

FISSION

written by

Jonathan Golob

The world's most dangerous technology. A disaster. The man in charge visits -- outside of space and time -- three people who figured out how to harness it safely. How?

(c) 2026 Jonathan Golob

1 INT. FUKUSHIMA DAIICHI - UNITS 1 & 2 CENTRAL CONTROL ROOM 1
- MARCH 11, 2011 - DAY

A crisp, clean room. Green and blue in the most 1970s-futurism sort of way. Meticulous. Quiet. The walls are lined with green enameled steel panels - dials, gauges, indicator lights, all dark and steady. The panels beneath with controls, valves, switches - both substantive and deliberate. In the center of the room, a beige T-shaped desk with a "modern" computer. 1990s modern. Not contemporary.

MASAO YOSHIDA is the plant superintendent of Fukushima Daiichi. Born in Osaka, 1955. Nuclear engineer, Tokyo Institute of Technology. Six feet tall. Square-jawed. A hard-drinking, Chandler-quoting kendo practitioner who cooks Italian food and does not tolerate poor explanations. He is reviewing paperwork at the central desk.

THE TOURISTS drift in, led by CLAIRE ASHWORTH. British, 30s. Sharp, theatrically alive. She likes this work.

The tourists are phased - present but imperceptible. Most walk through the door out of habit. One tourist walks through a wall absently, then giggles. Each wears a lanyard with a small yellow-and-orange striped device -- the children as well.

YOSHIDA does not see them. He cannot.

CLAIRE

- and welcome to the central control room of the Fukushima Daiichi Nuclear Power Station, Units One and Two. We are now approximately four minutes from the start of the show.

She produces a tablet.

CLAIRE

Before we begin - if you haven't already, consent forms. This is a standard temporal liability waiver. The full document runs to eleven pages but the salient points are these: you are temporally phased, meaning you are present but imperceptible. You cannot interact with the local environment. The local environment cannot interact with you. Phase integrity is maintained by the group field and does not require any action on your part. Your personal device is a backup and a locator - the group

(MORE)

CLAIRE (CONT'D)
 requires only one functioning device
 to return. In the unlikely event of
 a phase barrier degradation, which
 would be indicated by your dosimeter
 - that's the clicky bit - you will
 have ample time to exit the
 excursion.

She turns the tablet toward MARK and SUSAN, who are
 already reaching for it.

CLAIRE
 I am contractually required to note
 that temporal excursions to
 radiological events carry inherent
 residual risk, and that Northern
 Temporal Ltd assumes no liability
 for psychological distress arising
 from -

MARK and SUSAN have scribbled their names.

CLAIRE
 - observation of historical
 outcomes. Lovely.

Their SON, ten or so, is examining one of the reactor
 panels. He reaches out to touch a dial. His hand passes
 through it. He tries again.

CLAIRE
 (To the SON, warmly)
 Can't touch, love. You can look all
 you like.

AUTOMATED VOICE
 (OVER SPEAKERS)
Tri-tone alert.
 This is an Earthquake Early Warning.
 Please prepare for powerful tremors.

YOSHIDA is on his feet and at the panels instantly. The
 reactor control systems activate. SCRAM begins - automatic
 emergency shutdown. Bells. Indicator lights that had been
 dark and steady begin to blink. The diesel generators spin
 up somewhere below. A deep hum.

AUTOMATED VOICE
 (OVER SPEAKERS)
Tri-tone repeats.
 This is an Earthquake Early Warning.
 Please prepare for powerful tremors.

The TOURISTS are intrigued. A few clap.

CLAIRE
 (Brightly)
 Now – the routine part.

At 14:46, the earthquake begins.

It is violent. The room shakes. Equipment rattles. The operators brace themselves against the panels and work. YOSHIDA grips the edge of the central desk and watches the indicator boards. He is calm.

SUSAN is starts recording video.

The shaking does not stop.

After about thirty seconds, it becomes uncomfortable for the tourists. After forty-five seconds, it is hard to watch.

At one minute, MARK takes out his phone to noodle.

The SON leans over his father's shoulder to look at the screen.

SUSAN lowers her phone. Puts it away. Looks around the room with the expression of someone waiting for a course to arrive.

The operators are still working. The shaking is still violent.

CLAIRE
 (to the tourists)
 Shall we?

She makes a small gesture – a flick of the wrist, the motion of turning a page.

**2 INT. FUKUSHIMA DAIICHI - UNITS 1 & 2 CENTRAL CONTROL ROOM 2
 - LATER**

A brief lights down and lights up. Characters have jumped position.

AUTOMATED VOICE
 (OVER SPEAKERS)
A harsh squelch.
 TSUNAMI WARNING. ESTIMATED WAVE
 HEIGHT TEN TO FIFTEEN METERS.

YOSHIDA goes still.

YOSHIDA
 (Into the intercom. Loud.)
 All personnel away from the coast.
 Tsunami warning.
 (quietly, to self)
 Fifteen meters.

AUTOMATED VOICE
 (OVER SPEAKERS)
A harsh squelch.
 TSUNAMI WARNING. ESTIMATED ARRIVAL
 WITHIN THIRTY MINUTES.

SUSAN
 (Mouths to MARK)
 thirty minutes?

Claire notices.

CLAIRE
 Another jump. Small one. Nausea bags
 are available....

She turns her hand.

The tsunami arrives. We stay in the control room. We know
 it has arrived because everything stops. The lights. The
 dials. The computer. The hum of the diesel generators
 beneath the floor – gone.

Pitch black.

Silence.

YOSHIDA
 The diesel generators aren't
 running.

A flashlight clicks on. Then another. The operators grab
 them from wall mounts.

Everyone is trying to read the panel by flashlight. The
 panel is dead.

OPERATOR 1
 The instruments – nothing's coming
 up.

YOSHIDA
 Is there any way to get the diesels
 functioning again? If not, we'll
 have to hold on with the isolation
 condenser and RCIC for cooling – but
 how long will that last? DC power –
 (MORE)

YOSHIDA (CONT'D)

that's just batteries. Do we have
the capacity? Can we recharge them?

(Beat)

This may fall under Article Fifteen.

The operators pull out the emergency operating procedures manual. They read it by flashlight.

In the dark, the SON tugs CLAIRE's sleeve.

SON

I need the toilet.

CLAIRE

Straight through there, round the corner. You can't actually use it – phased, remember – but the room is real enough to be private. Off you go.

SON pulls his lanyard over his head – the way a child pulls off something that's in the way – and sets the device on the nearest surface. A console. A dead panel. A small yellow-and-orange object in the dark. He disappears around the corner.

The other tourists are restless. This was not what they expected. MARK's phone screen glows. SUSAN takes his arm. The dark is not exciting. It is dark. The workers are talking about batteries and cooling systems and none of it is scenic.

MARK

(to susan, quietly)

Perhaps it'll be more interesting
outside.

SUSAN

(to Mark, quietly)

Yes. The tsunami should be scenic.

The tourists begin to drift toward the exit. Not panicked. Bored. Politely, efficiently leaving. The way people leave a party that has turned into a conversation they are not part of.

The SON returns from the bathroom. MARK takes his hand. They go outside.

The device stays.

CLAIRE watches them leave. She stays.

In the dark, the teleconference monitor flickers. Once. Twice. Then holds.

CLAIRE
 (to the audience of the
 play, forced cheer)
 Do any of YOU need to use the potty?

A rectangle of fluorescent light. The emergency response room at TEPCO headquarters in Tokyo. A large room. Dozens of people. Desks. Suits. The lights are on.

CLAIRE moves to stand beside the monitor. She looks at it. She looks at the audience.

CLAIRE
 (to the audience)
 The teleconference. Tokyo and the plant, connected by video. This was restored in the first hours. Before batteries. Before pumps. Before water. Before light.

She gestures at the bright room on the screen. Then at the dark room around her.

CLAIRE
 (to the audience)
 The camera came first.

HQ
 (MONITOR)
 Fukushima Daiichi, can you hear us? The teleconference is connected. Please report on conditions. Reactor pressure, water level, containment pressure for each unit. Figures, please.

YOSHIDA, lit only by his flashlight and the glow of the monitor, turns toward the camera.

YOSHIDA
 Instrumentation is almost entirely lost. We don't have the electricity to read the instruments.

HQ
 (MONITOR)
 Understood. However, the Prime Minister's Office and NISA require parameter submissions. On the hour. We'll need figures.

YOSHIDA
 There are no figures. The instruments aren't alive. There are no numbers to give you.

HQ
(MONITOR)
Estimates would be acceptable -

YOSHIDA
There's nothing to base an estimate
on. We can't see anything.

While this exchange plays, at the edges of the stage, barely visible in the flashlight beams, workers are moving. They carry heavy objects through the dark - car batteries, pulled from the tsunami-wrecked parking lot, lugged by hand through the building. They crouch over panels with flashlights and wiring diagrams.

CLAIRE
(To the audience)
Batteries from their cars.
Connecting them to the instrument
panels by flashlight. To make one
pressure gauge work. To see one
number. Because HQ in Tokyo has
asked. One must appreciate the zeal.

Claire turns her hand.

**3 INT. FUKUSHIMA DAIICHI - EMERGENCY RESPONSE CENTER - MARCH 3
12, 2011. HOURS LATER.**

The emergency response center - the anti-seismic building.
YOSHIDA at the central table. The teleconference monitor
still glowing.

YOSHIDA
Containment pressure is past design
limits. We have to vent.

He opens the procedure manual. Reads it by flashlight.
Closes it.

YOSHIDA
The procedure assumes motor-driven
valves. The motors have no power.
The air-operated valves have no air
supply.
(Beat. Thinking. Coming to
acceptance.)
We'll have to open the valves by
hand. Inside the reactor building.
In the dark.

HQ
(MONITOR)
The Prime Minister is en route by
helicopter. We cannot vent while the
helicopter is in the area.

YOSHIDA

(to the monitor)

I am fine with contaminated steam hitting the Prime Minister's helicopter.

(A beat to prepare. To the room)

There is a considerable risk of exposure. But I need volunteers to go to the site and carry out the manual opening operation.

Two VOLUNTEERS step forward. They suit up. Fire suits. Self-contained breathing apparatus. Personal dosimeters. Each takes a flashlight.

They walk toward the reactor building – toward the dark, toward the audience. And into it.

We wait.

CLAIRE waits. For the first time, she is not performing.

One VOLUNTEER returns. He pulls off his breathing apparatus.

VOLUNTEER

Ninety-five millisieverts. I couldn't reach the valve.

He takes off further gear

VOLUNTEER

Nearly the full annual permitted dose. In a single attempt.

HQ

(MONITOR)

Please report on the progress of the vent. What step of the procedure are you at?

YOSHIDA stares at the monitor.

YOSHIDA

The procedure manual assumes motor-driven valves. The motors have no power. We are carrying out operations that are not in the procedure. Under conditions the procedure does not contemplate.

CLAIRE

(to the audience)

Perhaps the procedure manual could provide some light. Literally that is.

CLAIRE turns her hand.

4 **INT. FUKUSHIMA DAIICHI - EMERGENCY RESPONSE CENTER -** 4
LATER. AFTERNOON. MARCH 12.

HQ
(MONITOR)
NHK's camera had Unit 1 in frame. A
puff of white, like smoke.

YOSHIDA
Perhaps the vent worked.

OPERATOR 1
The boric acid injection system is
ready. One more operation and we can
begin injection into the reactor.

A brief, violent jolt from below. A thud.

An ENGINEER enters from outside. Blood on his head.

ENGINEER
The top of the Unit 1 reactor
building - it's gone. Just the
pillars.

OPERATOR 1
Not the vessel. The building.

YOSHIDA
Hydrogen.

CLAIRE
(To the audience)
After the explosion, it took them
two hours to rebuild the injection
lines. Through the debris. In high
radiation. I'll skip that.

She turns her hand.

5 **INT. FUKUSHIMA DAIICHI - EMERGENCY RESPONSE CENTER -** 5
EVENING

The dosimeters are clicking now. Even in the response
center. The teleconference monitor glows. YOSHIDA is at
his station.

His phone rings.

TAKEKURO
(PHONE)
Hey - the seawater injection.

YOSHIDA
We're doing it.

TAKEKURO
 (PHONE)
 What?!

YOSHIDA
 It's already started.

TAKEKURO
 (PHONE)
 Wait - you're doing it? Stop.

YOSHIDA
 Why?

TAKEKURO
 (PHONE)
 Shut up. The PM's Office won't stop
 going back and forth on this!

YOSHIDA
 What are you talking about?

The phone goes dead. TAKEKURO has hung up.

The monitor activates. A different voice. Formal. The
 voice of the president of the Tokyo Electric Power
 Company.

SHIMIZU
 (MONITOR)
 This is the PM's Office's position.
 Please suspend the seawater
 injection for now. You may have your
 views, but this is an order from the
 president.

YOSHIDA
 It's already started. We sent the
 fax at four o'clock.

SHIMIZU
 (MONITOR)
 It's not approved yet. The
 government hasn't given
 authorization. Until then, we have
 no choice but to suspend.

YOSHIDA stands.

He makes a large X with both arms.

He walks across the emergency response room. Toward the
 man in charge of the injection operation - the disaster
 prevention team leader. The team leader is seated with his
 back to the headquarters monitor.

YOSHIDA stands behind him. Leans close to his ear.

YOSHIDA

(Low voice)

Listen. An order to stop the seawater injection may come from headquarters. On the teleconference, I'm going to tell you to stop. You don't need to follow that order. Keep injecting. Understood?

YOSHIDA returns to his seat.

He faces the monitor.

YOSHIDA

(loud, clear, audible to the entire room)

Seawater injection - suspended.

The dosimeters click. The monitor glows.

In the silence, YOSHIDA's gaze drifts across the room. It lands on something. On a dead console. A small yellow-and-orange object, still sitting where a child set it down hours ago.

He walks to it. Picks it up. Turns it over in his hand.

He presses something.

Blackout

6 INT. GENERAL ELECTRIC - NUCLEAR ENERGY DIVISION - SAN JOSE, CALIFORNIA - LATE 1960S - DAY

6

A conference room. Fluorescent. The table is covered with engineering drawings - cross-sections of a reactor containment vessel. The shape is distinctive: an inverted lightbulb connected by vent pipes to a doughnut-shaped torus below. Coffee cups.

Three engineers on one side. DALE BRIDENBAUGH, mid-thirties, solid, hands folded. He has not touched his coffee. RICHARD HUBBARD, late twenties, lean, pen behind his ear, small annotations accumulating in the margins of calculation sheets. GREGORY MINOR, late twenties, sleeves rolled. Standing.

On the other side: a SENIOR ENGINEER. Gray hair. Good suit. The drawings are his. Beside him, a MANAGER. Notepad open.

MASAO YOSHIDA stands near the wall.

The argument has been going on. The words start as the lights come up.

MINOR

-- containment volume is insufficient. That's not an opinion, that's arithmetic. Hydrogen generation against drywell free volume -- if core damage reaches fifty percent -- you blow past the flammability limit.

SENIOR ENGINEER

Greg. You're postulating beyond the maximum credible accident.

MINOR

The maximum credible accident assumes you have power.

BRIDENBAUGH

The issue is dynamic loading. The pressure transients this containment would experience during a loss-of-coolant event -- the design does not adequately account for them.

SENIOR ENGINEER

That's what the suppression pool is for.

He goes to the whiteboard. Draws the diagram -- drywell, vent pipes, torus, water. He draws it well.

SENIOR ENGINEER

Steam exits the drywell through the vent pipes. Discharges into the pool. Condenses underwater. Pressure drops. A PWR uses brute volume. We use an engineered system. The smaller containment isn't a deficiency. It's the design philosophy.

The manager walks to sit down again.

HUBBARD

Steam condenses. Hydrogen doesn't.

SENIOR ENGINEER

The hydrogen concern is recognized. Inerting addresses it.

HUBBARD

Inerting is an operational measure for normal conditions. In an accident with containment degradation, hydrogen migrates up

(MORE)

HUBBARD (CONT'D)
 the vent path. Accumulates in the
 reactor building. Nitrogen doesn't
 solve that.

The MANAGER writes something.

MINOR
 One more. Station blackout.

SENIOR ENGINEER
 Station blackout is not a
 design-basis event.

MINOR
 I know it's not. I'm asking what
 happens.

SENIOR ENGINEER
 There are emergency diesels. Battery
 backup.

MINOR
 And if you lose all of it.

SENIOR ENGINEER
 A scenario in which all backup power
 is simultaneously -

MINOR
 Does it survive or doesn't it.

SENIOR ENGINEER
 Beyond the design basis, no
 containment of any type can offer
 guarantees.

BRIDENBAUGH
 Under those conditions - blackout,
 core damage, hydrogen - will this
 containment hold. Yes or no.

SENIOR ENGINEER
 Under those conditions, no
 containment can provide assurance.

BRIDENBAUGH
 Understood.

He sits back.

YOSHIDA presses a button the device. He steps away from
 the wall. He is now visible to all.

YOSHIDA
 Excuse me.

The room turns.

YOSHIDA

It happens.

He goes to the whiteboard. Stands beside the diagram.

YOSHIDA

Station blackout. It happens.
Earthquake – the reactors scram.
Normal so far.

He points at the base of the drawing, below the torus.

YOSHIDA

Then the tsunami. The diesels are in
the basement. They flood. The
batteries last a few hours. After
that – nothing.

He draws a line – rising temperature – inside the drywell.

YOSHIDA

No cooling. The fuel is exposed. The
zirconium cladding reacts with
steam.

He writes H₂ on the board. Draws an arrow upward through
the vent path.

YOSHIDA

Hydrogen. It goes here.

He draws an X over the reactor building.

YOSHIDA

It explodes.

He sets down the marker.

MINOR

Who are you?

YOSHIDA

Nuclear engineer.

MINOR

Where from?

YOSHIDA points to the TEPCO logo on his dusty blue
uniform.
Then he points at the three of them, then at himself, then
at the diagram.

YOSHIDA

Four people in this room are saying
the same thing.

BRIDENBAUGH is reading the whiteboard – the failure sequence drawn on top of the design.

BRIDENBAUGH
You're describing a specific sequence. Earthquake, then a flood. The flood takes the diesels. After the batteries go, this is what happens inside.

He points at the H2.

BRIDENBAUGH
Where does the hydrogen go.

YOSHIDA
The building. Above the containment. It collects and detonates.

HUBBARD is writing.

SENIOR ENGINEER
The concerns you're raising – all of you – are noted. They will be addressed through the NRC review process.

MINOR
Will the review change the design?

The SENIOR ENGINEER looks at the MANAGER.

SENIOR ENGINEER
Design modifications at this stage would have implications across the entire program. Plants under construction, plants already ordered –

MANAGER
To modify the design is to acknowledge that the design basis was insufficient. For every unit already built to this specification.

BRIDENBAUGH stands.

BRIDENBAUGH
Thank you. Please ensure the concerns are in the record.

He gathers his papers.

MINOR hasn't moved.

MINOR
The failure sequence you drew.
Where'd you get it?

YOSHIDA
Experience.

MINOR
Experience where? What plant?

YOSHIDA
A plant that hasn't been built yet.

HUBBARD's pen stops.

MINOR looks at YOSHIDA. Lets it go. The diagram makes sense. That is enough, and it is not enough.

HUBBARD caps his pen. Rolls the calculation sheets.

The SENIOR ENGINEER picks up the eraser. Wipes the whiteboard. The drywell. The vent pipes. The torus. The water line. The H2. The X. Gone.

A clean white surface.

The fluorescent lights hum.

The coffee is cold.

7 INT. TEPCO HEADQUARTERS, TOKYO - CONFERENCE ROOM - 2008 - 7 DAY

A conference room on a high floor. Clean. Neutral. The table is long and polished. Water glasses at each place. A whiteboard. A projector screen, retracted. The room smells like nothing.

Two TEPCO EXECUTIVES sit on one side of the table. Dark suits. Notepads open. One has a pen ready.

MASAO YOSHIDA sits on the other side. Same blue jumpsuit. He has laid documents on the table - printouts, maps, photographs - arranged in chronological order. He did this before they came in.

The EXECUTIVES have been listening for some time.

YOSHIDA
- and that is the sequence, unit by unit. Unit 1, Unit 2, Unit 3. The timeline through to core meltdown.

He touches one of the printouts.

YOSHIDA

The evacuation order comes early on the twelfth. Ten-kilometer radius. Extended to twenty. In total, over a hundred and fifty thousand people.

The EXECUTIVE with the pen writes. The other adjusts a printout to read a figure.

EXECUTIVE A

The tsunami height – could you confirm that once more.

YOSHIDA

Fourteen meters.

EXECUTIVE A

And the seawall.

YOSHIDA

Ten.

He waits. The EXECUTIVE writes the figures. Neatly.

EXECUTIVE B

Yoshida-san. You mentioned that the emergency diesel generators are located in the basement of the turbine buildings.

YOSHIDA

Yes. The electrical switchgear and distribution panels as well. All below grade. The tsunami submerges all of it.

EXECUTIVE B

All of it.

YOSHIDA

All of it.

EXECUTIVE B makes a note. Underlines something.

EXECUTIVE A

Regarding cooling capability after the loss of power –

YOSHIDA

There isn't any. The DC batteries remain, but only for a matter of hours. Once those are gone – instrumentation, lighting, cooling. Gone.

EXECUTIVE B

Yoshida-san. The earthquake scenario underlying this simulation -

A pause. The two EXECUTIVES glance at each other. It is brief.

EXECUTIVE A

Yoshida-san, the materials you've prepared are extremely thorough, and we consider them worthy of careful examination.

YOSHIDA

Thank you.

EXECUTIVE A

With that said - and to confirm - does the Japan Society of Civil Engineers methodology currently require the incorporation of the Jōgan scenario?

YOSHIDA

It does not.

EXECUTIVE A

Has the regulatory authority raised any concern or issued any guidance on this matter?

YOSHIDA

It has not.

EXECUTIVE B

If seawall reinforcement were to be undertaken, the estimated cost -

EXECUTIVE A

Would be considerable.

EXECUTIVE B

In addition, to undertake reinforcement is to indicate that the current seawall is insufficient.

YOSHIDA's hands are flat on the table, on either side of his documents.

EXECUTIVE A

If the insufficiency is acknowledged publicly, the safety basis for the entire period of prior operation comes into question.

EXECUTIVE B

It becomes a matter of liability.

Silence. YOSHIDA looks at the documents he laid out. The chronology. The maps. The photographs.

YOSHIDA
Is anything I've shown you
incorrect.

EXECUTIVE A
We are not disputing the factual
content.

EXECUTIVE B
It is a question of what the
methodological framework supports as
a basis for countermeasures.

EXECUTIVE A
We understand your position,
Yoshida-san. We will treat this as a
continuing matter for review.

EXECUTIVE A closes his notepad. EXECUTIVE B gathers the printouts YOSHIDA brought - carefully, squaring the edges - and places them in a folder.

EXECUTIVE A reaches for a phone on the credenza behind him.

EXECUTIVE A
Shall I have some tea brought in?

YOSHIDA looks at him.

YOSHIDA looks at the folder.

YOSHIDA
No. I'm fine.

He stands. He bows. They bow.

He leaves. The documents stay.

The EXECUTIVES sit. The folder between them. The water glasses, untouched.

The projector screen, retracted. The whiteboard, clean.

**8 INT. TOHOKU ELECTRIC POWER COMPANY - HIRAI'S OFFICE - 1968 8
- DAY**

A modest office. Drafting table. Bookshelves - technical volumes, bound survey reports, geological maps rolled and standing in a corner. On the desk, a photograph of a shrine. Another of a dam under construction - 1930s, men in the frame for scale.

YANOSUKE HIRAI sits behind the desk. He is sixty-six. Thin. Still. Before him: a geological survey, hand-annotated. A set of photographs – core samples, sediment layers. A map of the Sanriku coast with pencil marks.

MASAO YOSHIDA enters. Blue TEPCO jumpsuit, grey with dust.

Hirai looks up. Notes the jumpsuit. Notes the company name on it.

HIRAI
TEPCO.

YOSHIDA
Yes.

HIRAI
You're not from facilities liaison.
I know the liaison.

YOSHIDA
No.

HIRAI
So. From TEPCO. All the way to
Sendai. No appointment. To see a
vice president of Tohoku Electric.
Dressed like that.

YOSHIDA looks down at himself.

YOSHIDA
I apologize for my appearance.
Before this, I was – elsewhere.

HIRAI studies him.

HIRAI
What do you want.

YOSHIDA
Hirai-san. You are currently on a
committee. For the construction of a
nuclear power station at Onagawa.

HIRAI
This is not confidential.

YOSHIDA
The committee's initial estimate for
tsunami height at the site is three
meters.

HIRAI
Also not confidential. It is the
standard estimate.

YOSHIDA

And you believe it is wrong.

HIRAI's hands do not move. His posture does not change. Something behind his eyes rearranges.

HIRAI

Who sent you.

YOSHIDA

No one sent me. I came because I need to understand something. How you arrived at your number. The specific methodology. And what you intend to do when the committee tells you no.

HIRAI removes his reading glasses. Sets them on the geological survey.

HIRAI

Sit down.

YOSHIDA sits.

HIRAI

The committee has not told me no. The committee is in discussion.

YOSHIDA

What is your number.

HIRAI

Fourteen point eight meters.

YOSHIDA

Five times the estimate.

HIRAI

Yes.

YOSHIDA

And the committee's reaction.

HIRAI

Some of my colleagues have proposed twelve meters. Others have suggested that I am being — the word used was "excessive."

YOSHIDA

What is twelve meters.

HIRAI

Twelve meters is a number that falls between three and fourteen point

(MORE)

HIRAI (CONT'D)

eight. It is a negotiation. It is not an estimate of anything that has ever happened.

YOSHIDA

The average of what we know and what we're willing to pay for.

HIRAI

You understand.

YOSHIDA

I wish I didn't. Where does your number come from?

HIRAI stands. He goes to the bookshelf. He pulls down a bound volume — old, handwritten entries — and a folder of photographs. He carries them to the desk and sets them down with the care of a man handling evidence.

HIRAI

The Jōgan tsunami. July 13, in the year 869. The basis is threefold. First: the historical record. The Sandai Jitsuroku — the official chronicle. It describes the wave's extent in administrative language. How many houses, how many fields. Bureaucratic writing. But the distances are real.

He opens the folder. Photographs of sediment cross-sections — pale sand layers in dark earth.

HIRAI

Second: the earth itself. Marine sand deposits found four kilometers inland from the present coast of the Sendai plain. This is not ambiguous. The ocean was here.

He picks up the photograph of the shrine from his desk and holds it toward YOSHIDA.

HIRAI

Third. I was born in Iwanuma. There is a shrine — the Sengan shrine. As a boy, I was taken to it. In that shrine, a record has been maintained across eleven centuries. The Jōgan wave reached it. Seven kilometers from the sea.

YOSHIDA

A shrine.

HIRAI

A shrine is a building that remembers. The sea does not read our methodology. The sea reads the fault.

He sets the photograph down. Places his hand flat on the geological survey.

HIRAI

There is also the Keichō tsunami, 1611. Also documented. Also significant. My colleagues are aware of these events. What they believe is that because the events are old, the evidence is imprecise. Imprecise evidence, in the methodology, may be set aside.

YOSHIDA

The Japan Society of Civil Engineers methodology.

HIRAI

You know it.

YOSHIDA

I know it.

HIRAI

The methodology is not incorrect in its logic. It addresses what can be measured. What it does not address is what has been recorded by other means. The shrine is not a measurement. The sediment is not in the database. Therefore they do not enter the calculation. You understand – the methodology does not deny the evidence. The methodology has no field in which to enter it.

YOSHIDA's hands, which had been resting on his knees, close.

YOSHIDA

There is no column for the shrine.

HIRAI

There is no column for the shrine. And so the shrine does not exist.

YOSHIDA

Hirai-san. Your colleagues have proposed twelve. Others call you
(MORE)

YOSHIDA (CONT'D)
excessive. Why do you believe you
will prevail?

HIRAI pushes back from the desk.

HIRAI
In 1957, I constructed a thermal
power station in Niigata. The ground
was soft - alluvial deposits. I
ordered a caisson foundation twelve
meters deep. A reinforced concrete
box sunk into the earth. My
colleagues at the time considered
this excessive. The same word.

He pauses. Sighs.

HIRAI
In 1964, the Niigata earthquake.
Liquefaction to a depth of ten
meters. My caisson was twelve. The
power station settled twenty
centimeters. Vertically. No tilt. No
crack. Matsunaga-sensei - when NHK
reported the station had exploded -
said, before anyone had checked:
"That is a mistake. The power
station Hirai constructed cannot be
broken."

(Beat)

It was a mistake. The station was
undamaged. I was excessive by two
meters. Had I been excessive by zero
meters, the station would be rubble.

YOSHIDA
You were right in 1957.

HIRAI
I was sufficiently cautious in 1957.
The earthquake was smaller than what
I prepared for. That is what it
means to be right.

YOSHIDA
In my experience, the shelf life of
having been right is approximately
four years.

HIRAI looks at him. Recalibrating.

HIRAI
In my experience, the same. But four
years ago was 1964. And here we are
in 1968. I intend to spend what
remains of it.

YOSHIDA

And if the committee refuses.

HIRAI

The committee is not the final authority. The company president is. I have requested a meeting.

YOSHIDA

You'll go over the committee.

HIRAI

I will go to the decision. The committee produces a recommendation. The decision is made by the person who bears responsibility for the company. If my colleagues believe twelve is sufficient, I cannot prevent them from believing it. But I can place my evidence before the man whose name will be on the authorization.

(In thought for a beat)

The cost is significant. To build at fourteen point eight – the earthworks alone are substantial. But to build at fourteen point eight is to declare that the worst case has been considered. To build at twelve is to declare that the worst case was considered, and then negotiated with.

YOSHIDA does not respond immediately. He is looking at the geological survey on the desk – at the pencil annotations in HIRAI's handwriting.

YOSHIDA

There is another thing.

HIRAI

Go on.

YOSHIDA

The tsunami itself is one problem. But after the wave, the sea withdraws. The intake pipes for the cooling system draw from the ocean. If the sea withdraws –

HIRAI

There is no water for the pumps.

He stares at YOSHIDA.

HIRAI

You are the second person to raise this. The first was me. I have designed a reservoir. An inlet channel connected to a holding basin. Forty minutes of cooling water stored on site, independent of the sea level. If the tsunami draws the water back, the reservoir supplies the pumps until the ocean returns.

YOSHIDA stands. He takes a step away from the desk, then stops. He does not turn around.

YOSHIDA

You designed for the water going out.

HIRAI

The water comes in. The water goes out. Between these two, there is a period during which the reactor requires cooling and the ocean is not available to provide it. This is not a complicated thought. It is merely a thought that must be had.

YOSHIDA turns back. He sits. He is composing something.

YOSHIDA

Hirai-san. May I tell you something.

HIRAI

Please.

YOSHIDA

I am a nuclear engineer. I work for TEPCO. This you can see.

He touches the logo on his jumpsuit.

YOSHIDA

TEPCO is constructing a nuclear power station. On the coast. The same coast. The same ocean.

HIRAI

Fukushima.

YOSHIDA

Fukushima. The site has a natural bluff. Thirty-five meters above the sea.

HIRAI waits.

YOSHIDA

The plan is to reduce this. Cut it down to ten meters. Equipment can be brought in more easily from the sea side. The pumps have less distance to lift the water.

HIRAI's pencil, which he had picked up again, stops.

HIRAI

They will remove twenty-five meters.

YOSHIDA

Yes.

HIRAI

Of protection the earth has already provided.

YOSHIDA

Yes.

HIRAI sets down the pencil. He walks to the window. He does not look out of it. He looks at the wall beside it, where a map of the Tōhoku coast hangs — the Sanriku, Sendai, and Fukushima coastlines marked with historical tsunami records.

HIRAI

The Sanriku coast was struck by major tsunamis in 869, 1611, 1896, and 1933. Fukushima is further south. The historical frequency is lower. This is what makes the calculation appear favorable. But the fault does not end at a prefectural boundary.

He turns back.

HIRAI

Who at TEPCO bears responsibility for this decision?

YOSHIDA

The decision is made at the department level. The department responsible for the management of nuclear facilities.

HIRAI

And has anyone in that department — anyone in a position of authority — examined the Jōgan record?

YOSHIDA does not answer. His hands are on his knees again. They are still.

HIRAI
You are aware of the Jōgan record.

YOSHIDA
I am.

HIRAI
And you are at TEPCO.

YOSHIDA
I am.

HIRAI looks at him.

HIRAI
Then the information is inside the building. Whether it enters the decision – that is a question of persons.

Neither man moves for a moment.
Then Yoshida stands.

YOSHIDA
Hirai-san. Thank you. For the time.
For the explanation. For the shrine.

HIRAI
You came a long way for something
you already knew.

YOSHIDA, halfway to the door, stops.

YOSHIDA
I came to see whether it was possible. It is. This is worse than what I believed before I arrived, and also better. I am grateful for both.

HIRAI
Your name.

YOSHIDA
Yoshida. Masao.

HIRAI
Yoshida-san. The number is not the difficult part. Holding it is.

YOSHIDA bows. It is a correct bow, and deeper than the difference in their positions requires.

He goes.

HIRAI watches the door. He returns to his desk. He picks up his reading glasses. He picks up his pencil. He opens the geological survey.

On the desk, the photograph of the Sengan shrine. An ordinary building.

HIRAI works.

9 INT. NAVAL REACTORS HEADQUARTERS, WASHINGTON D.C. - NIGHT 9

CLAIRE

(to the audience)

Mr. Yoshida has allowed me to select my favourites. This tour shall be another most unusual one. I think you shall find it all quite bracing.

April 10, 1963. Late evening. A windowless office, harshly lit. Filing cabinets line the walls. A desk buried in paper. Behind it sits VICE ADMIRAL HYMAN G. RICKOVER, 63, slight, wiry, wearing a rumpled civilian suit - as was his habit at Naval Reactors. He looks like an irritable accountant, not the most powerful admiral in the Navy. He has been on the telephone for hours. We catch the tail end of a call.

YOSHIDA is here again. Standing by the wall. RICKOVER does not notice him.

RICKOVER (into phone, flat, clipped)

I want to be clear. Naval Reactors is responsible for the propulsion system. The propulsion system only. The ship's hull, the piping, the seawater systems - that is the Bureau's responsibility. That has always been the Bureau's responsibility. Is that understood?

He hangs up without waiting for an answer. Stares at the phone. Then he opens a desk drawer, removes a folder labeled THRESHER - SSN-593, and begins reading. A KNOCK at the door.

RICKOVER

Come.

An AIDE enters.

AIDE

Admiral, Lieutenant McCoolle is here. He drove down from Portsmouth.

RICKOVER

Send him in.

The aide exits. A moment later, LIEUTENANT RAYMOND McCOOLE enters. He is 32, compact, still in khakis. His face is drawn. He looks like he has not slept. He stands at attention.

Rickover does not look up from the folder.

RICKOVER

Sit down.

McCoole sits in the chair across from the desk — the famous chair, its front legs sawed down two inches shorter than the rear, so that the occupant slides forward slightly and can never quite get comfortable. McCoole doesn't seem to notice. He has larger discomforts.

A long silence. Rickover reads. Then:

RICKOVER

How is your wife.

McCOOLE

Her eyes are recovering, Admiral.
The doctors say no permanent damage
from the liniment.

RICKOVER

Good.

Another silence. Rickover closes the folder.

RICKOVER

Tell me about Henry.

McCOOLE

Jim Henry, sir. He was my relief. My
trainee. He had just come out of
nuclear power school.

RICKOVER

Was he qualified?

McCOOLE

He was qualified to procedure, sir.
He knew the procedures cold. He was
bright. He was thorough.

RICKOVER

Then what is the problem.

McCoole shifts in the tilted chair.

McCOOLE

There is no problem with Henry, Admiral. He did exactly what he was trained to do.

RICKOVER (sharply)

Then say what you came here to say, McCoole. I did not bring you to Washington to hear you dance around it.

McCOOLE (a beat, then)

The proper procedure in a nuclear reactor scram is to shut off the steam engines. Jim Henry - I am certain - followed this established procedure. He had just come out of nuclear power school. That is what we taught him to do.

RICKOVER

That is what the procedure requires, yes.

McCOOLE

But I was a little more experienced. And if I saw my pressure gauge exceeding test depth, knowing full well the captain was unable to do anything without propulsion, I would have drawn the steam.

Silence.

McCOOLE (quieter)

I would not have shut it down.

Rickover's expression does not change. He picks up a pencil. Sets it down. Picks it up again.

RICKOVER

You would have violated standing procedure.

McCOOLE

I would have saved the ship.

RICKOVER

You believe that.

McCOOLE

Yes, I still feel if I was there I certainly could have been able to contribute something and I would have tried to draw steam. The captain - Harvey - he couldn't do

(MORE)

McCOOLE (CONT'D)
 anything without propulsion,
 Admiral. He was a good officer. But
 the plant was shut down and the blow
 system was frozen and he had
 nothing. Nothing.

RICKOVER (measured)
 The procedures were for normal
 operating conditions. They were not
 intended to restrict necessary
 actions in an emergency involving
 the safety of the ship.

McCoole stares at him.

McCOOLE
 Admiral - with respect - does anyone
 on a submarine at test depth believe
 that? When the scram alarm sounds,
 does the man at the panel think
 about whether this is a "normal"
 condition or an "emergency"? Or does
 he do what we drilled into him?

Rickover's jaw tightens.

RICKOVER
 Common sense would prove -

McCOOLE (cutting in, then
 catching himself)
 Forgive me, sir.

RICKOVER (cold)
 Finish.

McCOOLE
 Henry was twenty-three years old,
 sir. He'd been out of school for
 weeks. He was alone in maneuvering
 at thirteen hundred feet with the
 Atlantic Ocean coming through a
 pipe. You trained him to protect
 that reactor under every
 circumstance. And he did.

Long pause.

McCOOLE (CONT'D)
 And it killed him. It killed all of
 them.

Rickover stands. He is shorter than McCoole, even
 standing. He walks to the filing cabinet. Opens a drawer.
 Closes it. He does this when he is thinking - a physical
 habit, needing to do something with his hands.

RICKOVER

Before Thresher sailed — you were aware of the dockside flooding simulation?

McCOOLE

Yes, sir. The watch in charge took twenty minutes to isolate the simulated leak in the auxiliary seawater system.

RICKOVER

Twenty minutes. At test depth with the reactor shut down, Thresher would not have had twenty minutes. Even after isolating a short circuit in the reactor controls, it would have taken nearly ten minutes to restart the plant.

McCOOLE

That's what I am saying, Admiral.

RICKOVER

No. You are saying that you — Raymond McCoolle — would have been clever enough to break the rules and save the ship. What I am saying is that the rules should never have required breaking.

McCoolle blinks.

RICKOVER (returning to his chair)

I authorized a procedure on George Washington. Osborn's standing orders — if the reactor scrambled below five hundred feet, or with a twenty-degree down angle, steam flow could continue. The main steam stops could stay open. We could answer bells.

McCOOLE

I know about Osborn's orders, Admiral. Everybody in the fleet knew. Why wasn't that approved for Thresher?

Rickover looks at McCoolle for a long moment. His expression is unreadable.

RICKOVER

George Washington's test depth was seven hundred feet. Thresher's was thirteen hundred. Nearly double. The

(MORE)

RICKOVER (CONT'D)

thermal transient from drawing steam at that depth, with the primary system in the condition it would be in after a scram - we had not analyzed it.

@

McCOOLE

There wasn't time to analyze it before we sent her down?

RICKOVER (flaring)

Do not talk to me about time. I have been telling the Bureau of Ships for two years about those silver-brazed joints. I had every one of them replaced inside the reactor plant. Every one. But the seawater piping outside my compartment - three thousand joints, McCoolle - that was not my responsibility. And fourteen percent of the ones they tested were defective. Fourteen percent. And they tested a hundred and forty-five out of three thousand three hundred.

He stops. Composes himself. When he speaks again, his voice is level.

RICKOVER (CONT'D)

I will tell you what I am going to tell the Court of Inquiry, McCoolle, because I want you to hear it first. I believe the loss of the Thresher should not be viewed solely as the result of failure of a specific braze, weld, system, or component, but rather should be considered a consequence of the philosophy of design, construction, and inspection that has been permitted in our naval shipbuilding programs.

McCOOLE

And the philosophy of reactor operations, Admiral?

A dangerous pause.

RICKOVER (quietly)

I think it is important that we re-evaluate our present practices where, in the desire to make advancements, we may have forsaken the fundamentals of good engineering.

McCOOLE

That is not an answer to my question, sir.

RICKOVER (standing again, leaning on the desk)

I am going to make you a promise, McCoole. Within the month, every nuclear submarine in this Navy will have a procedure for emergency propulsion after a scram. We will draw steam from the latent heat in the reactor - from decay heat, from the residual heat in the metal and the coolant - and it will drive that ship to the surface. There is enough heat in that system for several minutes of propulsion. I have known that. I have always known that.

McCOOLE

Then why -

RICKOVER

Because if I had authorized that procedure fleet-wide, some twenty-three-year-old fresh out of power school would have used it when he didn't need to. He would have cooled down a primary system he shouldn't have cooled down, and six months later I would be sitting in front of the Joint Committee explaining a reactor accident on a submarine. And that - that would be the end of this program. Not one submarine. All of them.

Silence.

RICKOVER (CONT'D)

I was protecting the program.

McCOOLE

Harvey is dead, Admiral. A hundred and twenty-nine men.

RICKOVER (very quietly)

I know how many men, Lieutenant.

Rickover sits back down. He looks, for the first time, old.

RICKOVER (CONT'D)

Responsibility is a unique concept. It may only reside and inhere in a
(MORE)

RICKOVER (CONT'D)
single individual. You may share it with others, but your portion is not diminished. You may delegate it, but it is still with you. You may disclaim it, but you cannot divest yourself of it.

McCOOLE

Sir -

RICKOVER
I am not finished. If responsibility is rightfully yours, no evasion, ignorance, or passing the blame can shift the burden to someone else. Unless you can point your finger at the man who is responsible when something goes wrong, then you have never had anyone really responsible.

He looks directly at McCoolle.

RICKOVER (CONT'D)
You can point your finger at me.

McCoolle says nothing.

RICKOVER (CONT'D)
I am going to convene a meeting. Every nuclear commanding officer in the Washington area. We are going to discuss how to recover from a scram faster than we ever thought possible. And then we are going to change every procedure in this program so that no officer - no matter how junior, no matter how frightened - has to choose between protecting his reactor and saving his ship. That choice should never exist.

He pauses.

RICKOVER (CONT'D)
Success teaches us nothing. Only failure teaches.

McCOOLE

I would rather not have learned this lesson, Admiral.

RICKOVER (looking at him steadily)
What do you intend to do now?

McCOOLE

I've been assigned as casualty assistance officer. For the families. Most of the wives are very young. Pregnant. Small children. Other than six months' pay, the families will receive almost nothing.

Rickover winces - a micro-expression, quickly suppressed.

McCOOLE (CONT'D)

After that, I'd like to be a safety officer. On the Thresher's sister ships. Ride them. Inspect them. Make sure they're ready for sea.

RICKOVER

I'll see to it.

McCooles stands. He hesitates.

McCOOLE

Admiral. Harvey's last words to me were - "Tell Barbara we're all thinking of her and wish her a speedy recovery. Take good care of her. We'll be back in a couple of days, I expect."

Rickover nods once, slowly.

McCOOLE (CONT'D)

He sent me home to take care of my wife. That's why I'm alive and he isn't. I need you to know that I am going to spend the rest of my career making sure this never happens again.

RICKOVER (after a long beat)

Then we have the same job.

McCooles comes to attention. Turns. Walks to the door.

RICKOVER (CONT'D)

McCooles.

McCooles stops.

RICKOVER (CONT'D)

You said you would have drawn the steam.

McCOOLE

Yes, sir.

RICKOVER

You were right.

McCoole exits. Rickover sits alone. He opens the THRESHER folder again. Begins writing. He will not leave this office tonight.

YOSHIDA looks over RICKOVER's shoulder, to see what he is writing. he presses a button on his device.

10 INT. EDF HEADQUARTERS - BOITEUX'S OFFICE - AUTUMN 1977 - 10 DAY

The office of the Director General. Functional. A desk with papers arranged in precise stacks. On the wall, a map of France with reactor sites marked. Coffee. A window with gray light.

MARCEL BOITEUX, 55, sits behind the desk. The same suit as always - or one identical to it. He is reviewing a document. He does not look up when his AIDE enters.

AIDE

Monsieur le Directeur Général. The Prefect of Haute-Loire is here. He does not have an appointment.

BOITEUX

(still reading)

Then he must have something urgent to say. Show him in.

The AIDE exits. A moment later, PREFECT LAURENT enters. He is perhaps fifty, well-dressed, visibly uncomfortable. He carries a folder. He does not sit until Boiteux gestures to the chair.

BOITEUX

Monsieur le Préfet. How may I help you?

PREFECT LAURENT

Monsieur Boiteux. I am here regarding your scheduled visit to the Saint-Maurice site. Next Thursday.

BOITEUX

Yes. The inspection of the cooling tower foundations. I have it on my calendar.

PREFECT LAURENT

I must ask you - I am here to request - that you postpone this visit.

Boiteux sets down his pen. He looks at the Prefect for the first time. His expression is neutral. Patient.

BOITEUX

On what grounds?

PREFECT LAURENT

There have been threats. Specific threats. Against EDF personnel visiting construction sites in the region. Against you in particular.

BOITEUX

There have been threats against me since 1974. This is not new.

PREFECT LAURENT

(opening his folder)

These are... more specific. There is a group – they call themselves – it does not matter what they call themselves. What matters is that my services have intercepted communications indicating that your visit is known, and that action is planned.

BOITEUX

What sort of action?

PREFECT LAURENT

I am not at liberty to –

BOITEUX

Monsieur le Préfet. Someone placed a bomb at the front door of my home in July. My wife and daughter were inside. The charges were sufficient to kill. I am familiar with the sort of action these groups plan.

The Prefect looks down at his folder. He closes it.

PREFECT LAURENT

Monsieur Boiteux. I cannot guarantee your security. The site is remote. The access roads pass through wooded terrain. My gendarmes are not – we do not have the resources to secure the route adequately. I am asking you, formally, not to come.

A silence. Boiteux picks up his pen. Sets it down again. The gesture of a man who is thinking, though his face does not show it.

BOITEUX

What time is the site visit
scheduled?

PREFECT LAURENT

I - I beg your pardon?

BOITEUX

The inspection. What time does it
begin?

PREFECT LAURENT

Nine o'clock. But I am asking you to
cancel -

BOITEUX

I am asking you the time because I
intend to be there. If you cannot
secure the route, I will drive
myself. If you cannot secure the
site, I will accept that risk. What
I will not do is permit the people
who are making these threats to
determine my calendar.

PREFECT LAURENT

(frustrated)

This is not a matter of - of
calendar. This is a matter of your
life.

BOITEUX

(quietly, without drama)

Monsieur le Préfet. Do you know what
happens if I cancel this visit?

The Prefect does not answer.

BOITEUX (CONT'D)

Next week, there will be another
threat. Another site. Another
prefect in my office, asking me not
to come. And if I yield again, there
will be another after that. And
another. Until the program stops -
not because it has failed, not
because the economics are wrong, not
because the engineering is flawed -
but because we have agreed,
collectively, that terror is a
variable in the equation.

He stands. He walks to the window. He looks out at the
gray Paris sky.

BOITEUX (CONT'D)

I have spent twenty years building a system that prices electricity at marginal cost. Do you know what that means? It means that every decision — every investment, every allocation — is made on the basis of what is true. Not what is politically convenient. Not what is emotionally satisfying. What is true. The cost of the next kilowatt-hour. The value of the next reactor. The numbers.

He turns back to the Prefect.

BOITEUX (CONT'D)

Terror is not a number. It is a feeling. And I do not make decisions on the basis of feelings — mine or anyone else's.

PREFECT LAURENT

(quietly)

And if they kill you?

BOITEUX

Then my successor will go to the site visit. And his successor after that. Until the people making these threats understand that they are attempting to alter a system that does not respond to their methods.

He returns to his desk. Sits. Picks up the document he was reading when the Prefect entered.

BOITEUX (CONT'D)

I will see you Thursday, Monsieur le Préfet. Nine o'clock. Please arrange whatever security you consider appropriate. I will not ask for more than you can provide, and I will not accept less than the visit itself.

The Prefect stands. He does not know what to say. He picks up his folder.

PREFECT LAURENT

In Germany — I have heard — the engineers have asked to stop. The threats were too much. The politicians agreed.

Boiteux looks up. For a moment, something flickers in his expression — not contempt, exactly, but a kind of recognition. The recognition of a path not taken.

BOITEUX
Yes. I have heard that too.

He returns to his document.

BOITEUX (CONT'D)
We are not in Germany.

The Prefect exits.

Boiteux works. The coffee grows cold. The map on the wall shows the sites - built, under construction, planned. Dozens of them. The program continues.

11 INT. EDF HEADQUARTERS - BOITEUX'S OFFICE - LATER

11

The AIDE enters again.

AIDE
Monsieur le Directeur Général. Your wife is on the telephone. She asks if you will be home for dinner.

BOITEUX
(without looking up)
Yes. Tell her seven o'clock.

The AIDE hesitates.

AIDE
Monsieur - the Prefect's visit. Should I note it in the log?

BOITEUX
Note what, precisely?

AIDE
That he came. That he made a request.

BOITEUX
(a beat)
Note that the Prefect of Haute-Loire visited to discuss arrangements for Thursday's site inspection. Nothing more.

The AIDE nods. Exits.

Boiteux sets down his pen. He looks at the map. At the sites. At the program that has survived everything - the war of the filières, the oil shock, the bombs, the threats, the prefects who cannot guarantee security.

He picks up his pen. He returns to work.

12 INT. EDF HEADQUARTERS - BOITEUX'S OFFICE - CONTINUOUS 12

CLAIRE sits. The first time she sits.

CLAIRE
 (to the audience)
 An admiral who built a navy that would not permit a reactor to fail, and who could not forgive himself when one failure killed a hundred and twenty-nine men. An economist who built fifty identical reactors and went to work the morning after someone tried to blow him up.

She closes a folder.

A beat. She picks up her glass. Considers the audience.

CLAIRE
 Would you not like to go to a bar with these people, and see what they would say to each other?

YOSHIDA
 (quoting Chandler)
 "There is no bad whiskey. There are only some whiskeys that aren't as good as others."

13 INT. THE ROOM - NO PARTICULAR WHEN 13

A room. Fluorescent lights. Folding chairs. A coffee urn. A table with bottles - some labeled, some not. Nobody pays for anything here. Nobody has ever paid for anything here.

The room is not old and not new. It is not any particular when. It is the room.

GRIGORI SEMYONOV is nearest the bottles, a cup in his hand. He is mid-story, enjoying himself.

ADMIRAL HYMAN RICKOVER is in a folding chair reading a technical document. He has a pencil. He is making marks. He is small and old and completely still in the way that a man who has been paying attention for eighty years is still.

MARCEL BOITEUX sits with his legs crossed and his hands folded. He is listening to GRIGORI with the patience of a man who has heard many of GRIGORI's stories and has learned to extract the data from the performance.

HALYNA KOVALENKO sits against the wall. Her chair is slightly apart from the others. Her hands are in her lap. She is not reading. She is not drinking. She is present

the way a person is present who has learned that presence is enough.

GRIGORI

— and so the dosimetrist comes. Looks at us. Makes such a face, like a man who has opened the wrong door at a party. Says — I translate freely — says, "the badge is not working."

(beat)

And Volodya says, "what do you mean, not working?"

(beat)

And the dosimetrist says, "it is showing a number which, if it were correct, would mean that all of you are already dead."

He drinks.

GRIGORI

Well. We were not dead. We were standing right there in front of him. So. The badge was faulty. Such was the conclusion. Fourteen badges one after another — all faulty. Remarkable constancy of the defects. Someone wrote a report about the stubbornness of the manufacturing defect. Probably it would have been simpler to make them properly.

RICKOVER

Who was the health physics officer?

GRIGORI

The Admiral wants a name. The Admiral always wants a name.

RICKOVER

Yes.

GRIGORI

Names there were. The names changed. Policy — a person does not stay in one place long enough that he develops, let us say, an inconvenient relationship with the actual state of things. A fresh view. Such was the principle. In practice — each new officer came knowing nothing and left knowing too much, and in the interval — reports were submitted.

BOITEUX

And the reports?

GRIGORI

Filed. Naturally. Everything was filed. We were a civilization of documents. You understand, in my country the document cabinet was perhaps the most successful engineering achievement. Nothing that entered it ever appeared again. Ideal containment. Better than any reactor.

RICKOVER

(without looking up)

So nobody was responsible.

GRIGORI

Everyone was on the hook. Collective responsibility. Very socialist. This means that when something goes wrong, the investigation can go in any direction.

(drinks)

Volodya is dead. Seryozha is dead.

(stops, says quietly)

Pyotr Ivanovich Markov.

The badge was faulty. Such was the conclusion.

BOITEUX glances at RICKOVER. A look that has years in it.

BOITEUX

You are going to say that this is what happens when no one person in particular carries the responsibility.

RICKOVER

You just said it for me.

BOITEUX

I said that it is what you would say. These are different operations.

RICKOVER

That distinction matters more to the man who draws the chart than the man standing watch.

BOITEUX

(the smallest pause - a beat that in another man would be a sigh)

Yes. Well then. We have already discussed this.

GRIGORI

Many times. Many, many times. I have already lost count. The Admiral and the professor have been refining this particular disagreement since before I even arrived, and I arrived

—
 (counts on fingers, gives up)
 — a long time ago. It is like watching two very intelligent men polish one and the same stone. The stone does not change. The polishing is magnificent.

HALYNA does not react. She is watching GRIGORI the way she has always watched GRIGORI — with the attention of someone who knows that the jokes are load-bearing.

RICKOVER's pencil stops. He looks toward the door.

RICKOVER

Someone coming in.
 (sets down the pencil)
 Radiation signature reads boiling water. GE containment.

BOITEUX

Mark I?

RICKOVER

If I'm reading it right.

BOITEUX

You have had concerns regarding the Mark I.

RICKOVER

Since '72.

GRIGORI

The Admiral has remarks about everything since the very beginning. About everything in general. This is his gift to us.

A door opens.

MASAO YOSHIDA enters. Blue TEPCO jumpsuit, grey with dust. He holds a child's device in one hand. He has the eyes of a man who has not slept in two days because two days ago his reactors started melting.

The room takes him in.

GRIGORI notes him. Studies him with open curiosity.

YOSHIDA

I was told to come here. Where this place is – that, I do not understand.

RICKOVER

Nobody does. Sit down.

(beat)

You came through same way everybody here did. Radiation, breach, device, ground.

You tried to warn people.

YOSHIDA

Yes. It did not go well.

RICKOVER

It never does. The past cannot be changed. Time travel only works if you cannot change the past.

(beat)

Which plant?

YOSHIDA

Fukushima Daiichi.

RICKOVER

How many units?

YOSHIDA

Six. At the time of the earthquake, three were in operation. Units 1, 2, and 3. Unit 4 – the fuel had been removed for periodic inspection.

RICKOVER

When did you lose power?

YOSHIDA

The earthquake was at 14:46. All three operating units, automatic scram. The emergency diesel generators started. Forty-one minutes after that, the tsunami came.

RICKOVER

How high?

YOSHIDA

Fourteen meters.

RICKOVER

Your seawall.

YOSHIDA

Ten meters.

Beat.

RICKOVER
So it went over.

YOSHIDA
Both turbine buildings were flooded. Diesel generators, electrical switching equipment, distribution panels - all were located in the basements of the buildings. All went under the water.

RICKOVER
(quiet)
The backup power was in the basement.

YOSHIDA
Yes.

RICKOVER
Below grade. On a coast.

YOSHIDA
Yes.

RICKOVER
On a coast where tsunamis are a known phenomenon.

YOSHIDA
Yes.

RICKOVER is quiet. He is looking at something that is not in the room.

BOITEUX has uncrossed his legs. He is leaning forward. The posture of a man whose professional attention has been fully engaged.

RICKOVER
Sit down.

YOSHIDA sits. GRIGORI pours a drink and sets it near him without asking.

RICKOVER
After the diesels. What remained?

YOSHIDA
Unit 1 - almost nothing. The battery rooms were also flooded. Units 2 and 3, the DC battery power still remained, but only a matter of hours. The greater part of the
(MORE)

YOSHIDA (CONT'D)
instrumentation was lost. What could
be read, we read by flashlight.

BOITEUX
No more current and no more
instruments.

YOSHIDA
Engineers, there were many. But the
means to see inside the reactors -
there was none. We were blind.

HALYNA shifts. Nobody notices except the audience.

RICKOVER
Tell me about cooling.

YOSHIDA
If there is no power, there is no
cooling. The fuel heats up.
Regarding Unit 1 -
 (the particular pause of a
 man who has reviewed this
 sequence many times)
- there was something called the
isolation condenser. A passive
system - it uses the steam from the
reactor itself. The steam rises,
condenses in a tank on the upper
floor, and the water returns by
gravity. For the operation,
electrical power is not needed.

RICKOVER
It was running.

YOSHIDA
After the earthquake, it started
automatically. It was functioning
normally. The operators were
repeating on and off to control the
speed of cooldown. This was the
correct procedure. Then the tsunami
came. Total loss of power. This
system has a failsafe: when the
control circuit loses power, the
valves close. A safety measure
against pipe rupture. The valves
closed. Without DC power, they could
not be opened again.

RICKOVER
 (to the room, to no one)
A passive system. Didn't need power
to run. Needed power to turn on.

YOSHIDA

Until we understood that the isolation condenser was not functioning — three hours, perhaps more than that. In the central control room, there was no indication of anything. No lighting. No instruments. My engineers went to the car park. They disconnected the batteries from their own cars. Carried them inside. Looked for cables, read the wiring diagrams by flashlight — to restore just enough power to make one gauge work. To see one number. To know what was happening inside the reactor.

During this, HALYNA's hands have tightened in her lap. YOSHIDA does not see this. But she has heard something in his voice that the others have not.

BOITEUX

(to Yoshida)

What help could you receive from your headquarters?

YOSHIDA

The head office demanded from us was reactor pressure. Reactor water level. Precise figures. For their computer models in Tokyo.

RICKOVER stands. This is the first time he has stood.

RICKOVER

They wanted readings. From instruments that had no power. While your men were pulling batteries out of cars.

YOSHIDA

The gauges were not functioning. The power to operate them, we did not have. This, I believe, the head office also understood. Nonetheless — the demand was repeated. The figures are needed, they said. Status reports are needed. At regular intervals.

RICKOVER

Your men are in a building with no lights, no ventilation, radiation rising. They are carrying automobile batteries through the dark. And two hundred kilometers away, in a clean

(MORE)

RICKOVER (CONT'D)
building, someone is requesting
decimal points.

YOSHIDA
The figures were demanded. That is
correct.

RICKOVER remains standing. He does not sit because he
cannot sit with this.

YOSHIDA
By the time we understood the
isolation condenser was not
functioning, the fuel had been in an
exposed state for hours. After that
- we sent people into the reactor
building. Into the darkness. Into
the steam. Into rising radiation. To
open valves by hand. Valves that had
been designed to be operated by
electric motor.

BOITEUX
(stands - this is his
territory, a design
failure)
The manual venting system required
electricity to be activated.

YOSHIDA
The procedure manual - the standard
operating procedure - had written in
it the use of motorized valve
operation. But the motors had no
electricity. So my workers entered
the building. To turn the valves by
hand, in the dark. The radiation
dose in the area of those valves -
to be in that area for more than
several minutes was to receive, let
us say, a considerable dose.

BOITEUX remains standing.

YOSHIDA
And the head office - through the
teleconference - wanted to know
which step of the procedure manual
was being followed. Specifically
which step. The procedure manual
assumes electric motors. The
electric motors had no power. The
workers were turning the valves with
their hands in the dark. And what
the head office asked was - to which
(MORE)

YOSHIDA (CONT'D)
 step of the procedure does this
 correspond?

HALYNA makes a sound.

It could be the start of a sob. It becomes a laugh.

The room looks at her.

The laugh grows. It is not polite. It is not controlled.

GRIGORI sees it. Recognizes it. Something lights up in his
 face - not his performing face, something underneath.

GRIGORI
 (through a building laugh
 of his own)
 They asked for the instructions -

HALYNA
 (between gasps)
 - while the people were inside.

YOSHIDA
 (still in debrief
 register, but something
 shifting)
 They asked which step.

HALYNA
 (between gasps)
 Which step.

And now GRIGORI is laughing in a way the room has not
 heard from him. Not performing. Not the polished
 anecdotalist. He is laughing because this is his filing
 cabinet. This is his fourteen defective badges. Except it
 is, somehow, worse.

GRIGORI
 (wiping his eyes, to
 HALYNA, in the shorthand
 of people who have been in
 this room together for
 years)
 Even us. Even we did not - when the
 boys went into the water under the
 fourth block - Ananenko, Bezplov,
 Baranov - nobody asked them what
 page of the instructions they were
 on. Nobody demanded a report. They
 were told: there are the valves,
 open them, try to come back. That
 was the whole procedure. The
 entirety..

HALYNA
 (between gasps)
 Timecards?

YOSHIDA
 Timecards - that demand came later.

GRIGORI
 (to YOSHIDA, with
 something like wonder)
 The Soviet Union - the system that
 sent Sergei Nikolaevich to a
 facility without heating for writing
 two reports - this system, when the
 building was burning, had the - how
 to say - the decency? No. The
 incompetence. The beautiful
 incompetence to stop demanding
 paperwork. But your people - they
 did not stop.

YOSHIDA
 (and here, for the first
 time, something that is
 almost a smile - the
 exhausted, broken smile of
 a man who has carried this
 alone and is hearing it
 reflected back as
 absurdity)
 The teleconference system. As I said
 before. From the first hours it was
 working. Before batteries. Before
 pumps. Before water. The head office
 could observe us in the dark. This
 was what was prioritized. To
 observe. First the camera. The pumps
 came after. Much after.

BOITEUX has sat down during the laugh. He sat without
 noticing he sat. He is quiet in a way that is different
 from his usual composure.

RICKOVER has not laughed. He is very still. Something far
 away in his eyes.

The room reassembles itself. The chairs. The fluorescent
 light. The free drinks. The professionals.

YOSHIDA
 About the place I am going back to -
 I must tell you.

The room's attention shifts. The laughter is gone. What
 replaces it is the attention of people who know that what
 follows the laughter, in rooms like this, is the thing
 that matters.

YOSHIDA

Three cores have lost cooling. The fuel is exposed, partially melted. We tried fire engines, fresh water — the fresh water ran out. The only remaining option is seawater. Seawater injection into a reactor core.

BOITEUX

Irreversible. The salt corrodes everything it touches. The reactor is finished.

YOSHIDA

I was not trying to save the reactor. The reactor was already lost. What I was trying to prevent — that the situation advances to a point from which recovery is no longer possible.

(beat)

I gave the instruction for seawater injection. March 12, the day after the tsunami. Through a fire engine, we connected piping and began injection into Unit 1. Twenty minutes after that, from the head office, came the instruction to stop.

RICKOVER

On what basis?

YOSHIDA

At the Prime Minister's official residence, a discussion was taking place. Whether seawater injection could give rise to recriticality — a renewed chain reaction in the damaged fuel. What the chairman of the Nuclear Safety Commission conveyed to the Prime Minister was that this possibility —

(with the precision of a man who has replayed these words every day since)

— "cannot be denied."

RICKOVER

"Cannot be denied."

YOSHIDA

In the same sense that it cannot be denied that a meteorite may fall on this room within thirty seconds. The

(MORE)

YOSHIDA (CONT'D)

probability was something that could be disregarded. For a capable nuclear engineer, it is a question that can be settled in perhaps five minutes. However — for stalling the discussion, it was sufficient. Two hours. In Tokyo, the discussion of the physics continued. At the reactor, the temperature continued to rise.

RICKOVER

What did you do?

YOSHIDA

The worker who was operating the seawater line — I called him to my side. I drew close. Close enough that the teleconference microphone would not pick up my voice. And I said to him: from now I will give the order to suspend injection. This order, you are to disregard. Continue the water injection.

The room is very still.

YOSHIDA

Then I stood before the teleconference and announced to the head office, to the government liaison, to everyone who was listening — seawater injection into Unit 1 has been suspended.

Beat.

YOSHIDA

The seawater did not stop.

Long beat.

GRIGORI

To the one who stood at the pump.

He drinks.

BOITEUX

(after a silence, and what follows is delivered with a particular care — each phrase placed like a component in a design)
I would like to be precise about what I observe in this moment.

(MORE)

BOITEUX (CONT'D)

Because the Admiral sees one thing.
I see another. We are looking at the
same event.

(beat)

The Admiral sees the confirmation of
his principle. One man alone. His
own judgment. The institution
defied. He is not wrong. You did
this thing.

(beat)

What I see is that the whisper was
necessary. A correctly conceived
command structure places the
authority of decision at the point
where the technical information is
found. It does not route emergency
cooling through two hours of
political deliberation in the
capital, on a subject which the
politicians are not competent to
evaluate. The courage was real. That
this courage was necessary — there
is the failure.

RICKOVER

The structure didn't pump water into
that reactor. One man did.

BOITEUX

And if the man had not been there?
If a superintendent more obedient,
less sure of himself, had occupied
the post? Your philosophy — it kills
everyone in the building. One relies
on the courage of a single person in
a single instant. That is not
engineering. It is —

(a beat, choosing the
word)

— a wager.

RICKOVER

I have taken that wager. Every day
for thirty years. It held.

(to BOITEUX)

How many safe navy reactor hours
under my watch? Remind me. Tell me
again.

BOITEUX

(to RICKOVER)

Eighteen million, three hundred
fifty thousand.

(beat)

On my watch, how many safe
civilian reactors hours, admiral?

RICKOVER

Four million.

BOITEUX

Three million, seven hundred sixty
six thousand, eight hundred hours.
(calculating)

But, dear admiral -- that is one
thousand four hundred and fifty
terrawatts to your one hundred
fourty five. And I shall also count
China -- my plants and system could
be exported and repeated.

Both men are up. Not mad but energized. Facing one another
in lock.

YOSHIDA

Both of you are speaking about me.

They look at him.

YOSHIDA

In 2008, I was the person who was
not there. The system made doing
nothing rational, and I was
rational, and nothing was done. In
2011, I was the person who defied
the head office, who whispered to
the pump operator, who kept the
water flowing. The same person. The
same power plant. Only three years
between. The system did not change.
It was I who changed.

(beat)

Not because I became a better
person. Because in 2011 the building
exploding was visible to me. In
2008, the data was visible. The
building - it was not visible.

Beat.

YOSHIDA

There is something I must say.

The room gives him its attention.

YOSHIDA

There is a power plant called
Onagawa. The same coast. The same
sea. The same earthquake. The same
tsunami. It belongs to Tohoku
Electric Power - not TEPCO. It is in
a place closer to the epicenter than
my plant. The tsunami at Onagawa was

(MORE)

YOSHIDA (CONT'D)

thirteen meters. All three reactors shut down safely. No core damage. No release of radioactive material. Three hundred residents from the surrounding town took shelter in the plant gymnasium. The power plant was the safest building in the area.

BOITEUX

What was different?

YOSHIDA

There was a person named Yanosuke Hirai. A civil engineer. Vice president of Tohoku Electric. In 1968, the construction committee estimated tsunami height at three meters. Hirai-san investigated the historical record - the Jōgan tsunami of the year 869, documented in temple records, in sediment deposits. As a child he had visited a shrine - a shrine in his hometown - where the memory of the Jōgan wave had been preserved across eleven centuries. Hirai-san insisted. The plant must be built at 14.8 meters above the sea. His colleagues proposed twelve. Some ridiculed him.

(beat)

Hirai-san did not move.

RICKOVER

And the company permitted it.

YOSHIDA

Tohoku Electric paid the cost. The same country. The same regulatory authority. The same Nuclear and Industrial Safety Agency. The same voluntary standards. What was different was the company. One man who would not move, and a company that permitted that man not to move.

RICKOVER looks at BOITEUX.

BOITEUX

(immediately)

I hear Hirai and I hear two things. The man - and the institutional culture that allowed him to prevail. At TEPCO, the same argument fails. Not because the man is less determined. Because the company does

(MORE)

BOITEUX (CONT'D)
not accord the same weight to
precautionary judgment. Two
cultures. Two results.

YOSHIDA
It is both.

RICKOVER
It is both.

The simultaneous answer.

BOITEUX
"Both" is an observation. It is not
yet an analysis.

YOSHIDA
No. It is not yet an analysis. It is
something I know. I know it because
I was at TEPCO.

Something in the room shifts.

YOSHIDA
In April 2007, I took the position
of general manager of TEPCO's
Nuclear Asset Management Department.
The department that bears
responsibility for the long-term
safety and soundness of the nuclear
fleet. In 2008, my department
carried out a simulation. If a
Jōgan-type earthquake were to occur
off the coast of Fukushima. The
result was: anticipated tsunami
height of 15.7 meters at the Daiichi
site.

Beat.

YOSHIDA
The seawall was ten meters.

Beat.

YOSHIDA
This result was reported to me. I
examined it. The methodology of the
Japan Society of Civil Engineers did
not require incorporation of the
Jōgan scenario. There was no
regulatory requirement. The
probability carried uncertainty. The
cost of reinforcement was large. And
to reinforce the seawall would be to
(MORE)

YOSHIDA (CONT'D)
 acknowledge that the seawall was
 insufficient. To acknowledge
 insufficiency would be to accept
 responsibility - for every year the
 plant had operated behind an
 insufficient seawall.

He stops.

YOSHIDA
 Every reason was rational. The
 methodology supported the decision.
 The regulatory authority raised no
 objection. My superiors raised no
 objection.

RICKOVER
 What did you do?

HALYNA stands up and walks to a separate part of the
 stage. Glowing-red graphite blocks from the core are on
 the ground. She walks in a slow loop--her rounds. She
 walks past the graphite blocks again and again and again
 throughout the remainder of the act. She is dying. Nobody
 is talking to her. Nobody is asking her.

YOSHIDA
 Countermeasures were not carried
 out.

Another beat. Then the grammar changes - the passive
 construction falls away and what comes is active and first
 person and it sounds different from everything he has said
 before, because it is no longer a report:

YOSHIDA
 The person who was responsible for
 that department - it was me. I had
 the data. I understood the meaning
 of the data. And I did not act.

Silence. Not the sympathetic silence of people absorbing a
 confession. The particular silence of people who have
 heard this before, in this room, from other men, in other
 languages.

GRIGORI
 (quietly, not a joke)
 There are always reasons. The
 reasons are always rational.

YOSHIDA hears it. He does not flinch. But he hears it.

RICKOVER is on his feet. He has been standing since "the
 probability was assessed as sufficiently low" - this is a

person failure, a man who had the data and deferred – and the standing has become momentum.

RICKOVER

2008. The data showed 15.7 meters.
You held the department. And you let
it pass.

YOSHIDA

Yes.

RICKOVER

Not a committee. Not your superior.
You.

YOSHIDA

As I have said. Yes.

RICKOVER

(and the voice does not
rise – it narrows)
You were a competent engineer?

YOSHIDA

Yes.

RICKOVER

I believe that. I believe you looked
at the number. I believe the
institution you were sitting in made
it rational – not merely easy,
rational – to file it.

(and here the standing has
gone on too long and
something older is running
underneath the
engineering)

But you filed it. You had the
number. You had the chair. You had
exactly the authority that Monsieur
Boiteux says the system denied to
the regulators. You were inside the
room where it could have been
decided. And you sat with a number
on your desk that described the
deaths of your own workers, and you
deferred. You followed the
methodology. You served the tea.

The room goes cold.

BOITEUX speaks. From his chair. Quiet. The composure
total.

BOITEUX

That was not precision, Admiral.
That was ease.

RICKOVER stops.

BOITEUX

You have reduced a systemic failure to a cultural caricature, because the caricature is easier to hold than the analysis. That is precisely what you claim to despise – the easy conclusion, the approval without examination.

(beat)

You have just done to this man what you reproach his institution for having done to the data.

Silence. RICKOVER is still. The particular stillness of a man who has been hit cleanly.

GRIGORI does not pour. Does not comment. This is not the moment.

RICKOVER looks at YOSHIDA. Something recalibrates.

RICKOVER

(and it costs him – not the admission, which is simple, but the recognition of what made the error possible)

That was not what I meant to say. It was what came out. There is a difference, and the difference is my responsibility.

He sits. The correction stands without elaboration.

YOSHIDA

(quoting Chandler)

“There is no trap so deadly as the trap you set for yourself.”

(steady)

When I had the device – when I went back – I went to TEPCO. To the executives. To the people who were above me in 2008. I told them everything. The earthquake. The tsunami. The meltdowns. The evacuations. Everything. They listened. They were polite. They took notes. And they explained that, according to the methodology, countermeasures were not required.

(beat)

I was offered tea.

(beat)

I stood there, and I listened to

(MORE)

YOSHIDA (CONT'D)

them speak the words that I had spoken. The same logic. The same careful, rational, sufficiently supported conclusion to do nothing. From their mouths - my own voice.

(to BOITEUX)

What you say, Monsieur Boiteux, is correct. The structure was broken.

(beat)

However - what I am speaking about is not the structure. What I am speaking about is myself.

A beat. This is the center.

RICKOVER

(quiet)

How many years in the business?

YOSHIDA

Twenty-nine years.

RICKOVER

I used to ask every officer candidate one question. Did you do your best. Not did you follow the procedure. Not did you satisfy the requirement. Did you do your best.

(beat)

I would watch the man's face when the answer was no. You learn more from that silence than from anything he says after it.

He does not ask. He does not need to. He looks at YOSHIDA and YOSHIDA looks back and the question and the answer pass between them without a word spoken.

BOITEUX

A bridge that one should never really cross with a truck, well... that can still prove useful. Useful as long as one is well aware that one must not venture there with a heavy vehicle, you see?

RICKOVER

(to BOITEUX)

You hear what I hear?

BOITEUX

I hear a system that rendered the bad decision rational and the good decision costly. Yes. That is what I have been saying from the beginning.

RICKOVER

That is not what I hear. I hear a good engineer who did not do the hardest thing. And the hardest thing is not being correct. The hardest thing is acting on what you know when every institution around you says there is no need. That is not a systems problem. That is the loneliest thing in the world.

BOITEUX

You speak of it as though it were a question of character.

RICKOVER

It is a question of character.

BOITEUX

Then one is saying that the safety of a nuclear plant rests, in the final instance, on the moral character of individual human beings.

RICKOVER

Yes.

BOITEUX

And that does not terrify you?

RICKOVER

It terrifies me every day I have been alive. You think I do not know that? You think I did not walk into the office every morning knowing that the day I walk out, the whole enterprise begins to degrade? I told them. I told Congress. I told the Navy. I said: the day I leave, they will bring in some man everybody likes, and the standards will drop, and ten years later somebody dies. I said this on the record, in a hearing room, with the stenographer running.

(beat)

They retired me.

GRIGORI raises his cup. A small, private toast.

GRIGORI

(into the pause)

You know, in my country, the people who kept insisting on their "no" - who made themselves, let us say,

(MORE)

GRIGORI (CONT'D)
 inconvenient for the leadership –
 certain people had a great talent
 for this. A cultural gift, perhaps.
 (the lightest beat – a
 half-glance toward
 RICKOVER that carries
 something he would call
 affection and that is also
 something else)
 A worthy stubbornness. It was not
 always rewarded.

RICKOVER registers it. Files it. The way he has filed
 these for sixty years.

HALYNA
 (to the audience)
 Nobody – not me and not my friends
 -- were asked to sign off on
 something. We simply worked, while
 in the dark we worked and died.

YOSHIDA
 (to BOITEUX)
 Your structure did not save Onagawa.
 (to RICKOVER)
 Your individual alone did not save
 it either. What saved it was one man
 inside a company that permitted him
 to be correct. At TEPCO, this was
 not permitted. And I did not fight
 hard enough to be correct
 regardless. I was not able to be
 like Hirai-san.
 (beat)
 Hirai-san died in 1986. Twenty-five
 years before the wave. That he had
 been correct – he never knew.
 (beat)
 And TEPCO – when they constructed
 Daiichi in the 1960s – there was a
 natural bluff. Thirty-five meters
 above the sea. They cut it down to
 ten. To make it easier to bring in
 equipment from the sea side. To
 reduce costs. Twenty-five meters of
 protection that the earth had given
 for free – they removed it.

This lands.

Silence.

BOITEUX

(and what follows costs him - not because the words are difficult but because the admission restructures something he has maintained for a very long time)

I am going to say something that I have never said in this room.

RICKOVER is still.

BOITEUX

It is possible - I believe it even probable - that the French program is carried, in a manner I cannot perceive, by people of whom I have never heard. People inside the system who accomplish the work for which the architecture claims the credit. If that is the case, then what the Admiral and I have been debating is less far apart than what I have maintained.

Beat.

BOITEUX

Better an imperfect system that keeps its people awake than a perfect system that demands nothing but obedience.

RICKOVER looks at him. That landed.

RICKOVER

Probably all three.

BOITEUX

(the driest, smallest smile)

Probably all three.

A pause. The conversation has reached a resting place. Not an ending. This room does not have endings.

YOSHIDA

(standing)

I must go back.

A different quality of stillness.

RICKOVER

To the plant.

YOSHIDA

To the plant. The cores are still losing cooling. At the pump, there is one man who believes I am behind him. I must be behind him.

(beat)

In two days – probably two days – the hydrogen in Unit 3 will explode. After that, Unit 4 will catch fire. The building that was empty. The building no one was worried about. Then the head office will demand total withdrawal. Everyone evacuate. The Prime Minister will refuse this. I will send 650 people to Fukushima Daini – the other plant, on the coast to the south. Fifty I will keep. And I will stay.

BOITEUX

And that, you cannot change.

YOSHIDA

What happened before I found the device – that cannot be changed. What comes after – I will do what I was going to do. Seawater injection. If telling lies to the head office keeps the water flowing, I will tell lies. To the people who are at the pumps, I will tell the truth.

Beat.

YOSHIDA

And I will stay.

RICKOVER

(quietly)

I never asked any of them to do what you are about to do.

This is the most it has cost RICKOVER to say something. Not because the words are hard. Because they are the acknowledgment that his philosophy, tested against this man, arrives at a place beyond the philosophy.

YOSHIDA picks up his cup. Finishes the drink. Sets it down.

YOSHIDA

(to GRIGORI)

For the drink and the stories, thank you.

GRIGORI

The stories are all lies. The drinks
are free.

(lifts his cup)

To the one at the pump.

YOSHIDA turns to HALYNA. He does not speak. She does not speak. They met in the laugh. What passed between them then does not need to pass between them again.

YOSHIDA

(to BOITEUX)

Build them so well that the next
person in my position does not have
to whisper.

BOITEUX

(quietly)

Come back. When it is over.

YOSHIDA

(to RICKOVER)

Admiral. You asked who was the most
senior person who had the authority
to act.

RICKOVER

I did.

YOSHIDA holds his gaze. He does not answer. The answer has been in the room for an hour.

YOSHIDA goes to the door.

HALYNA turns to Yoshida, stopping mid rounds.

HALYNA

(to Yoshida)

You know, at Chernobyl, we had a
saying: if you see some graphite, do
not kick it. Even if it looks like a
toy. Even if your feet are tired.

RICKOVER stands next. He does not salute. He is still for a moment. Then he gives one — correct, unhurried — the way it is done when it is not a formality.

BOITEUX stands awkwardly. His eyes are not meeting anyone.

YOSHIDA leaves.

The room. The chairs. The fluorescent light, still flickering. The bottles on the table. The coffee urn, half full, lukewarm, filled by no one anyone remembers.

GRIGORI pours what remains. Says a name - Aleksei Dmitrievich - quietly. No one reacts. They all carry their dead this way.

HALYNA remains standing for a moment. Then sits. Her hands return to her lap.

RICKOVER picks up his document. Picks up his pencil. The pencil does not move.

BOITEUX is still. The composure is intact. Something behind it is not.

The light flickers.

The drinks are free.

FADE OUT.

**14 INT. FUKUSHIMA DAIICHI - UNITS 1 & 2 CENTRAL CONTROL ROOM 14
- EARLIER OR LATER**

HQ:

(Over Monitor)

We passed along the current information to the Prime Minister's Office, and they're asking whether we can estimate what time the seawater injection will be finished?

YOSHIDA:

It's seawater, so the volume isn't being measured precisely. If we were filling from a tank, you'd get forty tons per tank, simple. But we've just been estimating based on one ton per minute. So far - maybe sixty, seventy tons? Hour and a half. Maybe ninety tons. I'd say about two more hours -

HQ:

About two hours.

YOSHIDA:

Yeah.

HQ:

Order of magnitude, something like that.

YOSHIDA:

Yeah, roughly.

HQ:

Roughly is fine.

YOSHIDA:

Mm.

HQ:

So, two to three hours, something like that?

YOSHIDA:

That's right.

HQ:

Understood. Thank you.

A pause. A new face comes on the monitor from HQ.

HQ:

So look, apparently over at the Cabinet Office, or the Prime Minister's Office, they heard somewhere that the target would be reached "around one o'clock," and they're about to go ahead and say that to the press - but based on what we just heard, it's going to take longer than that, and you're going to fill to capacity, so we need to give them a rough number or else they're about to go out there and tell the press "the pressure vessel will be full at one a.m." That's the momentum right now. The correct figure -

YOSHIDA:

Actually, I need your help on this - where did "one o'clock" come from? It probably came from our side, didn't it?

HQ:

"One o'clock" was probably a ballpark number that came up while Takekuro-san was talking to people at the PM's Office. He might have meant TAF.

HQ:

(different voice)
Might have been TAF.

HQ:

They're saying he said "full."

HQ:

(different voice)
Then that's different.

HQ:

Apparently what stuck in their heads was someone saying "full around one o'clock." So - can you tell us roughly when it'll actually be full?

YOSHIDA:

Like I said before, we haven't even decided which approach we're taking because the water level gauge still isn't alive, so we can't determine -

HQ:

If it's hard to pin down exactly, then - the volume needed to fill the vessel, divided by the current rate of about one cubic meter per minute - hours, days, just that level of estimate would be fine -

Someone at HQ is on a cell phone to the PM's Office relaying to the person on the monitor.

HQ:

- they want to know when it'll be full. Everyone's waiting. The Chief Cabinet Secretary, the ministers, the PM's Office. So just give them a rough-and-ready "this is about what it'll be" -

YOSHIDA:

I keep saying - we don't know exactly what the current water level is, so I can't give you a time. So what I'll do is take the current reading of minus one-seventy as a starting assumption, figure out roughly how many tons to reach capacity, divide that by sixty tons per hour, and put something together.

HQ:

Yes. That kind of assumption is fine.

1F SAFETY TEAM:

Safety team - sharing environmental monitoring results. Monitoring Post 8 area, as of twenty-three hundred hours: 4.3 microsieverts per hour. Main gate, twenty-three ten: 3.29

(MORE)

1F SAFETY TEAM: (CONT'D)
microsieverts. Monitoring Post 4:
49.3 microsieverts.

(Beat)

I would like everyone to be aware.
The readings are somewhat higher
toward the Unit 1 side. For those
resting, to reduce your dose, the
northwest corner of this room is
likely the lowest. As you move
toward Unit 1, the readings go up.
The room as a whole is running
around seventy microsieverts.
Meaning that simply being in this
room, you are receiving seventy
microsieverts per hour of exposure.
Please be aware.
Thank you.

WELFARE TEAM

(Over Monitor)

We've stacked blankets for napping
near the entrance to the response
room. Please use them as needed.
We've also set up a return area
beside them for tomorrow morning, so
please bring them back there. Thank
you.

HQ:

(Over Monitor)

Yoshida-san, can you hear me?

YOSHIDA:

Yes, I can hear you.