REPORT OF THE INQUIRY

INTO

THE RAILWAY ACCIDENT ON THE CIE RAILWAY AT ARKLOW, CO WICKLOW ON 3rd OCTOBER, 1979

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RAILWAY ACCIDENT AT ARKLOW, CO WICKLOW

ON 3RD OCTOBER, 1979

INTRODUCTION

The Minister for Tourism and Transport by Order dated 17th day of October, 1979 directed that an Inquiry by made by Mr [redacted], BE, MIEI into the causes of a railway accident which occurred at Arklow Station at about 19.10 hours on Wednesday, 3rd October, 1979 as a result of which about twenty-seven passengers and two members of the crew of one of the two trains involved received injuries of varying severity. Fortunately there were no fatalities.

I inspected the accident site on 5th October, 1979 and on a number of subsequent occasions and I heard evidence from persons concerned or having relevant knowledge of the accident and from officers of Coras Iompair Eireann on 16th January, 1980, at the Land Commission Court Room, 24 Upper Merrion Street, Dublin 2. The evidence was not taken on oath and was heard in public. I have the honour to report as follows:-

DESCRIPTION AND CIRCUMSTANCES

Arklow Station is 50½ miles from Dublin (Pearse Station) on the single-line railway to Rosslare Harbour. Block posts on either side of Arklow are Rathdrum (38½ miles from Dublin) on the Up side and Gorey (60¾ miles from Dublin) on the Down side.

A diagrammatic layout of Arklow Station is at Appendix I.

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In 1977 alterations were carried out to the Arklow Station signals. These alterations included moving the Up Outer Home and Distant semaphore signals 150 yards outwards towards Gorey and installing a new colour-light Down Advance Starting signal 300 yards from the Up Home signals. This signal replaced the Limit of Shunt Board.

On the day of the accident, because of maintenance work, train speeds were restricted to 25 mph between 51¼ and 51⅝ miles from Dublin.

The trains involved in the accident were an Up cement train consisting of one locomotive and nineteen wagons which had departed Gorey at about 18.10 hours for Arklow, where four wagons were to be unloaded, and the 17.40 hours Up passenger train from Rosslare Harbour to Dublin consisting of one locomotive, five passenger coaches and a guard's van which had departed Gorey at about 18.55 hours and was scheduled to stop in Arklow at 19.09 hours.

The trains collided on the mainline near the Down Advance Starting signal which is between the Up Outer Home and Home signals. Five wagons of the cement train were extensively damaged. The locomotive of the passenger train was severely damaged and some damage was caused to the passenger coaches. There was substantial damage to the permanent way.

It had started to rain at about the time of the accident, and visibility became poor.

SUMMARY OF EVIDENCE

Signalman [redacted] has been a signalman at Arklow for over 30 years. On the evening of the accident he had accepted the Up cement train from Gorey under Signalling Regulation No. 3. He received the "train entering section" signal at 18.25 hours, the train arrived at 18.44 hours and he sent the "train out of section" signal at 18.46 hours before he had checked that the train had arrived complete. At about the same time he released the token to Gorey for the Up passenger train. The Up cement train was listed in the Working Timetable as due to arrive in Arklow at 16.10 hours. The Rail Control Office, Dublin, had requested, by telephone, that it should depart from Arklow at 20.00 hours. Mr [redacted] was aware that the four rear wagons of the cement train were to be unloaded at Arklow and had he known in advance that the local fork-lift driver, Depotman [redacted], would not have sufficient time to unload these four wagons before the train departed at 20.00 hours he would have brought the cement train initially into the Platform instead of directing it into the Goods Siding.

He discussed the shunting movements with the cement train's driver and guard and with the depotman. His intention was, on completion of the shunting, to hold the cement train on the Loop until the Up and Down passenger trains had departed from Arklow.

He told Driver [redacted] to detach the four wagons for Arklow at the Platform. He estimated that the shunting could be completed in fourteen to fifteen minutes and while there was still daylight. Mr [redacted] was aware that the Up passenger train was due in about 20 minutes.

He had released the token for this train at 18.46 hours and he received the "train entering section" signal from Gorey at 18.56 hours. He expected that the Up passenger train would arrive in Arklow at about 19.10 hours.

Mr [redacted] detailed the various shunting movements involving the Up cement train. The train propelled out from the Goods Siding onto the mainline towards Gorey, went forward towards Rathdrum, the four rear wagons were uncoupled at the Platform and the train continued along the mainline past the Up Starting signal (No. 5). Mr [redacted] hen cleared the Loop Down Home signal (No. 13) and the train propelled into the Loop, continued past the Loop Down Starting signal (No. 12), past the Up Loop and Mainline Home signals (Nos. 2 and 4) and out to the mainline towards Gorey. Mr [redacted] then restored the Down Home signal (No. 13) to Danger and cleared the Up Home signal (No. 4) to allow the train to go forward to pick up the four wagons at the Platform. He agreed that his working of signals Nos. 5 and 4 was irregular. The train should have been stopped and the driver instructed to pass signal No. 5 at Danger.

Mr [redacted] said that it was his usual practice to clear the Up Outer Home signal when he got a "train entering section" signal from Gorey. He was, however, certain that he had not cleared the Up Outer Home signal that evening because the cement train's shunting movements were still in progress when he received the "train entering section" signal from Gorey for the Up passenger train. Driver [redacted] had carried out similar shunting movements previously at Arklow.

While Mr [redacted] had not experienced any difficulty operating the Gorey signal levers he had found the levers for the two Outer Home signals "very hard" because of the distances to the signals and the curvature of the pull wires. Oil lamps in the Outer Home and Distant signals had an endurance of about nine days. The usual routine was that a signalman refilled them every Thursday or Friday. He was not aware of any local arrangement for inspecting signals between these routine visits. He had returned from sick leave on the Friday prior to the accident. It was not possible to see either the Up Outer Home or Distant signals from the Signal Cabin. In the past train crews had reported signal faults. He was unaware that drivers operating from Rosslare Harbour had reported to their trade union that the Up Outer Home signal was defective on thirteen occasions in the nine months prior to the accident. On the day of the accident Mr [redacted] came on duty at noon and was rostered to remain until midnight.

Train Driver [redacted] has been driving trains on the Dublin/Rosslare line for about ten years. On the day of the accident he had joined the Up cement train at Enniscorthy. After passing Gorey he slowed to 25 mph for the speed restriction about two miles on the Gorey side of Arklow. He had no difficulty in identifying the speed restriction marker board; he did not recollect seeing a flashing light on the marker board.

Having passed the Up Distant signal Mr [redacted]'s train was stopped at the Up Home signal at about 18.44 hours. He did not notice if the lamps in the signals were lighting. At that stage it was still daylight, visibility was fairly good and the ground was "dampish".

Driver [redacted] was signalled into the Goods Siding. He subsequently took the token to the Signal Cabin where he was told that there had been an instruction from the Rail Control Office, Dublin for the return of his train to Dublin at 20.00 hours and that the four wagons for Arklow were to be left in the Goods Siding. He had not been told that his train was needed urgently in Dublin. With his guard and the signalman he agreed the programme of shunting movements necessary for the detachment of the four rear wagons. The usual procedure at Arklow was that cement wagons were unloaded inside the Goods Siding while passenger trains continued to operate on the mainline.

However, Mr [redacted] assumed that in this instance, as the wagons were not to be unloaded, he would depart to Rathdrum immediately the shunting movements were completed.

When Mr [redacted] commenced shunting the cement train he was aware of the scheduled arrival time of the Up passenger train but he did not know if it was running to time. No estimate had been made of the time required for the shunting movements.

During the shunting Mr [redacted] had taken his train past the Up Starting signal which was in the Clear position. He was not in possession of a token. After he had placed the four wagons in the Goods Siding he propelled his train onto the mainline in the Gorey direction. He sounded his hooter to get the signal for Rathdrum and then noticed the signalman on the footbridge waving to him indicating that he should proceed into the Loop. The Loop Home signal was displaying a Clear aspect. At about the same time, and as his train was barely moving, he felt the impact of the collision.

At no stage during the shunting had he seen the Up Outer Home signal displaying a Clear aspect.

Depotman [redacted] who received his guard's certificate in 1979 was the guard on the Up cement train. He had joined the train at Enniscorthy. He had acted as guard on trains on the Wexford line on about five occasions prior to the day of the accident. Although he travelled in the locomotive from Enniscorthy he had not noticed the aspects of any of the Up signals as his train approached Arklow nor had he noticed whether the lights on the speed restriction marker board were flashing.

When Mr [redacted]'s train stopped in the Goods Siding he alighted and he later spoke to Driver [redacted] and the local depotman who told him that the Rail Control Office, Dublin had asked that the four wagons which were for Arklow be detached. They discussed the shunting movements that had been agreed with the signalman. Mr [redacted] assumed that when the shunting movements were completed the Up cement train would depart for Rathdrum. At no stage did anyone suggest that the cement train would be brought into the Loop.

While he had previously seen and reported defective signals elsewhere he had never noticed defective signals at Arklow.

Bus Driver [redacted] was in the Signal Cabin with Signalman [redacted] when the Up cement train arrived in the Goods Siding. Driver [redacted] came into the Cabin and discussed the shunting movements with Signalman [redacted]. Both men went down to the Platform where they were joined by the train guard. Signalman [redacted] returned to the Cabin and the shunting movements commenced.

The train propelled from the Goods Siding in the Gorey direction, moved forward to the Platform where the four wagons for Arklow were uncoupled and ran around these wagons which were then coupled to the locomotive. Signalman [redacted] remarked that if there was an older man on the job he would have coupled the four wagons more quickly. The train propelled in the Gorey direction, came forward, placed the four wagons in the Goods Siding and propelled out again onto the mainline. The train then stopped and Signalman [redacted] waved to the driver that he should propel out further.

At about the same time Mr [redacted] heard a hooter and he told Signalman [redacted] that the passenger train was approaching. Mr [redacted] said that it was coming against the signals. Immediately afterwards he heard the sound of the collision. Visibility at the time of the accident was good but it deteriorated rapidly during the following fifteen minutes.

Train Driver [redacted] the driver of the 17.40 hours ex Rosslare Harbour Up passenger train on the day of the accident was a regular driver on the railway line through Arklow. After departing from Gorey (60¾ MP) his train was travelling at 50 to 60 mph until he reduced speed for the speed restriction between the 51½ and 51¼ MPs. He could not recall if the light at the speed restriction marker was flashing. The train picked up speed again and was travelling at 45 to 50 mph when he got first sight of the Arklow Up Distant signal which he knew to be fixed in the Caution position. It was still daylight. He did not see any light in this signal as he passed it.

Mr [redacted] had reduced speed approaching the Up Distant signal and he made a partial brake application coming round the curve towards the Outer Home signal. He was travelling at about 35 mph when he had first sight of the Outer Home signal. The signal was completely "off". He would have expected to find this signal "off". He flashed the locomotive's headlight for the purpose of checking the signal arm's position as he usually did on overcast evenings and in the period just before darkness fell. He thought there was a faint green light from the Outer Home signal and, while he did not look at it continuously while approaching it, his recollection was that the position of the signal arm did not change.

Insofar as Driver [redacted] was aware his train was running on time. He had no information on the running of the cement train.

Mr [redacted] switched on the locomotive headlight again and saw the cement train ahead and the red lights of two signals at Danger. The cement train, which had no tail light, appeared to be moving. He thought the signals at Danger were the Up Home (No. 4) and a signal beyond the footbridge which could have been the Loop Up Starting signal (No. 3). He would have expected to find the Up Home signal "off". Mr [redacted] applied the emergency brake and got down on the cab floor just before his locomotive hit the cement train.

On the evening before the accident Driver [redacted] had driven the 17.40 hours ex Rosslare Up passenger train through Arklow. On that occasion he had not noticed anything unusual about the signals as he made a normal approach to Arklow Station.

During the previous March when driving a train from Arklow to Gorey he found the Arklow Up Outer Home signal in the "off" position. He had reported this to the Gorey signalman.

Guard [redacted] who has worked on the railway through Arklow for many years was in charge of the 17.40 hours Up passenger train on the day of the accident. The train left Gorey on time and because it was too "dusky" for a green flag he had used a green hand-lamp to signal his driver. Approaching Arklow, Mr [redacted] was in the guard's van at the rear of the train with the train checker. He did not recollect if the train's speed had been reduced for the speed restrictions between Gorey and Arklow. He thought the train reduced speed just after passing the Arklow Up Outer Home signal and a couple of minutes later it was in collision with the cement train. Guard [redacted] was not on the look-out for signals as his train neared Arklow. It was dark at the time of the accident. Mr [redacted] who was injured in the collision, arranged that the checker would protect his train. He was unaware of any defects in signals on that section of railway.

Traffic Inspector [redacted] arrived at Arklow Station shortly after the accident. He went to the Signal Cabin where Signalman [redacted] was on duty. Signalman [redacted] appeared to be quite normal. The lever for the Loop Up Home signal (No. 2) was pulled and fitted with a collar. The repeater for the Up Outer Home signal indicated "wrong, adjust".

He visited the accident site and inspected the relevant signals. The Loop Up Home signal arm was in the Clear position and the green light was visible, the Up Outer Home signal was in the Danger position and its lamp was empty and unlighted, the lamp in the fixed Up Distant signal, which was also unlighted, contained a small amount of oil.

Station Master [redacted] had been at Arklow as Chief Clerk since 1962 and as Station Master since 1977. He understood that one of the principal reasons for altering the signal layout in 1977 was to allow liner trains to move directly from the Goods Siding to the mainline.

Shortly after the collision he went to the Signal Cabin where, to the best of his recollection, Signalman [redacted] told him that the passenger train must have passed the signal. Mr [redacted] thought that the repeater for the Up Outer Home signal was showing "wrong, adjust" and saw that only the Loop Up Home signal lever was pulled. Inspector [redacted] told him that he had found the oil lamps in the Up Distant and Outer Home signals unlighted. Mr [redacted] agreed that the Arklow signalmen were responsible for filling oil lamps on signals. To his knowledge no one went out specially to check if lamps on the remote signals were being properly serviced and maintained. Mr [redacted] relied both on the integrity of the staff responsible for filling and maintaining the lamps and on the reporting by train drivers of unlighted signal lamps. Vandalism was an intermittent problem. Full replacement lamps were fitted in the Up Distant and Outer Home signals on the night of the collision and two days later the lamp in the Outer Home signal was removed and thrown away.

One fill of an oil lamp usually lasts about nine days, depending on the wick-height setting. Lamps in the Up Distant and Outer Home signals had been filled on the previous Wednesday, 26th September. To service the lamps on these two Up signals the signalman would be absent from the Signal Cabin for about one and a quarter hours. This duty is carried out weekly.

Prior to the accident Mr [redacted] had not heard reports of any signal defects in Arklow. Subsequently he learned that during 1979 two defects had been reported to Signalman [redacted]. In one instance the signalman had adjusted the pull wire, in the second instance the signalman telephoned the Signal Maintenance Department, Dublin. He was also aware that when the Down Distant and Outer Home signals were inspected two days after the accident the lamp box lenses in both signals were broken. Mr [redacted] said he had been surprised earlier in the hearing when Irish Transport and General Workers' Union representative, Mr [redacted] intervened to say that drivers, members of his Union, had made representations to him, Mr [redacted], on thirteen occasions during the previous nine months, saying that the Arklow Up Outer Home signal was defective.

Mr [redacted] could not remember any of the Arklow signalmen being sent on refresher courses. While he had received the Regulations for Train Signalling and General Instructions to Signalmen that operated from 1st May 1979, he had not received Amendment Notice. No. 1 - issued in June 1979.

Assistant Signal and Electrical Engineer [redacted] was unable to trace any reports made to his staff before the date of the accident saying that the Arklow Up Outer Home signal had displayed a clear aspect when it should have been at Danger. He could accept that thirteen such instances had been reported to Mr [redacted] of the Irish Transport and General Workers' Union.

[redacted] explained that the signalling alterations carried out in 1977 were intended to enable goods trains to move directly from the Goods Siding into the section. These alterations included the installation of a Down Advance Starting colour-light signal on the Gorey side of the Station and moving the Up Outer Home and Distant semaphore signals 150 yards further out from the Station towards Gorey. The Up Outer Home signal is now about 1,080 yards from the Signal Cabin. Mr Scully did not regard that distance as being exceptionally long for mechanical operation. Replacement of the Up Distant and Outer Home signals by colour-light signals had not been considered. A colour-light Advance Starting signal was installed because there was no spare lever in the Signal Cabin. While he regarded oil lamps as satisfactory, he accepted that a combination of electric lamps and lenses was better. Mr. [redacted] also accepted that at the time of the collision there were defects in four of the running signals at Arklow (Up Distant and Outer Home and Down Distant and Outer Home). A member of the Signal Department's maintenance staff, who was working at the Shelton barrier on the day of the collision, called to the Signal Cabin where he observed that the signal repeaters were operating correctly.

A "wrong, adjust" indication which Mr [redacted] saw on the Up Outer Home electric repeater after the accident was caused by an earth fault on the signal wire which was buried in debris resulting from the accident.

Area Manager [redacted] said there was nothing irregular in the cement train's shunting movements. The irregularity mentioned by Mr [redacted] arose when the Up Starting signal (No. 5) was cleared to permit the movement along the mainline immediately after the four wagons had been uncoupled and left standing at the Platform. The correct procedure was that the driver should have been instructed verbally to pass the Up Starting signal while it was at Danger. A second irregularity arose after the cement train had propelled through the Loop when the Up Home signal (No. 4) was cleared to allow the train forward to pick up the four wagons standing at the Platform. The correct procedure in this instance would have been to call the driver forward using Disc signals Nos. 6 and 11.

Mr [redacted] was of the view that the signalling alterations carried out in 1977 did not warrant special training or instructions for the local staff. Regarding Mr [redacted]'s statement that he had received representations on thirteen occasions that the Arklow Up Outer Home signal was "drooping" or "off" when it should have been at Danger, Mr [redacted] said that, in the course of CIE's inquiry into this accident, thirteen drivers who normally drove over that section of the railway were asked if they had ever noticed the Arklow Up Outer Home signal "drooping" or "off" when their trains were travelling in the Down direction and only five drivers had, at some time earlier this year, noticed the signal "drooping" or "off".

Two drivers who had passed through Arklow on the day of the accident noticed nothing unusual.

Technical Manager [redacted] detailed damage sustained by the vehicles in both trains. This damage was consistent with the vehicles being involved in a collision. After the accident, brakes on all coaches in the Up passenger train were checked individually and found to be satisfactory. Because of accident damage it was not possible to check the locomotive's brakes until recently. An examination of the Hasler disc chart recovered from the locomotive of the passenger train confirmed that there had been rapid deceleration before the collision and this could only have been achieved if the braking systems were in good condition.

Mr. [redacted] said that the Hasler disc chart recorded speeds over the final 1,850 yards travelled before the collision. His analysis of the chart suggested that the Up passenger train's speed approaching the Up Distant signal was about 54 mph. This speed was held for about 480 yards. There was then a reduction of about one mph for a further 355 yards. After a reduction to 52 mph there were a number of successive speed reductions which corresponded to normal service braking. These were followed by a rapid rate of deceleration equivalent to emergency braking. The speed at the moment of impact was about 24 mph. From his analysis of the Hasler chart recovered from the cement train he formed the opinion that the train was propelling towards Gorey at about 13 mph at the moment of impact. After the accident he had carried out a series of test runs on the Up line to Arklow using a train of the same composition as the passenger train involved in the accident. This enabled him to form

an opinion that the driver of the Up passenger train made a fairly heavy brake application before he came into sight of the Up Outer Home signal, then "pumped" the brake for some distance and, after passing the sighting point of the Up Home signal, made an emergency brake application.

In Mr. [redacted]s view, based on these test runs, when the driver of the Up passenger train braked initially he would just about have been able to stop his train at the Up Outer Home signal but when he came to the sighting point of that signal he would not have been able to stop at it and when he came into sight of the Up Home signal the train was under control and could have been stopped short of that signal. Neither the Hasler chart nor the locomotive tyres suggested that any skidding had taken place. The train's speed indicator was checked and found accurate to within 2 mph.

CONCLUSIONS

The accident on 3rd October, 1979 occurred because the 17.40 hours ex Rosslare Harbour Up passenger train, when approaching Arklow Station, could not be halted before it collided with a cement train which, in shunting, was propelling along the mainline towards Gorey and had almost reached the Down Advance Starting signal, which is located between the Up Outer Home and Home signals.

The Up passenger train's speed at the point where the driver could have had first sight of the Up Outer Home signal was probably too fast to enable the train to be stopped before it reached that signal. The train could have been halted before reaching the Up Home signal.

There is doubt as to whether the Up Outer Home signal, which is not visible from the Signal Cabin, was in the Danger or Clear positions when the Up passenger train passed it. I am of the view that while this signal had not been cleared at the material time its semaphore arm was tilted so far below the horizontal that the driver of the Up passenger train thought it was in the Clear position.

OBSERVATIONS AND RECOMMENDATIONS

There was conflicting evidence at the hearing regarding the aspect of the Arklow Up Outer Home signal as the Up passenger train approached it just before the accident. Signalman [redacted] said that while he usually cleared that signal when he got a "train entering section" bell signal from Gorey he was satisfied that he had held the signal at Danger on this occasion. Driver [redacted] said it was in the Clear position. Other evidence was that this signal, which had been repositioned about 150 yards outwards from the Signal

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bin in 1977 had, on occasions, been observed by train drivers to "drooping" or in the Clear position when it should have been at anger.

xplanations for conflicting evidence from what I believe to be eliable witnesses could include one of, or some combination of, he following possibilities - that when the signal lever was estored to Danger by Signalman [redacted] after the arrival of the Up ement train the signal's semaphore arm did not return to the Danger osition, that there was an intermittent fault in the signal's arm or rm repeater mechanism, that because Driver [redacted] expected to see he signal in the Clear position he was convinced that he saw it in hat position, that because of the standard to which the Arklow ignals were being serviced and maintained at that time Driver Whitty aid less than the required attention to the Up Outer Home signal, or hat the signal's semaphore arm was tilted so far below the orizontal that it appeared to Driver [redacted] to have been in the lear position. In my view this latter is the most likely xplanation.

hen the Up Outer Home signal was repositioned in 1977 no consideration as given to replacing it by a colour-light signal. Prior to 1977 he pull wire to the signal followed a series of straight lines; he repositioning involved the introduction of a curved section near he outer end of the pull wire.

t the time of the accident oil lamps in the Up Distant and Outer ome signals were unlighted and lamp-box lenses in the Down Distant nd Outer Home signals which had been damaged by vandals had not been eplaced. Some railway personnel who had observed irregularities nd defects in the Arklow signals had not complied with the reporting rocedure laid down in CIE Rule 155 (a).

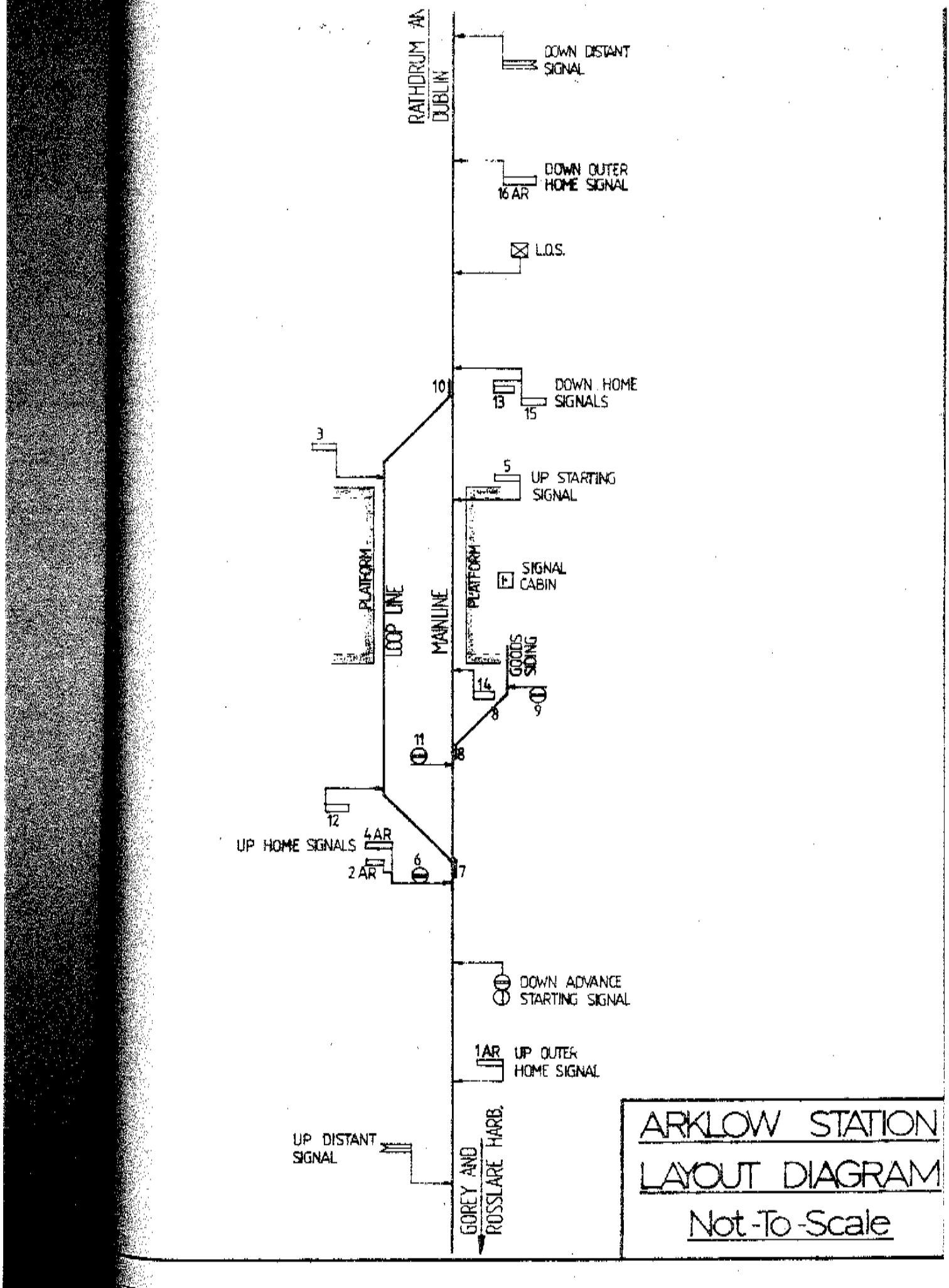
The Caution position of a Distant signal indicates to a driver that he must be prepared to stop at the next Stop signal or at any other Stop signal in advance worked from the same Signal Cabin - CIE Rule 36 (c). The Arklow Up Distant signal is fixed permanently in the Caution position and as the next Stop signal is the Outer Home the working of the Up passenger train involved in the accident should have been such that it could have been stopped at that signal.

Recommendation No. 1: Where semaphore signals are being repositioned a significant distance outwards from controlling signal cabins, consideration should be given to replacing them by colour-light signals.

Recommendation No. 2: The attention of train crews should be drawn at regular intervals to the CIE Rule requiring the reporting of irregularities and defects in signals at the first station at which their trains stop.

[redacted]

April 1982


RATHDRUM AA
DUBLIN
DOWN DISTANT SIGNAL
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UP STARTING SIGNAL
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LOOP LINE
MAIN LINE
PLATFORM
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UP HOME SIGNALS
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2AR
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DOWN ADVANCE STARTING SIGNAL
1AR
UP OUTER HOME SIGNAL
UP DISTANT SIGNAL
GOREY AND ROSSLARE HARB.
ARKLOW STATION
LAYOUT DIAGRAM
Not-To-Scale