionalism of nuclear installations. Liquid radioactive waste is discharged into the Irish Sea via a pipeline ending about three kilometres offshore. Discharges to the environment peaked in the mid-1970s and have dropped significantly in recent years (Environment Agency, 2019). Statutory regulators (the Office for Nuclear Regulation [ONR] and the Environment Agency) also set requirements for Sellafield to monitor specified discharges in the local environment and doses to the public (Sellafield Ltd, 2019).

The government, via the ONR, set specific provision for security at nuclear facilities. This is partly delivered through the CNC (Civil Nuclear Constabulary), an armed police presence that patrols within a five-kilometre radius of the plant. Members of the CNC have the same powers as any other British police officer but are also authorised to carry out covert intelligence operations (Evans, 2009).

The history of Seascale, more than any other settlement in West Cumbria, is tied to Sellafield. Seascale is situated in predominantly farming land, and at the foot of the Western section of the Lake District National Park. Early expansion of the village, along the seafront, followed the “coming of the railway” in 1879 (Ramsden, 1998). In 1947, the nuclear building programme commenced at a former Second World War ordnance factory and Seascale became a dormitory community for the Windscale and Calder nuclear sites. The then Government Ministry of Supply compulsorily purchased land in Seascale to house the technical staff of the atomic energy plant (Ramsden, 1998), constructing homes for 630 residents, club rooms, a health centre, a car park, and a cinema. The vernacular of Victorian boarding houses and hotels changes as the land rises from the coast to the grey utilitarian “factory houses” that were built at pace. The village has long been connected to accidents and incidents at Sellafield. In 1983, a local television station produced a documentary drawing a link between nuclear discharges to sea and an abnormally high incidence of childhood leukaemia among residents of Seascale, a claim subsequently rejected by British Nuclear Fuels Limited (BNFL<sup>3</sup>), then operator of Sellafield. Later, in 1983, a radioactive slick from the sea discharge pipeline drifted ashore on the Cumbrian coast, causing fifteen miles of beaches – including Seascale beach – to be closed for several months (Summer et al., 2000).

The research reported on in this paper draws on a period of ethnographic research carried out between March and September 2008. It was a significant moment in the village's history with nuclear infrastructure, following the release of the White Paper on the decision-making process for “implementation of a policy of Geological Disposal for high level nuclear waste”, which asked for potential host communities to express an interest in volunteering (Bickerstaff, 2012; Department of Environment, Food and Rural Affairs (Defra), 2008). During the fieldwork period, I interviewed 137 residents of Seascale and nearby villages (as individuals, couples, or families; ranging in age from 19 to 101) in an effort to understand how residents talked about Sellafield in the context of other aspects of their personal and geographic narratives. As such, the interviews proceeded as oral histories of place, but with a focus on the events, experiences, and relations through which nuclearity came into view. They lasted approximately 90 min, usually taking place in residents' homes.

Interviewees were identified through contacts made at local events and subsequently through snowballing. I also interacted with a range of more-or-less formalised groups (Parish Councils, a local history club, Women's Institute, and church groups). I invited eight long-term residents (individually or as a couple) to take me on a tour of the village; I took photographs when we stopped to chat and used these as a prompt to recall our conversations at the end of the walk. I kept fieldnotes of my observations and encounters throughout. Coding of transcripts and fieldnotes centred on the links that were made between place and nuclearity (e.g., social relations, identity, risk, and concerns), but also extended to include absences and the nature of the connections being made (e.g., the banality or exceptionalism of nuclear infrastructure). In this way, my data analysis broadly followed the grounded theory approach, which emphasises ongoing analysis of data and inductive generation of theoretical concepts (Glaser & Strauss, 1967).

One of the challenges I encountered along the way was around the interpretation of absence and invisibility (when residents don't complain or see). In this regard, my analysis embodies a version of what anthropologist Alex Nading has characterised as "toxic worlding" (2020, p. 211), a phenomenological approach that entails ethical, material, and aesthetic efforts to understand toxicity, though as an always contingent encounter between beings, systems, and things.

## 4 | QUIESCENCE AND THE INVISIBILITY OF NUCLEAR INFRASTRUCTURE

For most people I spoke with, the nuclear presence in West Cumbria was viewed as ordinary, familiar, and part-and-parcel of life in Seascale (cf., Parkhill et al., 2010) – it faded into the background. The Sellafield complex was referred to by most, and particularly older, residents as "the factory", connecting to mundane associations and arguably normalising risk (cf., Parkhill et al., 2010). For the vast majority of residents, Sellafield had always been there and many had grown up with the nuclear industry. In this regard, the industrial landscape was often expressed as a source of continuity.

I love the landscape here [...] and to be honest, though I look out to Sellafield on the other side, I've never considered that to be a blot because I've always grown up with it. (Peter, 55–64, non-nuclear<sup>4</sup>)

My friend who has moved away, she got a picture of that [Sellafield] for her wedding present. She thought it was great – because for her it was her landscape ... (Sally, 25–54, non-nuclear)

A couple of recent arrivals to Seascale spoke of their initial awe and horror "at the monstrosity on the coast" (Amy, 55–64, non-nuclear), a visceral response to the site's architectural presence that faded with time. A few residents used monikers to denote particular nuclear structures. Tom (65+, nuclear), in referring to the cooling towers of Calder Hall, affectionately cited the "Toadstool Towers" of Norman Nicholson's (1972) poem "Windscale" – though the original is widely read as conveying the slow violence of environmental contamination (Branningan et al., 2019, p. 294). Kate (55–64, nuclear) referred to the disused Windscale Pile as "the giraffe". The architecture remained visible to residents but had – at the same time – been domesticated, its exceptionalism diminished.

The main (south) stretch of beach was well-used during the summer of 2008 (see Figure 1) and was far from being a barren and empty space. It was, however, almost exclusively used by local residents. Beach users were generally fully clothed and rarely stayed for long periods. In most cases visitors were in motion: walking (often with dogs), kite flying, surfing, fishing, playing rounders, and swimming.

There were also notable absences in accounts of the village. The northern stretch of the beach – approximately 1.5 kilometres long, linking Seascale to Sellafield, revealed a distinct pattern of dis-use and was rarely mentioned at all by residents. I offer here two illustrations. First, my village walk with Mary: she takes me some way along the path that leads alongside the beach and, ultimately, to Sellafield. As we near the railway footbridge (the point at which "the factory" starts to loom) she asks if I ever walk to Sellafield. She does not and is not keen to extend the walk in that direction. We cut down to the beach and walk along the shore back to the village. The second example relates to my participation in an annual beach clean that was attended by 30–40 people in the late summer.

I join a very small group cleaning towards the northern (Sellafield) end of the beach, with around 20–30 people focusing on the main beach. We are stunned by the volume and type of material waste in the dunes: it is big stuff and well beyond the capacities of a village clean to remove. We throw forward large pieces of plastic and netting, empty drums, furniture, the lid of a toolbox, broken containers. It is exhausting and we



FIGURE 1 The south beach, 4 August. C. Author, 2008

soon run out of sacks, returning in downbeat mood. By this time – two hours in – the beach is empty and the clean over. I ask around to see if anyone is coming back in the afternoon. The response from the organiser of the clean, that “no, we are not running it, the job has been done”, makes clear the invisible boundary of Seascale beach. (Notes, 7 June)

In terms of local politics, I attended monthly Seascale Parish Council meetings, anticipating that debate would centre on nuclear matters. Yet, at a time when nuclear waste was being discussed regionally and nationally, these parish discussions were almost entirely concerned with the social functioning of the village, beach cleanliness, and pockets of abandoned land linked to the selling-off of BNFL-owned properties. There was also a great deal of interest in gaining a blue flag certification – an indication of high environmental quality based on standard water quality measures – which was talked about as a vehicle for increasing visitors to, and use of, the beach.

In relation to the village itself, many, particularly older, residents foregrounded their early history (often the 1950s and 1960s) in Seascale. Several also talked at length about pre-nuclear incarnations of the village, with a number enthusiastically (and competitively) collecting postcards that depicted the village as a Victorian seaside resort. Indeed, of eight village walks with residents (in all cases they – or, if a couple, one partner – had worked at Sellafield), just one person chose to take me on a route that had a clear view of Sellafield and to point the site out for discussion. All other walks were focused on the main village, the buildings in the village, and the beach front. One couple went to great lengths to point out the Victorian (and pre-Victorian) features of the village (see [Figure 2](#)). At the time, I struggled to make sense of these absences.

In this section, then, I have considered how residents’ accounts can be read as constructing versions of quiescence: a community accepting of its exceptionalism. Yet there are also absences and particularities – stories not told, spaces not used (or used in very particular ways) – that point to a more complex and progressive experience of slow violence.

## 5 | SLOW VIOLENCE AND THE POLITICS OF NUCLEAR INVISIBILITY

It is important to set out initially that there were remarks, silences, and ambivalences in people’s talk that spoke directly to the material and bodily toxicity of nuclear contamination and its long aftermaths. As Jill (65+, non-nuclear) remarked: “I prefer not to think about it now because it makes me uneasy. And I think a lot of people my age, friends, feel the same way”. At the end of some interviews, when the recorder was off or when a partner was absent, an oblique reference to



FIGURE 2 Fred and Bette gleefully identified a marker of the Victorian past that I hadn't spotted. C. Author, 2008



FIGURE 3 Public access to the rear gate of Sellafield. C. Author, 2008

illness might be made, symptoms that couldn't easily be accounted for, but without pinpointing a cause. And, indeed, in the ordinary, but distinct, practices of beach use – for instance, most visitors would move away to the picnic tables above the beach to eat, and remarks such as: “it’s a walking and playing beach” (Tim, 55–64, nuclear, [Figure 1](#)) – we see the slow, barely visible, imprint of long-endured nuclearity and uncertainty.

Interviewees often referenced a series of historically distant media tropes and representations associated with Seascale – radioactive beaches (e.g., Norton-Taylor & Brown, [1983](#)), compromised bodies (e.g., Sunday Times, [1983](#)), and socio-economic ruination (e.g., Berry, [1983](#)) that continued to circulate and have force. There was an abiding sense of being culturally demonised and ostracised by the rest of the country, leading to feelings of confusion, anger, and frustration (cf., Fried & Eyles, [2011](#); Parkhill et al., [2014](#); Wynne et al., [2007](#)).

We've put up with more – all the hell, “children of the damned”, showing the beach – don't come to this beach [...]. We've been in these two miles of Sellafield and we've had hell at Seascale. (Mary, 65+, nuclear)

The history of incidents and scares at Sellafield also engendered a degree of precarity in hopes for the future; Seascale was forever tied to the fortunes and exceptionalism of Sellafield. As one farmer remarked:

The farming, trying to build up the village, the tourists. You just think you're getting somewhere, then a scare at Sellafield and that's everybody gone again. (Tony, 65+ non-nuclear)

The timeframes associated with nuclear materials, notably the protracted processes of decommissioning and waste movement and storage, projected the slow violence of nuclear dependency and socio-economic fragility into the distant future. For instance, when asked if she would like to see an end to the nuclear industry in West Cumbria, Liz (non-nuclear) remarked: “[T]here can't be an end to it – it's going to be here for that long, 100s and 1000s of years”.

Others articulated forms of cultural adaptation to nuclearity, and the kinds of place-specific threats it posed – a form of stoic subjectivity, similar to the mutant subjectivity discussed by Stawkowski (2016).

I don't think anyone's ever surprised anymore when there's an incident at Sellafield; a small leak or a worker getting contaminated. I think people take it as routine now, almost. (Ruth, 65+, non-nuclear)

Persistent references to “the factory” and “factory houses” underscored a long-standing and deliberate political history of nuclear invisibility (cf., Hecht, 2012). For Zonabend, terms such as “up there”, “the thing”, or “it” were linked to a desire to place nuclear infrastructures at a certain social distance (1993, p. 29). However, the discursive rendering of Sellafield as ordinary, like any other factory, was not an active socio-psychological silencing or normalising of risk (Parkhill et al., 2010). Rather, it reproduced dominant and long-established organisational practices that sustained banality (Alexander, 2020; Hecht, 2012; Kuchinskaya, 2013) and obscured the nuclear exceptionalism (cf., Agamben, 2005) that inflected life in Seascale. “The factory” shored up a line of continuity with the site's pre-Windscale history as a munitions factory (see Nicholson, 1949) and indeed it is the term used in early accounts of the impact of Windscale on the social life of the district (Jay, 1954). Sellafield employees have always signed the Official Secrets Act and the post-war atmosphere of intense secrecy around the business of Sellafield was touched on by many older residents:

Nobody talked, not even to their wives. As far as wives were concerned they [husbands] went to the factory – but what happened there was a closed book, you got on with your life. (Henry, 65+, nuclear)

The secrecy that underpinned use of “the factory” in those early years continued to modulate social interactions in the village in the present. There was still caution in speaking about the plant, revealed in humorous retorts such as: “Now I'll have to shoot you” (Jane, 25–54, nuclear), “I would be shot if I did that” (Tom, 65+, nuclear), which at the same time acknowledge the exceptionalism of these institutionally defined norms of social interaction and continuous observation.

“The factory” also remained a constant, against a backdrop of structured corporate ephemerality (Hecht, 2018) with repeated changes in the ownership relations of Sellafield. Windscale was famously renamed Sellafield in 1981 – part of a business reorganisation but also an effort to banish memories of controversy and public ire (Walker, 2007). It is a mode of continual institutional change that ties in with what Nixon (2011) has described as acts of corporate necromancy, so that the names and relations indelibly associated with disaster evaporate – offering a rationale for disclaiming responsibility for contamination events, their legacies, and community demands for ongoing relations of care, committed by a corporation that no longer exists. As one member of Sellafield staff pointed out “times have changed: the community has to stand on its own feet – they cannot rely on grandfather BNFL” (Colin, 25–54, nuclear).

Indeed, the ways in which residents talked about Sellafield and its presence as mundane also cited its economic prominence in the region, a set of structural relations manifest in the “ardent support” for Sellafield from local authorities (Cumbria County Council, 2013) and in media coverage. As one journalist remarked to me:

The reason [we are] positive towards Sellafield – it's because all our readers work there and are certainly positive to any idea of Sellafield 2 or burying nuclear waste. I mean we're certainly critical of Sellafield but the general ethos is that it's a good thing for the area, a good industry to have and we're proud of it. (Jeff, 25–54, non-nuclear)



The overt presence of systems of security and environmental monitoring also normalised a degree of intrusion and surveillance in the village – one interviewee, for instance, likened the regularity of CNC cars passing through the village to city buses – but also constituted a geographic presence that affected residents (Bickerstaff & Simmons, 2009), engendering feelings of unease and discomfort. So, while the necessity and banality of security and monitoring were discursively recounted by people, when I explored this further there was invariably ambivalence around these practices that momentarily made visible the nuclearity of everyday life (cf., Parkhill et al., 2010).

[The CNC are] a reminder of where you are. (Steve, 55–64, nuclear)

You know when people come on holiday and see a machine<sup>5</sup> [for beach monitoring] like that crawling along the beach they do think ... It is slowly dying a death. (Tony, 65+, non-nuclear)

In this regard, I suggest that certain nuclear infrastructures were “curated” in such a way as to render parts of Seascale, close to Sellafield, impenetrable. There were several occasions where I formed the impression that I was being watched, recorded, or monitored (whether, in fact, I was is impossible to know). To illustrate this point, I turn to a personal encounter with the CNC during a walk northwards from Seascale, along a publicly accessible stretch of the coast path that ultimately takes you to the rear gate of Sellafield (Figure 3).

Looming large are the iconic views of the AGR [Advanced Gas Reactor] and behind that the remaining Windscale pile. No-one is in sight, though a number of CNC cars pass back and forth through the entrance. It is quiet beyond the sound of dogs barking [though I can't see any dogs]. On this occasion, a returning CNC car pulls up on the verge about 200 metres from me and an officer gets out [...]. The officer, no gun apparent, greets me: “Is there anything in particular that you are interested in?” I mention that I am staying in Seascale [...]. He seeks to place me, noting that he also lives in Seascale, and asks where I am living. I [am required to] offer some details and, in passing, mention a recent Sellafield site visit. This information transforms his demeanour, and he asks nothing further. Security clearances, and relevant personal information, can be checked. He is content to chat for a few minutes. When I ask why he came over, he repeats the familiar mantra that: “if we see people around, we like to know who they are and why they are here”. Aware of the visible camera protruding from my coat pocket, I ask about taking pictures. His response: “legally, we can't stop you, but we do discourage it. Of course, we can stop you taking pictures of things that you shouldn't” [but he does not elaborate]. (Notes, 22 July)

So, here we see practices of policing space and conduct (what you can say, where you can go, and what you can see) through the affective presences of infrastructures that make people all too visible and vulnerable. It is worth adding that, following this encounter with the CNC officer, I did not repeat the walk – though this was not, at the time, a conscious decision.

A similar configuration of things, bodies, and affects inflected disuse of the north beach. The radioactive toxicity of the beach was certainly never raised in conversations with residents, though technical reports in 2008 (and now) record a higher number of radioactive particles found on this stretch of beach (Environment Agency, 2021). One notable feature of the walk along this section of the beach (Figure 4) is the dramatic increase in the volume of long-term “big” waste. “There were also a number of aged animal carcasses that had been washed up and never removed: material that is unpleasant and has an obvious capacity to disturb and deter” (Notes, 17 August).

Conversations with residents and parish councillors highlighted ambiguities around ownership of the foreshore and there were no physical markers or signs to indicate private land (a large section of the foreshore was indeed purchased by BNFL in 1987; Ramsden, 1998). Here, then, we see a “labor of confusion” (Auyero and Swistun, (2008, p. 371) performed by the nuclear industry, rendering the status of the beach (ownership and toxicity) opaque.

By the point I reached the [river] Calder, I was completely preoccupied by Sellafield: an unmistakable feeling of trespassing – that I should not be there. A low hum drifts down from the site. The perimeter fence is about 20 metres away. I sense a CCTV camera moving on top of a building (am I imagining cameras?). I do not linger. (Notes, 17 August)

The looming presence of Sellafield and the perimeter, the discards of ordinary waste, and the ambiguity around public access conjure the spectre of nuclearity, engendering a powerful affect: an unmistakable feeling that you should not be there and that you are being watched.



FIGURE 4 The north beach with animal carcass in the foreground. C. Author, 2008

In this section I have sought to analyse the ways in which nuclear infrastructures generated affects, sensibilities, and ways of being that can, and should, be read as examples of drawn-out harms – forms of suffering that stand apart from narratives of risk precisely because they are slow, transient, or partially expressed. These encounters are, as Ehlers and Kruper (2019) argue, actively constructed, and solidified, through institutional practices. But what I want to do in the next section is challenge the view that residents are dominated by these structural relations; instead, I point to forms of pragmatic (or slow) resistance to toxic identities.

## 6 | PRAGMATIC RESISTANCE: CHALLENGING THE GEOGRAPHY OF TOXICITY

My interest in this section is to explore what I term the politics of pragmatic resistance – acts and discourses that problematise dominant ideas about nuclear communities and the wider political economy that locks communities into a servile and dependent relationship with the nuclear industry (Wynne et al., 2007, p. 4). It captures how residents' encounters with nuclear infrastructure transgress neat distinctions between resistance and quiescence.

First, addressing the socio-cultural framing of toxic places, it is worth observing that beach cleans, although in no sense unique to Seascale, were a relatively common practice of care – regularly organised by the Parish Council and many residents also actively engaged in litter picking. There was a sense of pride in the cleanliness of the beach and its water quality that perhaps offered residents a sense of agency. Indeed, there was a defiance and assertiveness in how residents talked about their continued use of the beach.

The emphasis, for some residents, on incarnations or aspects of the village unrelated to Sellafield can likewise be read as an expression of enduring that rejects an externally imposed toxic identity and instead constructs an alternative or counter narrative of place. For instance, during a walk along the south beach, Mary talks at length about the popularity of the beach up until the 1970s – lamenting the effects of vandalism and changing holiday tastes. It felt like a constructed performance [elsewhere she acknowledges the impacts of Sellafield] that she had delivered before to challenge a particular (external) narrative about Seascale.

Some were vocal in expressing their support for local food (producers), almost as a defiant assertion of social and environmental normality, though often expressed with a touch of ambivalence. Mary talked about the “fantastic mushrooms, the size of tea-cakes [because of the steam]” she used to gather on-site, though acknowledged: “I’m sure we shouldn’t

have taken them out of the factory”. Jessica (35–54, non-nuclear) references eating local mussels, in demonstration of her confidence in the beach (cf., Stawkowski, 2016). “The beach doesn’t bother me. We’ve eaten mussels off the beach – perhaps we shouldn’t have but we do”. When I visit a couple for an evening meal, Diane (65+, non-nuclear) mentioned that the fish and cream are local and asks me if that is ok. Several other interviewees mention, when I visit, that the milk in my tea is local and watch for my reaction.

A striking number of residents took the view that the only way to avoid external opprobrium regarding Seascale's nuclearity, when meeting people for the first time, was to hide their closeness to Sellafield by taking care in describing or altering details of where they lived – by constructing absences. The following exchange with a couple who had spent most of their married life in Seascale offers a typical example:

Charlotte: I think it makes people feel threatened from the outside, not by what has happened but people coming and pointing a finger, giving the place a bad name [...] so you feel embarrassed to say you come from Seascale because you know you’re going to get a load of flak about glowing in the dark, etc. [laughs]

David: Yeah, furious about that.

Charlotte: Often, when we used to go away, when people asked us where we lived – we often used to say Whitehaven, so as not to say Seascale, because otherwise you never got a break from it.

We went on holiday afterwards [the beach incident] – [other walkers] asked where we were from, we didn’t say Seascale, we said the Lake District. And they said: “Anywhere near that place”. “What place”? “That nuclear place”. We said “yes”. They actually moved out of the hotel. Twice that happened. From then on, we didn’t say where we were from. We didn’t want any hassle. (Charlotte, 55–64, non-nuclear; David, 55–64, nuclear)

While these remarks do touch on the progressive impacts of being associated with stigmatised infrastructure (Gregory et al., 1996), we need to be cautious in an interpretation of risk denial. I would suggest that these discursive practices offer ways of rejecting, and avoiding, an imposed identity of toxic suffering (cf., Stawkowski, 2016).

Many interviewees were also reflexive about the political-economic relations of regional dependency, and their role in normalising the slow violence of nuclearity, historically and well into the future. A few were explicitly critical of Sellafield in relation to nuclear risks, noting that the intrusive infrastructures of security were there to protect nuclear materials and not the population. As one resident put it: “It’s what Sellafield wants and needs that’s important isn’t it”?! (Ruth, non-nuclear). A small number expressed cynicism about radioactive thresholds set for bodies and the environment and the determination of safety.

I must admit, I always used to think we could be getting used as human guinea pigs in Seascale because you don’t know what you’re breathing in. I mean, I have this suspicion of Sellafield. I mean, they always used to put out this statement, every time there’s a leak or anything – “oh it’s well within safe limits”. (John, 65+, non-nuclear)

The focus of the parish council's debates that summer on beach cleanliness and derelict land arguably presented a medium for raising concerns about the responsibilities and care performed by Sellafield and other political actors. For instance, the Parish Council discussed, and minuted, that after repeatedly requesting beach cleaning, “the NDA say that they do not have the financial resource to support this” (confirmed in Parish Council meeting 10 August), a response that was taken as a clear signal of institutional abandonment.

In discussing the socio-economic damage wrought by the village's association with nuclear contamination, several residents observed the (past) tendency, in times of crisis, for Sellafield to remain silent – to lack visibility. The result was that Seascale, even now, often bore the brunt of (inter)national scrutiny and disquiet. Its name and identity were synonymous with nuclear toxicity.

Anything that happens at Sellafield – we get the backlash every single time. (Tony, 65+, non-nuclear)

It just has the negative image – it looks like they have left Seascale to face the music and fend for itself. (Peter, 55–64, non-nuclear)

Others, including ex-workers, noted the institutional sanitising of the historical narrative around Sellafield and nuclearity. In the early days of its Visitor Centre, Sellafield had briefly used a “Dad’s Army”<sup>6</sup> of retired scientific staff as guides, and the demise of these roles was linked to image management and a desire to contain the memory, and visibility, of certain nuclear incidents.

[Retired workers h]ad been in the ’57 fire and done their bit, and people were interested – you’re still alive and you’ve pumped a reactor. But that’s not the impression BNFL wanted to leave, everything’s got to be smooth and nice and lovely – we don’t want those anecdotes, so Dad’s Army got the boot. (Graham, 65+, nuclear)

Sellafield has long positioned itself as the “backbone of the community in West Cumbria” (Sellafield Ltd, 2013, p. 8) – and the terms and conditions of employment support this, allowing staff “to train and volunteer (as a school governor, as a councillor, as STEM ambassadors to spend time in local schools, emergency service volunteers and so on) by giving you time off” (Sarah, 25–54, nuclear). This capture of aspects of the cultural, economic, and political life of the region was not lost on residents; as one man said: “they run everything” (Ron, 65+, non-nuclear).

The nuclear industry in West Cumbria has behaved like a cuckoo in a nest – it has seen off all opposition and it has made the whole area dependent on it. Virtually everybody depends on Sellafield indirectly or directly, so nobody is going to shoot themselves in the foot. It’s as simple as that. (Ted, 55–64; non-nuclear)

Sellafield, and the corporate interests that have managed it over time, has for many years, and particularly in the aftermath of the rising concerns about contamination in the 1980s, awarded significant funds to a range of local community projects (Reed, 2020) which, as most acknowledged, has had a positive impact but also created a significant level of dependency (Wynne et al., 2007).

It was quite paternalistic, and you’ve got to remember BNFL made its business paternalistic. It would buy a lot of the town centre – Whitehaven has a beautiful Georgian town centre; a lot of that town centre was rebuilt by BNFL in the 70s. BNFL has pumped very large amounts of money into the town, sponsored the rugby league, etc. (Trevor, 55–64, nuclear)

In invoking an ethos of contributing to the local area, what one resident referred to as “knitting itself into the community” (Paul, 55–64, nuclear), a delimited set of care relations are performed (Auyero & Swistun, 2007; Simmons, 2003). It was a view of dependency that was sufficiently intense for some to comment (often wryly) that political decisions had been made in the past (and in the present) to foster regional isolation. Issues of land ownership were also identified as a largely invisible mode of spatial and economic domination that sustained infrastructural invisibility. Several interviewees mentioned a green buffer of farmland around the complex that was owned by Sellafield (or the government) which enabled strict control of access well beyond the perimeter. These economic-legal relations were relayed as covert, or at the very least ambiguous, and for the most part farmers continued as tenants on land, paying peppercorn rents, and thus willing to accept the decisions and requirements (e.g., access for monitoring and policing) of Sellafield. The following extract comes from one (ex-)farmer.

The farm is now the security part of BNFL and it was surrounded by this enormous great big field called the cow pasture [...] and of course it quietly disappeared behind fences, you know. We were really very annoyed about that at the time because they were spoiling our spot. And, of course, they then fenced off the river and we couldn’t get down to the river very easily. It’s all become a green belt – I think there is a radius around the whole factory that cannot be built upon which is owned by, I suppose, the government. (Jo, 25–54, non-nuclear)

In this final section, I have argued that the banality or invisibility of nuclear infrastructure in narratives of Seascale does not amount to passive acceptance or risk denial. Rather, these ways of (not) talking about or actively engaging with nuclearity express agency and touch on the political, economic, and cultural relations that create and sustain slow violence.

## 7 | CONCLUSIONS

This paper has taken as its starting point the quiescence attributed to communities that live on with nuclear infrastructure, which has primarily been interpreted as embodying psychosocial denial or the normalisation of risk, in a context of political and economic dependency on a dominant industry (Blowers, 2010; Wynne et al., 2007). It is a framing of subjective experience which positions residents as, to a degree, complicit in their toxic experience (Graeter, 2020). I have sought to offer a different reading of quiescence and argued that the banality (e.g., references to “the factory”, routine use of the beach) or invisibility (e.g., not “seeing” Sellafield, disuse of the beach close to Sellafield) of key sites or infrastructure exemplify the protracted effects of slow violence. Key issues, here, were ambivalences around health, the stigmatisation of place and people, and the capacities of nuclear presences to affect – to render people visible, to normalise exceptionalism, and to transform the use of space. In doing so, I stress the institutional regimes and practices that are actively implicated in configuring slow violence and its invisibility: from systems of operational securitisation and environmental monitoring, opaque land ownership relations, and active neglect of certain spaces, through to the history of institutional ephemerality associated with the nuclear industry in West Cumbria.

Following on, I suggest that rather than adopting positions of resignation and risk denial, residents, through discourse and encounters with nuclear infrastructure, engaged in modes of pragmatic resistance – presenting partial and situated critiques of the framing of their community as damaged and of the relations of care performed by the nuclear industry, while often simultaneously alluding to slow violence and/or expressing support for Sellafield. Practices of beach use, narratives of place that exclude the nuclear industry, altering details about where one lives, all functioned to contest and discount, more-or-less explicitly, representations of a toxic place identity. There were also, often indirect, critiques of the industry, a legacy of constructed dependency and a failure of care, historically and projected into the longer term. These residents were reflexive about the political economic contexts from which overt critique becomes near impossible (Kuchinskaya, 2013; Stawkowski, 2016).

These findings raise a couple of important issues for future research on nuclear communities. First, in building on existing studies that have pointed to the politics of infrastructural and toxic in/visibility (Alexander, 2020; Auyero & Swistun, 2008; Davies, 2019; Kuchinskaya, 2013), I have highlighted the importance of research that more fully explores the structural and geographical relations that configure slow violence and sustain nuclear invisibility, and how these relations are generative of particular “pragmatic” and defiant political identities that refute the idea of toxic victimhood (cf., Stawkowski, 2016). Attending to forms of pragmatic resistance does, for instance, signal new ways of talking about quiescence, acceptance, and, critically, the unjust relations between nuclear economies, infrastructures, and places (Graeter, 2020) in situations of political-economic domination. It also raises questions about the primary modes of toxic resistance validated in our accounts of environmental injustice, pointing to a need to explore and recognise more ambivalent, partial and domestic critiques and expressions of activism (Lora-Wainwright, 2017).

The paper also underlines the challenges surrounding the representation and interpretation of slow violence – harms that will often be invisible to those exposed (Nixon, 2011; Vorbrugg, 2019). Methodologically, then, there is a role for research that foregrounds the complex geographies and histories of living on with nuclear infrastructures: to address the legacies of events long past as well as nuclear planning, policy, and infrastructure projects rolling out into the far future, to better grasp the changing political economies of nuclear industries and the consequences for slow violence, endurance, and critique. Multi-temporal (and generational) ethnographies could, in this context, offer an opportunity to work through these drawn-out timescapes, the invisibilities and affects of slow violence (also Vorbrugg, 2019), and the identities that are forged through these nuclear geographies. The timeframes of nuclear matter certainly demand research that knits together the past with the future in different ways: in the case of West Cumbria, we see the overlaying of several infrastructure-related projections – for site decommissioning, a renaissance in nuclear power, and the prospect of a permanent Geological Disposal Facility (GDF) – the effects of which are rarely analysed together.

I hope to have also offered, if indirectly, a case for temporal discontinuity in the process of researching nuclear communities and slow violence. I have returned to data collected in 2008 and brought it into conversation with more recent academic and policy debates; it is these detours that have enabled me to think with my data in ways that challenge concepts of risk denial and suppressed fear without diminishing the threat of nuclear infrastructures. Such slower, and retrospective, endeavours are arguably generative of toxic worldings that more fully trouble our own “contaminated” identities as researchers of nuclear places and people (Dawney, 2019).

In policy terms, communities with existing nuclear infrastructure are typically viewed as supportive of these presences (Blowers, 2010). In the UK, planning for future infrastructure (notably a GDF) has been linked to significant investment funding for the community (or communities) that might volunteer to host a facility, and a test of public support

designed to determine a final view from the community – e.g., through a local referendum or statistically representative polling (BEIS, 2018). I argue, following Davies, (2019), that such modes of engagement, which invoke the language of community empowerment, will fail to recognise the partial and pragmatic voices of critique discussed here or the long histories, and structural causes, of slow violence on which they are founded (Bickerstaff, 2012). Rather, these policy mechanisms construct and reinforce the idea of quiescence. And here, this paper argues that policy instruments aimed at securing social justice in infrastructure planning will need to more fully, and openly, grapple with questions around the socio-political relations of care (of which investment funding may be a part) that might sustain a “good life” for places that have very long histories, and even longer futures, with toxicity.

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## DATA AVAILABILITY STATEMENT

Author elects to not share data.

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## ENDNOTES

- <sup>1</sup> Cumbria is a two-tier local authority. The county council tier provides the majority of public services, and is responsible for strategic planning, across the region. District or borough councils cover a small area and provide local services. Copeland and Allerdale borough councils make up the administrative area of West Cumbria.
- <sup>2</sup> Nuclear Waste Services is a public organisation, and part of the NDA group, established by government with responsibility for planning and delivering geological disposal in the UK. Prior to 2022 this function was held by Radioactive Waste Management.
- <sup>3</sup> British Nuclear Fuels Limited (BNFL) – a nuclear energy and fuels company owned by the UK government – began a restructuring process in 2005. What followed was the transfer of national facilities – and their clean-up liabilities – from BNFL to the Nuclear Decommissioning Authority (NDA), and the selling-off of BNFL’s subsidiaries. In 2010 it was abolished.
- <sup>4</sup> All names have been replaced by pseudonyms. Details are also given of age and whether participants did work, or had worked, at Sellafield (nuclear) or not (non-nuclear).
- <sup>5</sup> A reference to beach monitoring equipment, visible on Seascale beach for a three-day period in early May. The tractor, with detection equipment at ground level, drills into the sand to collect samples to check for radioactive particles (see Environment Agency, 2021).
- <sup>6</sup> Refers to a sitcom about the British Home Guard during the Second World War, broadcast from 1968 to 1977. The Home Guard consisted of volunteers otherwise ineligible for military service, predominantly due to age.

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