



Implementation Unit

Cabinet Office

State of UK shale industry by 2020 and 2025 Main report

Implementation Unit deep dive

April 2016

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Background

Based on a request from No10 Policy Unit, the Implementation Unit has reviewed **the perspectives of industry and others on the potential state of the UK shale industry by 2020.**

Whilst it is known that the UK has significant shale reserves in the North of England (plus smaller reserves in the South of England, Scotland and Wales), it has not yet been proven that their extraction is technically possible and commercially viable. To date, three operators have submitted four planning applications for shale sites in the North of England, none of which have received planning consent yet. Further operators are due to enter the industry in 2016 as part of DECC's 14th Licensing Round, planning to bring forward potentially game-changing shale developments.

Given this context, this review has focused on **four key questions:**

- What is the potential state of the UK shale industry in 2020?
- What are the key challenges and barriers to progress that industry faces in the run-up to 2020?
- How can the Government address these challenges and help accelerate industry progress?
- What can we learn from the evolution of other shale markets (esp. US, CAN, ARG, POL) about the potential development of the UK shale industry?

In line with our brief, our work has concentrated on the state of the UK industry in 2020. However, our interviews have also offered a range of insights on the **state of the industry in 2025**, which we have captured where appropriate.

To address these questions, we have spoken to **28 shale stakeholders**, including

- Ten industry players
- Nine government departments; and
- Nine other shale industry experts (with experience in the UK and other international markets)

The development of the UK shale industry over the next 5-10 years is subject to great uncertainty – most importantly because the viability of the UK shale reserves is not yet proven.

Therefore, our findings are **estimates of the potential state of the industry only, based on operators' latest plans and selected assumptions.**

Executive summary (1/3)

No shale wells have been fully fracked and flow-tested in the UK so far. It has therefore not yet been proven that UK shale reserves can be explored commercially. This is the focus of the current early “exploration and appraisal” phase

- So far, three operators have submitted four shale planning applications; initial & appeals planning decisions due May-July '16
- New 14th Onshore Licensing Round (LR) licenses cover large shale areas; expected to go live July'16 (delayed from April)
- Whilst unlikely, if all 14th LR licensees were to fulfil all their well commitments, would deliver 12 horizontal fracked wells and up to 63 wells in shale areas (could be vertical, non-fracked) by 2021.

Interviews with operators / industry experts suggest that in principle the viability of UK shale can be proven quickly, and that the UK industry could take off quickly thereafter. But also suggests that the industry could close down quickly if early sites are unsuccessful. Developments in next 5-10 yrs are therefore crucial to establish long-term viability of the industry

- Interviews suggests 20-30 successful wells in 3-5 areas are enough to convince operators of geological viability; experience in other shale markets shows exponential acceleration in number of wells fracked possible thereafter
- But recent example of Poland shows industry could also close down quickly if geology not viable: in 2010-15, ~70 vertical non-fracked wells and ~25 fracked wells were drilled, before gas flow rates were deemed insufficient and the market was abandoned

However, to date, progress in the UK shale industry has been slow. Industry/HMG agree that the root cause for this is the current low public acceptance of shale, which drives a set of more practical ‘symptom’ barriers. Operators highlight that the most significant barriers by far are the long decision timelines and uncertainty experienced in local planning system

- Public opposition driven by e.g. concerns re: local quality of life and safety, environmental protection, crowding out of renewables
- Drives several practical barriers, with the most significant for operators so far being long timelines/ uncertainty in local planning
- Statutory time for local planning authority to decide a shale planning application is 16 weeks. Of 4 applications so far: 2 refused after 12-13 months, now in appeal (exp. further ~13.5m); 2 still pending, total time exp. ~9-10 months each. Uncertainty for operators due to continued changes in decision deadlines & perception that non-planning considerations might play into decisions

DECC is already undertaking crucial work on communications to increase public acceptability of shale

- E.g. creation of objective information materials, development of pro-shale national/regional narrative, ‘Shale Champions’

But this will take time to bear fruit. Industry and HMG stakeholders agree that in the mean time, increasing public acceptance of shale will require fracking early sites to demonstrate true impact and potential benefits to local populations

Against this backdrop, this report reviews what state the UK shale industry can realistically reach by mid-2020 (and mid-2025, where possible). It also sets out industry’s views on key practical barriers and how HMG can help address those (though public acceptability concerns may remain at least until several wells fracked w/o incident). Our findings regarding those barriers are on slides 14-21 and our recommendations on how to address them are summarized on slides 22-27

Executive summary (2/3)

We cannot say with certainty what the state of UK shale will be in mid-2020. But assessing industry's latest plans and assuming that the current status quo (esp. long local planning timelines) broadly persists suggests that by mid 2020, the UK shale industry will still be firmly in the exploration and appraisal phase. Specifically, it suggests that 5-20 horizontal wells could be fracked - with a realistic expectation being significantly closer to 5 than 20.

[REDACTED]

Industry state in mid-2025 is subject to even greater uncertainty.

Assuming good early flow tests and applying previous assumptions suggests that existing key operators will have likely established the viability of their own licenses during 2020-25; by 2025, could be in process of bringing forward large sites

[REDACTED]

Beyond this, early operators' progress could encourage new industry entrants. Further boost possible from 14th Licensing Round (area development plans due in 2026, plus potential reallocation of licenses on which 'drill or drop' commitments were not met), and potentially from 15th LR (but timing still tbc, and effect likely small as key shale areas licensed in 14th LR)

However, current and future operators stress clearly that they will only bring forward large sites if current long planning times and perceived uncertainty is reduced - i.e. unless this can be resolved, UK shale will not take off even if geology proven. Beyond this, interviews highlight that industry success beyond 2020 increasingly depends on a [REDACTED], finding ways of bridging the lack of UK shale supply chain, and managing the risk of pot. EU regulation on shale.

Barriers to industry development towards 2020 (and beyond) and potential HMG actions to address these:
Industry interviews highlight a range of practical, immediate barriers that industry is experiencing. As per the previous page, industry understand that the root cause for many of these is the current lack of public acceptability of shale. They understand that DECC has extensive work in progress on this, which is welcomed.

Executive summary (3/3)

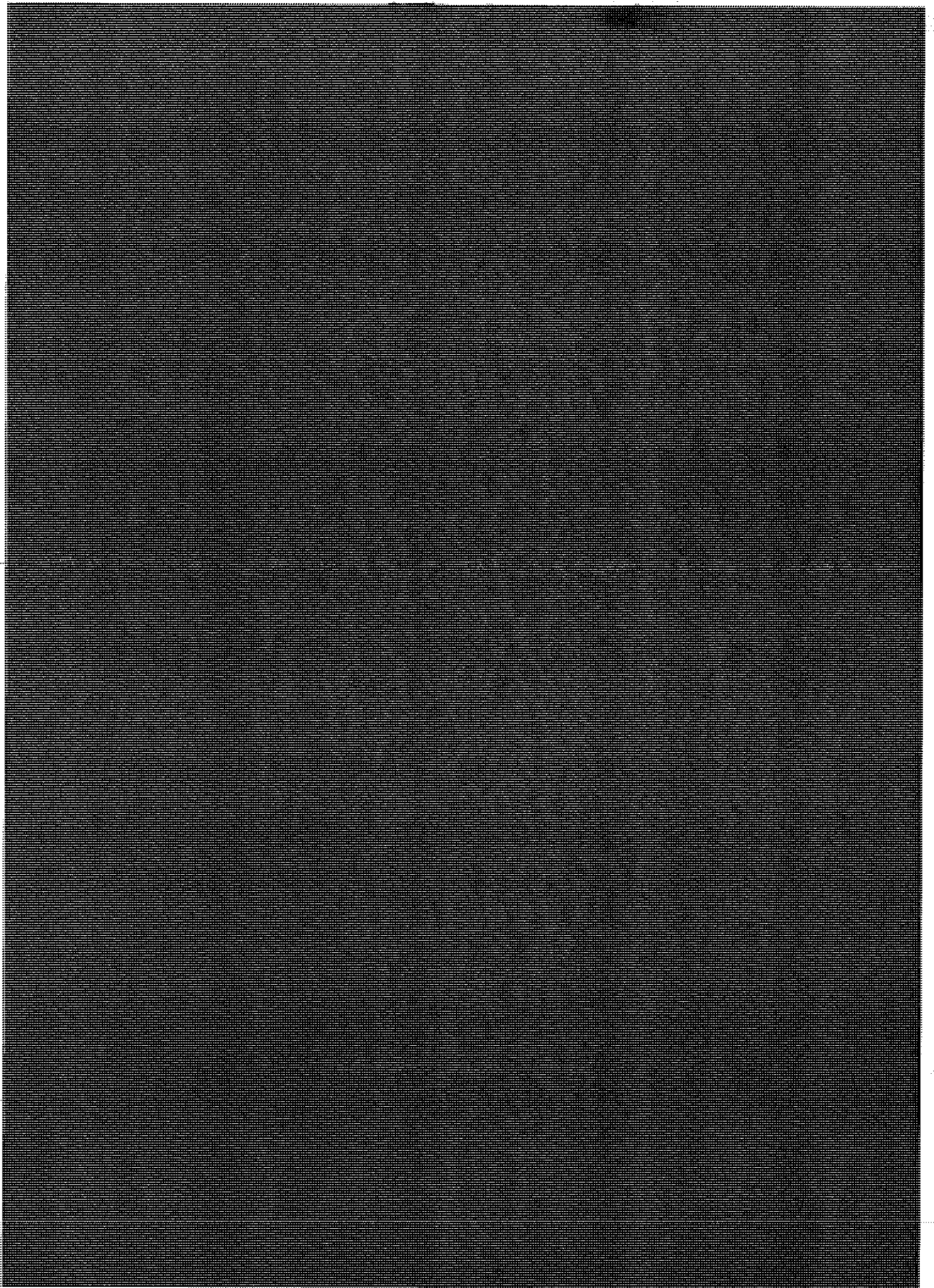
Beyond this, HMG has also already taken very useful steps to seek to address some of the practical barriers highlighted by industry; those too have been welcomed by industry (and are referenced throughout this document)

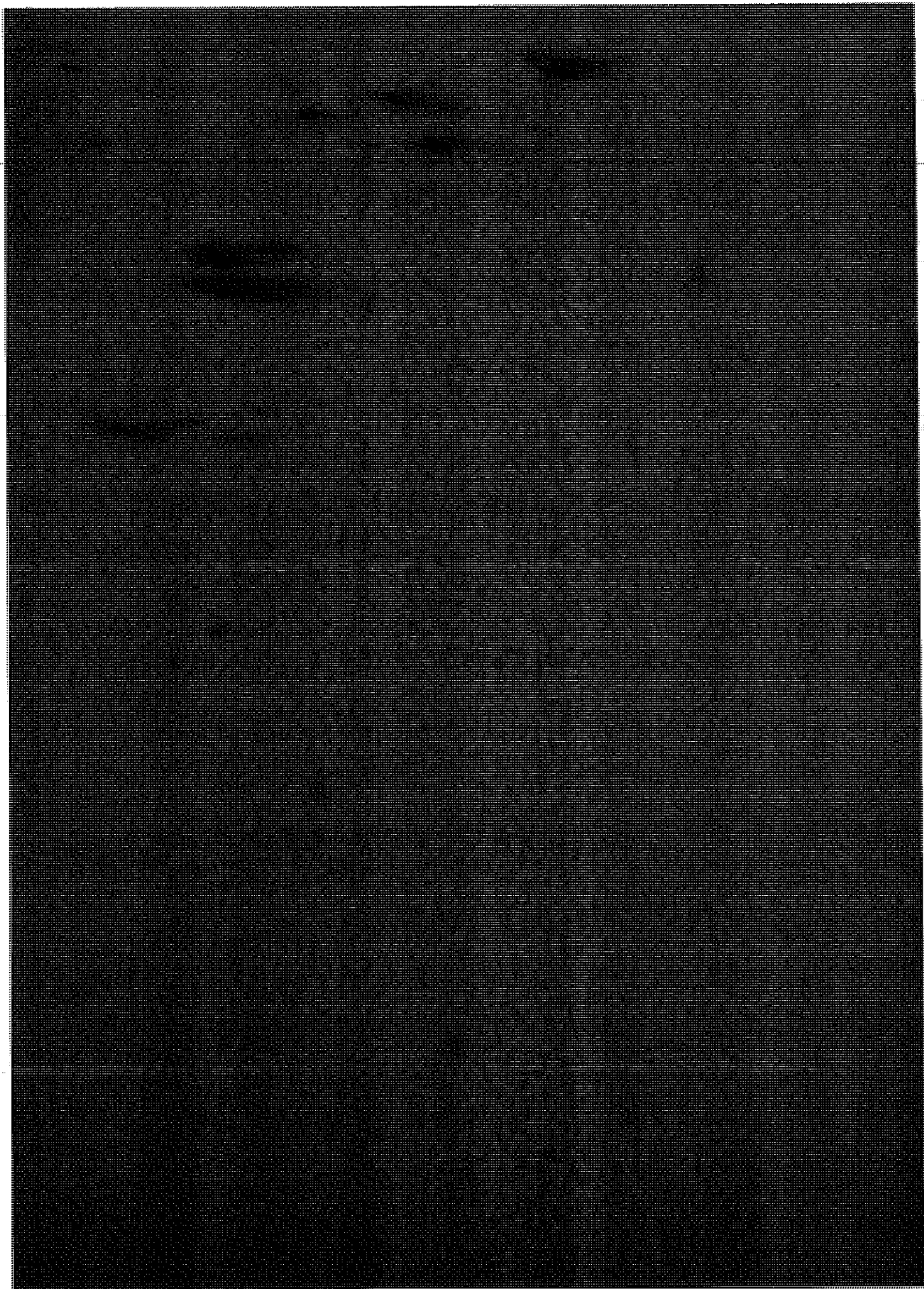
- E.g. 2015 DECC/DCLG SoS written ministerial statement committing to 'active consideration' of call-ins of shale applications and the prioritization of shale appeals; DCLG £0.8-1.2m local authority shale support fund; HMG-funded shale skills training for local authorities; creation of permitted development rights to allow drilling of groundwater monitoring boreholes w/o a planning application

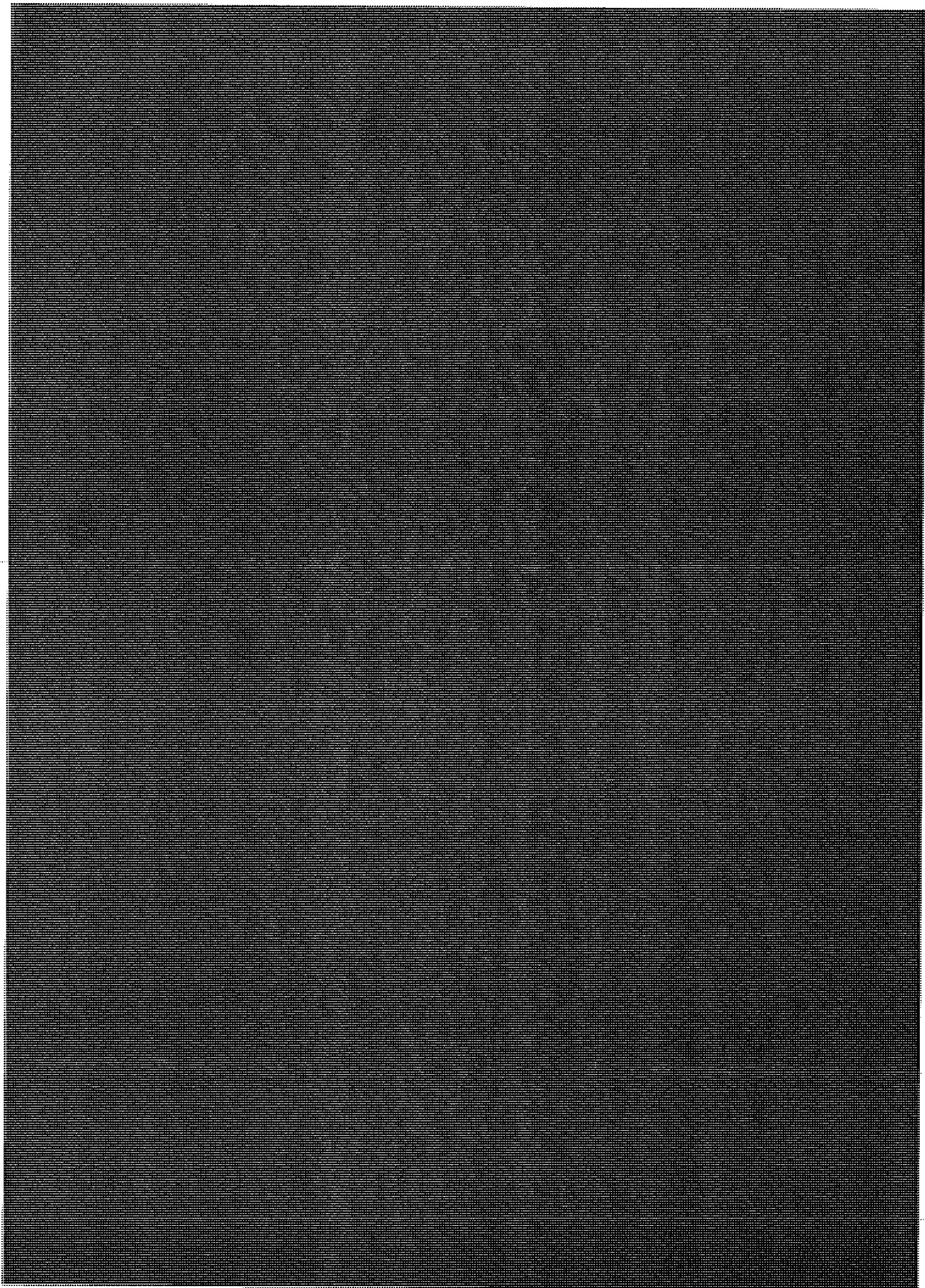
However, our interviews with industry and HMG suggest that, accepting that public acceptability of shale takes time to build, there continues to be more that HMG could do to accelerate industry progress that will affect shale in 2020 and beyond.

Interviews highlight 11 specific areas for potential action, focused especially on timescales & uncertainty in local planning:

- Accelerating long timelines and reducing uncertainty in the local planning system
 - Ensure local authorities do not duplicate work conducted by the Environment Agency, and that local statutory consultees who miss deadlines for their input do not delay the planning process overall. Also consider how local planning authorities' (in part. councillors') shale skills and incentives to process applications in the 16 week statutory timeline could be improved further.
 - Ensure that the existing alternative routes through the planning system work effectively, in part. that operator appeals (on local planning decisions, or for non-determination) are indeed processed quickly (as per DECC/ DCLG SoS WMS), and consider whether making use of DCLG SoS option to call-in applications is desirable (but note interviews suggest this is less attractive)
 - DECC (as per CX request) is also due to decide in Nov'16 whether to move shale from local planning into the streamlined national planning regime, and if so for what type of site this is possible and when. Interviews suggest 3 key areas that require further, in-depth consideration as DECC develops its proposal: (i) industry less aligned than anticipated on desirability/ timing of national planning; (ii) need to better understand risk of legal challenges on DECC SoS decision to move shale into national planning, and how this varies with inclusion criteria; (iii) timelines for decision in national planning pot. longer than expected
 - Review scope for accelerating planned DECC work on developing options for the settlement of shale long-term liabilities, to prevent this from becoming a potential source of further delays in the local planning system in the future
- Addressing perceived challenges around licensing dates, permitting timelines, regulators' local community engagement
 - Central government to continue to seek to accelerate release of 14th Lic. Round licenses (expected July; requires grid slot)
 - Regulators to seek to improve their engagement with the local public at local engagement sessions (Note: this is different and in addition to DECC's planned Regulations Champion/ Spokesperson; also does not refer to changing regulatory regime itself)
 - Environment Agency to continue to consider how to accelerate permitting timelines without increasing JR risk (current delays driven by public opposition and dwarfed by long local planning timelines; but timelines will still need to improve towards 2020)
 - [Lower urgency] Support industry engagement with National Grid re: future grid connections to ensure this proceeds at pace
- This review also suggests that there is scope for HMG to improve its joint understanding of operators' plans and next steps, and the regulatory/ planning implications of these.
- Finally, whilst this review specifically focused on options for accelerating industry progress in towards 2020, our review also highlights 4 messages (see p. 18) that industry consistently suggest should be included in HMGs longer-term national comms efforts





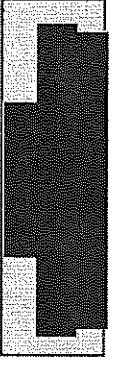


[REDACTED]

Reviewing industry plans in light of experience so far and the assumptions outlined above suggests that the UK shale industry will still be firmly in the exploration and appraisal stage by 2020. A total of ~5-20 horizontal wells could be fracked by mid-2020 – however, the total will likely be significantly closer to 5 than 20 wells

[REDACTED]

Note that these estimates are significantly less optimistic than industry's estimates, who suggest 30+ fracked wells are possible



[Redacted text block]

However, key operators and industry experts have been clear that industry will only bring forward large developments if certain conditions are met.

A Planning Green need to be satisfied & houses need to be more accessible

[Redacted text block]

Unless long delayed planning timelines and processes

urgently can be addressed, the UK shale industry will not take-off - even once viability of geology is proven

[Redacted text block]

[Redacted]

[Redacted]

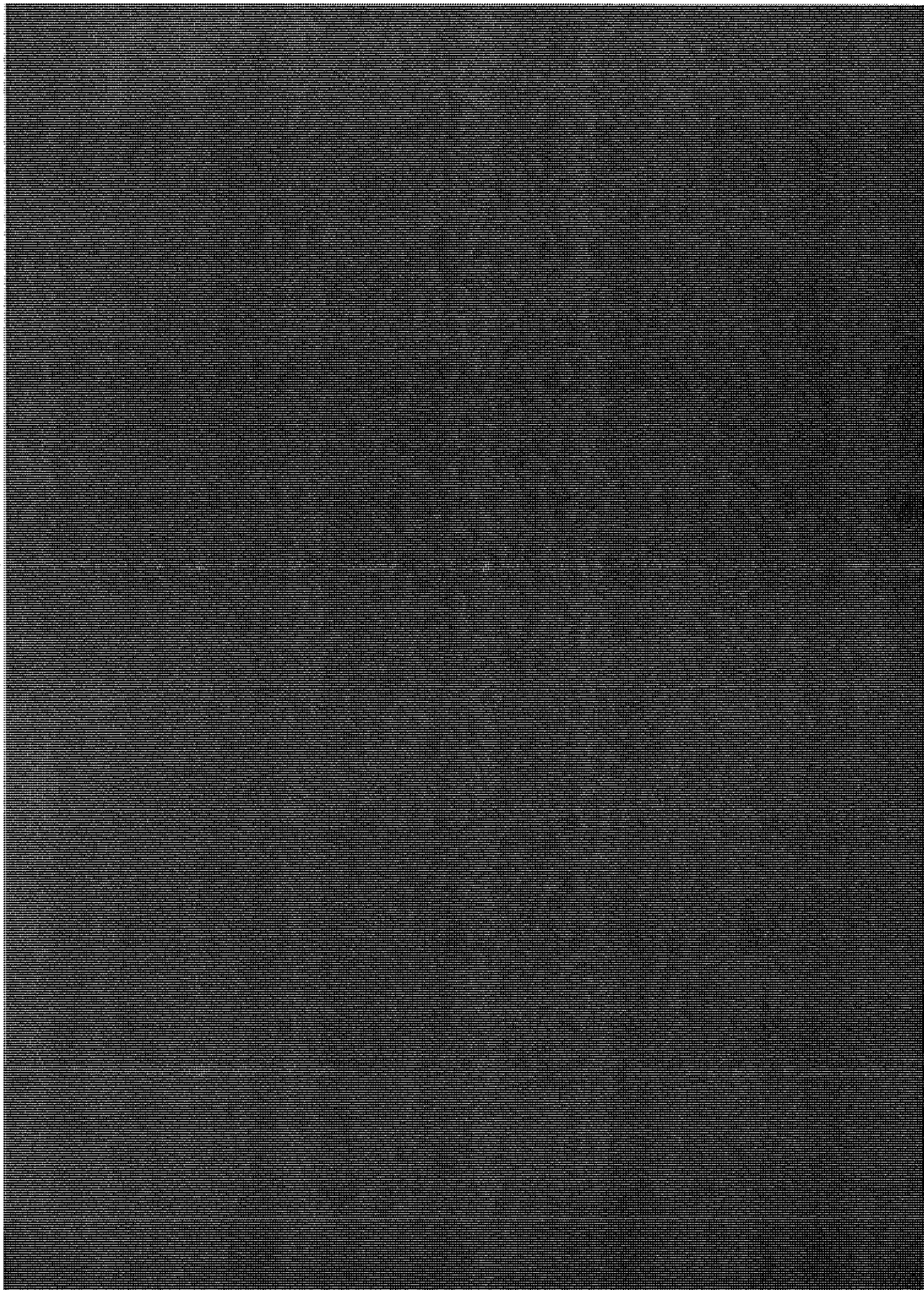
© It will need to be possible to bridge the lack of UK supply chain:

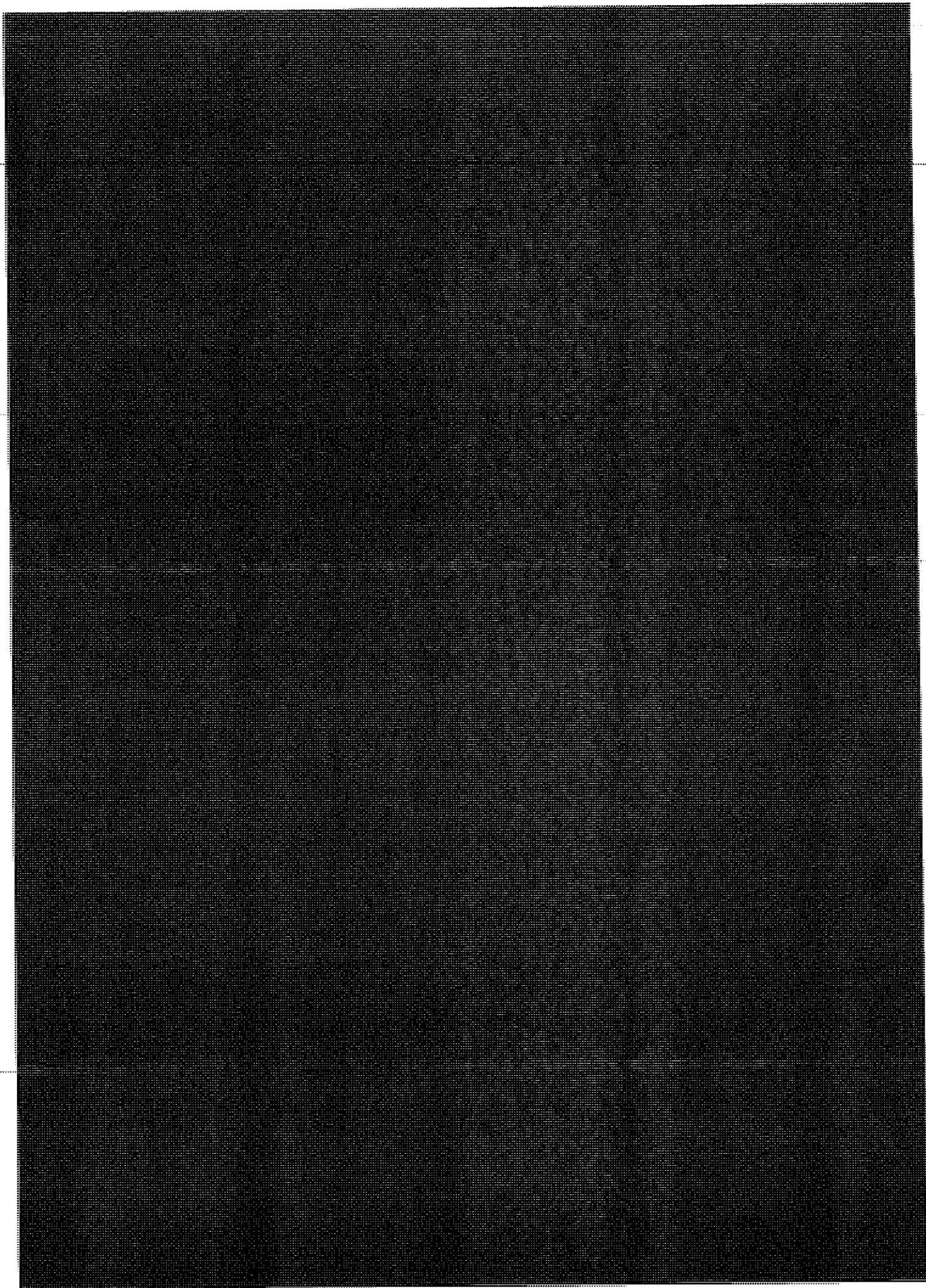
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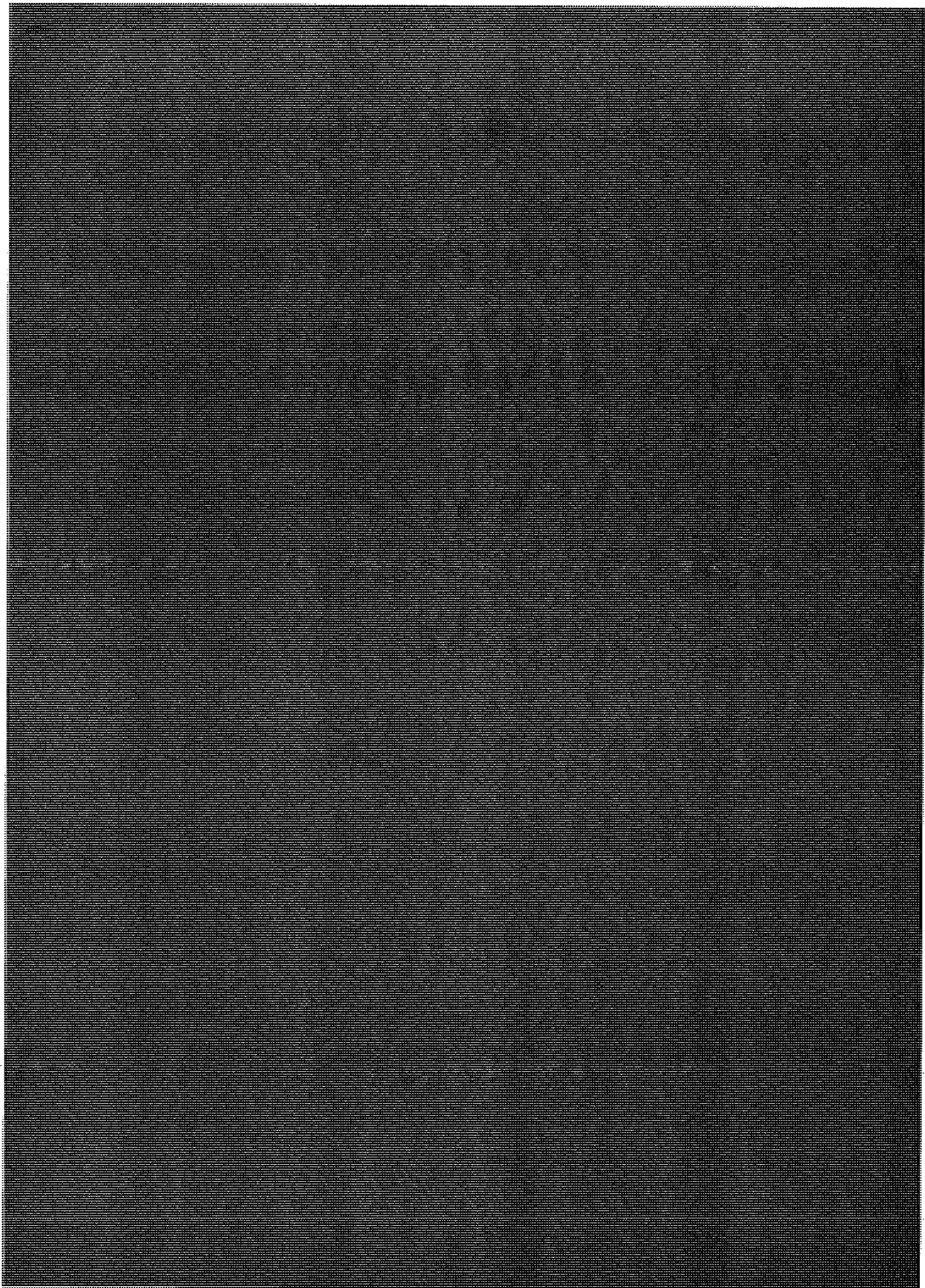
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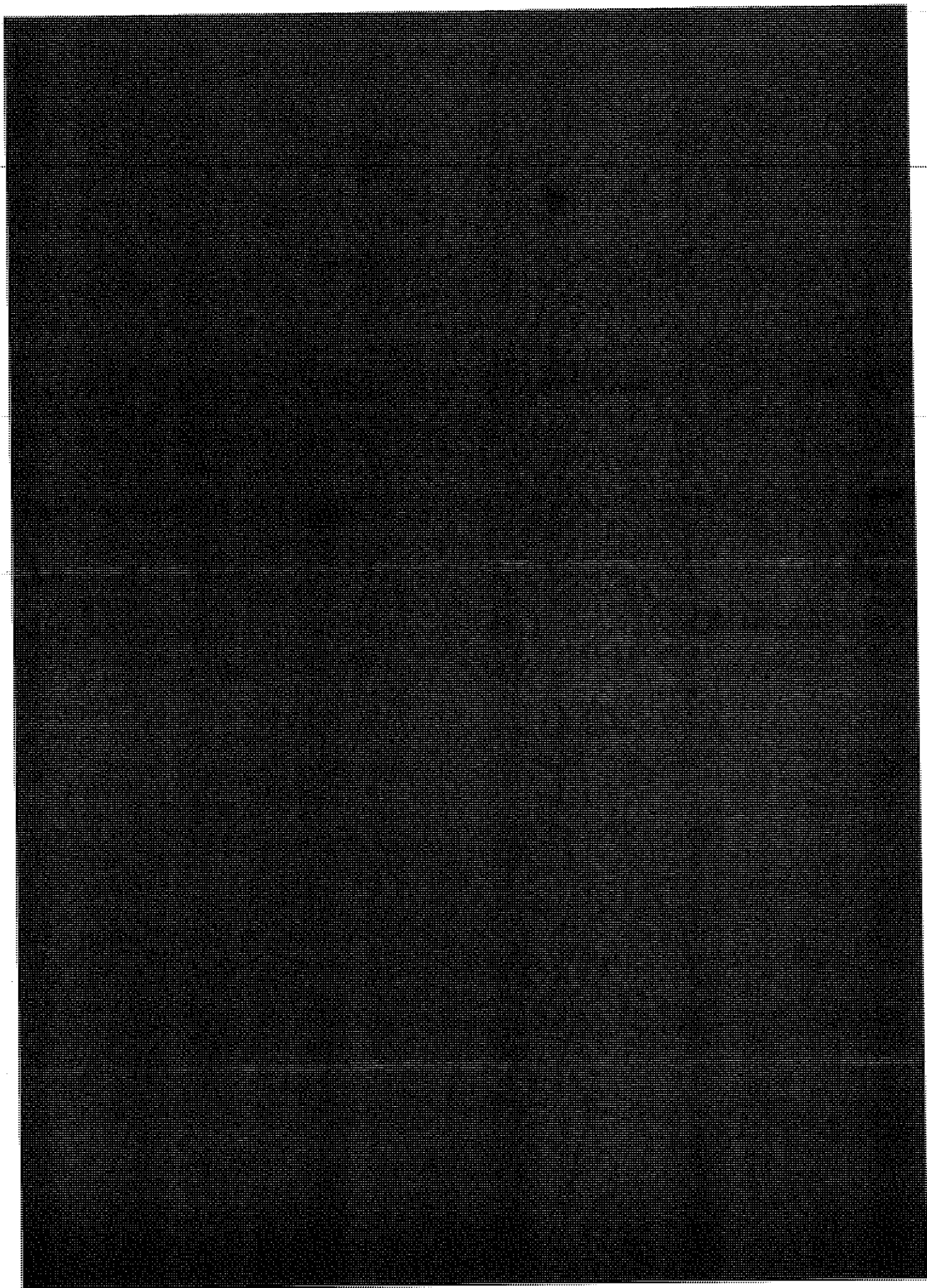
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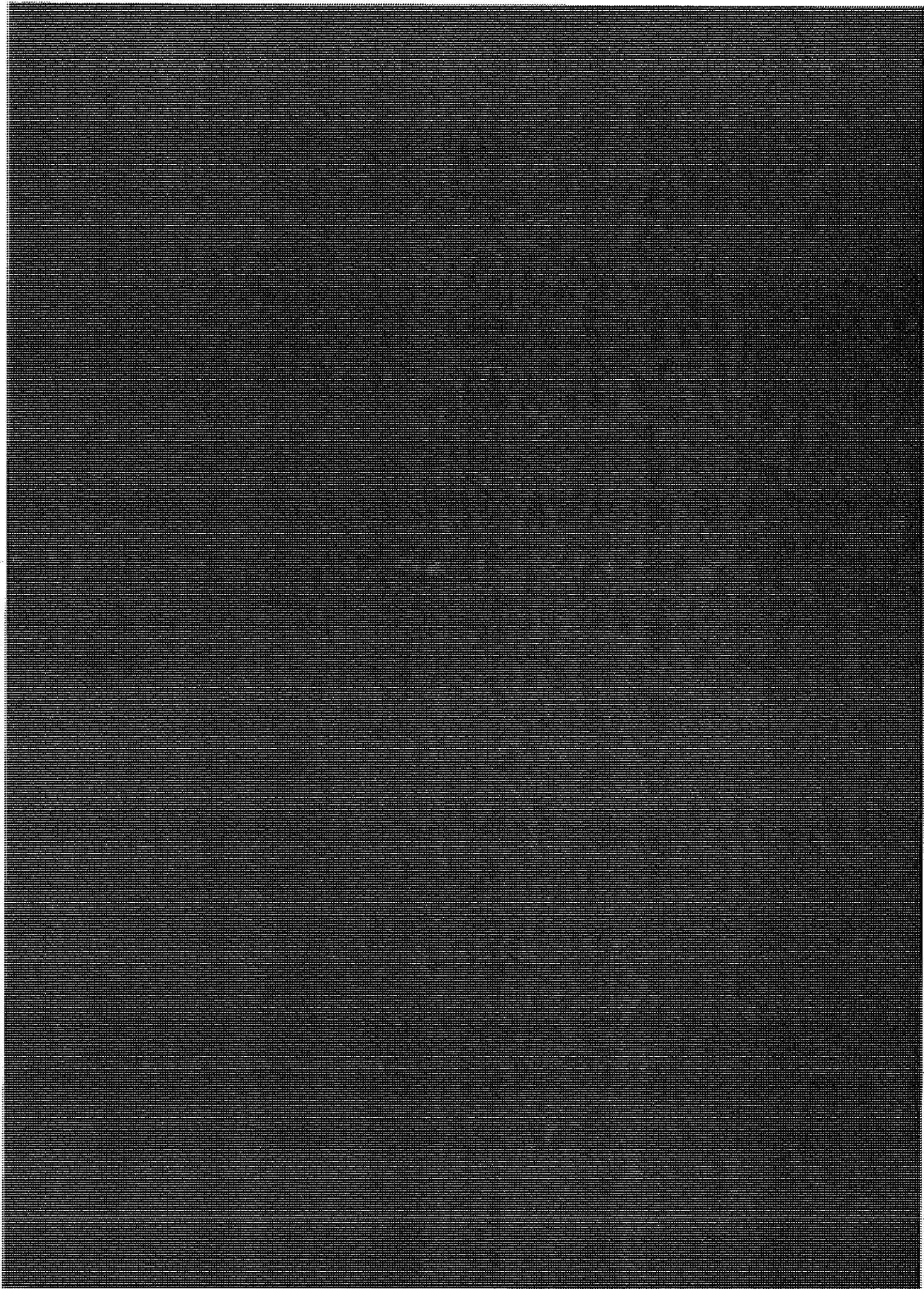
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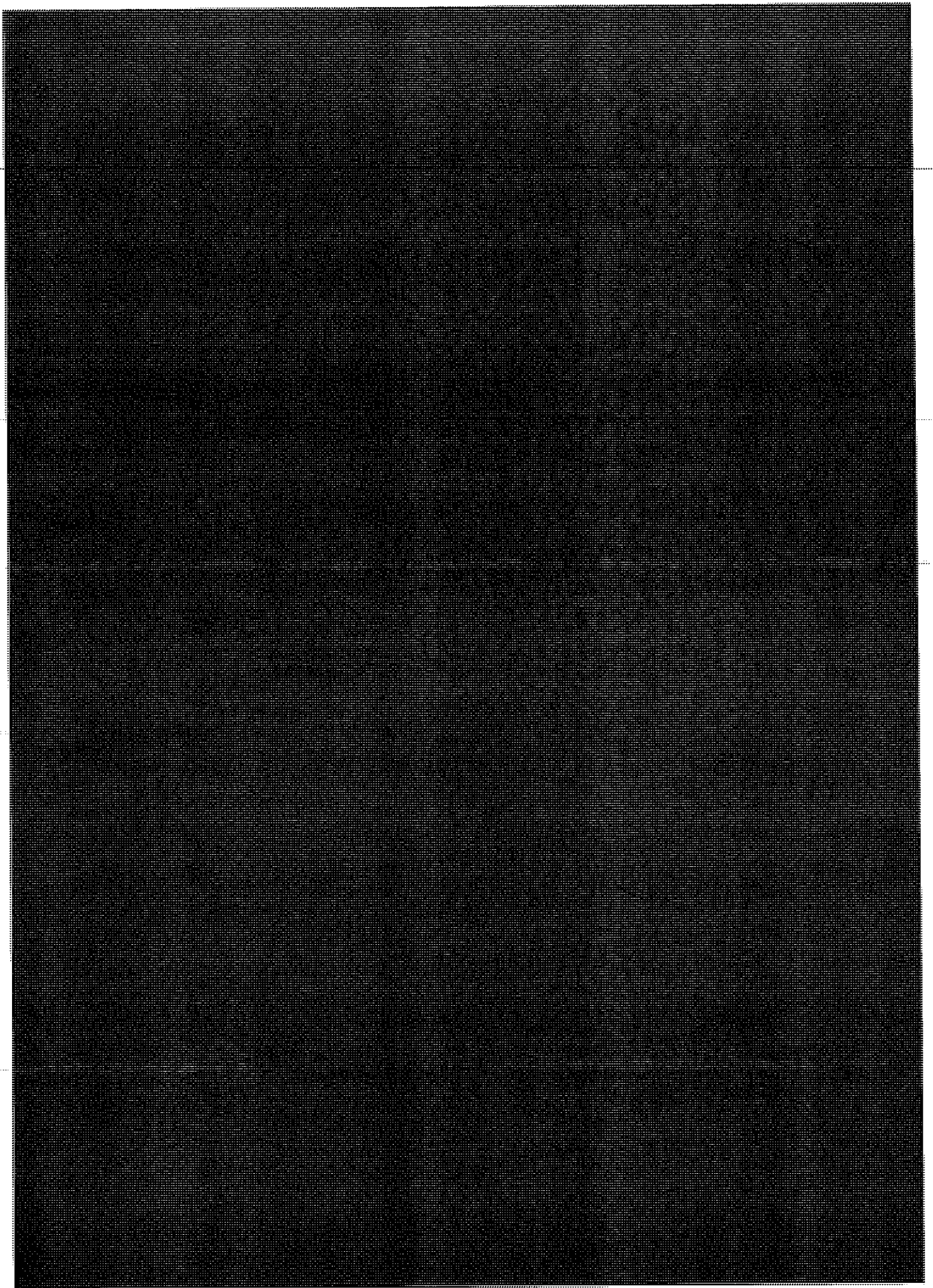


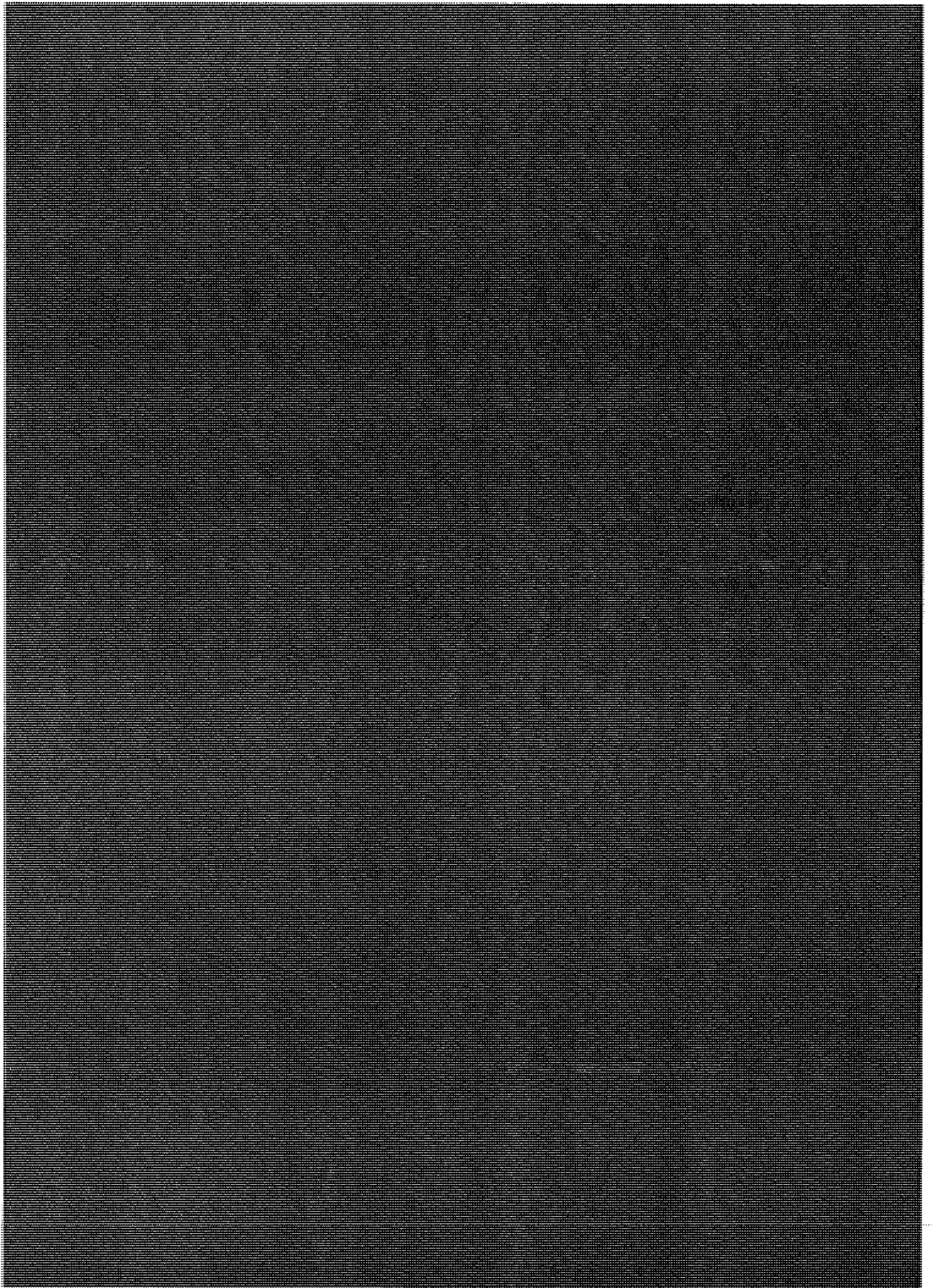


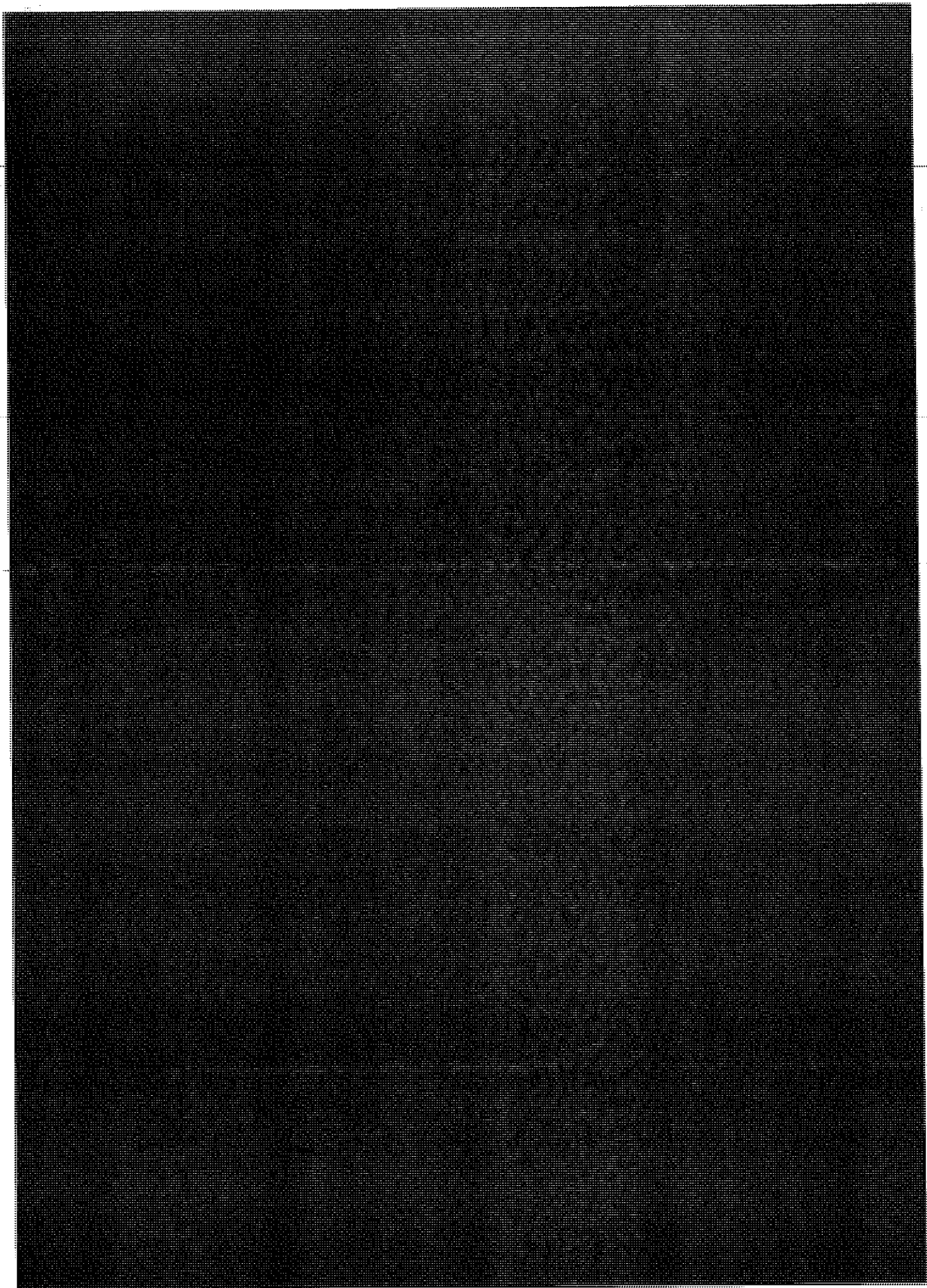


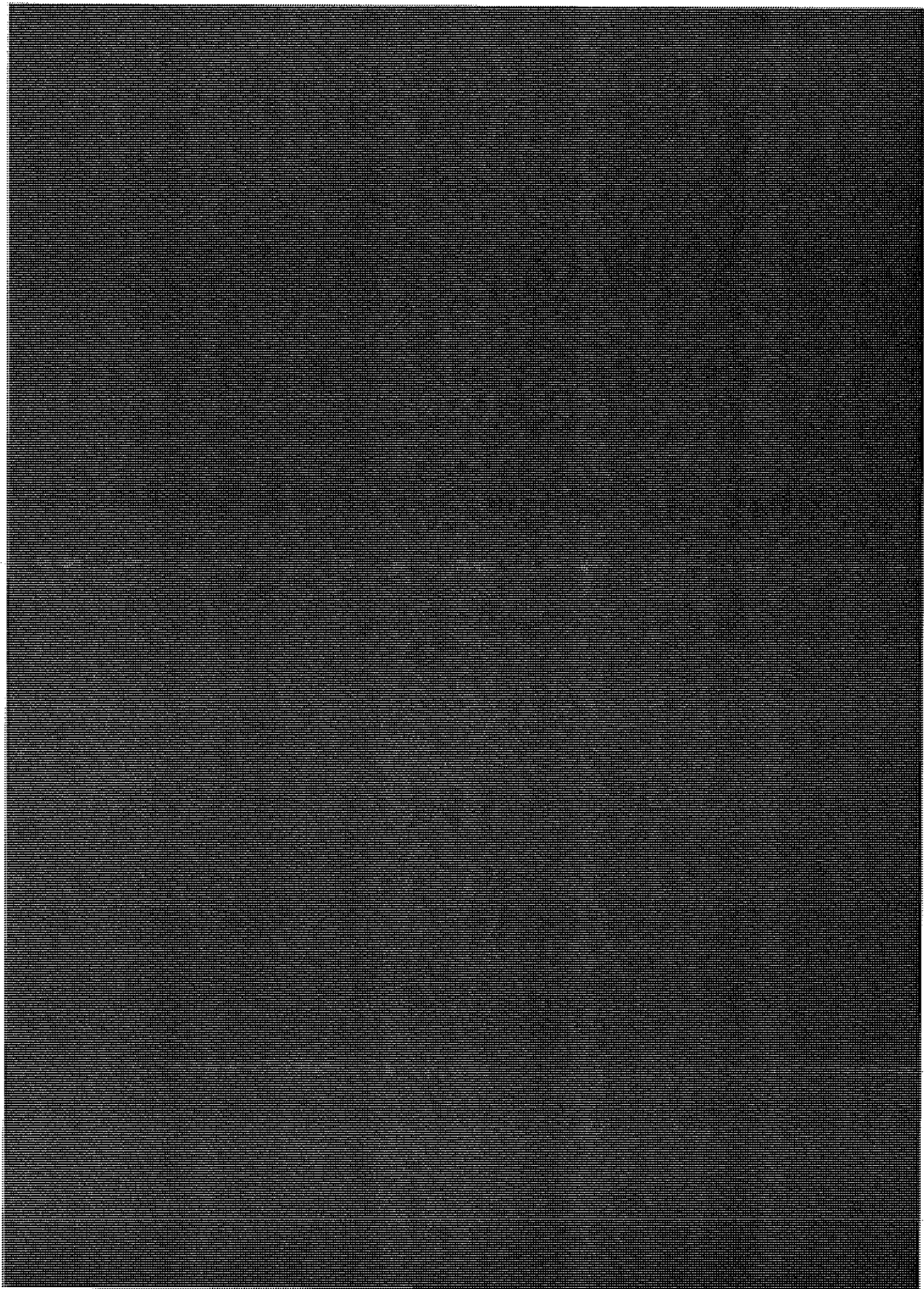


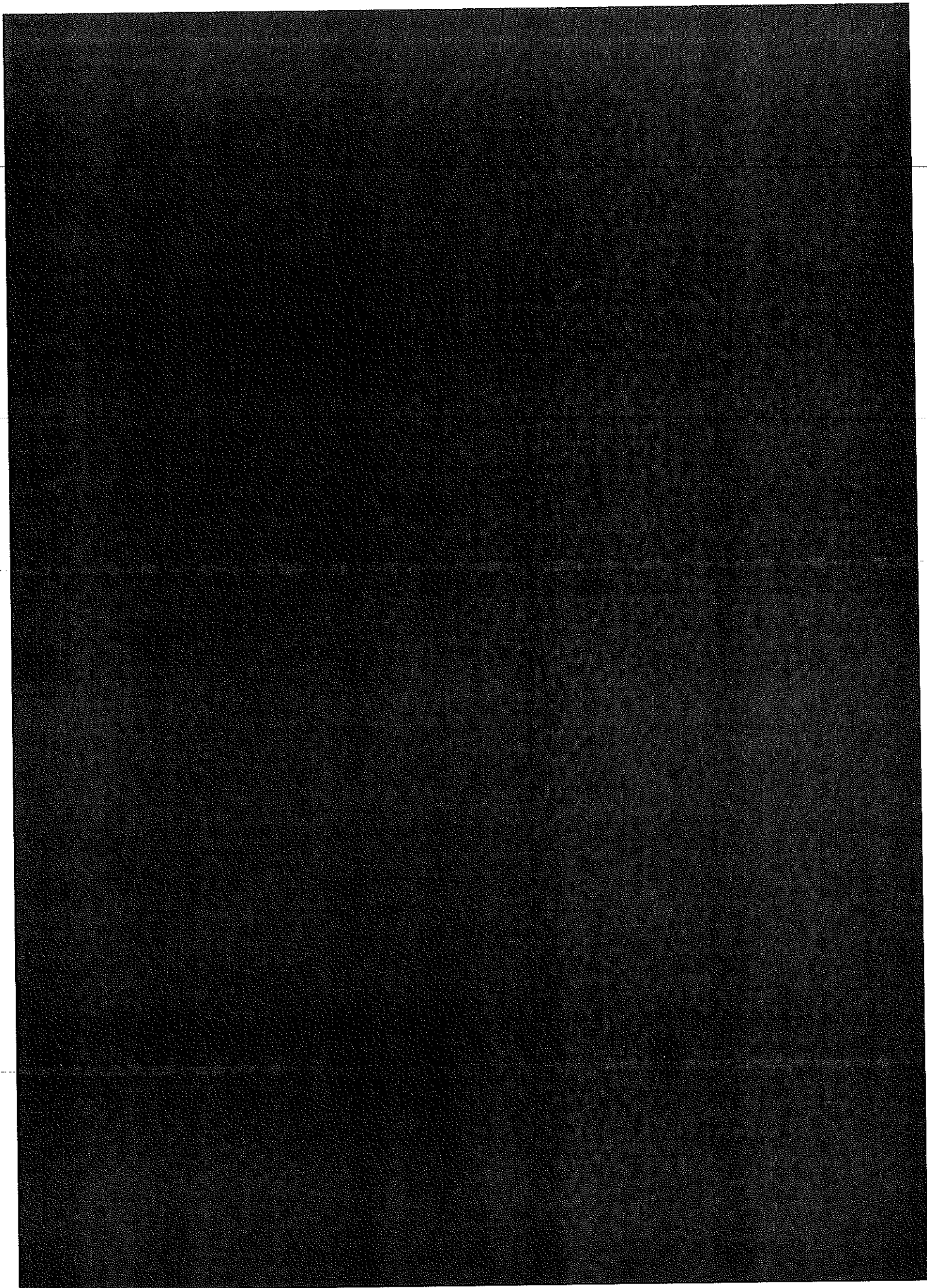












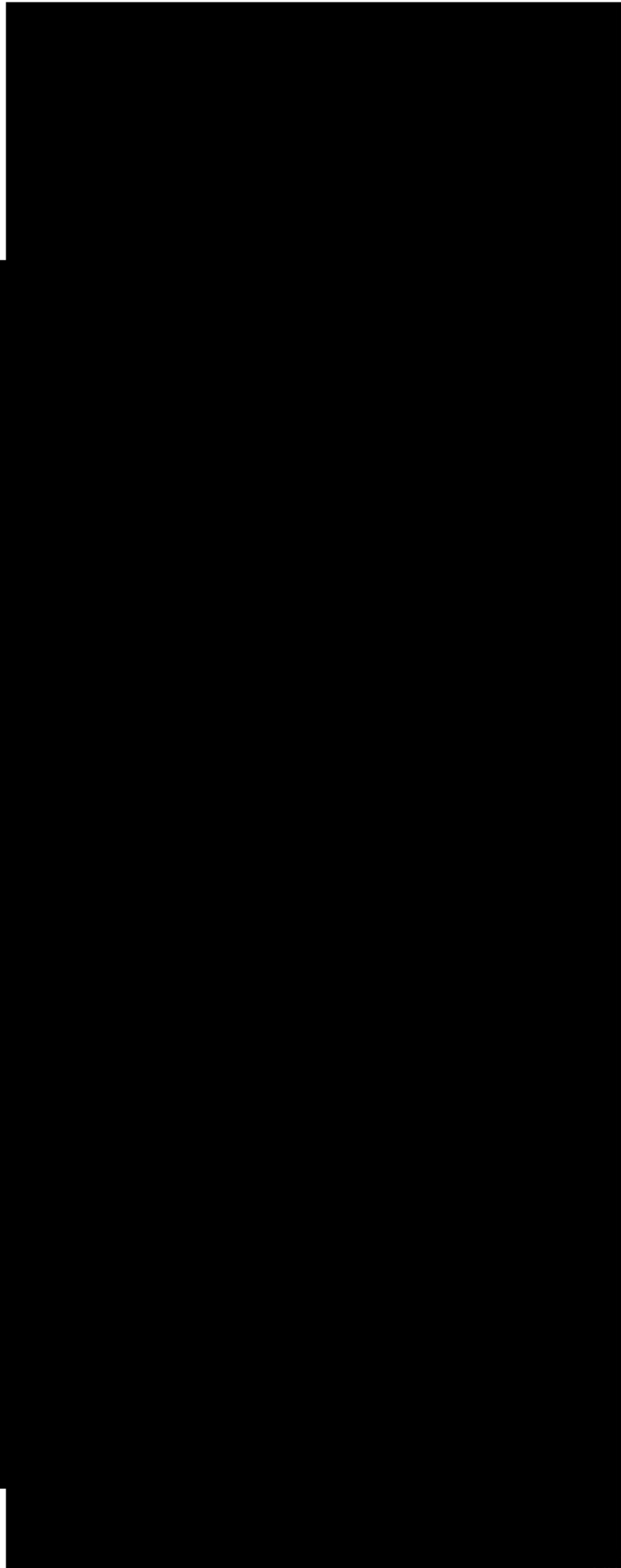
Recommendations (1/6)

Low importance/urgency High importance/urgency

Importance Urgency

1 [Delays in obtaining planning consent in local planning system](#)

- 1.1 **Rec 1: Clarify and reinforce MPA remit vs. Environment Agency (EA) and local statutory consultees**
 - 1.4 **EA remit:** EA+ DCLG to review MPA vs. EA responsibilities to better understand 'grey areas' (considering DCLG's higher-level Planning Guidance already available). [Redacted]
 - Based on this, EA+DCLG to issue more detailed guidance to [Redacted] MPAs on MPA vs EA responsibility. [Redacted]
 - Local consultees:** DCLG to explore options to increase MPA's confidence in dealing with local consultees who fail to submit input on time. As first step, get legal advice on whether 'timing out' such consultees increases JR risk [Redacted]
 - [Redacted]



3 A Rec 4: DCLG (with Planning Inspectorate) to review how to accelerate long timelines for local planning appeals process (affecting operator appeals of MPA decisions & future appeals for non-determination)

- DCLG and PINS to proceed with planned review of lessons learnt from Cuadrilla appeal (due to start May 2016).

Note: would ideally have improved process in place ~mid 2017,

- To avoid potential further future delays, DCLG to also review PINS resourcing

6

Rec 9: EA, HSE (and PHE/ OGA where relevant) to develop “community friendly” narrative of their role

- As per industry input, focus on one single coherent narrative that (i) addresses local concerns and (ii) explains how jointly regulators can offer end-to-end coverage of environment/ health and safety concerns
- High-level work (led out of Defra due to resourcing) ongoing already – to be reinforced and focused on the above

Rec 10: DECC and EA/HSE (PHE/ OGA where relevant) to appoint ‘figurehead’ with strong communication skills to lead their engagement in local community sessions (with all regulators still attending all sessions)
Note: is different and in addition to DECC’s planned Regulatory Communications Champion/ Spokesperson

- Note: industry is in favour of current regulatory regime. This recommendation relates to engagement with local communities only. Specifically, this is not recommending a single, merged “super-regulator” (see p.17 for detail)
- Figurehead becomes first point of call in local engagement sessions – first to address questions raised by local public. Gives first pass at answer, and passes on to regulator if/when more detail is required. Provides new “community friendly” narrative (as per above: addressing local concerns, stressing end-to-end coverage)
- This is required in addition to DECC’s planned Regulatory Communications Champion (which was highly welcome by industry). For this, DECC aiming for ex senior regulatory staff to lead national + regional comm’s on shale regulation). This person can attend local engagement sessions too and contribute - but industry suggest that in the end, current regulators will have to field the local community’s question, therefore need ‘figurehead’

Rec 11: DECC and EA/HSE (PHE/ OGA where relevant) to review scope for more streamline, standardized attendance planning for local engagement sessions to handle planned large increase in app. volumes

- DECC/ Regulators have so far handled all local engagement session “manually”, with key regulatory staff attending ~15 local engagement/ shale training sessions so far this year alone. [REDACTED], approach will likely have to be standardized and streamlined from end 2016



○ Low importance/
urgency

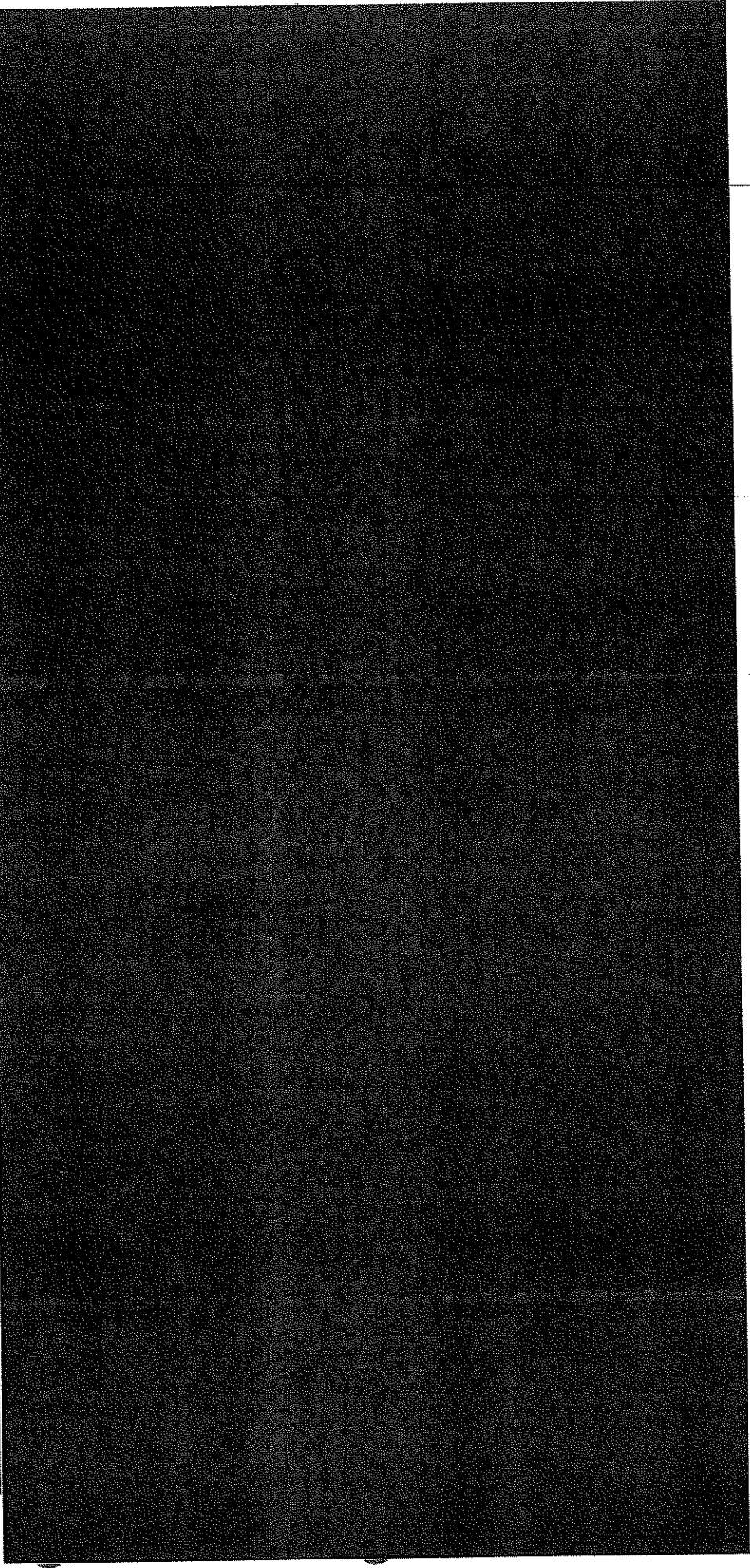
● High importance/
urgency

Importance

Urgency

Recommendations (4/6)

- 7 Rec 12: EA to review how to accelerate timelines without increasing risk of JRs
 - Note: delays on EA permit not major issue so far. But could become bottleneck if MPA processing times can be improved. Also earlier EA permits could help address current perceived delays from MPA/EA duplication (see p. 14)
 - In short-medium term, EA to continue to assess thoroughly on case-by-case basis whether extension of consultation times from 4 weeks to 8 weeks each so far can be avoided w/o increasing JR risk. Also consider scope for reducing MPA processing times (avg 4.5 months so far), e.g. via reducing resources invested to request additional information from industry
 - In longer term, push to move from two to one consultation per permit (perception that JR risk too high currently)



Recommendations (5/6)

Additional IU observations: closer HMG join-up with industry

- 10 Rec 15: DECC/EA/HSE/ OGA and DCLG where possible to review how to gain more in-depth grasp of industry plans - both in the short term (e.g. immediate next steps) and medium term (e.g. scaling up).
- Given fluidity in operators' plans and large planned increase in app. volumes, there is clear scope to expand role of DECC Industry lead (<1FTE) to conduct role full-time. Ideally, would not only liaise with operators directly, but also with OGA, EA, HSE to be fully up to date on separate discussions they hold with industry.
- 11 Rec 16: DECC/ DCLG/ regulators to better understand future upcoming planning/permitting/ other regulatory requirements for each current or new shale site
- Interviews suggest this is not fully clear to HMG yet. E.g. scope to improve HMG-wide understanding of which aspects of a shale site's 'lifecycle' are covered vs. not by each current/upcoming planning application (each one so far with different approach). Required to understand whether/ when further rounds of planning/ permit applications might be required, which influences medium-term timelines for the site/ might cause future delays
 - As a result industry also selectively suggest that it has not yet received sufficient communications from HMG on these requirements. HMG to consider scope for clarification, where required [Note: this would be purely factual – not permitting/ planning advice]



Importance Urgency

