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13 April 2015

Dr Richard Chadwick  
General Manager  
Adjudication Branch  
Australian Competition & Consumer Commission

Via email: [Richard.Chadwick@accc.gov.au](mailto:Richard.Chadwick@accc.gov.au)

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Dear Dr Chadwick,

**NBN Co Limited application for re-authorisation (A91479-A91481) for revised arrangements concerning Optus' HFC network – information request**

On 12 February 2015, NBN Co lodged an application pursuant to s. 91C of the *Competition and Consumer Act 2010* (Cth) (**CCA**) for:

- revocation of the authorisations of certain provisions of the Original Optus Subscriber Agreement to migrate Optus' hybrid fibre-coaxial cable (**HFC**) subscribers to the National Broadband Network (**NBN**) and to progressively decommission parts of the Optus HFC network infrastructure; and
- the substitution of new authorisations of certain conduct-related provisions of the Revised Agreements.

[REDACTED]  
[REDACTED]  
[REDACTED] Following this, on 2 April 2015, the ACCC sent NBN Co an information request and advised (on 7 April 2015) that the ACCC would be assisted by NBN Co responding to questions 5, 11, 12, 13, 16 and 21(a) as a priority.

NBN Co's responses to the priority questions are set out in the attachment. NBN Co has also responded to questions 7, 8 and 9. These responses are provided on a confidential basis. As the ACCC is aware, NBN Co is still in the planning phase for the HFC element of the multi-technology mix (**MTM**) approach and the information NBN Co is able to provide necessarily reflects this.

If you have any questions please do not hesitate to contact me. We would be happy to discuss any of the information in these responses if it would assist the ACCC. NBN Co will provide responses to the remaining questions as soon as possible and in any event by 24 April 2015.

Yours sincerely

Caroline Lovell  
Chief Regulatory Officer

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Attachment – Responses to ACCC questions

Question 5 (a) Please outline NBN Co's intended HFC product construct during the transition period noting any differences to the product construct to apply after the transition period respectively.

[Redacted]

[Redacted]

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Question 5 (b) Please advise NBN Co's estimation as to when the first HFC service area module's (HSAM) transition period will expire and when it anticipates the last HSAM's transition period will expire.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Question 7(a) What demand profile by speed tier does NBN Co anticipate for its HFC product set? In support of this forecast, please provide historical data showing the distribution of NBN Co FTTP AVCs (in aggregate) by speed tier and a brief explanation of any difference between the HFC demand forecast and these historical trend data

At Appendix A NBN Co provides:

- the forecasts for demand profile by speed tier; and
- a historical data set showing the distribution of NBN Co FTTP AVCs by speed tier.

[REDACTED]

Please note that the forecast figures provided are NBN Co's current estimates and are subject to change.

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Question 7(b) What engineering rule or performance benchmarks, etc, would NBN Co intend to maintain in order for the HFC network to meet the forecast demand profile?

[REDACTED]

Question 7(c) For each rule or benchmark that NBN Co identifies above, is NBN Co aware from its own inquiries how its approach compares to that of Telstra and Optus as current HFC network operators?

NBN Co does not have sufficient information to compare its planned approach to that of Telstra and/or Optus as current HFC network operators.

[REDACTED]

Question 8 [REDACTED]



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Question 11(a) What is the contribution to total contract value for each network investment type [that ARRIS will provide]? How many network elements (CMTS, optical nodes, etc) will be deployed as a consequence of the contract?

NBN Co has engaged ARRIS to support the delivery of its HFC program. [REDACTED]  
[REDACTED] In terms of equipment, ARRIS will supply HFC DOCSIS systems (including IT system integration and CMTS), HFC optical transmission and optical node equipment. [REDACTED]  
[REDACTED]

In the below table, NBN Co provides an approximate cost breakdown [REDACTED]  
[REDACTED]  
[REDACTED]



Question 11(b) Where possible, the ACCC would appreciate a breakdown of the investment to be made under the ARRIS contract as it relates to the Telstra HFC plant and the Optus HFC plant respectively.

NBN Co is not yet (given the current status of its planning process) in a position to provide a precise breakdown of the investment to be made under the ARRIS contract as it relates to the Telstra and Optus HFC plant respectively. The preliminary engineering exercises required to answer this question are not yet complete. NBN Co is currently doing network tests and construction trials which will inform us as to how the potential spend will be allocated.

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

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[REDACTED]

Question 12(b) What additional investment in the Optus HFC plant would NBN Co anticipate being required in a scenario where it would operate that network on a stand-alone basis across its existing footprint?

NBN Co has not undertaken any analysis of what would be required to upgrade the Optus network as a standalone network. Given NBN Co's HFC strategy is to utilise both the Telstra and Optus HFC networks it has no plans to undertake this analysis.

[REDACTED]

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Question 13(a) Is the value of the DOCSIS 3.1 investment reflected in the ARRIS contract value, or would this represent an incremental investment on top of the ARRIS contract?

[REDACTED] There are two main cost components relating to the upgrade of the network to DOCSIS 3.1:

- *CMTS:* [REDACTED]
- *Cable Modems:* [REDACTED]

Question 13(b) What particular network elements would need to be replaced or enhanced in order to supply DOCSIS 3.1 services? What does 'tuning of RF elements' involve?

[REDACTED]  
[REDACTED]  
[REDACTED] NBN Co plans to deploy DOCSIS 3.1 modems at launch in 2016. A small number of modems may need to be replaced if the availability of DOCSIS 3.1 modems are delayed beyond the NBN launch date for its HFC product.

NBN Co does not need to replace any cabling in the street or in the home to support DOCSIS 3.1.

The tuning of RF elements relates to a process of ensuring the RF characteristics of the cable plant meet the required specifications. This process is often comprised of:

- tightening the coaxial network plant to minimise RF signal ingress and leakage; and
- aligning the transmit and receive levels in both the optical and electrical components of the network.

Question 16 Please provide forecasts for the number of NBN SIOs by Data Transfer Rate in HFC areas for each year until 2040 assuming the Amended and Restated Optus HFC Subscriber Agreement is implemented. Please provide a breakdown of these forecasts by residential and business users.

At Appendix B, NBN Co provides the number of forecast Traffic Class 4 (TC 4) SIOs by Data Transfer Rate in HFC areas for each year until 2040. These forecasts include a breakdown of residential and business users.

Please note that the forecast figures provided are NBN Co's current estimates and are subject to change.



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Question 21(a) Please provide a map of NBN Co's connectivity serving areas

NBN Co's response to this question reflects a conversation with the ACCC on 9 April 2015 between [REDACTED] of NBN Co and [REDACTED] of the ACCC. This conversation clarified the exact nature of the information that the ACCC was seeking from NBN Co.

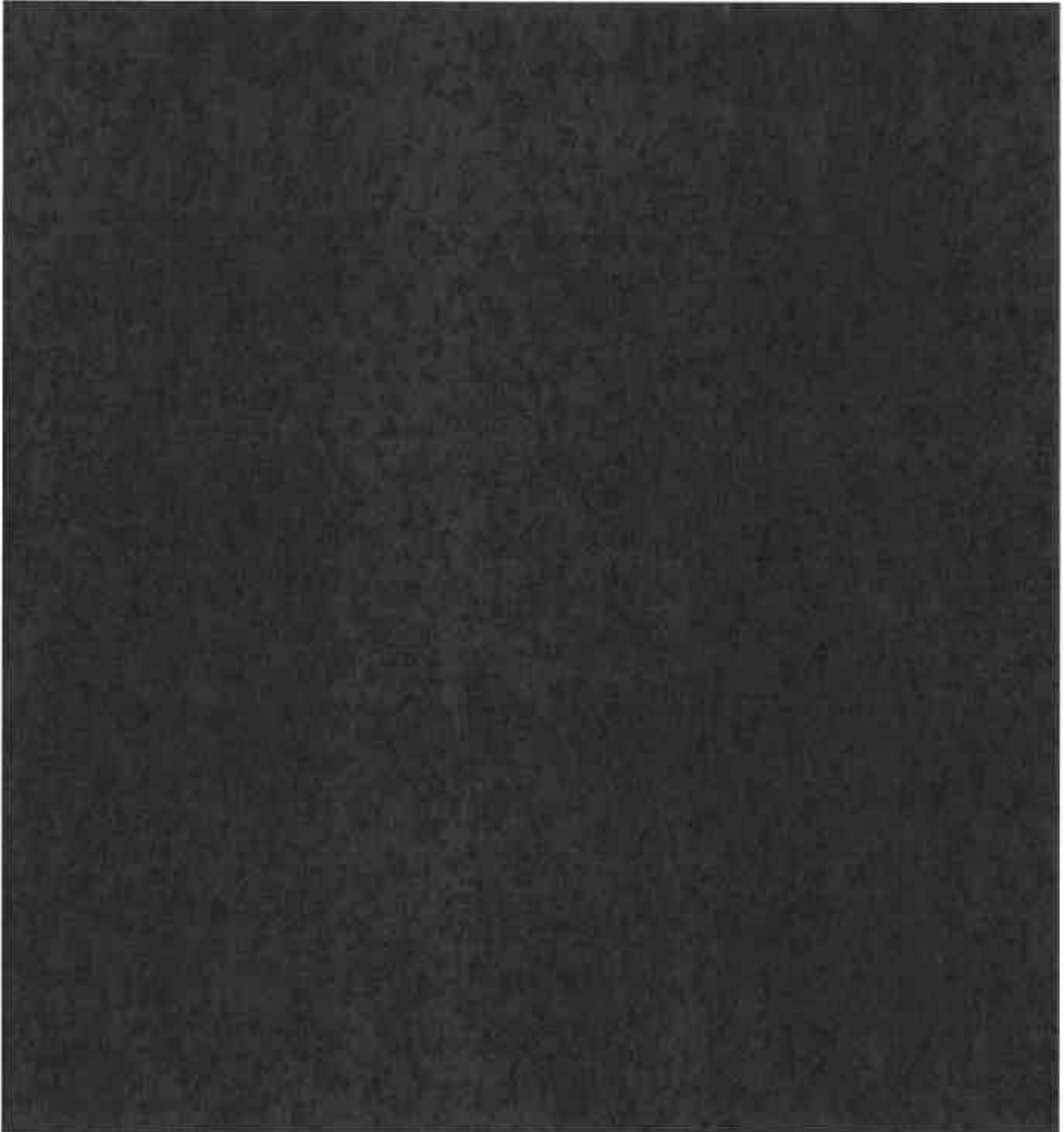
[REDACTED]  
[REDACTED] As such, NBN Co does not expect that the introduction of a new HFC product variant will require a change to the existing NBN Co Facilities Access arrangements (which is expected to be a uniform construct across all of NBN Co's fixed line and fixed wireless technology platforms).

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

## Appendix A: Demand profile by speed tier

### A.1 Forecast demand profile by speed tier

Please note that these are NBN Co's current forecast and are subject to change.

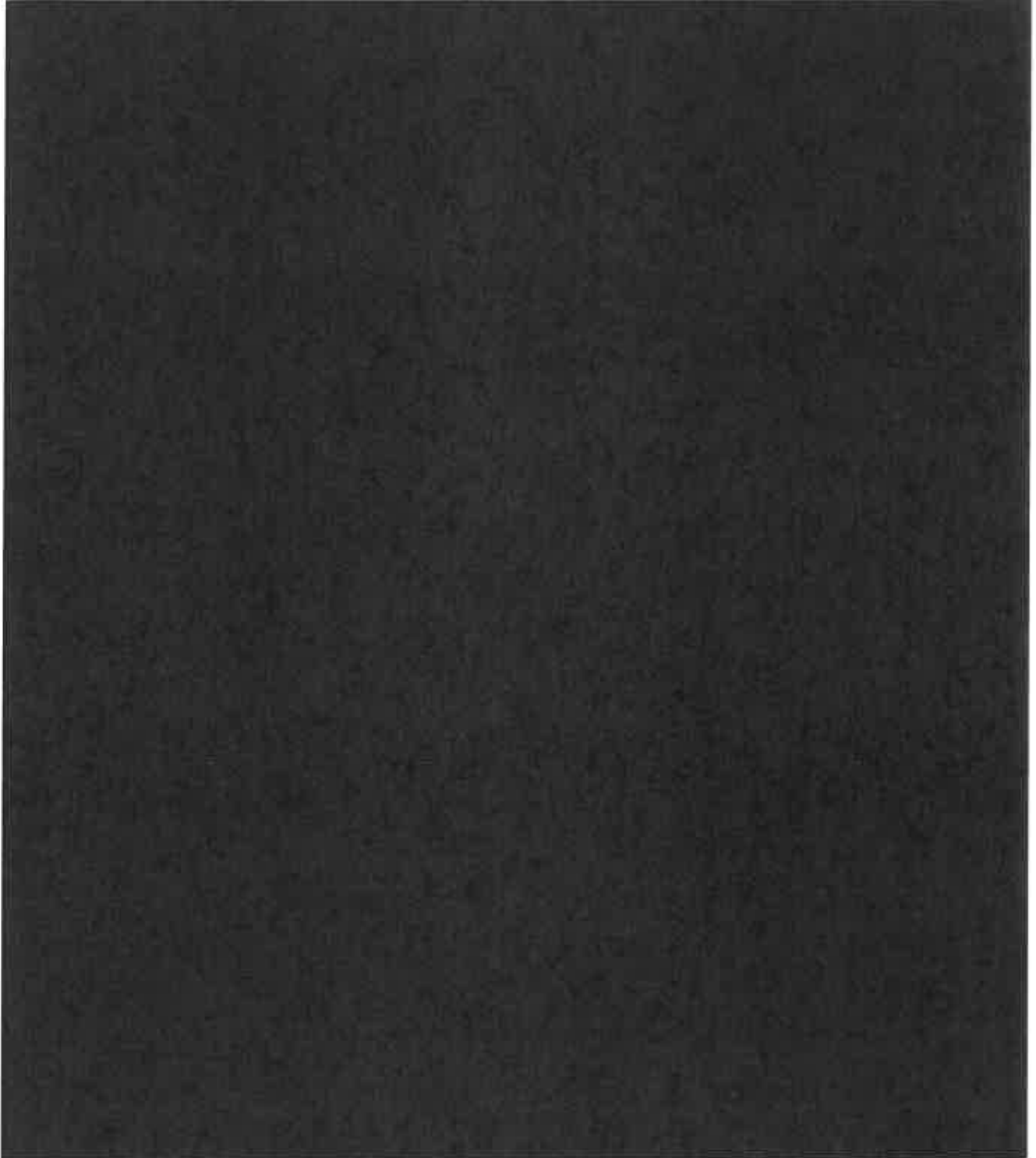


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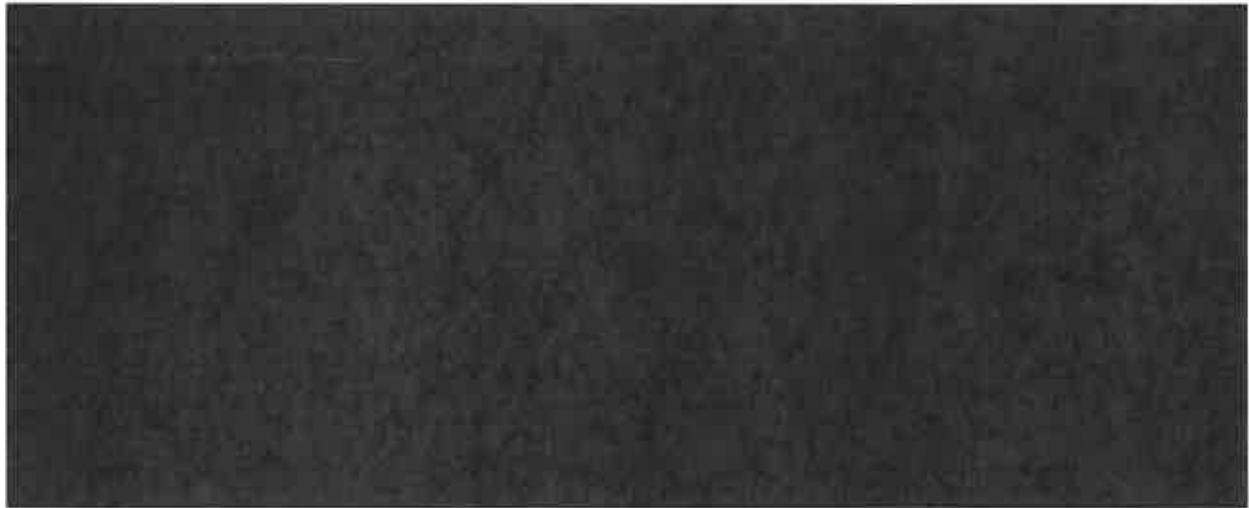
A.2 Historical showing distribution of NBN Co FTTP AVCs: Actual figures

Please note that these figures are NBN Co's current estimates for both Greenfields and Brownfields.



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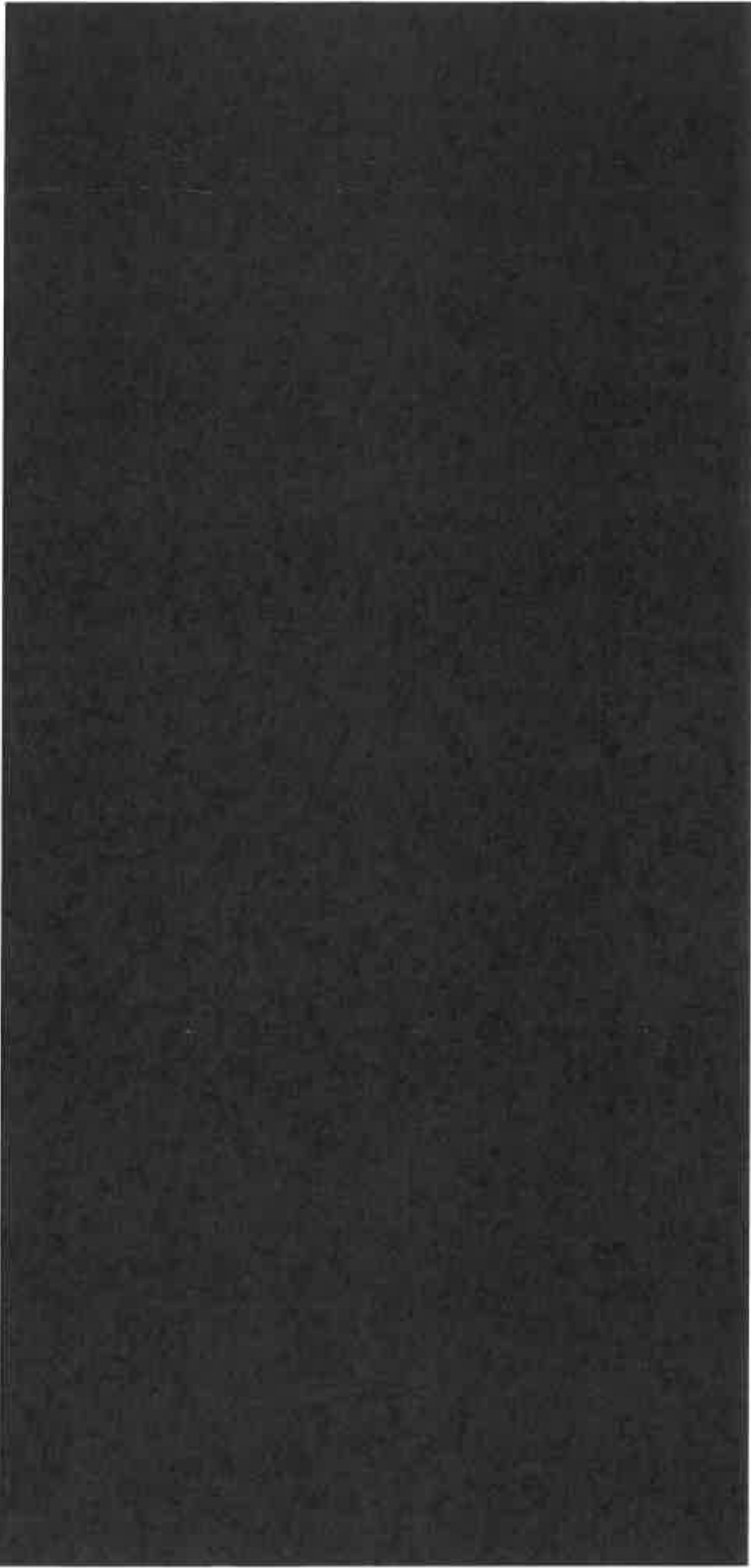
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Appendix B: Forecasts number of Traffic Class 4 (TC 4) SIOs by Data Transfer Rate in HFC areas

Please note that these are NBN Co's current forecast and are subject to change.

Part 1 (June 2016- June 2027)



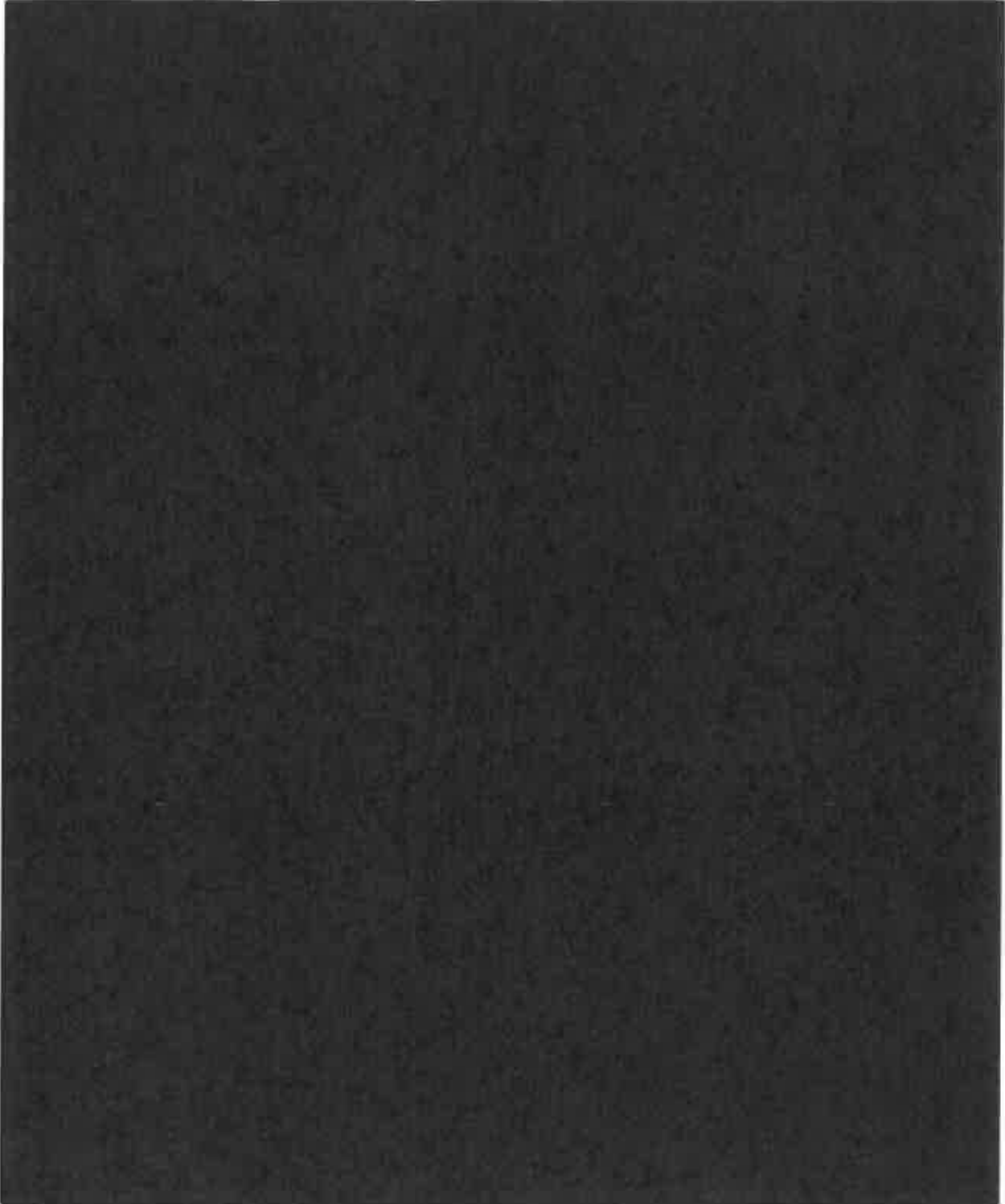
Part 2 (June 2028- June 2040)



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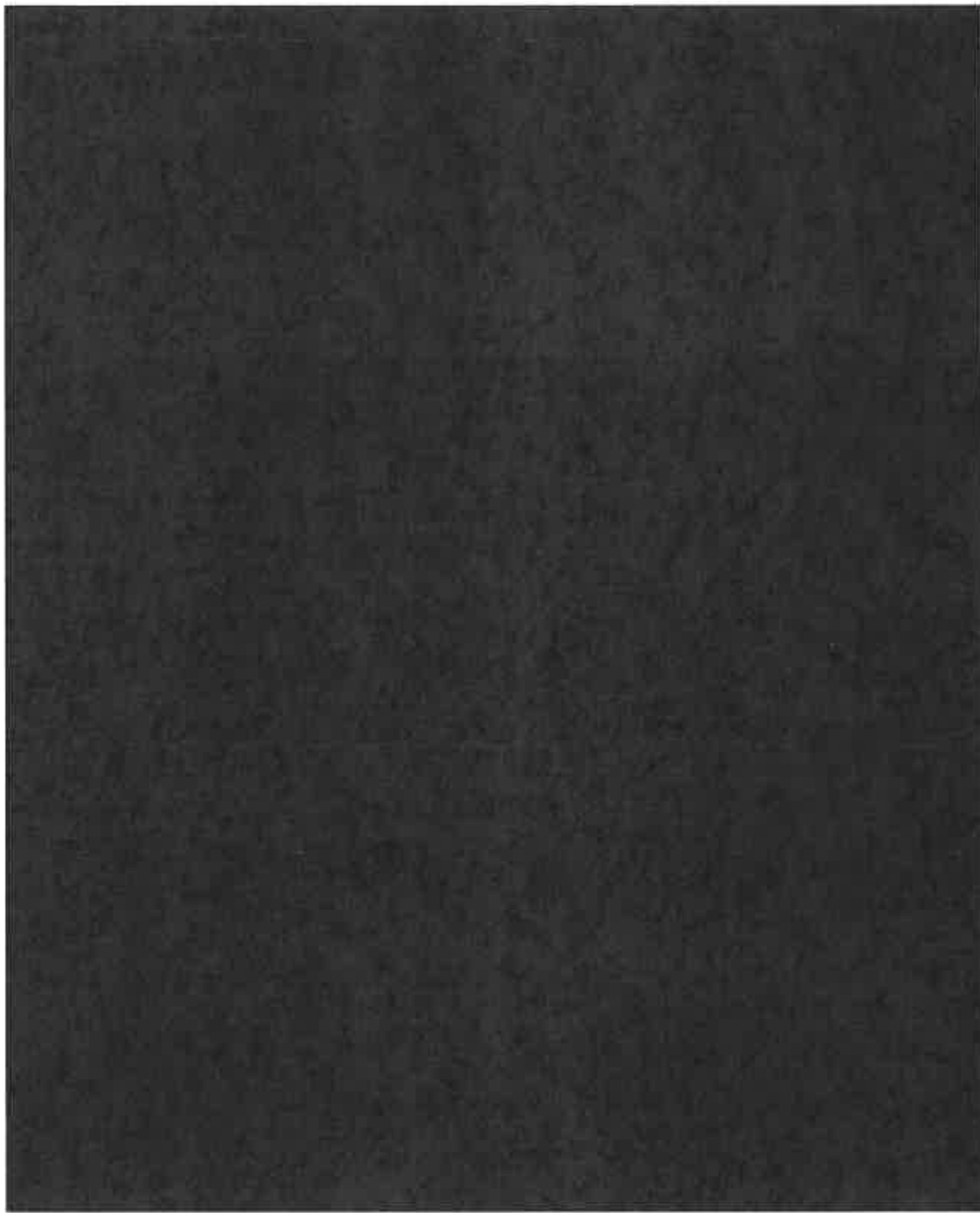
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Appendix C: NBN Co POIs and corresponding CSAs



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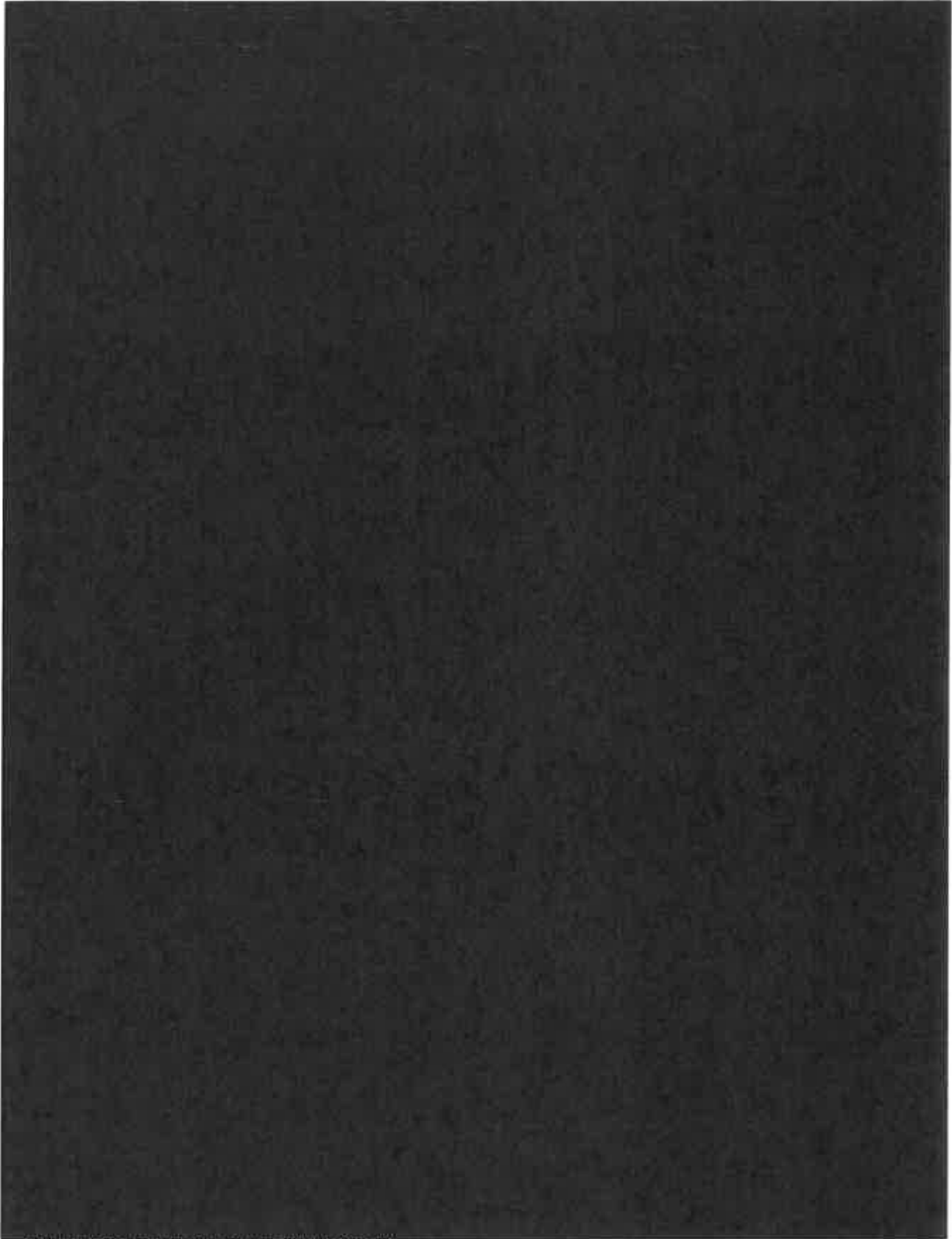
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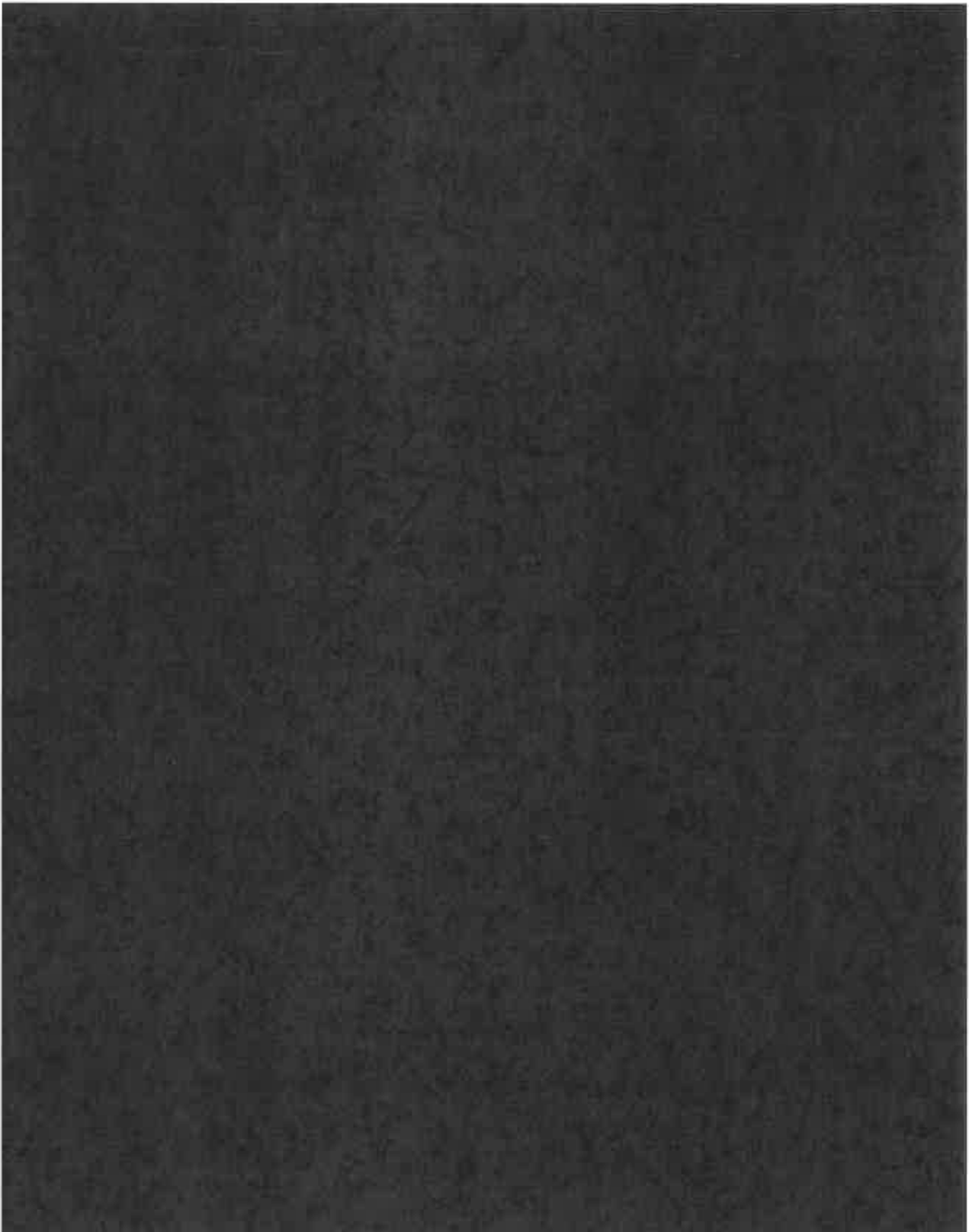
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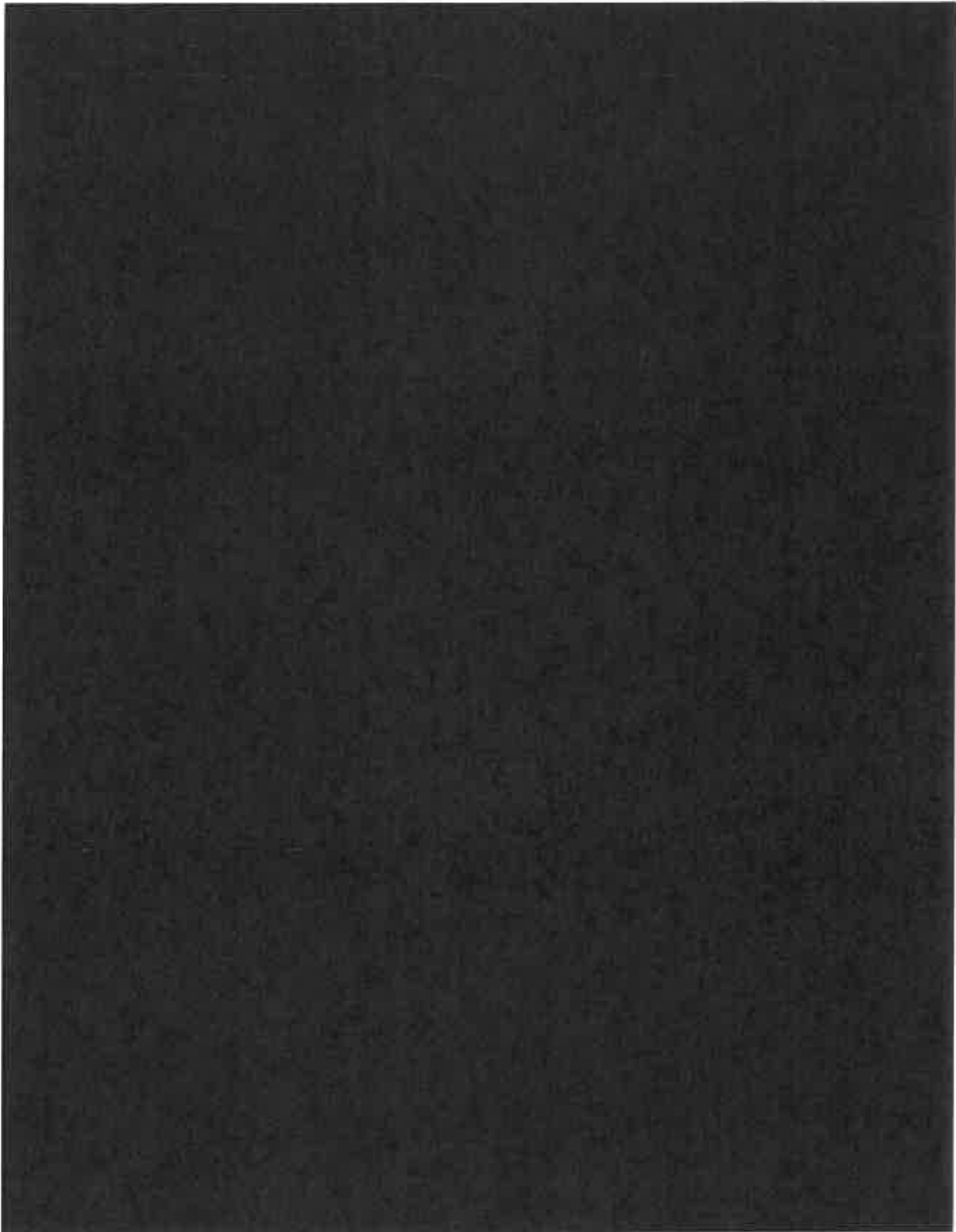
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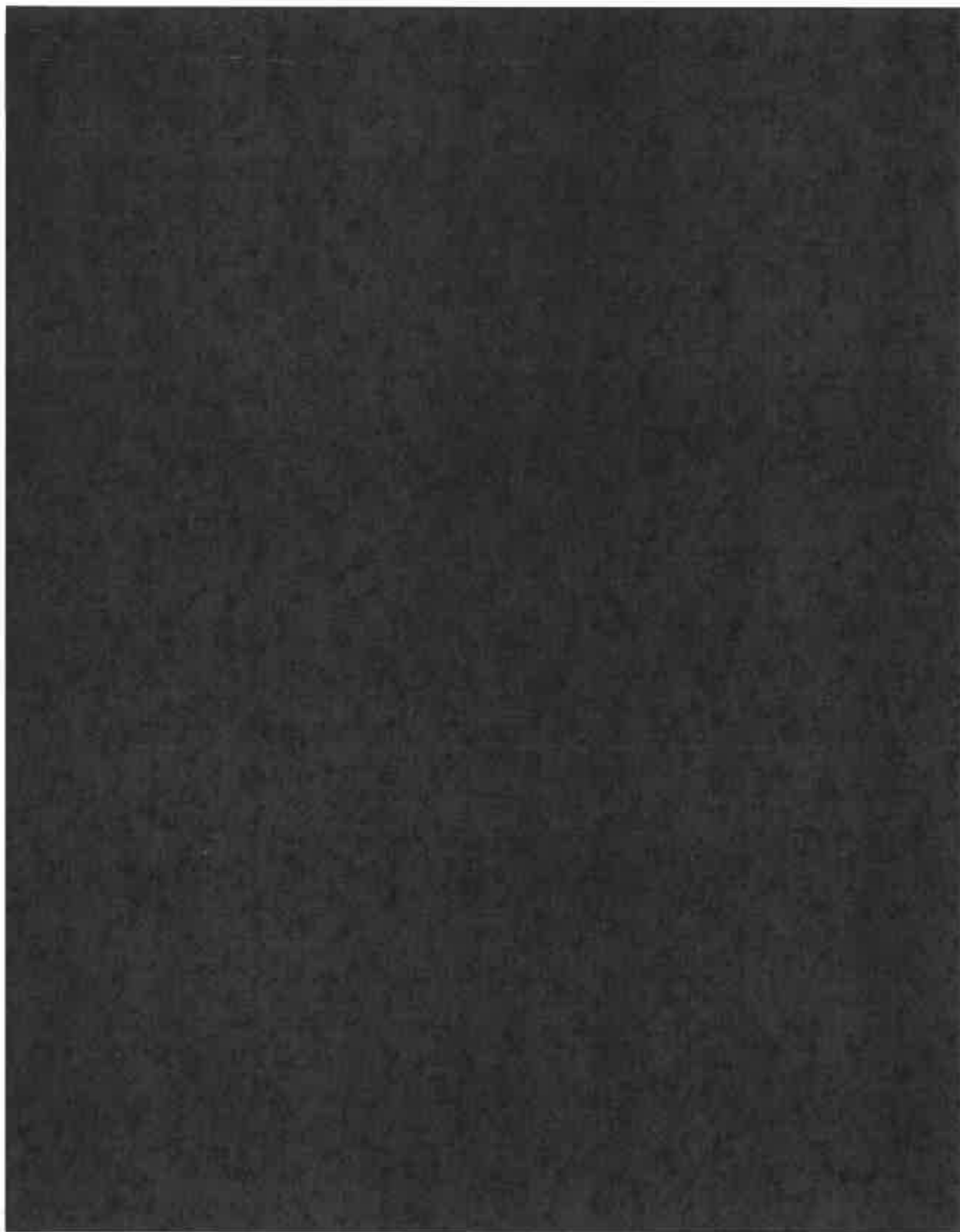
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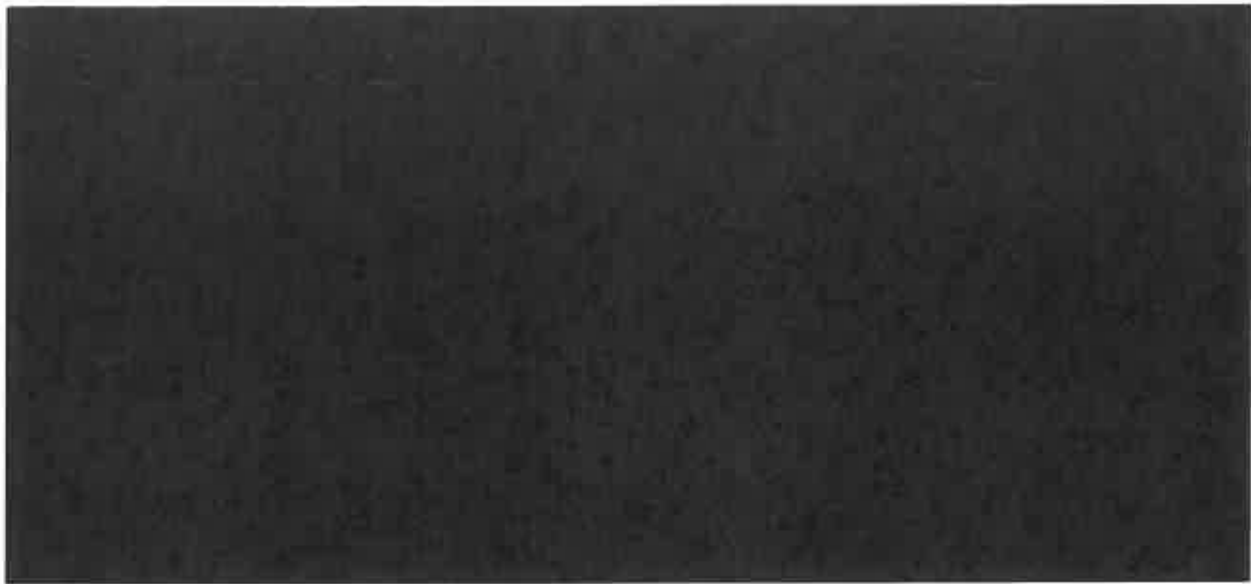
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