

An Employee Was Fatally Injured

by

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Chapter 1

At Warton & Rame Pharmaceuticals everyone hears it – not a sharp report, more like a very firm thud as if something has punched into the ground with great and sudden force. A cloud immediately rises swiftly into the cold blue sky – thin near the base with a black centre. No flame.

In Production Building B, the operators stop work. The sound they hear is solid and close by – near but not within the building itself. The shock wave passes. It is all around and then in the soles of their boots. On the east wall of the building a line of four windows shatter, showering glass onto the production floor. There is shouting and then the alarm screams.

The supervisor, Padraic Creen, is in his office – a small room cut off from the main work floor by a heavy fire door and a short corridor. He is standing beside the office desk leaning over a colour-coded building plan. Using a highlighter, Creen marks the air-duct channels on the plan – for a meeting later with the engineers. He is engrossed when suddenly, thump – the office door rattles and there's a shudder in the ground. It's the other end of the building, he realises. Outside? Scrambling around his desk, he knocks over a chair. Grabbing for his helmet, he runs.

Chapter 2

The nameplate on the door says Dr Peter Holland, Director of Technical Services. Nessa Mullane knocks once and enters; she is expected. Holland is on the phone but he raises his eyes towards her in welcome. Nessa goes to one of the comfortable chairs in front of his desk. She unbuttons her lab coat as she sits, crossing her legs.

Holland's tone is polite and precise. Nessa gleans that he is talking about *Miripsal*, the drug manufactured in Building B where the explosion occurred. When he finally puts down the phone, he sighs and explains, 'A journalist. Human Resources have me fielding the technical questions about *Miripsal* now that we've become infamous. Has to be done, I suppose.'

'Is there any news about the operator?' Nessa asks.

'Yes, but it's not good. A head injury, a bad one. Kieran Keating is his name. Do you know him?'

Nessa shakes her head.

'Been with us since '94. Always worked in the same area – waste treatment in Building B. Married with two children. It seems as if he was hit on the side of the head by a piece of metal or something – that's what they think anyhow.'

Putting on his glasses Holland reaches across the table. Beside a framed picture of his wife and son, there's a yellow corporate folder. He retrieves this and examines it. Nessa waits. Outside a fire engine moves slowly along the road heading towards the main gate of the plant. Nessa reckons that it is one of the neighbouring plant's engines that has stayed on as a precaution.

Holland hands her the folder. 'This is the process information for *Miripsal*,' he explains.

'I need someone to look through it urgently. I know you're tied up with the Pilot Plant but I'll arrange for that to be put on hold for a couple of days.'

Nessa takes the folder. It is titled *Miripsal – Manufacturing Process Description*.

Holland continues, 'We don't know what happened. We have some ideas but we're not certain of anything. You'll see from the folder that the waste treatment takes place in a tank called Vessel 4 – that's the one that exploded. It's at the back of Building B.'

'Down near the Bio-plant, right?'

'That's the area.' Holland leans into his desk. 'It's a standard waste treatment that Keating was doing – *sodium hypochlorite* is added to kill off the bad smell. Takes two hours. Normally we see a small temperature increase and some gas evolution. But that's all.'

Nessa nods. Examining the folder she thinks through the chemistry – noxious smell, probably something sulphurous; bleach used as a strong oxidiser to kill the odour.

'Kieran Keating was an experienced operator. Worked on the same thing for years. Never a problem. Never any problems with this particular waste treatment either. Yet the vessel burst open on one side. It's a steel vessel. Maybe have a look at the damage for yourself before it gets dark.'

Nessa nods again and Holland watches her, removing his glasses.

'I can't say I'm familiar with Building B,' she offers tentatively. 'I was there once when I joined, on the plant tour. But that's it.'

'That's not a problem. Building B is one of those areas that's been there a long time, working away perfectly fine. It makes a lot of money effortlessly – the only problem is the bloody smell.' He raises his eyebrows. 'Barry McSweeney asked specifically that we put someone on this, and I thought of you. We need someone who will be thorough but quick.'

Nessa nods. 'I'll get samples of the chemicals and the waste streams immediately. Best to start there.'

‘Good. But take a look at the chemistry too. See if anything jumps out. Most of the information you’ll need is in the folder I’ve just given you. There’s more data and background in the library in the master file. Check that too.’

Nessa opens her notepad, placing it over the *Miripsal* folder on her lap. She jots down some notes.

‘In terms of where things are now, the Health and Safety Inspectorate are already on site and they’ll be conducting an investigation of their own. We’re obviously co-operating fully.’ Holland stands and comes around to sit on the front edge of his desk. ‘However McSweeney is concerned we might get held up over this.’

Nessa looks up. ‘Meaning?’

‘Until someone comes up with an explanation as to what happened, we’re prevented from doing any further waste treatment in Building B. We’re backed up with waste over there as it is. So, apart at all from the safety issues, there’s an onus on us to sort this out sooner rather than later.’

‘Production won’t be stopping?’

‘No,’ says Holland shaking his head. ‘Production will continue but not waste treatment. In the interim we’re looking at storing the untreated waste in the spare tanks over near Building C.’

Nessa makes another note then asks, ‘Should I speak to anyone down there? Or do I keep this just to the chemistry.’

Holland thinks. ‘Have a word with the supervisor if you wish. Unfortunately, the HSI are going to be sniffing around too so I’m not sure how much room you’ll have. But I’ll speak with Browne and get you clearance. Mainly though I want you to concentrate on the

chemistry. Right now the bottom line is that we need to be able to say if the waste down there is normal or not. That's the key question, in my opinion.'

Nessa nods again.

'And, obviously, if you come across anything odd, get back to me right away. Is that clear?'

'Of course.'

Nessa reviews her notes and then closes the pad.

'Okay?'

'Seems fine. First off, I'll probably go up and take a look at the damage. I can arrange for samples at the same time.' She stands and tucks the note pad and folder under her arm. They walk together to the office door.

'My own feeling Nessa is that there was some sort of contamination down there. I just can't see any other way around it. When things work fine for years and then there's a sudden problem, it's usually something like that. Or else... someone made a mistake.'

Nessa grimaces. 'Is there an indication of that?'

'Not so far, but it's a possibility. So keep your eyes open.'

Chapter 3

Blood soaks into the sleeves of Creen's work jacket and the shirt underneath – Keating's blood. Staring at it, the supervisor abruptly turns away from the explosion scene and walks towards the corner of Building B. At any moment, he expects to hear someone call his name or order him back, but no one does. Rounding the corner and passing from sight, he hurries along the side of the huge production building. Pressing his hand firmly to his trousers waistline, he keeps the operating log in place. He runs, stops, and runs again. Seeing the solvent storage depot, he quickly sidles in behind a row of tanks and sinks to his knees. He looks at the operator's blood on his hands.

Mark Whelan, the environmental director, is on his way back to the explosion site with a camera. As he passes beside the storage depot, Whelan hears a moaning sound and stops. He hears the sound again and goes to check behind the row of tanks. He sees booted feet sprawled on the ground. Negotiating his way through, he recognises Creen, the supervisor. His blue helmet has fallen from his head and is upturned; his eyes are closed and there is a huge bloodstain on one arm from the shoulder down to the cuff. Whelan stoops beside the dazed supervisor and shakes him.

'Are you injured?' he asks urgently. There is no response. 'Are you hurt? Look at me, are you hurt?'

The supervisor shakes his head and mumbles, 'No.'

Whelan isn't sure. 'Stay here,' he orders. 'I'll get a blanket. Don't move, okay? I'll be

back.’

Whelan leaves quickly. Immediately, the supervisor struggles to his feet. He slips out between the tanks, but trips immediately on a ground-level pipe. Getting to his feet again, he sees a side door into Building B. Stumbling over to this, he goes in.

Production Building B is cavernous inside and brightly lit. Because it is still under the evacuation order it is empty of personnel and eerily quiet. Walking towards the main stairwell, Creen gets a strange smell in the air – unusually pleasant. It is *ethyl acetate*, one of the chemicals used in the building. He realises that because of the emergency evacuation, some of the equipment has been left unattended.

He runs to the stairwell and climbs up, jumping two steps at a time. Floor 1 is where the main production work of the building takes place. It is composed of a long wide aisle down the centre, with reactor vessels arranged neatly on each side. Arriving at reactor vessel RV-2, he goes immediately to the LCD control panel – the smell of *ethyl acetate* is now very strong. He keys a command into the panel and immediately hears a shut-off valve activating.

He moves on to the next reaction vessel – RV-3 – and checks its control panel. He decides to shut it down too. Moving quickly, he decides that he will shut everything down: who knows how long the evacuation will last. He goes from reactor vessel to reactor vessel and is so engrossed that he doesn’t hear Browne, the Production Director, and Whelan from Environment approaching.

‘Padraic,’ calls Browne gently.

Creen swings around and sees his boss. Browne moves closer and puts an arm up as if to place it across the supervisor’s shoulders. Beside Browne, Whelan is holding a folded grey blanket. Creen is surprised, but then he suddenly lunges forward and grabs his boss by the

knot of his tie. Browne's white helmet falls to the ground, making a strange popping sound as it bounces on the concrete floor. Creen pulls the shocked manager roughly towards him.

'Why the fuck don't you ever listen? Well? Why don't you?'

He lifts Browne onto his tiptoes and then releases him with a push backwards. Browne stumbles and almost falls. Regaining his balance, he stares at the supervisor.

'Well,' screams Creen, 'why don't you? Why don't you ever fuckin' listen?'

Chapter 4

Bright orange barrier tape proclaiming the word 'Toxic' is stretched in a generous arc around the site of the explosion. A nearby sign says *Waste Treatment Area – Authorised Personnel Only*. Nessa steps over the tape. Ahead, surrounding the waste-treatment area, is a low concrete wall known as a 'bund' – a containment dyke in case of a major leak from any of the waste vessels.

Straddling the wall, Nessa climbs in. Seagulls screech at her and fly away. Directly ahead is the nearest of the waste treatment units – Vessel 1. It is tall, about twice her height, and cylindrical in shape; it is old with brown stains and dents down its side.

There is a narrow path and Nessa follows this. She sees Vessel 4 immediately, a few metres ahead. It is also cylindrical but smaller and fatter than Vessel 1 – more robust and stout in appearance. It leans oddly to one side.

Walking around Vessel 4, she immediately sees why. The explosion shifted the vessel so that it no longer sits evenly on its steel supports.

She examines the long cleft in the damaged tank. It stretches from the base to about midway up the curved wall; it is a narrow fissure, hardly wide enough to take a hand turned sideways.

Nessa goes to a small platform that is connected to a network of narrow gangways. The network is raised half a metre above the ground, allowing the working operator to travel easily between all the waste-treatment vessels without having to worry about the web of pipes underneath at ground level. Climbing the steps she goes to the control panel for Vessel 4; it is mounted on a steel upright adjacent to the damaged tank. There is a large crack in the panel's LCD screen.

Looking around, she sees other tall cylindrical tanks. Further away, outside the bund wall, there is a pathway dividing the Waste Treatment Area from the rear wall of Building B. Here and there, between the gaps in the tanks, she sees the distant harbour water. With dusk approaching, it looks grey and cold.

From the gangway, she tries to reach over to see into the damaged vessel, but it is too dark inside. Sliding between the railings, she drops down onto the ground once more. Immediately she notices that the layer of gravel normally present around the bund is missing; there is no gravel anywhere.

Squatting, she examines the underside of the damaged tank. A section of jagged pipe juts out from a T-shaped interconnection. It is medium bore, about three centimetres in diameter, and there are hairline fractures along its length. The second arm of the T-joint is also damaged – twisted out of shape. The third is intact.

Withdrawing, she stands and brushes the knees of her jeans. She wipes her hands with a tissue and thinks of her own brief encounter with an explosion – in the second year of her Ph.D. A flask containing a mixture of palladium and charcoal blew up beside her. Palladium and charcoal together are a known risk, and she had taken the precaution of putting a blast shield around the flask. The shield saved her from an injury but even so she got a bad fright. But this explosion in Vessel 4 is in another league entirely. Even if the operator hadn't been badly injured by debris, proximity alone would've left him severely traumatised; it's doubtful he could have ever worked again at the plant.

Looking around Nessa sees pipes overhead. They travel to the rear wall of Building B where there is a collection of small tanks. She climbs out of the bund to check these. As she does, she sees a large irregular mark on the concrete ground beneath her. It is a bloodstain. She stares for a moment and then moves quickly away.

One of the small tanks is for storing bleach. Another has a sign on it saying *Hydrochloric*

Acid; a third appears to be unused. Nessa makes a note of the tanks and their identity codes, then returns to the gangway. As she does the outside floodlighting for Building B suddenly comes on, bathing the area in bright light.

She walks down the gangway to the furthest end of the bund. Beside Vessel 8, on a rusted steel upright, there is graffiti – *Keano, Keano* – referring to the local soccer hero. She looks around more and then down: there is a mound of stones and pebbles up against the low wall. Climbing down to take a look, she figures it must be the gravel from the bund area – probably swept to one side when the damaged tank disgorged its contents.

She digs her boot into the mound and displaces some of the stones. Something glints and she stoops for a closer look. It is a piece of shiny steel.

Putting on gloves, she rakes her hand around and through the gravel. She finds more metal pieces. Taking them over to the bund wall she spreads them out under the good light. There are eight fragments in total and they are all roughly similar in size – no bigger than a €2 coin. The odd thing is they are all pitted on one side.

But there is something even stranger. Examining each fragment she sees that on the pitted side the edges are smoothed down as if they were finely polished; they feel as polished as marble.

She returns to the mound of gravel to see if can find more.