



Oil Spill Response Plan

Northeast Program US

FOREWORD

Distribution List	
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Copy 3 (hard copy)	Bureau of Safety and Environmental Enforcement (BSEE) Oil Spill Preparedness Division Attention: GOM Section Supervisor 1201 Elmwood Park Boulevard New Orleans, LA 70123-2394
Copy 4 (electronic)	Witt O'Brien's 818 Town & Country Blvd., Suite 200 Houston, TX 77024

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1.0 INTRODUCTION

1.1 Location of This Plan

This Oil Spill Response Plan (OSRP or Plan) shall be stored in its electronic format and is controlled for revisions. The current, controlled copy is stored within the Ørsted (Company) Northeast Program Doreco site:

<https://doreco.orsted.dk/share/service/doc-rev/revision/revision-linking?latestApproved=true&chronicleId=06328904>.

OSRP Point of Contact: [REDACTED]
Orsted Northeast Program QHSE Manager
[REDACTED]

Additional copies of this plan are distributed in accordance with the Distribution List found in the Plan's Foreword.

1.2 Scope

This OSRP covers Wind Turbine Generating Facilities (Facility or Facilities) and work activities performed by Company and its contractors associated with the construction and operation of the Facilities. Facilities are located in federal waters of the Atlantic Ocean in the Northeast region of the United States (US). The Facilities fall under the jurisdiction of Bureau of Safety and Environmental Enforcement (BSEE) and Bureau of Ocean Energy Management (BOEM). The US Coast Guard is the predesignated Federal On-Scene Coordinator (FOSC) in the Coastal Zone where the Facilities are located.

BOEM defines "Facility," for the purposes of the Lessee's OSRP, is a facility as defined in 30 C.F.R. 585.112 that contains or stores oil. As used herein, "oil," as defined by Clean Water Act at 33 U.S.C. 1321(a), means oils of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. However, "oil" does not include animal fats, oils, and greases, and fish and marine mammal oils, or oils of vegetable origin, including oils from seeds, nuts, or kernels. Dielectric fluids, as an example, meets this definition of oil.

For the purpose of this OSRP a Facility is the entire group of WTG(s), Offshore substation(s) (OSS), transmission lines, and other physical components. Each Facility varies in the number and type of components that create the asset. Details about the components that make up each Facility are located in the Facility Specific Annexes of this Plan.

Vessels supporting construction or operational activities will be responsible for ensuring vessel response procedures align with this OSRP to ensure appropriate notification of the Company, its client and all applicable authority having jurisdictions (AHJ).

Table 1.1 Facilities Under BSEE and BOEM

Facility Name	Type	Waters	Boem Lease Area	General Location
South Fork Wind	Wind turbine generating facility	Federal	OCS-A 0517	Approximately 19 miles southeast of Block Island, Rhode Island, and 35 miles east of Montauk Point, New York
Revolution Wind (Not an active Facility)	Wind turbine generating facility	Federal	OCS-A 0486	Approximately 15 miles south of the Rhode Island coast, 32 miles southeast of the Connecticut coast and 12 miles southwest of Martha's Vineyard.
Sunrise Wind (Not an active Facility)	Wind turbine generating facility	Federal	OCS-A 0487	Approximately 18.9 miles south of Martha's Vineyard, 30.5 miles east of Montauk, NY and 16.7 miles from Block Island.

Note: Facilities noted as "Not an active Facility" are planned Facilities that are not under construction at the time the plan was release. The plan will be updated with Facility specific details prior to construction of each Facility.

1.2.1 Contained Vs Uncontained Releases

A contained release within the wind turbine generator (WTG) is the most likely marine pollution incident to occur. All oil / hazardous substances within an offshore WTG are expected to be contained within the WTG. Each fluid source within an offshore WTG has drip trays, pans or other systems to collect any discharged/released fluids. Each pan or tray has a drain system leading down the tower to a collection point in the lower storage space. Company personnel and its contractors that operate the crane shall be trained and qualified for the cleanup of small spills that are contained within the Foundation and only authorized to do so if it may be done safely. The notification, assessment, planning and execution of a contained release or release that does not cause marine pollution is covered within the scope of the Northeast Region US ERP. Company personnel and its contractors are not authorized nor trained to conduct oil discharge cleanup activities on the water, except where placing absorbent materials could preventively contain a sheen or as directed by the LERT. In any instance of an uncontained oil release from the WTG that enters the marine environment, this Plan shall be followed. For purposes of this plan, all referenced releases shall be assumed to have reached the marine environment and caused marine pollution.

1.3 Purpose and Use

The purpose of this regional OSRP is to assist Local Emergency Response Team personnel with preparing for and responding quickly and safely to oil spills, threat of oil spills, and other emergency events that have the potential to affect People, the Environment, Assets or Reputation (PEAR). This Plan serves as the BSEE approved Regional Response Plan for all Company Northeast Atlantic Ocean operations.

The Company prioritizes its emergency response actions in order of importance as follows:

- Protection of People
- Protection of the Environment
- Protection of Asset
- Protection of Reputation

The objective of this Plan is to establish procedures, clarify roles and responsibilities, identify the lines of authority, and identify the sequence of communications to be followed in the event of an offshore oil spill or other emergency event. This Plan is intended provide the most viable guidance in the selection of contractors, resources, and procedures.

This OSRP is consistent with the following national and area contingency plans, which will be referenced during an incident.

National Oil and Hazardous Substance Pollution Contingency Plan

<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-J/part-300>

Sector Southeastern New England COTP Zone Rhode Island and Southeastern Massachusetts ACP
(Primary)

<https://homeport.uscg.mil/my-homeport/contingency-plans/area-contingency-plan?cotpid=44>

Sector Long Island Sound Area Contingency Plan

<https://homeport.uscg.mil/my-homeport/contingency-plans/area-contingency-plan?cotpid=31>

Figure 1.1 Wind Turbine Generator Area Map

Wind Turbine Generating Area Map

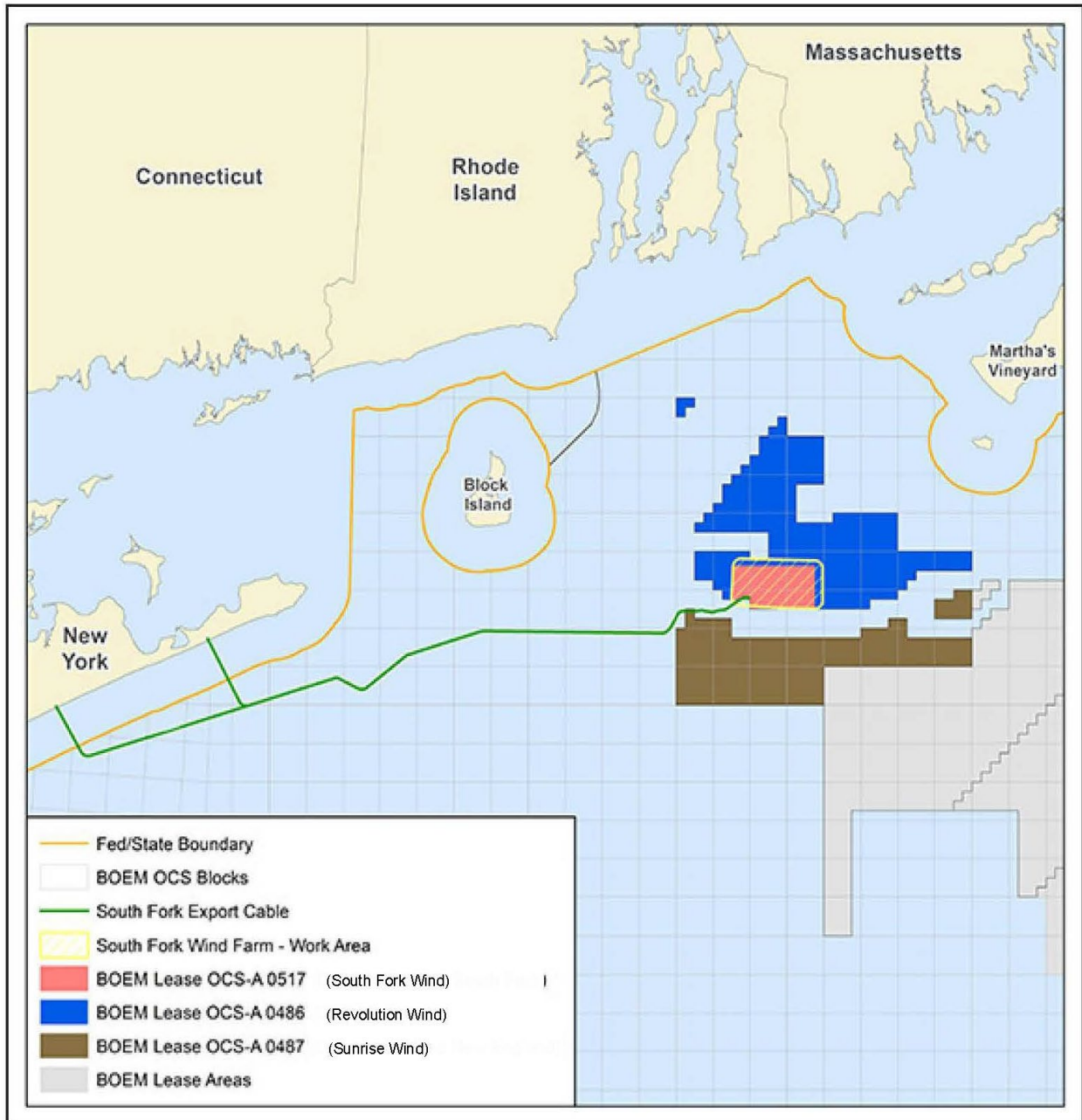
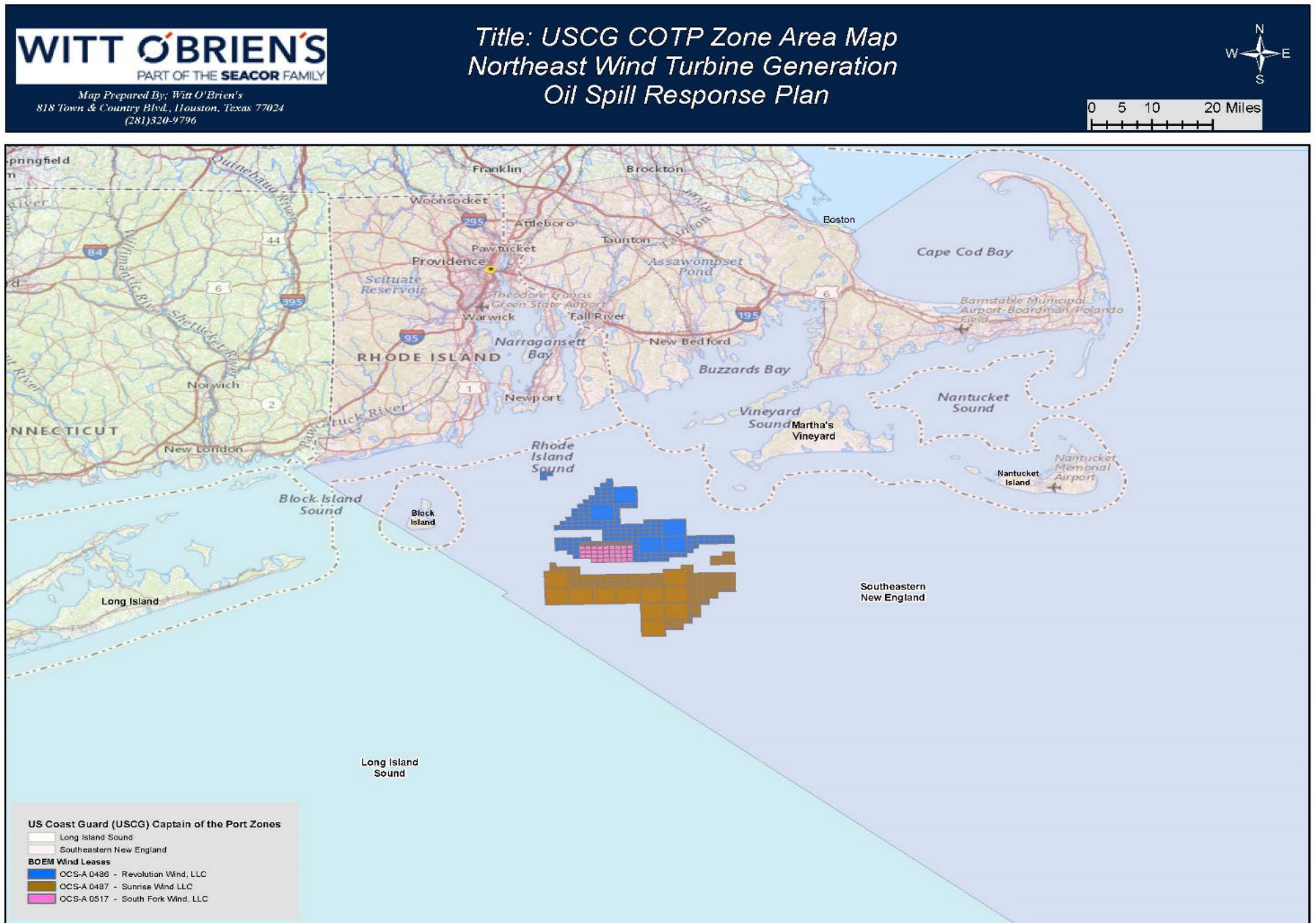


Figure 1.2 USCG COTP Zone Area Map



2.0 ORGANIZATION

2.1 Marine and Helicopter Coordination Center (MHCC)

The Marine and Helicopter Coordination Center (MHCC) of the Northeast Program will be designed as a single contact point for all offshore and vessel-based activities. The MHCC will receive the initial notification of an incident from the site. For marine pollution emergency events, notification to the National Response Center will be performed by on-site personnel (on asset or vessel). Upon first notification of an oil spill incident, the MHCC will take initial actions confirm that a spill has occurred and verify NRC notification has been made. If a spill is confirmed, the MHCC initiates the activation of the Local Emergency Response Team by contacting the Emergency Response Coordination Center. The LERT (which includes MHCC) will convene and trigger the need to notify the QI and any additional support teams or personnel.

The Marine Coordinator (MC) within the MHCC performs the central coordination function of controlling vessel operations and should be the first point of contact in the event of an emergency event. If the LERT is activated, they shall meet as soon as practical to determine the initial response actions to minimize impacts to People, Environment, Assets and Reputation. The MHCC performs the initial notification to all offshore parties of the oil spill or marine pollution incident and the applicable incident details to ensure appropriate assessment and initial response required to ensure the safety of personnel.

MHCC East Coast Hub

Cross Windfarm Emergency Number:

[REDACTED]

Role	Responsibilities
Qualified Individual	<ol style="list-style-type: none"> 1. Perform all functions as Incident Commander unless replaced 2. Serve as initial point of contact for response personnel in initial response. 3. Assess incident situation and ensure appropriate response steps are being taken. 4. Ensure adequate safety measures are in place. 5. Ensure regulatory notifications have been completed. 6. Establish appropriate communications with FOSC and other federal and state officials as appropriate. 7. Oversee initial response actions. 8. Notify and activate Oil Spill Removal Organizations as appropriate. 9. Obligate funds, as appropriate, to conduct incident response activities. 10. Collect spill information and conduct spill analysis as appropriate. 11. Establish the immediate priorities. 12. Coordinate a spill-specific response plan. 13. Communicate regularly with the Company LERT. 14. Establish an appropriate spill-specific response organization. 15. Approve and authorize the implementation of a spill-specific response plan. 16. Ensure the spill-specific response plan is communicated to all appropriate parties (OSRO, LERT, affected contractors, and AHJs). 17. Ensure that adequate safety measures are in place. 18. Coordinate activity for all appropriate parties (OSRO, LERT, affected contractors, and AHJs). 19. Approve requests for additional resources or for the release of resources. 20. Keep AJH informed of incident status. 21. Approve the use of initial and additional response parties. 22. Coordinate with the LERT of the release of information to the news media. 23. Order the demobilization of the incident when appropriate. 24. Supervise incident response operations and ensure they comply with any AHJ requirements and agreed-upon concerns of impacted areas/parties.
Project HSE Manager and HSE Advisor	<ol style="list-style-type: none"> 1. Act as the Spill Response Coordinator with the responsibility and authority to direct and coordinate response operations as required under 30 CFR 254.23(b) 2. Participate in spill planning meetings and briefings as required. 3. Identify risks to project personnel, response personnel and the general public associated with the incident. 4. Review the spill-specific response plan for associated HSE risks. 5. Provide occupational health and safety guidance for response personnel. 6. Exercise authority to stop and prevent unsafe acts. 7. Investigate accidents that have occurred within the incident area

Role	Responsibilities
Construction Manager	<ol style="list-style-type: none"> 1. Works within the LERT to provide input and guidance to the QI/IC 2. Participate in planning meetings
EPC Director	<ol style="list-style-type: none"> 1. Works within the LERT to provide input and guidance to the QI/IC 2. Participate in planning meetings
Permitting Manager	<ol style="list-style-type: none"> 1. Be a contact point for AHJs. 2. Coordinates with the QI/IC to develop and distribute briefings and status updates for AHJs. 3. Maintain a list of assisting and cooperating AHJs and the contact information for their representatives. 4. Assist in establishing and coordinating interagency contacts. 5. Participate in planning meetings including communications of any assisting agencies. 6. Ensure that all required agency forms, reports and documents are completed prior to demobilization.
Media Advisor	<ol style="list-style-type: none"> 1. Authorizes and distributes press preleases as needed 2. Conducts media interviews as needed 3. Collects and coordinates response to any public concerns or inquires as needed 4. Maintains communications within the Country Level EMT or Global Level CMT as needed 5. Coordinate activities of visiting dignitaries.

2.2 Emergency Response Organization

The Emergency Response set-up is organized within three (3) response levels:

1. Local level for operational/tactical response
2. Country level for tactical/strategic support such as handling of Next of Kin and media, informing the organization, stakeholder management, medical-, emotional- and logistical support and advice within safety, insurance, legal, environment, marine, aviation and engineering.
3. Global level for strategic high-level support.

All emergencies should be reported directly to the *MHCC*

To activate the Emergency Response Organization, call the Emergency Response Coordination Centre (ERCC), [REDACTED]

2.2.1 Local Emergency Response Team (LERT)

Company's emergency response organization is designed to manage the response to any emergency involving its activities. It consists of three interfunctional levels, each with its own response team, roles, and responsibilities. The LERT holds responsibility for immediate response to the incident as well as responsibility for notification of the incident to agencies and activation of additional assistance through ERCC, as required according to the ERP when applying a worst-case assessment of the incident impacts. The LERT is comprised of the personnel who initially respond to the incident and conduct the incident management, hands-on tactical response operations and is intended to meet the requirements of a Spill Management Team under 30 CFR 254.23(b) and Spill Response Operations Team. This team may include Company personnel, response contractors, and potentially government agency personnel (US Coast Guard and/or fire departments).

2.2.1.1 Qualified Individual

[REDACTED]
(985) 781-0804 (Office)
[REDACTED]

[REDACTED]
(985) 781-0804 (Office)
[REDACTED]

[REDACTED]
(985) 781-0804 (Office)
[REDACTED]

[REDACTED]
(985) 781-0804 (Office)
[REDACTED]

The Company has contracted Witt O'Brien's to fulfil the role of Qualified Individual (QI) and Alternative QI as identified under 30 CFR part 254.23(a) Each QI is located in the US, is available on a 24-hour basis, and is English speaking, (Cross Reference)

1. Initiate spill cleanup operations
2. Obligate any funds necessary to carry out all required and/or directed Oil Spill Response activities
3. Activate and contract with required oil spill removal organizations (OSROs)
4. Act as a liaison with the Federal On-Scene Coordinator (FOSC)
5. Authorize immediate notification of Federal, State, and Local agencies

2.2.1.2 Spill Management Team

The Company has contracted Witt O'Brien's to fulfil the roles of Spill Management Team (SMT). SMT members are located in the US, available on a 24-hour basis, and are responsible for the overall response to an incident. The SMT will establish and staff an incident command post (ICP) to the extent necessary for the spill.

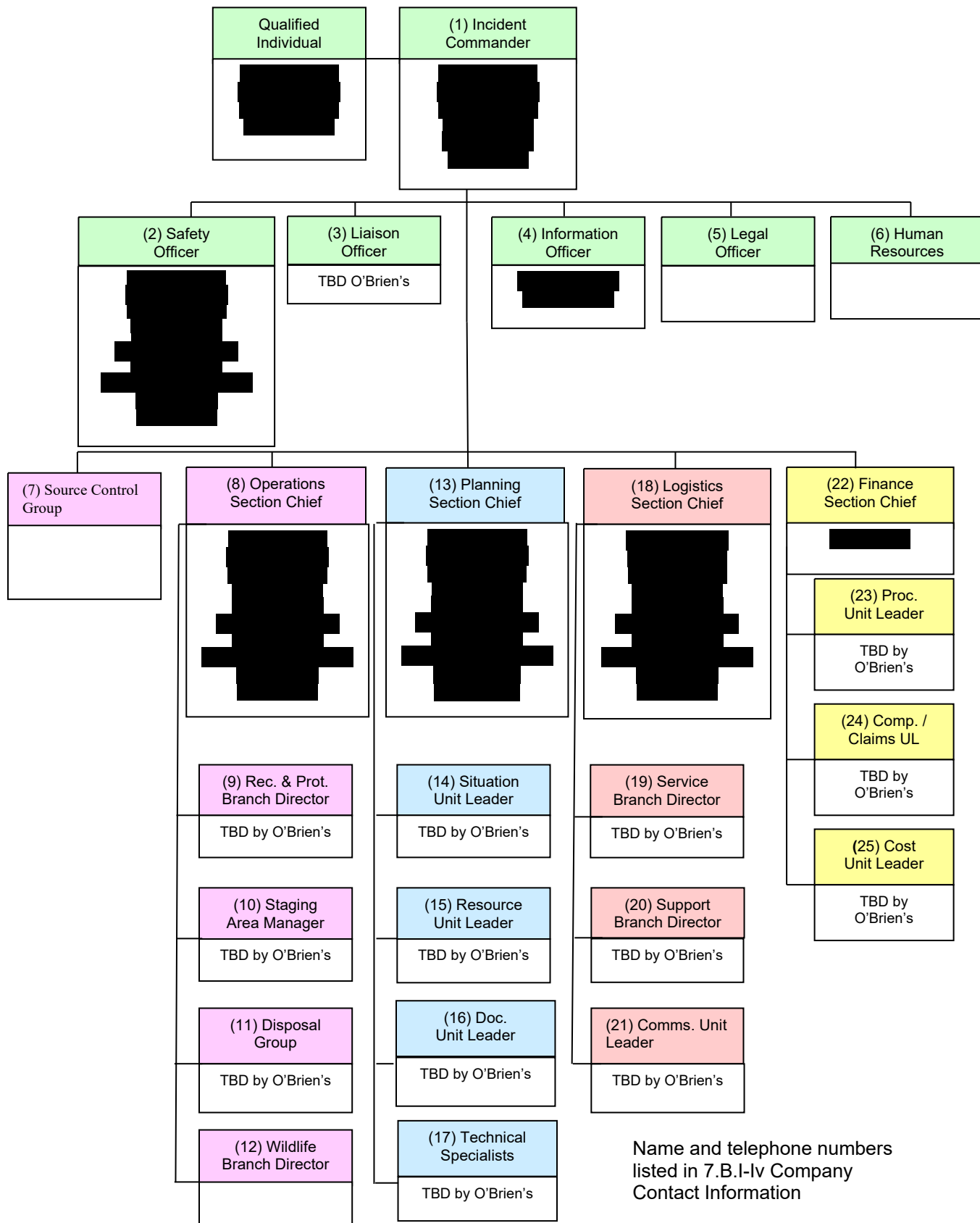
2.2.1.3 Spill Response Operation Team & Oil Spill Removal Organization

The Company has contracted Marine Spill Response Corporation (MSRC) to staff the Spill Response Operating Team (SROT) and supply Oil Spill Removal Services (OSRO). Refer to Appendix G, for contractual agreements, and Appendix F for major equipment list. MSRC will contract out any additional personnel or equipment necessary for the response. MSRC will ensure that any contracted company maintains the required training requirements such as HAZWOPER and any equipment specific training. MSRC retains annual training records for its employees for inspection by the BSEE. MSRC has an emergency hotline that is manned 24/7 to guarantee that equipment and personnel can be deployed in a timely manner.

Marine Spill Response Corporation Emergency Hotline (800) 645-7745



Spill Management Team Organization Chart



2.2.2 Country Emergency Management Team (CEMT)

The Country Emergency Management Team provides immediate tactical and some strategic response aspects to support the LERT. The Country EMT is responsible for the following:

- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]
- █ [REDACTED]

The US Country Emergency Management Plan is located here:

<https://doreco.orsted.dk/share/service/doc-rev/revision/revision-linking?latestApproved=true&chronicleId=06151740>

2.2.3 Global Crisis Management Team (GCMT)

Company's Global Crisis Management Team holds the responsibility for strategic aspects of the crisis. If a crisis has a severe impact or threat to Company, the Global CMT will escalate the crisis to the Corporate Crisis Management Organization.

2.2.4 Corporate Crisis Management Organization (CCMO)

In the event of a crisis with a particularly severe impact on or threat to people, environment, asset and/or reputation, the strategic crisis management of Company Group's executive management level/Board of Directors level (corporate management level) will be activated as a formal Corporate Crisis Management Organization (CCMO). The CCMO covers major crises, defined as an abnormal and unstable situation that threatens the organization's strategic objectives, reputation or viability. The CCMO's primary responsibility is to undertake required strategic crisis management decisions and to effectively manage relevant corporate stakeholders – internal as well as external.

A guideline for when to escalate can be found in Appendix C.

2.3 Spill Response Operations Center

Witt O'Brien's offices in Houston, Texas will serve as the Spill Response Operations Center (Command Center), for the SMT. The Command Center is located at:

818 Town & Country Blvd
Houston, TX 77024

Incident Command Post(s)

In the event the FOSC requests the Incident Command Post is relocated from Houston. The Primary ACP will be consulted for potential locations. [Section 5220.1](#) identifies several locations which may be used as an Incident Command Post.

2.3.1 Communications

Effective and efficient communications systems are essential for emergency response at every level. The communications system will be utilized to gather information and current status reports as well as to provide coordination and direction to widely separated work groups involved in search, containment/diversion, repair, traffic control, public control or evacuation, and restoration.

2.3.1.1 Communications Equipment

The primary and alternate communication systems used to direct and coordinate response to an oil spill are handheld radios, cellular telephones and land telephone lines. In some cases, communication equipment can be enhanced with contract resources as the situation demands. The Incident Command Post has an ample amount of phones and fax machines for a response.

- ICP Phone (985) 781-0814
- ICP Fax (281) 320-9700

Common Marine Frequencies For Emergencies		
CHANNEL	PURPOSE	FREQUENCY (MHz)
PRIMARY		
16	Distress, Safety and Calling	156.800
SECONDARY		
6	Intership Safety	156.300
13	Navigational	156.650
22A	Coast Guard Liaison	157.100
68	Non-Commercial Working	156.475
72	Non-Commercial	156.625
73	Port Operations	156.675
74	Port Operations	156.675
WX1	Weather	162.550
WX2	Weather	162.400
WX3	Weather	162.475

2.3.1.2 Communication Types

Radios - Handheld, vehicle and vessel mounted radio sets are the most effective means of communication for the field response operation. The units are battery operated, multi-channeled, and have a typical range that will cover the area of the response operation. Additional radio sets and battery packs/charges will be necessary in the event of a prolonged response operation.

Telephone (Cellular) - Cellular telephones allow for added mobility and response effectiveness. Cellular

phones are commonly maintained by certain Company personnel. Additional cellular phones can be secured in the event of a prolonged response operation.

2.4 Internal Contacts

Role	Name	Phone	E-Mail
ERCC	N/A	[REDACTED]	N/A
MHCC Emergency Number	N/A	[REDACTED]	N/A
Qualified Individual	Witt O'Brien's	+1 (985) 781-0804 +1 (281) 320-9796	Fax +1 (281) 320-9700
Company Onshore Point of Contact	Ref. Northeast Region ERP	Ref. Northeast Region ERP	
EPC Project HSE Manager	[REDACTED]	[REDACTED]	[REDACTED]
Regional HSE Manager (Ops)	[REDACTED]	[REDACTED]	[REDACTED]
Construction Manager (NEP)	[REDACTED]	[REDACTED]	[REDACTED]
EPC Director (NEP)	[REDACTED]	[REDACTED]	[REDACTED]
Permitting Manager (NEP)	[REDACTED]	[REDACTED]	[REDACTED]



SPILL MANAGEMENT TEAM MEMBERS

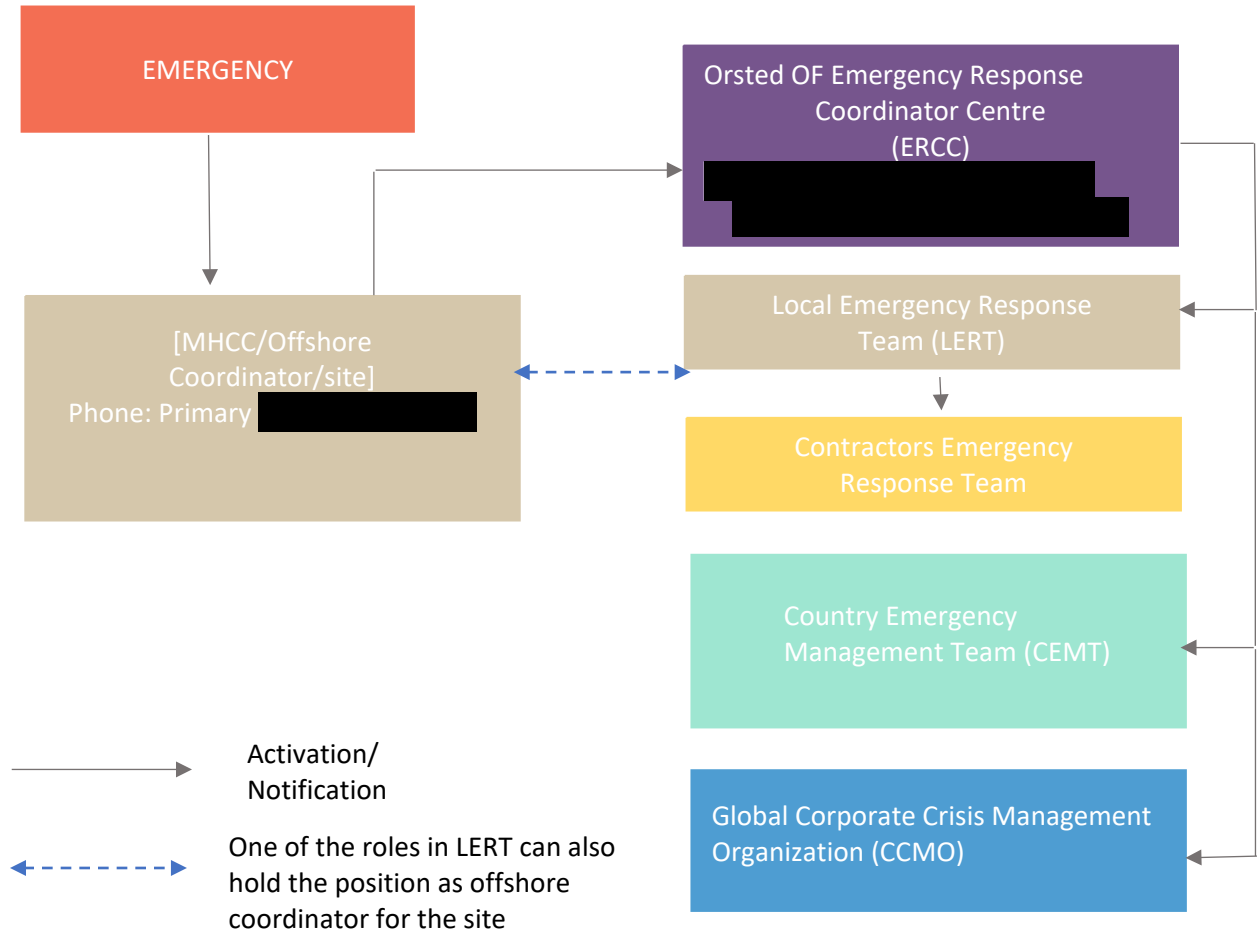
NAME	EMAIL	OFFICE	MOBILE
Qualified Individual			
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
Incident Commander			
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
TBD Witt O'Brien's or RP			
Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief			
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
TBD Witt O'Brien's			
Public Information Officer			
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
TBD Witt O'Brien's		985-781-0804	
Finance Section Chief			
[REDACTED]	[REDACTED]	985-781-0804	[REDACTED]
TBD Witt O'Brien's		985-781-0804	
Recovery & Protection Branch Director			
TBD Witt O'Brien's		985-781-0804	

SPILL MANAGEMENT TEAM MEMBERS			
NAME	EMAIL	OFFICE	MOBILE
Staging Area Manager			
TBD Witt O'Brien's		985-781-0804	
Disposal Group			
TBD Witt O'Brien's		985-781-0804	
Situation Unit Leader			
TBD Witt O'Brien's		985-781-0804	
Resource Unit Leader			
TBD Witt O'Brien's		985-781-0804	
Documentation Unit Leader			
TBD Witt O'Brien's		985-781-0804	
Technical Specialists			
TBD Witt O'Brien's		985-781-0804	
Service Branch Director			
TBD Witt O'Brien's		985-781-0804	



2.5 Internal Notification Process of The Emergency Response Organization (For Offshore Oil Spill and Marine Pollution Incidents)

Activation



2.5.1 Initial detection

Company has aligned its project activities, HSE plans and operating activities to minimize the risk of accidental releases. Company has aligned its project activities, HSE plans and operating activities to minimize the risk of accidental releases. If a low level alarm is noticed, a team member will be sent out to investigate and look for signs of leaking. Upon initial detection of an offshore spill of oil or marine pollutant, the party first identifying the incident shall inform their direct supervisor. On-site resources shall notify the National Response Center and subsequently report the spill to the MHCC to initiate the incident notification. Upon initial detection of an offshore spill of oil or marine pollutant, the party first identifying the incident shall inform their direct supervisor. That supervisor shall notify the MHCC/ERCC to initiate the incident notification.

If the MHCC determines oil has or threatens to impact water, the MHCC will request the ERCC to activate the LERT. When the LERT is activated, the CEMT is automatically notified. The LERT will convene and trigger the need to notify the QI. The LERT will coordinate an initial planning meeting including the QI which will collect or confirm the available spill information.

If the MHCC/ERCC determines oil has or threatens to impact water the LERT will be activated by contacting the QI. The QI activates the LERT and MHCC/ERCC notifies the CEMT. The LERT shall coordinate an initial planning meeting to collect or confirm the available spill information.

2.5.2 Spill identification and assessment

The LERT shall identify the actions, resources, and contractors/personnel to allocate to collect the initial spill information necessary to assess the spill and response level needed to contain the spill.

This initial spill information includes:

- Location of the spill
- Size and volume of the spill
- Initial predicted spill movement based on weather and sea conditions
- Any additional or key risks to People or the Environment
- The LERT shall coordinate with the MHCC on the available resources (vessels and helicopters) to identify the search area and general the spill extent. The MHCC shall coordinate communication and authorization into the spill area to ensure their safe operation across the area and minimize the potential for collision.

Upon visual assessment of the spill, information shall be collected onto the Emergency Event Note (located in the Emergency Response Plan, Appendix A). Where possible, the initial visual estimate shall be completed as soon as possible. Initial oil spill volume estimations will be based upon the color of the spill and information related to length and width that can be calculated on existing charts. The appearance of oil on water varies with the oil's type and thickness as well as ambient light conditions. Oil slick thicknesses greater than approximately 0.25 mm cannot be determined by appearance alone.

In the initial stages of the response, the Onshore PoC shall be notified, ERCC notified and activate the LERT. The LERT maintains initial responsibility for collecting the information necessary to conduct the spill assessment. The LERT shall estimate the spill location, size and volume using coordinates, pictures, drawings, and other information received from the initial spill search parties.

2.5.2.1 Spill Assessment

It is important to estimate the size of the spill so that it can be correctly categorized and communicated to

alert OSRO and external agencies to the type of incident, possible impact, and likely severity.

There are two methods to estimate a spill size:

1. Known quantity: for example, if you know that all the oil has been lost from a tank or a hose that contained a known amount, report that amount.

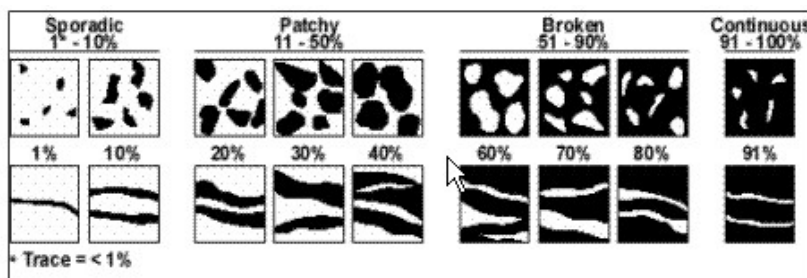
Estimation of the known quantity will be the primary means for spill identification and assessment. Some considerations include the calculation of volume from storage containers, hoses, and tanks. This may be a determination of the expected and actual fuel level of a tank to provide an immediate and continuing indication of the spill volume. Additionally, if onboard fuel level is available, it may provide for a calculated volume. In some cases, onboard fuel level may trigger an alarm, or a monitoring system of bilge levels will provide an indication as to whether any potential spill is being contained within the hull.

2. In the event the site-specific information does not provide a good estimate of the spill, the QUALIFIED INDIVIDUAL will conduct an assessment based on the area, coverage, and thickness of the oil spill.

Unknown quantity: estimate the quantity visually based on the area the slick covers and the relationship between the observed oil color/ appearance which determines its thickness

Spill Volume= Slick Area x Percentage Coverage x Relative Thickness


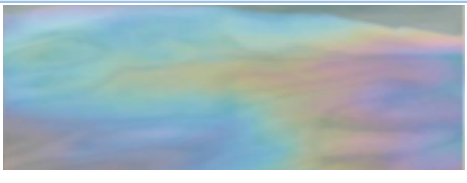

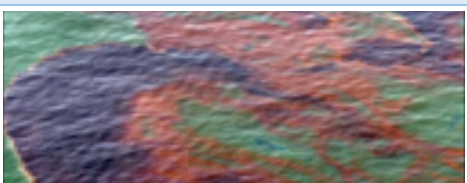

- A. Estimate the entire Slick Area (square area in km²)
- B. Estimate the Percentage Coverage based on the graphic:

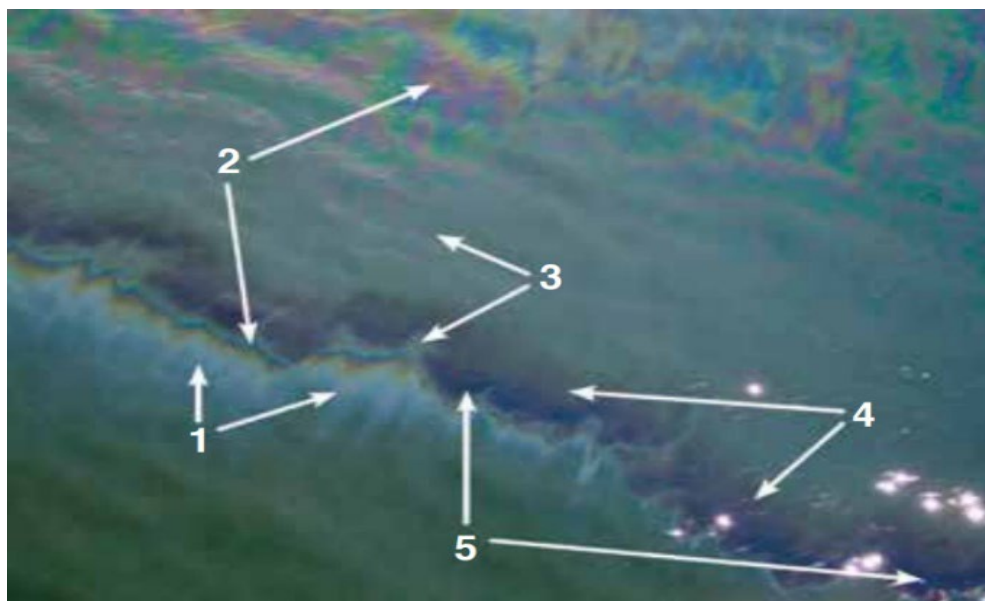


- C. Estimate the Relative Thickness of the entire affected area

Note: The spill assessment noted above may not be applicable to di-electric oil. The minimum data points to be collected would be size, length, width, coverage area and leading edge to the extent that is visible.



Color Code	Layer Thickness Interval (µm)	Liters Per Km2	Graphical Reference
1. Sheen (silvery/grey)	0.04 to 0.30	40 – 300	
2. Rainbow	0.30 to 5.0	300 – 5000	
3. Metallic	5.0 to 50	5000 – 50,000	
4. Discontinuous true color	50 to 200	50,000–200,000	
5. Continuous true color	More than 200	> 200,000	



Example Minimum Volume Calculation

Oiled Area x Area Covered with Specific Appearance x Minimum Thickness

Appearance 1 (Sheen):

- $12 \text{ km}^2 \times 50\% \times 0.04 \text{ } \mu\text{m} = 0.24 \text{ m}^3$

Appearance 2 (Rainbow):

- $12 \text{ km}^2 \times 30\% \times 0.3 \text{ } \mu\text{m} = 1.08 \text{ m}^3$

Appearance 3 (Metallic):

- $12 \text{ km}^2 \times 15\% \times 5.0 \text{ } \mu\text{m} = 9 \text{ m}^3$

Appearance 5 (True Color):

- $12 \text{ km}^2 \times 5\% \times 200 \text{ } \mu\text{m} = 120.0 \text{ m}^3$

Minimum Volume = $0.24 + 1.08 + 9 + 120 = 130.32 \text{ m}^3$ or 34,427 gal

Example Maximum Volume Calculation

Oiled Area x Area Covered with Specific Appearance x Maximum Thickness

Appearance 1 (Sheen):

- $12 \text{ km}^2 \times 50\% \times 0.3 \text{ } \mu\text{m} = 1.8 \text{ m}^3$

Appearance 2 (Rainbow):

- $12 \text{ km}^2 \times 30\% \times 5 \text{ } \mu\text{m} = 18 \text{ m}^3$

Appearance 3 (Metallic):

- $12 \text{ km}^2 \times 15\% \times 50 \text{ } \mu\text{m} = 90.0 \text{ m}^3$

Appearance 5 (True Color):

- $12 \text{ km}^2 \times 5\% \times (\text{more than}) > 200 \text{ } \mu\text{m} = > 120.0 \text{ m}^3$

Maximum Volume = $1.8 + 18 + 90.0 + > 120 = > 229.8 \text{ m}^3$ or 60,708 gal

2.5.2.2 Spill Category Determination

Once the marine pollutant, estimated volume, and risk to personnel has been identified the LERT shall identify a Tier category for the marine pollution emergency event. The Tier level will determine the deployment of resources necessary to be mobilized. There are three tier categories and are identified as such:

- Tier 1 = an incidental spill with limited quantity, limited impact to the environment and low risk to personnel. A Tier 1 spill may be responded to by the existing project contractors and resources
- Tier 2 = a moderate spill with significant impact and/or potential for limited harm to people. A Tier 2 spill requires the mobilization of OSRO or other external resources to control and clean up. In a Tier 2 response, agency resources are notified but overall command and coordination is managed by the QI.

- Tier 3 = a serious spill with heavy impact and potential for harm to people. A Tier 3 spill requires the mobilization of multiple OSRO and/or external resources to control and clean up. In a Tier 3 response, a QI assumes initial command of the spill efforts but a Federal On-Scene Coordinator (FOSC) or an agency incident command structure assumes command and coordination of the response.

3.0 EXTERNAL REPORTING

3.1 External Agencies

The LERT is responsible for conducting external agency notifications. A discharge or threat of a discharge of oil or other marine pollutants into the marine environment requires federal and potentially state notification. Additional guidance may be needed to fully identify all federal, state, and local reporting requirements associated with the Facility. For the purposes of this Plan, the verbal and written reporting requirements in accordance with the Federal Water Pollution Control Act (FWPCA) for oil discharges; and BOEM under 30 CFR 585.830(d) have been identified.

3.2 Federal Spill Reporting Requirements

3.2.1 Oil

For discharges from the Facility, from another offshore facility or of unknown origin, provide immediate notification to the National Response Center (NRC) for any spill which causes a film or sheen upon, or discoloration of the surface of the water; or causes a sludge or emulsion to be deposited beneath the surface of the water).

Report to:

National Response Center
(800) 424-8802 (24-hour)
(202) 267-2675 (24-hour)

Additional Notifications:

Discharges of one (1) barrel or more from the Facility must also be report to BSEE Renewable Energy Incident Reporting Hotline

BSEE Renewable Energy Incident Reporting Hotline

(703) 787-1050

Immediate Notification:

For an incident requiring immediate notification under § 585.831(a), you must notify BOEM verbally after aiding the injured and stabilizing the situation. Your verbal communication must provide the following information:

- Date and time of occurrence.
- Identification and contact information for the lessee, grant holder, or operator;
- Contractor, and contractor representative's name and telephone number (if a contractor is involved in the incident or injury/fatality);
- Lease number, OCS area, and block;
- Platform/facility name and number, or cable or pipeline segment number;
- Type of incident or injury/fatality.

- Activity at time of incident; and
- Description of the incident, damage, or injury/fatality.

Written Follow-up:

The responsible party shall provide a written follow-up report (paper copy or electronically transmitted) within 15 business days after the incident to BSEE Chief, OSPD:

- The oil discharge report shall include:
 - a. Time of the discharge.
 - b. Identity of the material discharged.
 - c. Approximate quantity discharged.
 - d. Location and source of the discharged.
 - e. Cause and circumstances of the discharge.
 - f. Existing or potential hazards (fire, explosion, etc.), if any.
 - g. Personal injuries or casualties, if any.
 - h. Corrective action being taken and an approximate timetable to control, contain, and clean up the spill.
 - i. Name(s) and telephone number(s) of individual(s) who discovered and/or reported the spill.
 - j. Other unique or unusual circumstances.
 - k. Who was responsible for the spill?
 - l. What are their contact details?
 - m. Was the spill inshore or offshore?
 - n. What color was the sheen?
 - o. How large was the sheen?
 - p. Were efforts made to contain the spill?
 - q. Did the spill come from the vessel or from the ROV?
 - r. What were the weather conditions like?
 - s. What is the IMO number of the vessel?
 - t. Is it a US flagged vessel?
 - u. Was the spill planned or accidental?
- If direct reporting to the NRC is not practicable, reports will be made to U.S. Coast Guard Sector Southeastern New England, provided that the person-in-charge of the vessel or facility notifies the NRC as soon as possible.

Report to:

USCG Sector Southeastern New England Command Center:

508-457-3211

All discharge reports shall be confirmed in writing. The written confirmation shall be submitted within 15 days after the discharge stops and include (for all reports):

- Cause of the discharge.
- Location of the discharge.
- Volume of the discharge.
- Action taken.

For discharge of more than 50 barrels, also report:

- Information on sea state.
- Meteorological conditions.
- Size and appearance of slick.

3.2.2 Hazardous Substances

Hazardous Substances released in excess of their Reportable Quantities, (RQs – See Appendix A for Reportable Quantities List): Report immediately after transportation-related (including loading, unloading, and temporary storage) releases involving hazardous substances (including hazardous wastes).

Report to:

National Response Center

(800) 424-8802 (24-hour)

(202) 267-2675 (24-hour)

Additional contact information is available at: <https://nrc.uscg.mil/ContactUs.aspx> The NRC requests that initial incident reports be made to (800) 424-8802.

- Reports must include the following:
 - a. Time of the release.
 - b. Identity of the material released.
 - c. Approximate quantity released.
 - d. Location and source of the release.
 - e. Cause and circumstances of the release.
 - f. Existing or potential hazards (fire, explosion, etc.), if any.
 - g. Personal injuries or casualties, if any.
 - h. Corrective action being taken and an approximate timetable to control, contain, and clean up the spill.
 - i. Name(s) and telephone number(s) of individual(s) who discovered and/or reported the release.
 - j. Other unique or unusual circumstances.

3.3 Local Spill Reporting Requirements

3.3.1 Connecticut Spill Reporting Requirements:

Hazardous Materials (including Hazardous Substances released in excess of their Reportable Quantities (RQs): Immediately report any discharge of a pollutant, in excess of any state Reportable Quantity (RQ).

The emergency release notification requirement applies if both of these two conditions are met:

1. You produce, use, or store a hazardous chemical at your facility; and
2. You release a reportable quantity (RQ) of any extremely hazardous substance (EHS) or of a hazardous substance as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA hazardous substance) at your facility. Certain releases are exempted from these requirements.

**Connecticut Department of Energy and Environmental
Protection Emergency Response Unit**

(860) 424-3338 (24-hour)

National Response Center

(800) 424-8802 (24-hour)

Local Fire Department

911

Local Emergency Planning Committee (LEPC) Community Emergency Coordinator Contact information for LEPCs in Connecticut can be obtained at https://www.ct.gov/serc/lib/serc/lepc_membership/lepc_chairs.pdf

When reporting, the following information will be requested:

- Location of spill;
- Quantity and type of substance, material, or waste released;
- Date and cause of the incident;
- Name and address of the owner;
- Name and address of the person making the report, and their relationship to the owner.

Within 24 hours, the owner or operator should provide a written follow-up report to CT DEP: Complete a written "Report of Petroleum or Chemical Product Discharge, Spillage, Seepage, Filtration" and mailing it to CT-DEP within 24 hours. Contact the CT-DEP at (860) 424-3377 for the form.

3.3.1.1 Oil

Report spills into waters of the state and on land immediately to:

**Connecticut Department of Energy and Environmental
Protection Emergency Response Unit**

(860) 424-3338 (24-hour)

(866) 337-7745 (24-hour)

Immediately after the spill you are required to report facts such as:

- the location;
- the quantity and type of substance, material or waste;
- the date and the cause of the incident;
- the name and address of the owner; and the name and address of the person making the report and his relationship to the owner. Note: Unless specifically requested, the DEEP does not require a written submission when reporting a spill.

3.3.2 Massachusetts Spill Reporting Requirements:

3.3.2.1 Hazardous Materials (including Hazardous Substances released in excess of their Reportable Quantities (RQs) and Oil Spills

The Massachusetts Department of Environmental Protection has established three (3) reporting thresholds for releases and/or threats of release of oil and hazardous materials:

Notification thresholds are categorized as

- 2-Hour;
- 72-Hour; and
- 120-Day types of releases.

The 72-Hour and 120-Day types of releases are not applicable to planned Company operations and are not included in this Guidebook.

The reporting requirements apply to oil and hazardous substances that are listed in the Massachusetts Contingency Plan (310 CMR 40.1600, and may also be found by visiting the DEP's Web site at: <https://www.mass.gov/service-details/oil-hazardous-material-list>

The contact numbers for reporting are:

Massachusetts Department of Environmental Protection
(888) 304-1133 (24-hour, Release Reporting)
(617) 292-5500 (Information)
(617)556-1049 (Fax)

For hazardous substances in excess of their RQs, also report to:

Massachusetts Emergency Management Agency
400 Worcester Road
Framingham, MA 01702-5399
(508) 820-2000
(508) 820-2030 (Fax)

2-Hour Notification: Releases or threats of release to be reported within 2 hours include:

- A sudden, continuous, or intermittent release to the environment of any listed hazardous material or any substance that is ignitable, corrosive, reactive, toxic, and/or infectious (as defined in 310 CMR 40.0347; contact the Department for more information about these characteristics):
 - a. If the quantity of the release is equal to or greater than the Reportable Quantity listed by the Department, and
 - b. It is likely that the release occurred within any period of 24 consecutive hours or less.
- A sudden, continuous, or intermittent release to the environment of any listed hazardous material or any substance that is ignitable, corrosive, reactive, toxic, and/or infectious, when:
 - a. The quantity of the release is unknown,
 - b. It is likely the quantity released is equal to or greater than the applicable Reportable Quantity, and
 - c. It is likely that the release occurred within any period of 24 consecutive hours or less.
- A sudden, continuous, or intermittent release to the environment of oil (as listed by the Department at 310 CMR 40.1600), when:
 - a. The quantity of the release is equal to or greater than the applicable Reportable Quantity, and
 - b. It is likely that the release occurred within any period of 24 consecutive hours or less.
- A sudden, continuous, or intermittent release to the environment of oil listed by the Department, when:
 - c. The quantity of the release is unknown,
 - d. It is likely the amount released is equal to or greater than the Reportable Quantity specified by the Department, and
 - e. It is likely that the release occurred within any period of 24 consecutive hours or less.
- A sudden, continuous, or intermittent release to the environment of any quantity of oil or waste oil listed by the Department that results in the appearance of a sheen on surface water.
- A release to the environment indicated by the measurement of oil and/or hazardous material in a private drinking water supply well at concentrations equal to or greater than a Category RCGW-1 Reportable

Concentration (310 CMR 40.1600). The Department has noted that RCGW-1 values are generally drinking water standards and guidelines.

- Any release of any oil and/or hazardous material in any quantity or concentration that poses or could pose an Imminent Hazard. The following are deemed to pose an Imminent Hazard:
 - a. A release to the environment that results in the presence of oil and/or hazardous material vapors within buildings, structures, or underground utility conduits at a concentration equal to or greater than 10 percent of the Lower Explosive Limit.
 - b. A release to the environment of reactive or explosive hazardous material that threatens human health or safety.
 - c. A release to a roadway that endangers public safety.
 - d. A release to the environment of oil and/or hazardous material that poses a significant risk to human health when present for even a short period of time.
 - e. A release to the environment of oil and/or hazardous material that produces immediate or acute adverse impacts to freshwater or saltwater fish populations.
 - f. A release to the environment that produces readily apparent effects to human health, including respiratory distress or dermal irritation.
- Any release of oil and/or hazardous material as described in 1, 2, 3, 4, and 7, above, that is discharged to a stormwater drainage system.
- Any release of oil and/or hazardous material in any quantity or concentration that poses or could pose an Imminent Hazard and is indirectly discharged to the environment by means of a sanitary sewerage system.
- A threat of release to the environment of oil and/or hazardous material listed by the Department or that is Ignitable, Corrosive, Reactive, Toxic, and/or Infectious, when:
 - a. It is likely that the threat of release is about to occur, and
 - b. It is likely that the amount released would be equal to or greater than the Reportable Quantity for that substance.
- A threat of release to the environment of oil and/or hazardous material listed by the Department or that is ignitable, corrosive, reactive, toxic, and/or infectious, which poses or could pose an Imminent Hazard no matter what quantity of the substance is likely to be released.

A subsequent written report must be submitted within 60 days for incidents requiring 2-Hour Reporting.

Reporting parties may also retract a notification within 60 days. The Department recommends that when in doubt, report a release, and retract the notification within 60 days if subsequent information can indicate that a reporting threshold was not exceeded.

3.3.3 New York Spill Reporting Requirements:

3.3.3.1 Hazardous Materials

Hazardous Materials: (including Hazardous Substances released in excess of their Reportable Quantities (RQs)). Immediately (but not to exceed 2 hours) notify the following agencies of any unpermitted discharges:

National Response Center
(800) 424-8802

**New York Department of
Environmental Conservation**
(800) 457-7362 (24-hour)

Releases of CERCLA Hazardous Substances are subject to release reporting requirements of 40 CFR Part 302, including notification of the State Emergency Response Commission, local emergency planning committee, and local emergency response personnel (fire department).

SERC: New York State Emergency Response Commission
1220 Washington Avenue, Building 22, Suite 101, Albany, NY 12226-2251

LEPC: https://www.dhSES.ny.gov/system/files/documents/2022/03/3.07.2022-master-lepc-contacts_0.pdf

The report should provide the following information:

- Chemical name or identity of any substance involved in the release.
- Indication of whether the substance is an extremely hazardous substance.
- An estimate of the quantity released.
- Time and duration of release.
- Medium or media into which the release occurred.
- Known health risks associated with emergency and where appropriate advice regarding medical attention for those exposed.
- Proper precautions/actions that should be taken, including evacuation.
- Names and telephone numbers of person to be contacted for further information.

As soon as practicable after release, follow up notification by providing the following information:

- Actions taken to respond to and contain the release.
- Health risks.
- Advice on medical attention for exposed individuals.

3.3.3.2 Oil and Petroleum Products

Any oil discharge that violates water quality standards or causes sheen on navigable waters must be immediately reported to:

National Response Center
(800) 424-8802

New York Department of Environmental Conservation
(800) 457-7362 (24-hour)

Note: Oil spills which meet all of the following criteria do not need to be reported to the NY DEC:

- The quantity is known to be less than 5 gallons; and
- The spill is contained and under the control of the spiller; and
- The spill has not and will not reach the State's water or any land; and
- The spill is cleaned up within 2 hours of discovery.

For Hazardous Substances Released in excess of their RQs: There is additional reporting requirements.

Report releases and submit written follow-up emergency notice(s) to:

**New York State Emergency
Response Commission
c/o New Jersey Office of Emergency
Management
P.O. Box 7068
West Trenton, NJ 08628**

**New Jersey Department of
Environmental Protection
Site Remediation Program
401-05H
P.O. Box 420
Trenton, NJ 08625-0420**

**Environmental Action Hotline
(877) 927-6337 (24-hour)**

3.3.4 Rhode Island Spill Reporting Requirements

3.3.4.1 Hazardous Materials

Hazardous Substances released in excess of their Reportable Quantities (RQs) If a release of hazardous substances could result in an imminent hazard, or threaten the environment or human safety, immediately notify:

**Rhode Island Department of
Environmental Management
Bureau of Environmental Protection
235 Promenade Street
Providence, RI 02908
(401) 222-3070 (24-hour)
(401) 222-1360 (8 to 4)**

**Rhode Island Emergency Response Commission
Rhode Island Emergency Management Agency
645 New London Avenue
Cranston, RI 02920
(401) 946-9996 (24-hour)**

Within 48 hours, written notification of a source area and/or release of hazardous material must include, but not necessarily be limited to, the following information:

- The name, address, and telephone number of the persons notifying the Department of the release, the owner and/or operator of any properties impacted by the release or of the vessel where the release has occurred, any other responsible parties, and the contact person at the impacted area or vessel where the release has occurred.
- The city/town, street address, legal description (plat and lot), and the general location of the area impacted by the release.
- The date of and the circumstances leading to and surrounding the discovery of the release.
- An identification of the hazardous material released, the approximate concentrations of hazardous substances in the released material, and the approximate quantity of the hazardous material released.
- An initial estimate of the source of the release and the extent and nature of contamination resulting from the release.
- Measures taken or proposed to be taken in response to the release as of the time of notification.

Any other relevant information, including but not limited to potential environmental impacts and other factors evaluated in determining whether or not the release presents an imminent hazard. These factors include:

- A determination as to whether a release of hazardous material has the potential to adversely impact any wetland or surface water.
- A determination as to whether the extent of hazardous material contamination in soil or groundwater is within 500 feet of a surface water body or wetland.
- A determination as to whether the release impacts an area utilized for residential activity, industrial commercial activity, or both.
- An identification of the underlying groundwater classification, and if the classification is GB, the distance to the nearest GA/GAA area.
- An indication of whether a background determination consistent with state requirements for Background Concentrations for Soil will be performed and submitted subsequent to notification.
- For releases of hazardous materials, that are not hazardous substances, notify the Department by writing within 15 days after discovery of the release.

3.3.4.2 Hazardous Waste

For releases of hazardous waste that could present any risk of injury to human health or the environment, notify the following:

National Response Center
(800) 424-8802

Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767
(401) 222-1360 (8 to 4)
(401) 222-3070 (24-hour)

Within 15 days a written report, providing the above information and describing the quantity and disposition of any material recovered from the incident, must be submitted to the Department.

3.3.4.3 Oil

Report all spills that could result in a release to the environment to:

Rhode Island Department of Environmental Management
Bureau of Environmental Protection
Office of Compliance and Inspection
235 Promenade Street
Providence, RI 02908-5767
(401) 222-1360 (8 to 4)
(401) 222-3070 (24-hour)

Within 10 days submit a written report to DEM Program Director, Compliance and Inspection, describing:

- Date, time, and place of release.
- Names, addresses, and telephone numbers of all persons potentially responsible or liable for such release.
- Amount and type of material released.
- Containment and removal operations, including costs.

- Circumstances causing the release.
- Any third-party damages.
- Procedures, methods, and precautions used or planned to prevent a recurrence.

3.4 Tier 1 Response Plan

3.4.1 Tier 1 Spill Response Planning

Where a spill has been identified as a Tier 1, no activation of an OSRO or external resources is expected for the completion of the spill response. Once the spill has been identified as a low risk, Tier 1 spill, containment, and cleanup operations shall commence remembering that safety is the highest priority. Until no longer directed to do so, the LERT shall maintain communication and coordinate all site actions. Where needed, the QI has been notified and provide guidance on response actions.

Where the spill is determined by the LERT to be a Tier 2 or 3, notification of the incident shall be made as soon as possible to the QI who will provide overall coordination and planning of the spill response effort. Where applicable, the QI shall communicate and coordinate cleanup efforts with external Agencies.

Small Spills (Tier 1) – The LERT and QI receiving the notification of the spill will determine the response resources required. It is anticipated that small or minor spills will be managed by the Local Emergency Response Team or port/project and facility personnel.

Where the medium or high risk to personnel or the scope of the spill demands external resources, coordination with the USCG or activation of an OSRO then the spill shall be classified as a Tier 2 or 3.

3.4.2 General Guidelines for an internal spill response

- Poor weather conditions, high winds, and strong currents will dictate the safety and effectiveness of any onboard spill mitigation. Remember safety is the highest priority.
- The second priority is to stabilize the situation – stop the release leak, if possible, to do so without significant risk to personnel. When directed, contain the release, and check other sources for additional releases.
- Keep good communication and coordination with the QI – the QI shall be regularly updated with the spill and response status and provide overall guidance.
- The responding personnel shall be briefed on the overall incident and status, response plan, and the safety risks and mitigations for the hazards of their work.
- Responding personnel shall receive any applicable PPE and shall include proper clothing, rubber gloves, goggles, etc. which are to be worn when handling or recovering marine pollutants, oil and oil contaminated materials.
- The QI or Relevant HSE Manager shall fill out an Incident Report (and USCG 2692 if appropriate).
- The Project Site Manager shall direct personnel to enact the response plan's effort to mitigate and control the spill as appropriate.

3.5 Tier 2 or 3 Response Plan

3.5.1 Planning

Moderate to Serious Spills or Potential Casualties (Tier 2) - Whenever the magnitude of a spill results in significant environmental impact or the spill has the potential for personnel casualties, the response will require external resources. The Qualified Individual (QI) shall mobilize an oil spill response organization (and Spill Management Team if necessary) to plan a response and execute that response.

The QI (and Spill Management Team if necessary) will develop an incident command structure to mobilize, assess, plan and execute a spill response plan and coordinate any response activities with the EPA, USCG or other external agencies. This incident command structure's purpose will be to provide for the safe, effective, and coordinated management of the incident.

Serious Spills or Casualties (Tier 3) - Whenever the magnitude of a spill results in catastrophic environmental impact or the spill has experienced casualty or multiple serious injuries, the response will require external resources and direct oversight from external agencies. The QI shall mobilize an oil spill response organization (and Spill Management Team if necessary) unless direct command of the response has been transferred to an on-scene coordinator. The Spill Management Team (or Federal On-Scene Coordinator (FOSC) if applicable) will develop an incident command structure to mobilize, assess, plan and execute a spill response plan and coordinate any response activities with all external agencies. This incident command structure's purpose will be to provide for the safe, effective coordinated management of the incident.

All containment and recovery operations will be coordinated with the USCG, BSEE, and applicable state agency representatives. A procedure for waste collection, storage, transportation and disposal will be developed in accord with existing regulations, keeping safety as the highest priority with oversight by the Spill Management Team (or FOSC if applicable).

3.5.2 Tier 2 and Tier 3 Spill Assessment and Cleanup Resources

The QI shall coordinate the development of a spill-specific response plan for a Tier 2 or 3 spill. Where appropriate, the QI shall assemble the SMT to develop a comprehensive spill-specific response plan.

The Company has contracted with MSRC to mobilize trained and qualified response personnel as well as appropriate spill response equipment for offshore spill response activities.

3.5.3 Qualified Individual

The Company has contracted with Witt O'Brien's as the Qualified Individual.

Witt O'Brien's, L.L.C.
818 Town & Country Blvd., Suite 200
Houston, TX 77024
Phone: 281-606-4721
Alternate Phone: 202-207-2935

The QI shall perform the following responsibilities:

- Ensure notifications of all Federal, State and other agencies are made.
- An immediate decision regarding spill response equipment and personnel is required. The appropriate Oil Spill Removal Organizations (OSRO) resources and Spill Management Team personnel for the magnitude of the incident must be notified and activated as required.
- Provide liaison with the USCG Federal On-Scene Coordinator (FOSC) and State On-Scene Coordinator (SOSC) to relay information about the incident status, report the action initiated and coordinate initial shore-based response actions.
- Provide updates to Company and commence response activity. Coordinate and direct clean-up operations in coordination with the FOSC until relieved (or the incident is concluded).

3.5.4 OSRO

The Company has a contractual agreement with the following Oil Spill Response Organization:

**Marine Spill Response
Corporation (MSRC)**
220 Spring Street, Suite 500
Herndon, VA 20170
Phone: 703-326-5617
Fax: 703-326-5660

The QI, SMT, and the OSRO together are intended to perform the functions the Spill Response Operating Team under 30 CFR 254.23(c).

The Company has contracted with MSRC for OSRO response services during a marine pollution emergency event. The respective contractual agreements cover the offshore activities of the project. Additional response services will be added for the onshore activities.

3.5.5 Mobilization

The NEP has identified guard vessels and response equipment to deploy resources to quickly mobilize. These contracted guard vessels be available and ready to communicate with the MHCC and initiate emergency response procedures upon the commencement of the spill-specific response plan. The emergency response system will ensure adequate containment equipment, recover equipment and response personnel at the spill location and any projected impact locations.

3.5.6 Transfer of Responsibility

In the initial stages of the response, the QI maintains responsibility for liaison with any external agencies (FOSC, SOSC or local responders). The QI provides direction and may activate the SMT or contractor resources in coordination with the FOSC, SOSC and local responders. If necessary, the SMT is activated and deployed to site. Once briefed and organized, an Incident Commander (IC) will advise the QI that he or she is ready to assume management of the incident. The QI will then advise the 1st Line ERT and any involved external agencies of the new IC and provide contact information for the IC.

4.0 INCIDENT NOTIFICATION AND RESPONSE TOOLS

4.1 Incident Notification

To activate an emergency response as precisely and quickly as possible, call ERCC and provide as much as possible of the following information in your initial request for assistance:

- What has happened
- Incident location
- Person/medical concerns
- Environmental concerns
- Asset concerns
- Reputation concerns
- Initial actions taken
- When (Time of the incident)
- Liaison person on site level
- Contractor involved – if any
- Weather conditions

4.2 Tools for Notification of the Emergency

Use the “Emergency Event Note” for the initial reporting and log onto Crisis Incident Management (CIM) as the tool for keeping an ongoing overview of the emergency and to ensure notification of details. The “Emergency Event Note” can be found in Appendix A.

The Incident notification pro-forma sheet can be used to compile initial information related to the vessel, see Appendix B.

5.0 INCIDENT SCENARIOS

A number of incident scenarios have been developed to provide clear instructions on how employees at installations, vessels and at the back office should respond to a given emergency. At the Back Office, it is the MHC who is coordinating the response.

The scenarios include contingency plans for employees at installations, vessels, third party and for “all parties”:

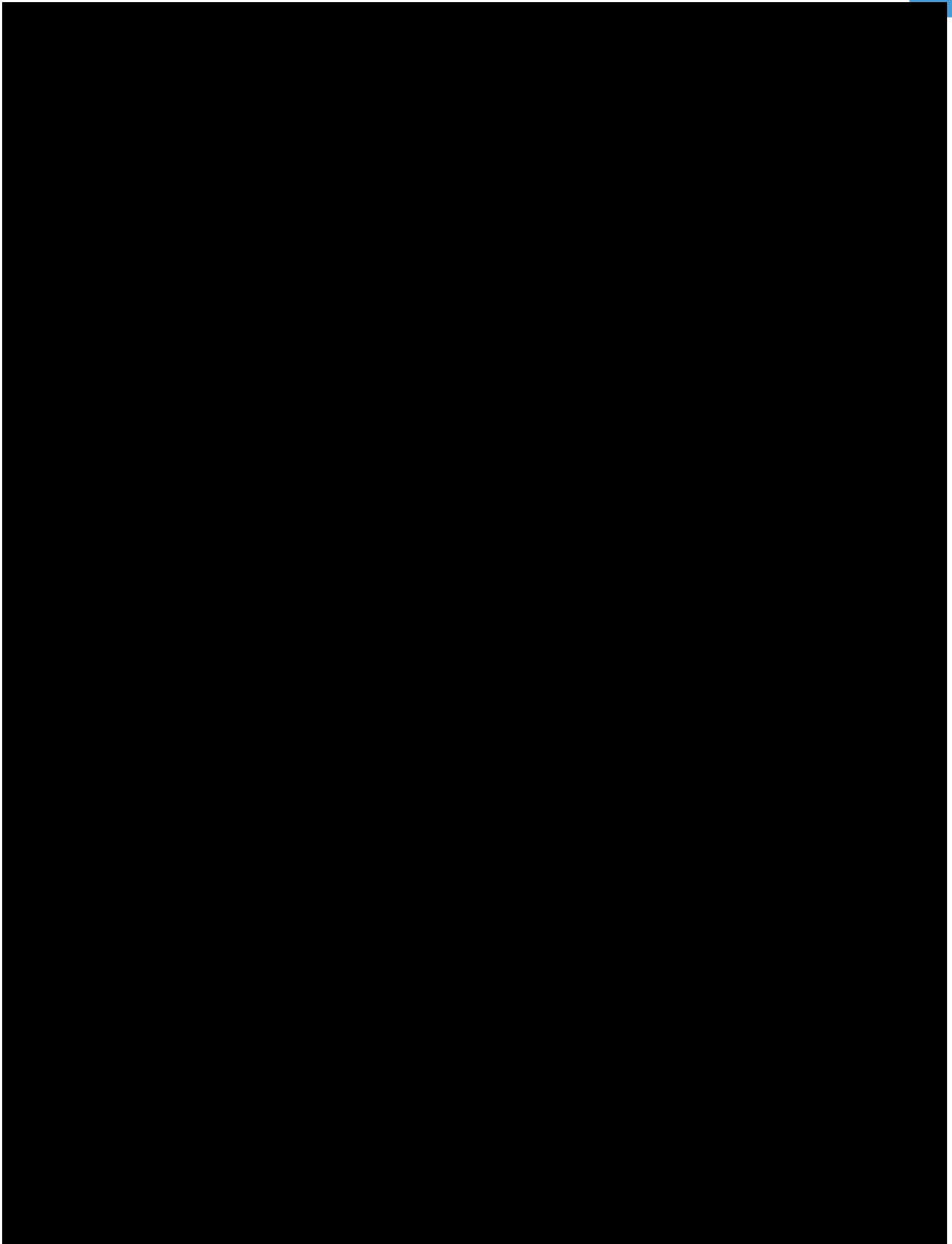
Installation (color coded yellow)

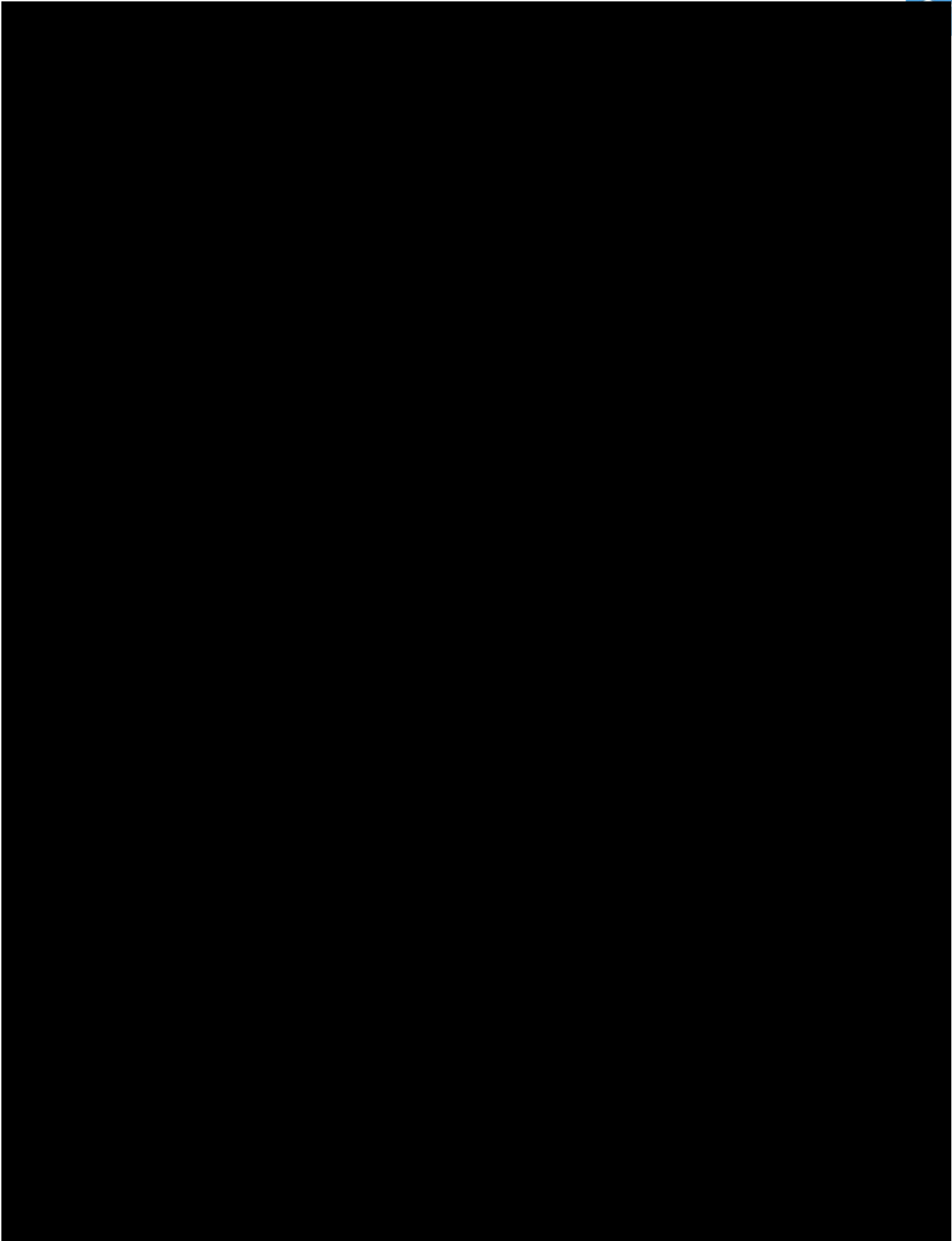
- Marine pollution from installation
- Marine pollution
- Onshore Spill Response

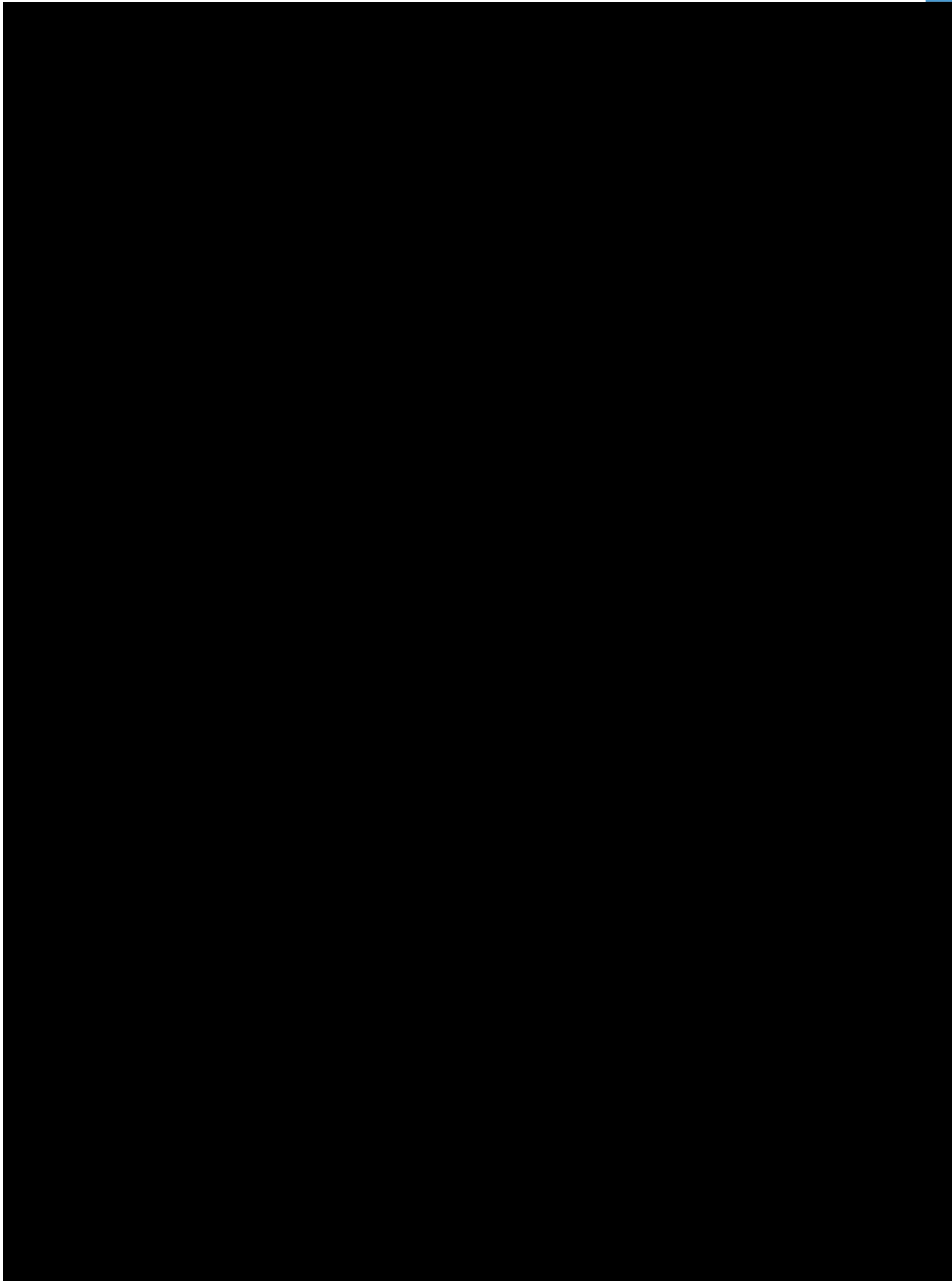
SPILL DETECTION

The Company employs many measures to mitigate and prevent the unauthorized discharge of oil into offshore waters, including:

- Regular inspections are conducted to detect the need for prevention and maintenance procedures. Required maintenance or repairs are undertaken immediately or are scheduled within a reasonable time period.
- Curbs, gutters and drip pans have been installed on the platform deck areas of the OSS to collect and capture any oil that accumulates on the deck.
- WTG Oil drainage is channeled to a properly designed, operated and maintained sump system within the WTG that prevents an unauthorized discharge.
- Installations are inspected according to the approved frequency of platform inspections Platform facilities are designed according to industry guidelines Safety devices are installed on the installations to warn operators of leaks.
- Abnormal operating conditions which may result in the discharge of oil are likely to be detected by installed sensors and initiate the shut down of that equipment.
- During normal transits by water and air to the offshore locations of this and other facilities, operational personnel can detect and report incidents, including spills.







6.0 RESPONSE STRATEGIES

6.1 Offshore Procedures

OSRO and third-party vessels will work in support to conduct open water skimming operations and provide temporary storage allowing the skimmers to stay in the area of operations as much as possible. If the oil moves towards shore, additional skimming vessels will be deployed to conduct skimming operations. Vessels of opportunity will work with the skimmers towing boom to maximize skimming capability. Resources deployed in the offshore area will be redirected to work in the near shore area to prevent shoreline impact. A Vessels of Opportunity (VoO) program will be established to identify and train VoO operators on both containment techniques as well as skimming and recovery strategies.

Dispersants are NOT a likely response option. However, all options need to be considered during a response. Authorization to apply dispersant may be given within ten (10) hour of providing the FOSC the application document. Therefore, the first sortie may be on scene within twelve (12) hours of notification, if weather and daylight permits. Sorties may continue through daylight hours as established by the Unified Command.

A safety zone should be established between recovery operations and dispersant operations. Dispersant aircraft may initially attack the leading edge of the slick. Upon arrival, skimming vessels will skim near the spill source. Slick size during the initial hours may not allow for dispersant operations near the platform and skimming operations near leading edge.

In-situ burning is NOT a likely response option. However, all options need to be considered during a response. In-situ burning may require additional safety zones from other operations. As the slick size increases and more skimming resources arrive, high volume recovery resources will be situated near the source, and dispersant and in-situ burning operations will be conducted in the fresh oil. Highly mobile skimming equipment may be concentrated on the leading edge of the oil.

6.2 Shallow water/Nearshore Procedures

The following preparations for dealing with the expected shoreline oil impact should commence.

- Request following resources:
 - Shallow water skimming systems
 - Tank Barges with tugs
 - Communications resources
 - Wildlife Rehabilitation trailer
 - Wildlife hazing cannons
- Procure services of Private Contractors to provide additional response equipment dependent upon availability.
- Crew boats to serve as mother ships for each of the contractor manned shoreline boom and cleanup task forces.
- Deck/spud barges and tugs to provide initial logistics platforms for field operations.
- Establish a shoreline forward base camp. Base should have facilities for:
 - Command and communications
 - Staging area for logistics support
 - Personnel support (meals and berthing)
 - Helipad/float plane dock

Based on surveillance flights and trajectory information, the area of shoreline impact should be identified. Boom may be placed at breakwaters, coastal lagoons and wetland inlets to prevent oil from penetrating into the marsh environment. Strategies may include placement of deflection boom in front of the inlet, and angling of the boom inside of the inlets to collect any oil that may pass the deflection boom. Snare boom or viscous sweep may be used along the face of marsh grass and vegetation in areas too large to protect with containment boom.

Shallow water skimmers may be placed at the deflection booms and in coastal lagoons and wetland inlets that are especially sensitive and/or natural collecting points. In open shallow water areas, skimmers may be used in a dynamic mode.

A detailed table summarizing cleanup techniques can be found in Section 13.

6.3 Shoreline Procedures

Shoreline response measures will vary depending on the makeup of the subject shoreline. Shoreline Cleanup Assessment Teams (SCAT) will be utilized to analyze an affected shoreline and establish cleanup priorities. A Shoreline Treatment Recommendation (STR) will be issued based upon that analysis. The STR will detail procedures to be implemented to effectively address the oiled shoreline in the most appropriate, environmentally sound manner.

Potential practices may include, but are not limited to:

- Protection booming for some or all inlets and inland waterways;
- Hot- or cold-water pressure washing, utilizing different pressures as appropriate;
- Manual removal by response personnel with hand tools;
- Utilization of beach-cleaning machines or heavy equipment such as graders, backhoes and bulldozers;
- Low pressure/high volume flushing into open water for removal using skimmers or vacuum trucks (potentially barge-mounted);
- The use of sorbent materials;
- Controlled burning, in certain exigent circumstances; or
- Passive response (i.e., natural dissipation).

6.4 Resource Protection Methods

NEARSHORE/SHORELINE PROTECTION AND CLEANUP ACTIVITIES

The following preparations for dealing with the expected shoreline oil impact should commence.

- Request following resources:
 - Shallow water skimming systems.
 - Tank Barges with tugs.
 - Communications resources.
 - Wildlife Rehabilitation trailer.
 - Wildlife hazing cannons.

- Procure services of Private Contractors to provide additional response equipment dependent upon availability.
- Crew boats to serve as mother ships for each of the contractor manned shoreline boom and cleanup task forces.
- Deck/spud barges and tugs to provide initial logistics platforms for field operations.
- Establish a shoreline forward base camp. Base should have facilities for:
 - Command and communications.
 - Staging area for logistics support.
 - Personnel support (meals and berthing).
 - Helipad/float plane dock.

6.5 Shoreline Strategic Plan

Based on surveillance flights and trajectory information, the area of shoreline impact should be identified. Boom may be placed at breakwaters, coastal lagoons and wetland inlets to prevent oil from penetrating into the marsh and wetland environment. Booming strategy may include placement of deflection boom in front of the inlet, and angling of the boom inside of the inlets to collect any oil that may pass the deflection boom. Snare boom or viscous sweep may be used along the face of marsh grass and vegetation in areas too large to protect with containment boom.

Shallow water skimmers may be placed at the end of deflection booms and in coastal lagoons and wetland inlets that are especially sensitive and/or natural collecting points. In open shallow water areas, skimmers may be used in a dynamic mode.

Using the Area Contingency Plan environmentally sensitive areas will be prioritized and protected using local OSRO resources. Shallow water equipment will be strategically positioned along the coast to allow for a faster response time once impact has occurred. As the oil gets closer to shore, equipment will be cascaded and funneled into the area most likely impacted, while keeping some equipment in reserve in the event landfall is made in another area. Local Stake Holders will be engaged immediately and their input will be greatly valued in the placement of the booming strategies. If the landscape allows, pre-cleaning of the beaches will be conducted once the oil passes a ten (10) mile "go/no-go" line. This will include pulling the natural debris above the high tide line to minimize its contamination.

Areas that are not sensitive will be assessed for use as collection or diversion areas to enhance the speed of recovery. Equipment necessary for that task will be staged near those locations to reduce the amount of travel time in the event they are activated.



A detailed table summarizing cleanup techniques can be found in this section.

SHORELINE CLEANUP MATRIX

SHORELINE CLEANUP MATRIX Very Light Oil	SHORELINE TYPES											
	Coastal Structures	Bluffs	Fine Sand Beach	Coarse Sand Beach	Shell Beach	Perched Sand Beach	Perched Shell Beach	Sandy Tidal Flat	Muddy Tidal Flat	Forested Swamp	Fresh Marsh	Salt Marsh
CLEANUP METHOD	1	2	3	4	5	6	7	8	9	10	11	12
No Action	A	A	A	A	A	A	A	A	A	A	A	A
Manual Debris Removal	A	A	A	A	P	P	P	P	P	P	P	P
Manual Sediment Removal	■	P	P	P	P	P	P	P	■	■	■	■
Manual Sorbent Application	A	P	P	P	P	■	■	■	■	■	■	■
Manual Scraping	■	P	P	P	■	P	■	P	■	■	■	■
Manual Vegetation Cutting	■	■	■	■	■	■	■	■	■	■	■	■
Motor Grader/Elevating Scraper	■	P	P	P	P	■	■	■	■	■	■	■
Elevating Scraper	■	P	P	P	P	■	■	■	■	■	■	■
Motor Grader/Front-End Loader	■	P	P	P	P	■	■	■	■	■	■	■
Front-End Loader: Rubber Tired or - Tracked	■	P	P	P	P	■	■	■	■	■	■	■
Bulldozer: Rubber – Tired Front-End Loader	■	P	P	P	P	■	■	■	■	■	■	■
Backhoe	■	P	P	P	P	■	■	■	■	■	■	■
Beach Cleaner	■	P	P	P	P	■	■	■	■	■	■	■
Dragline/Clamshell	■	P	P	P	P	■	■	■	■	■	■	■
Cold Water Deluge Flooding	A	P	P	P	P	P	P	P	P	A	A	A
Low Pressure Cold Water Washing	A	■	P	P	P	■	■	■	■	A	A	A
High Pressure Cold Water Washing	A	■	■	■	■	■	■	■	■	■	■	■
Low Pressure Hot Water Washing	A	■	P	P	P	■	■	■	■	■	■	■
High Pressure Hot Water Washing	A	■	■	■	■	■	■	■	■	■	■	■
Steam Cleaning	A	■	■	■	■	■	■	■	■	■	■	■
Sand Blasting	A	■	■	■	■	■	■	■	■	■	■	■
Vacuum	A	P	P	P	P	P	P	P	P	P	P	P
Trenching/Vacuum	■	P	P	P	P	■	■	P	■	■	■	■
Sediment Removal, Cleaning & Replacement	■	■	■	■	■	■	■	■	■	■	■	■
Push Contaminated Substrate into Surf	■	■	■	■	■	■	■	■	■	■	■	■
Pavement Breakup	■	■	■	■	■	■	■	■	■	■	■	■
Disc into Substrate	■	■	■	■	■	■	■	■	■	■	■	■
Burning	■	■	■	■	■	■	■	■	■	■	■	■
Chemical Oil Stabilization	■	■	■	■	■	■	■	■	■	■	■	■
Chemical Protection of Beaches	■	■	■	■	■	■	■	■	■	■	■	■
Chemical Cleaning of Beaches	■	■	■	■	■	■	■	■	■	■	■	■
Nutrient Enrichment	P	P	P	P	P	P	P	P	P	P	P	P
Bacterial Enrichment	P	P	P	P	P	P	P	P	P	P	P	P

A (ADVISED) : Method which best achieves the goal of minimizing destruction or injury to the environment.
 P (POSSIBLE): Viable and possibly useful but may result in limited adverse effects to the environment.
 ■ SHADED AREA: Do not use this method.



SHORELINE CLEANUP MATRIX (Cont'd)

SHORELINE CLEANUP MATRIX Light Oil	SHORELINE TYPES											
	Coastal Structures	Bluffs	Fine Sand Beach	Coarse Sand Beach	Shell Beach	Perched Sand Beach	Perched Shell Beach	Sandy Tidal Flat	Muddy Tidal Flat	Forested Swamp	Fresh Marsh	Salt Marsh
CLEANUP METHOD	1	2	3	4	5	6	7	8	9	10	11	12
No Action	P	P	P	P	P	P	P	P	P	P	P	P
Manual Debris Removal	A	A	A	A	P	P	P	P	P	P	P	P
Manual Sediment Removal		P	P	P	P	P	P	P				
Manual Sorbent Application	A	P	A	A	P	P	P	P	P		P	P
Manual Scraping	A	P	A	A	P	P	P	P	P			
Manual Vegetation Cutting											P	P
Motor Grader/Elevating Scraper		P	A	A	P	P	P	P				
Elevating Scraper		P	A	A	P	P	P	P				
Motor Grader/Front-End Loader		P	A	A	P	P	P	P				
Front-End Loader: Rubber Tired or - Tracked		P	A	A	P	P	P	P				
Bulldozer: Rubber – Tired Front-End Loader		P	A	A	P	P	P	P				
Backhoe		P	A	A	P	P	P	P				
Beach Cleaner		P	A	A	P	P	P	P				
Dragline/Clamshell		P	A	A	P	P	P	P				
Cold Water Deluge Flooding	A	P	A	A	P	P	P	P		A	A	A
Low Pressure Cold Water Washing	A	A	A	A	P	P	P	P		P	P	P
High Pressure Cold Water Washing	A			P				P		P	P	P
Low Pressure Hot Water Washing	A	P	P	P	P	P	P	P				
High Pressure Hot Water Washing	A			P				P				
Steam Cleaning	A											
Sand Blasting	A											
Vacuum	A	P	P	P	P	P	P	P	P	P	P	P
Trenching/Vacuum		P	P	P	P			P				
Sediment Removal, Cleaning & Replacement			P	P								
Push Contaminated Substrate into Surf			P	P	P							
Pavement Breakup			P	P	P							
Disc into Substrate			P	P								
Burning												
Chemical Oil Stabilization												
Chemical Protection of Beaches												
Chemical Cleaning of Beaches												
Nutrient Enrichment	P	P	P	P	P	P	P	P	P	P	P	P
Bacterial Enrichment	P	P	P	P	P	P	P	P	P	P	P	P

A (ADVISED) : Method which best achieves the goal of minimizing destruction or injury to the environment.
 P (POSSIBLE): Viable and possibly useful but may result in limited adverse effects to the environment.
 SHADED AREA: Do not use this method.



SHORELINE CLEANUP MATRIX (Cont'd)

SHORELINE CLEANUP MATRIX Medium Oil	SHORELINE TYPES											
	Coastal Structures	Bluffs	Fine Sand Beach	Coarse Sand Beach	Shell Beach	Perched Sand Beach	Perched Shell Beach	Sandy Tidal Flat	Muddy Tidal Flat	Forested Swamp	Fresh Marsh	Salt Marsh
CLEANUP METHOD	1	2	3	4	5	6	7	8	9	10	11	12
No Action	P	P	P	P	P	P	P	P	P	P	P	P
Manual Debris Removal	A	A	A	A	P	P	P	P	P	P	P	P
Manual Sediment Removal	■	P	P	P	P	P	P	P	■	■	■	■
Manual Sorbent Application	A	P	A	A	P	P	P	P	P	A	A	A
Manual Scraping	A	P	A	A	P	P	P	P	P	■	■	■
Manual Vegetation Cutting	■	■	■	■	■	■	■	■	■	P	P	P
Motor Grader/Elevating Scraper	■	P	A	A	P	P	P	P	■	■	■	■
Elevating Scraper	■	P	A	A	P	P	P	P	■	■	■	■
Motor Grader/Front-End Loader	■	P	A	A	P	P	P	P	■	■	■	■
Front-End Loader: Rubber Tired or - Tracked	■	P	A	A	P	P	P	P	■	■	■	■
Bulldozer: Rubber – Tired Front-End Loader	■	P	A	A	P	P	P	P	■	■	■	■
Backhoe	■	P	A	A	P	P	P	P	■	■	■	■
Beach Cleaner	■	P	A	A	P	P	P	P	■	■	■	■
Dragline/Clamshell	■	P	A	A	P	P	P	P	■	■	■	■
Cold Water Deluge Flooding	A	A	A	A	P	P	P	P	P	A	A	A
Low Pressure Cold Water Washing	A	P	P	P	P	P	P	P	■	P	P	P
High Pressure Cold Water Washing	A	■	■	P	■	■	■	P	■	■	■	■
Low Pressure Hot Water Washing	A	P	P	P	P	P	P	P	■	■	■	■
High Pressure Hot Water Washing	A	■	■	P	■	■	■	P	■	■	■	■
Steam Cleaning	A	■	■	■	■	■	■	■	■	■	■	■
Sand Blasting	A	■	■	■	■	■	■	■	■	■	■	■
Vacuum	A	P	A	A	P	P	P	P	P	P	P	P
Trenching/Vacuum	■	P	P	A	P	■	■	P	■	■	■	■
Sediment Removal, Cleaning & Replacement	■	■	P	P	■	■	■	■	■	■	■	■
Push Contaminated Substrate into Surf	■	■	P	P	P	■	■	■	■	■	■	■
Pavement Breakup	■	■	P	P	P	■	■	■	■	■	■	■
Disc into Substrate	■	■	P	P	■	■	■	■	■	■	■	■
Burning	P	P	P	P	P	■	■	■	■	■	P	P
Chemical Oil Stabilization	P	P	P	P	P	P	P	P	■	■	■	■
Chemical Protection of Beaches	A	P	P	P	P	P	P	■	■	P	P	P
Chemical Cleaning of Beaches	A	P	P	P	P	P	P	■	■	P	P	P
Nutrient Enrichment	P	P	P	P	P	P	P	P	P	P	P	P
Bacterial Enrichment	P	P	P	P	P	P	P	P	P	P	P	P

A (ADVISED) : Method which best achieves the goal of minimizing destruction or injury to the environment.
 P (POSSIBLE): Viable and possibly useful but may result in limited adverse effects to the environment.
 ■ SHADED AREA: Do not use this method.



SHORELINE CLEANUP MATRIX (Cont'd)

SHORELINE CLEANUP MATRIX Heavy Oil	SHORELINE TYPES											
	Coastal Structures	Bluffs	Fine Sand Beach	Coarse Sand Beach	Shell Beach	Perched Sand Beach	Perched Shell Beach	Sandy Tidal Flat	Muddy Tidal Flat	Forested Swamp	Fresh Marsh	Salt Marsh
CLEANUP METHOD	1	2	3	4	5	6	7	8	9	10	11	12
No Action	P	P	P	P	P	P	P	P	P	P	P	P
Manual Debris Removal	A	A	A	A	P	P	P	P	P	P	P	P
Manual Sediment Removal		P	P	P	P	P	P	P				
Manual Sorbent Application	A	P	A	A	P	P	P	P	P	A	A	A
Manual Scraping	A	P	A	A	P	P	P	P	P			
Manual Vegetation Cutting										P	P	P
Motor Grader/Elevating Scraper		P	A	A	P	P	P	P				
Elevating Scraper		P	A	A	P	P	P	P				
Motor Grader/Front-End Loader		P	A	A	P	P	P	P				
Front-End Loader: Rubber Tired or - Tracked		P	A	A	P	P	P	P				
Bulldozer: Rubber – Tired Front-End Loader		P	A	A	P	P	P	P				
Backhoe		P	A	A	P	P	P	P				
Beach Cleaner		P	A	A	P	P	P	P				
Dragline/Clamshell		P	A	A	P	P	P	P				
Cold Water Deluge Flooding	A	A	A	A	P	P	P	P	P	A	A	A
Low Pressure Cold Water Washing	A	P	P	P	P	P	P	P		P	P	P
High Pressure Cold Water Washing	A			P				P				
Low Pressure Hot Water Washing	A	P	P	P	P	P	P	P				
High Pressure Hot Water Washing	A			P				P				
Steam Cleaning	A											
Sand Blasting	A											
Vacuum	A	P	A	A	P	P	P	P	P	P	P	P
Trenching/Vacuum		P	P	A	P			P				
Sediment Removal, Cleaning & Replacement			P	P								
Push Contaminated Substrate into Surf			P	P	P							
Pavement Breakup			P	P	P							
Disc into Substrate			P	P								
Burning	P	P	P	P	P						P	P
Chemical Oil Stabilization	P	P	P	P	P	P	P	P				
Chemical Protection of Beaches	A	P	P	P	P	P	P			P	P	P
Chemical Cleaning of Beaches	A	P	P	P	P	P	P			P	P	P
Nutrient Enrichment	P	P	P	P	P	P	P	P	P	P	P	P
Bacterial Enrichment	P	P	P	P	P	P	P	P	P	P	P	P

A (ADVISED): Method which best achieves the goal of minimizing destruction or injury to the environment.
 P (POSSIBLE): Viable and possibly useful but may result in limited adverse effects to the environment.
 ■ SHADED AREA: Do not use this method.

6.6 Wildlife Rehabilitation Procedures

The Company will work with Federal, State, and local agency personnel to provide labor and transportation to retrieve clean and rehabilitate birds and wildlife affected by an oil spill, as necessary. Oversight of wildlife preservation activities and coordination with Federal, State, and local agencies during an oil spill is the responsibility of the IC. Response personnel should contact their supervisor should they encounter oiled wildlife or carcasses. Only experienced and licensed personnel can perform field retrieval and deterrent activities for wildlife.

Several objectives should be considered at the beginning of an oil spill in regard to protecting wildlife including:

- Identify and Establish Priorities for Resources at Risk,
- Determine Environmental Effects of Response Actions,
- Identify Fish and Wildlife Response Capabilities,
- Evaluate the Interface of the Fish and Wildlife and Sensitive Environments Annex (FWSEA).

6.6.1 Endangered/Threatened Species

Refer to Appendix H Worst case discharge for species information.

6.6.2 Wildlife Rescue and Rehabilitation

The following items should be considered for wildlife rescue and rehabilitation during a spill response:

- Great care should be taken during an oil spill to minimize the impact to sea turtles, including:
 - Allowing response personnel to thoroughly examine burn boxes for sea turtles prior to burning oil.
 - If snare boom is utilized, it is recommended to run the boom perpendicular to shore rather than parallel placing it no closer than 250 feet apart along the beach.
 - Relocation and rehabilitation should be performed by trained personnel only.
 - Consideration should be taken to relocate turtle nests should the shoreline be threatened by an oil spill.
 - If sea turtles are encountered, notification should be given to the appropriate response personnel for relocation.
- Great care should be taken during an oil spill to minimize the impact to birds. Deterrence methods offer the best solution to minimize the potential impact including:
 - Visual stimuli, such as inflatable bodies, owls, stationary figures, or helium balloons, etc.
 - Auditory stimuli, such as propane cannons, recorded sounds or shell crackers.
 - Herding with aircraft, boats, vehicles, or people (as appropriate).
 - Capture and relocation.
 - If oiled birds are encountered, notification should be given to the appropriate response personnel. Only trained personnel should handle oiled animals.

According to the National Oceanic and Atmospheric Administration (NOAA) fisheries services, response personnel will typically not respond to marine mammals during an offshore oil spill due to the logistics and equipment needed to capture and relocate animals of that magnitude. Furthermore, more damage is likely to stem from a rescue operation and will lower the survivability rate of these animals. NOAA states that issues could arise due to relocated marine mammals, especially dolphins, such as:

- Relocation could overcrowd environmental areas;
- Relocation could alter the infectious disease ecology of the population; and
- Relocation might subject marine mammals to poor quality habitats with insufficient food and shelter needs.

6.6.3 Wildlife Search and Rescue - Points to Consider

- Company involvement should be limited to offering assistance as needed or requested by the agencies.
- Prior to initiating any organized search and rescue plan, authorization must be obtained from the appropriate federal/state agency.
- Initial search and rescue efforts, if needed, should be left up to the appropriate agencies. They have the personnel, equipment, and training to immediately begin capturing contaminated wildlife.
- With or without authorization, it must be anticipated that volunteer citizens will aid distressed/contaminated wildlife on their own. It is important to communicate that it may be illegal to handle wildlife without express authority from appropriate agencies. Provisions should be made to support an appropriate rehabilitator; however, no support should be given to any unauthorized volunteer rescue efforts.

6.6.4 Wildlife Rescue and Rehabilitation Operations is found in Section 3600 of the Rhode Island Southeastern Massachusetts ACP at the below link:

<https://homeport.uscg.mil/Lists/Content/Attachments/2471/2020%20SEMA%20and%20RI%20Area%20Contingency%20Plan.pdf>

6.7 Storage and Disposal of Recovered Wastes

All recovered wastes shall be stored, labeled, transported, and disposed of in accordance with Federal, State, and local requirements. The Company has an established response contractors that is responsible for collecting and transporting any recovered wastes from emergency operations. The response contractor is permitted to transport hazardous waste both off-shore and on-shore. Where applicable, the response contractor may separate or decant oil from recovered oil/water mixtures for the purpose of removing uncontaminated water in accordance to 40 CFR 300.

6.8 Decanting

The Federal and State OSCs will consider each request for decanting on a case-by-case basis. Prior to approving decanting, the UC will evaluate the potential effects of weather including the wind and wave conditions, the quantity of oil spilled and the type of oil as well as available storage receptacles. The UC should also take into account that recovery operations as enhanced by decanting will actually reduce the overall quantity of pollutants in a more timely and effective manner to facilitate cleanup operations.

The following criteria will be considered in determining approval of decanting operations:

- All decanting should be done in a designated "response area" within a collection area, vessel collection well, recovery belt, weir area, or directly in front of a recovery system.
- Vessels employing sweep booms with recovery pumps in the apex of the boom should decant forward of the recovery pump.
- All vessels, motor vehicles and other equipment not equipped with an oil/water separator should allow retention time for oil held in internal or portable tanks before decanting commences.
- When deemed necessary by the FOSC and/or SOSC or the response contractor, a containment boom will be deployed around the collection area to minimize loss of decanted oil or entrainment.
- Visual monitoring of the decanting area shall be maintained so that discharge of oil in the decanted water is detected promptly.
- Decanting in areas where vacuum trucks, portable tanks or other collection systems are used for shore cleanup will be subject to the same rules as vessels.

The QUALIFIED INDIVIDUAL will seek approval from the FOSC and/or SOSC prior to decanting by presenting the Unified Command with a brief description of:

- The area for which decanting approval is sought;
- The decanting process proposed;
- The prevailing conditions (wind, weather, etc.); and
- The protective measures proposed to be implemented.

The decanting Authorization Form is found in the Rhode Island Southeastern Massachusetts ACP in Appendix 7M Attachment 3000-13 at the following link:

<https://homeport.uscg.mil/Lists/Content/Attachments/2471/2020%20SEMA%20and%20RI%20Area%20Contingency%20Plan.pdf>

7.0 Incident Command System

7.1 Incident Command System Overview

The Incident Command System is intended to be used as an emergency management tool to aid in mitigating all types of emergency incidents. This system is readily adaptable to very small emergency incidents as well as more significant or complex emergencies. The Incident Command System utilizes the following criteria as key operational factors:

- Assigns overall authority to one individual.
- Provides structured authority, roles and responsibilities during emergencies.
- The system is simple and familiar and is used routinely at all incidents.
- Communications are structured.
- There is a structured system for response and assignment of resources.
- The system provides for expansion, escalation, and transfer/transition of roles and responsibilities.
- The system allows for "Unified Command" where agency involvement at the command level is required.
 - Effective establishment and utilization of the Incident Command System during response to all types of emergencies can:
- Provide for increased safety.
- Shorten emergency mitigation time by providing more effective and organized mitigation.
- Cause increased confidence and support from local, state, and federal public sector emergency response personnel.
- Provide a solid cornerstone for emergency planning efforts.
 - The spill management command structure for the Port Isabel Logistical Offshore Terminal, including incident specific Operations Section command structure, is shown in Figure 4.2. A description of each ICS position, the primary responsibilities, and pre-emergency planning activities are provided in Figure 4.3 at the end of this section.

7.2 Unified Command

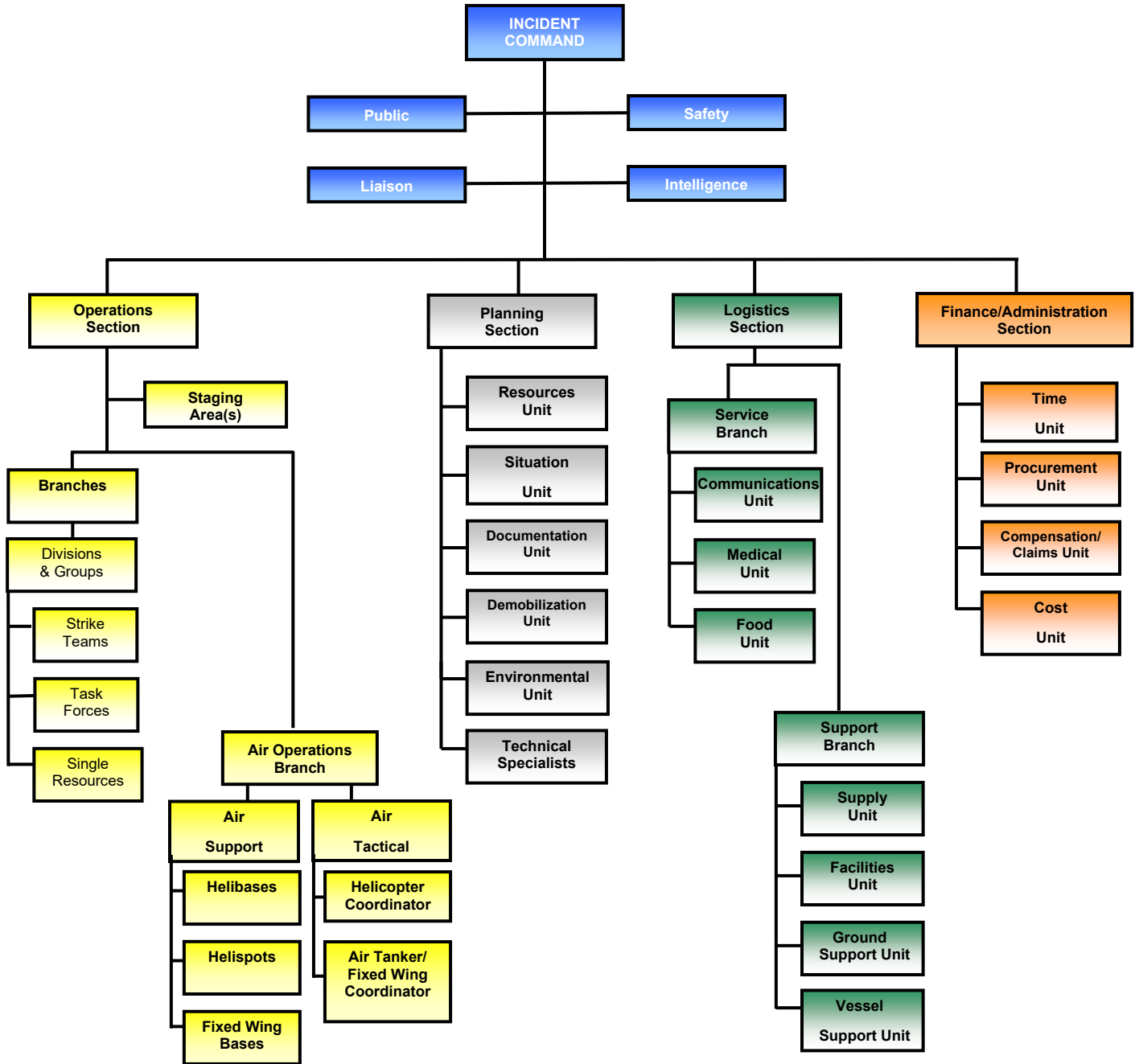
As a component of an ICS, the Unified Command (UC) is a structure that brings together the Incident Commanders of all major organizations involved in the incident to coordinate an effective response while still meeting their own responsibilities. The UC links the organizations responding to the incident and provides a forum for the Responsible Party and responding agencies to make consensus decisions. Under the UC, the various jurisdictions and/or agencies and responders may blend together throughout the organization to create an integrated response team. The ICS process requires the UC to set clear objectives to guide the on-scene response resources.

- Multiple jurisdictions may be involved in a response effort utilizing Unified Command. These jurisdictions could be represented by any combination of:
 - Geographic boundaries;
 - Government levels;
 - Functional responsibilities, and
 - Statutory responsibilities.
 - The participants of Unified Command for a specific incident will be determined taking into account the specifics of the incident and existing response plans and/or decisions reached during the initial meeting of the UC. The UC may change as an incident progresses, in order to account for changes in the situation.
 - The UC is responsible for overall management of an incident. The UC directs incident activities and approves and releases resources. The UC structure is a vehicle for coordination, cooperation and communication which is essential to an effective response.
 - UC representatives must be able to:
 - Agree on common incident objectives and priorities;
 - Have the capability to sustain a 24-hour and seven (7)-day-a-week commitment to the incident;
 - Have the authority to commit agency or company resources to the incident;
 - Have the authority to spend agency or company funds;
 - Agree on an incident response organization;
 - Agree on the appropriate Command and General Staff assignments
 - Commit to speak with “one voice” through the Public Information Officer or Joint Information Center;
 - Agree on logistical support procedures; and
 - Agree on cost-sharing procedures.



SPILL MANAGEMENT TEAM – STRUCTURE

(For incidents beyond the response capability of the spill management team.)



ICS ROLES AND RESPONSIBILITIES

COMMON RESPONSIBILITIES

The following is a checklist applicable to all personnel in an ICS organization:

- Receive assignment, including:
 - Job assignment;
 - Resource order number and request number;
 - Reporting location;
 - Reporting time;
 - Travel instructions; and
 - Special communications instructions.
- Upon arrival, check-in at designated check-in location.
- Receive briefing from immediate supervisor.
- Acquire work materials.
- Supervisors maintain accountability for assigned personnel.
- Organize and brief subordinates.
- Know your assigned radio frequency(s) and ensure communications equipment is operating properly.
- Use clear text and ICS terminology (no codes) in all communications.
- Complete forms and reports required of the assigned position and send to Documentation Unit.
- Maintain unit records, including Unit/Activity Log (ICS Form 214).
- Response to demobilization orders and brief subordinates regarding demobilization.

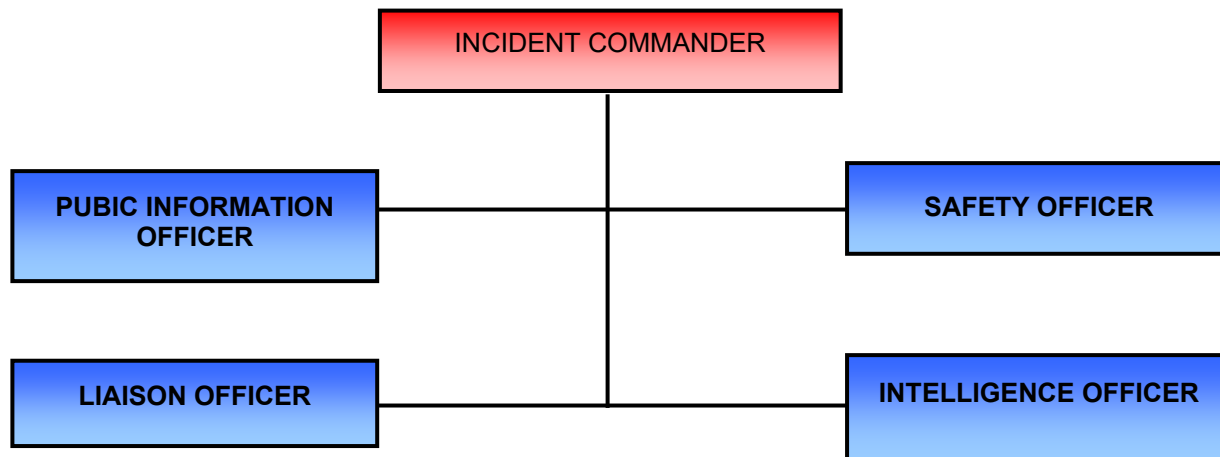
UNIT LEADER RESPONSIBILITIES

In ICS, a Unit Leader's responsibilities are common to all units in all parts of the organization. Common responsibilities of Unit Leaders are listed below.

- Review common responsibilities.
- Receive briefing from Incident Commander, Section Chief or Branch Director, as appropriate.
- Participate in incident planning meetings, as required.
- Determine current status of unit activities.

- Order additional unit staff, as appropriate.
- Determine resource needs.
- Confirm dispatch and estimated time of arrival of staff and supplies.
- Assign specific duties to staff; supervise staff.
- Develop and implement accountability, safety, and security measures for personnel and resources.
- Supervise demobilization of unit, including storage of supplies.
- Provide Supply Unit Leader with a list of supplies to be replenished.
- Maintain unit records, including Unit/Activity Log (ICS Form 214).

COMMAND



INCIDENT COMMANDER

- Assess the situation and/or obtain a briefing from the prior IC.
- Determine incident objectives and strategy.
- Establish the immediate priorities.
- Establish an Incident Command Post (ICP).
- Brief Command Staff and Section Chiefs.
- Review meetings and briefings.
- Establish an appropriate organization.
- Ensure planning meetings are scheduled as required.
- Approve and authorize the implementation of an Incident Action Plan (IAP).
- Ensure that adequate safety measures are in place.
- Coordinate activity for all Command and General Staff.
- Coordinate with key people and officials.
- Approve requests for additional resources or for the release of resources.
- Keep agency administrator informed of incident status.
- Approve the use of trainees, volunteers, and auxiliary personnel.
- Authorize release of information to the news media.
- Ensure incident Status Summary (ICS Form 209) is completed and forwarded to appropriate higher authority.
- Order the demobilization of the incident when appropriate.

PUBLIC INFORMATION OFFICER

- Determine from the IC if there are any limits on information release.
- Develop material for use in media briefings.
- Obtain IC approval of media releases.
- Inform media and conduct media briefings.
- Arrange for tours and other interviews or briefings that may be required.
- Obtain media information that may be useful to incident planning.
- Maintain current information summaries and/or displays on the incident and provide information on the status of the incident to assigned personnel.

LIAISON OFFICER

- Be a contact point for Agency Representatives.
- Maintain a list of assisting and cooperating agencies and Agency Representatives. Monitor check-in sheets daily to ensure that all Agency Representatives are identified.
- Assist in establishing and coordinating interagency contacts.
- Keep agencies supporting the incident aware of incident status.
- Monitor incident operations to identify current or potential inter-organizational problems.
- Participate in planning meetings, providing current resource status, including limitations and capability of assisting agency resources.
- Coordinate response resource needs for Natural Resource Damage Assessment and Restoration (NRDAR) activities with the Operations Section (OPS) during oil and HAZMAT responses.
- Coordinate response resource needs for incident investigation activities with the OPS.
- Ensure that all required agency forms, reports, and documents are completed prior to demobilization.
- Coordinate activities of visiting dignitaries.

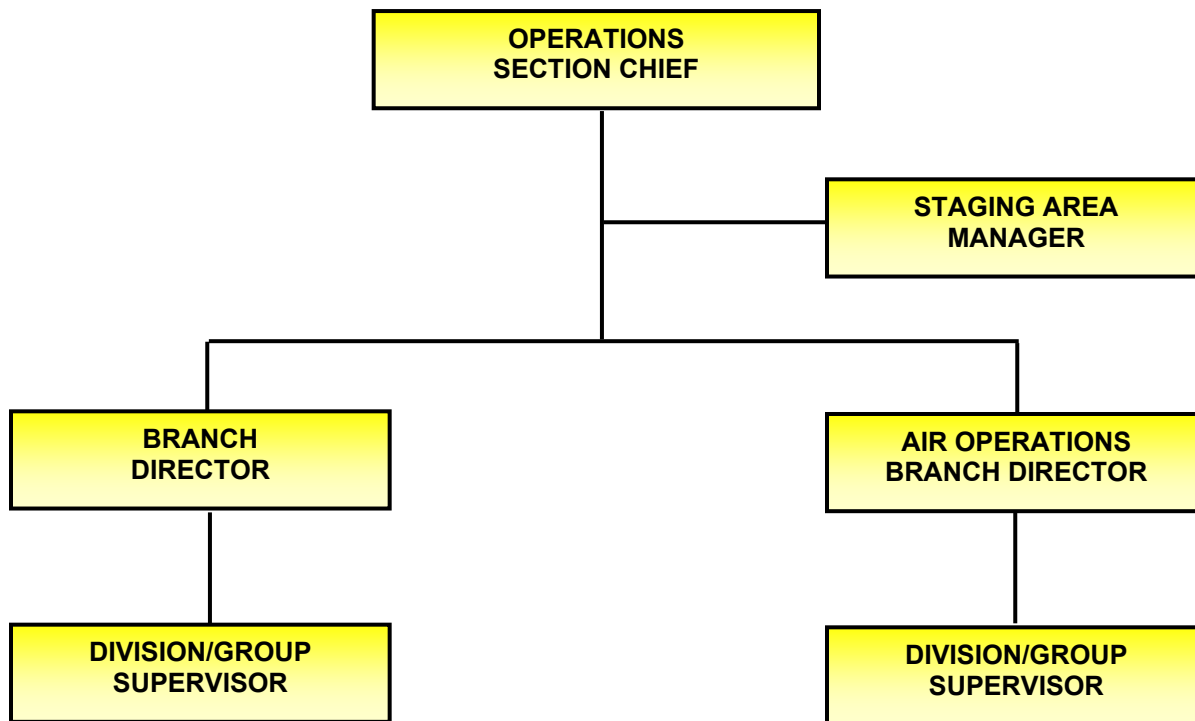
SAFETY OFFICER

- Participate in planning meetings.
- Identify hazardous situations associated with the incident.
- Review the IAP for safety implications.
- Exercise emergency authority to stop and prevent unsafe acts.
- Investigate accidents that have occurred within the incident area.
- Review and approve the Medical Plan.
- Develop the Site Safety Plan and publish Site Safety Plan summary (ICS Form 208) as required.

INTELLIGENCE OFFICER

- Participate in meetings and briefings as required.
- Collect and analyze incoming intelligence information from all sources.
- Determine the applicability, significance, and reliability of incoming intelligence information.
- As requested, provide intelligence implications.
- Review the IAP for intelligence briefings to the IC/UC.
- Answer intelligence questions and advise Command and General Staff as appropriate.
- Supervise, coordinate, and participate in the collection, analysis, processing, and dissemination of intelligence.
- Establish liaison with all participating law enforcement agencies including the Coast Guard Investigation Service (CGIS), Federal Bureau of Investigation/Joint Terrorism Task Force (FBI/JTTF), and state and local police departments.
- Prepare all required intelligence reports and plans.
- Ensure that all required agency forms, reports and documents are completed prior to demobilization.

OPERATIONS



OPERATIONS SECTION CHIEF

- Develop operations portion of IAP.
- Brief and assign Operations Section personnel in accordance with the IAP.
- Supervise the Operations Section.
- Determine need and request additional resources.
- Review suggested list of resources to be released and initiate recommendation for release of resources.
- Assemble and disassemble strike teams assigned to the Operations Section.
- Report information about special activities, events, and occurrences to the IC.
- Respond to resource requests in support of Natural Resource Damage Assessment and Restoration (NRDAR) activities.

BRANCH DIRECTOR

- Develop with subordinates alternatives for Branch control operations.
- Attend planning meetings at the request of the OPS.
- Review Division/Group Assignment Lists (ICS Form 204) for Divisions/Groups within the Branch. Modify lists based on effectiveness of current operations.
- Assign specific work tasks to Division/Group Supervisors.
- Supervise Branch operations.
- Resolve logistic problems reported by subordinates.
- Report to OPS when: the IAP is to be modified; additional resources are needed; surplus resources are available; or hazardous situations or significant events occur.
- Approve accident and media reports originating within the Branch.

DIVISION/GROUP SUPERVISOR

- Implement IAP for Division/Group.
- Provide the IAP to Strike Team Leaders, when available.
- Identify increments assigned to the Division/Group.
- Review Division/Group assignments and incident activities with subordinates and assign tasks.
- Ensure that the IC and/or Resources Unit are advised of all changes in the status of resources assigned to the Division/Group.

DIVISION/GROUP SUPERVISOR (Cont'd)

- Coordinate activities with adjacent Division/Group.
- Determine need for assistance on assigned tasks.
- Submit situation and resources status information to the Branch Director or the OPS.
- Report hazardous situations, special occurrences, or significant events (e.g., accidents, sickness, discovery of unanticipated sensitive resources) to the immediate supervisor.
- Ensure that assigned personnel and equipment get to and from assignments in a timely and orderly manner.
- Resolve logistics problems within the Division/Group.
- Participate in the development of Branch plans for the next operational period.

STAGING AREA MANAGER

- Establish Staging Area layout.
- Determine any support needs for equipment, feeding, sanitation and security.
- Establish check-in function as appropriate.
- Post areas for identification and traffic control.
- Request maintenance service for equipment at Staging Area as appropriate.
- Respond to request for resource assignments
- Obtain and issue receipts for radio equipment and other supplies distributed and received at Staging Area.

- Determine required resource levels from the OPS.
- Advise the OPS when reserve levels reach minimums.
- Maintain and provide status to Resource Unit of all resources in Staging Area.
- Demobilize Staging Area in accordance with the Incident Demobilization Plan.

AIR OPERATIONS BRANCH DIRECTOR

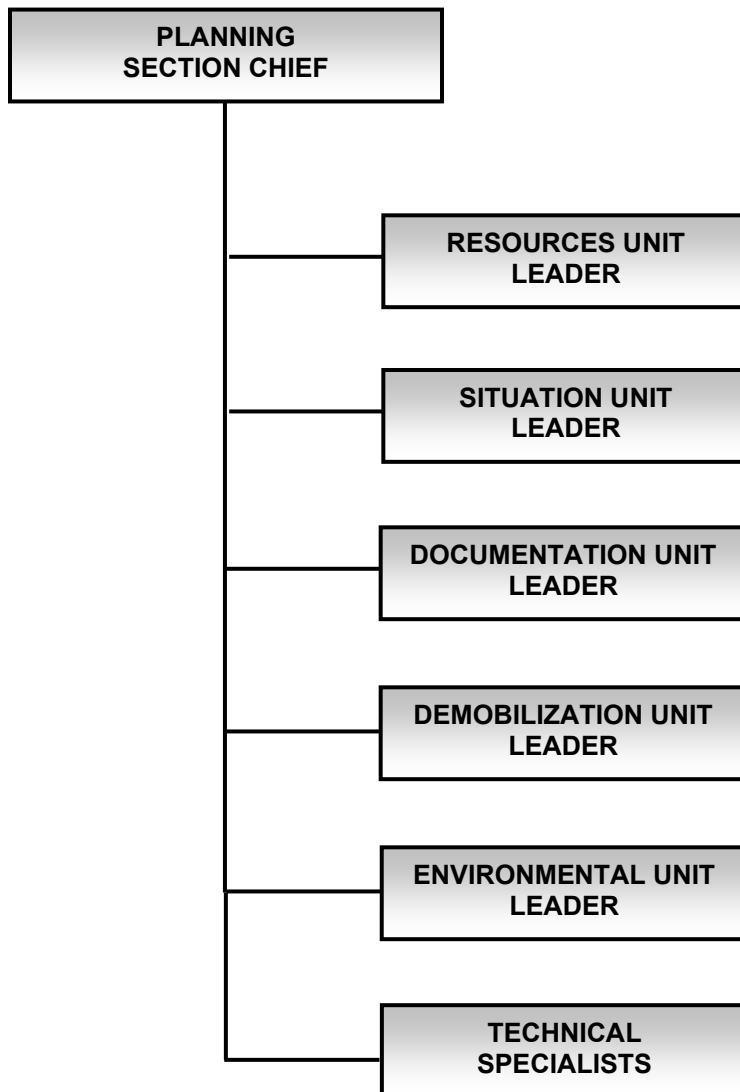
- Organize preliminary air operations.
- Request declaration (or cancellation) of restricted air space
- Participate in preparation of the IAP through the OPS. Insure that the air operations portion of the IAP takes into consideration the Air Traffic Control requirements of assigned aircraft.

AIR OPERATIONS BRANCH DIRECTOR (Cont'd)

- Perform operational planning for air operations.
- Prepare and provide Air Operations Summary Worksheet (ICS Form 220 located in the USCG Incident Management Handbook) to the Air Support Group and Fixed-Wing Bases.
- Determine coordination procedures for use by air organization with ground Branches, Divisions, or Groups.
- Coordinate with appropriate Operations Section personnel.
- Supervise all air operations activities associated with the incident.
- Evaluate helibase locations.
- Establish procedures for emergency reassignment of aircraft.
- Schedule approved flights of non-incident aircraft in the restricted air space area.
- Coordinate with the Operations Coordination Center (OCC) through normal channels on incident air operations activities.
- Inform the Air Tactical Group Supervisor of the air traffic situation external to the incident.
- Consider requests for non-tactical use of incident aircraft.
- Resolve conflicts concerning non-incident aircraft.
- Coordinate with Federal Aviation Agency (FAA).

- Update air operations plans.
- Report to the OPS on air operations activities.
- Report special incidents/accidents.
- Arrange for an accident investigation team when warranted.

PLANNING



PLANNING SECTION CHIEF

- Collect and process situation information about the incident.
- Supervise preparation of the IAP.
- Provide input to the IC and the OPS in preparing the IAP.
- Chair planning meetings and participate in other meetings as required.
- Reassign out-of-service personnel already on-site to ICS organizational positions as appropriate.
- Establish information requirements and reporting schedules for Planning Section Units (such as Resources and Situation Units).
- Determine the need for any specialized resources in support of the incident.
- If requested, assemble and disassemble Strike Teams and Task Forces not assigned to Operations.
- Establish special information collection activities as necessary (such as weather, environmental, and toxics).
- Assemble information on alternative strategies.
- Provide periodic predictions on incident potential.
- Report any significant changes in incident status.
- Compile and display incident status information.
- Oversee preparation and implementation of the Incident Demobilization Plan.
- Incorporate plans (such as Traffic, Medical, Communications, and Site Safety) into the IAP.

RESOURCES UNIT LEADER

- Establish the check-in function at incident locations.
- Prepare Organization Assignment List (ICS Form 203) and Organization Chart (ICS Form 207).
- Prepare appropriate parts of Division Assignment Lists (ICS Form 204).
- Prepare and maintain the ICP display (to include organization chart and resource allocation and deployment).
- Maintain and post the current status and location of all resources.
- Maintain master roster of all resources checked in at the incident.

SITUATION UNIT LEADER

- Begin collection and analysis of incident data as soon as possible.
- Prepare, post, or disseminate resource and situation status information as required, including special requests.
- Prepare periodic predictions or as requested by the Planning Section Chief (PSC).
- Prepare the Incident Status Summary Form (ICS Form 209).
- Provide photographic services and maps if required.

DOCUMENTATION UNIT LEADER

- Set up work area; begin organization of incident files.
- Establish duplication service; respond to requests.
- File all official forms and reports.
- Review records for accuracy and completeness; inform appropriate units of errors or omissions.
- Provide incident documentation as requested.
- Store files for post-incident use.

DEMOBILIZATION UNIT LEADER

- Participate in planning meetings as required.
- Review incident resource records to determine the likely size and extent of demobilization effort.
- Based on the above analysis, add additional personnel, workspace, and supplies as needed.
- Coordinate demobilization with agency representatives.
- Monitor the on-going Operations Section resource needs.
- Identify surplus resources and probable release time.
- Develop incident check-out function for all units.
- Evaluate logistics and transportation capabilities to support demobilization.
- Establish communications with off-incident facilities, as necessary.

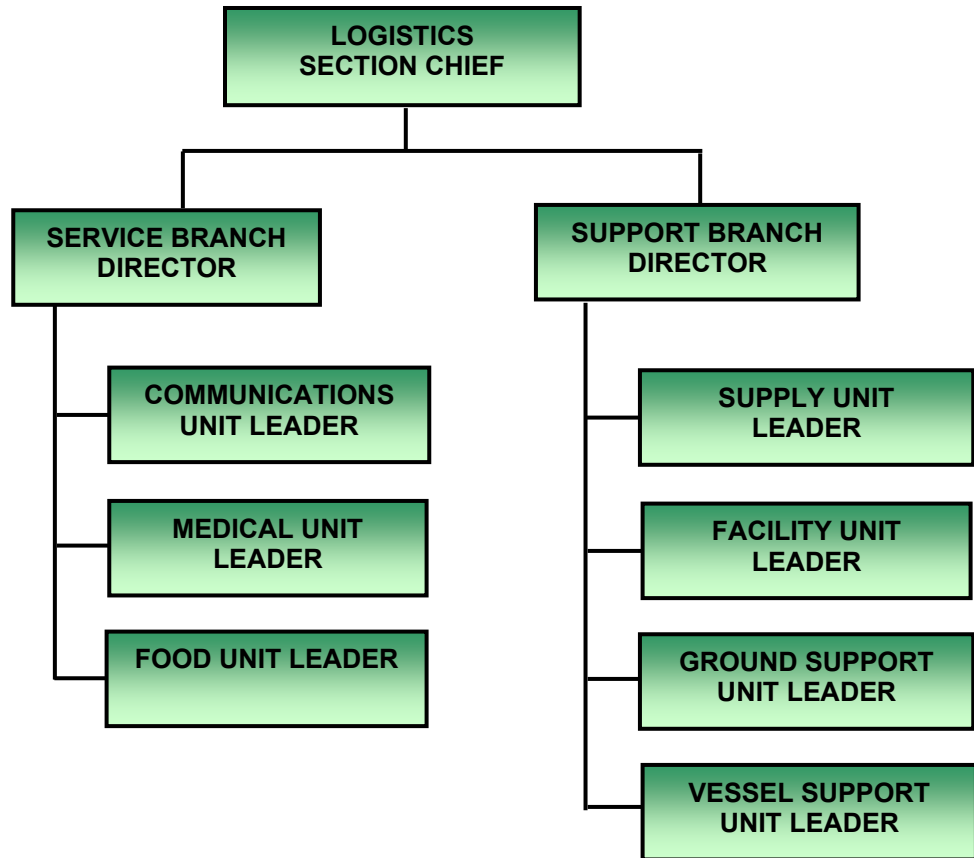
DEMOBILIZATION UNIT LEADER (Cont'd)

- Develop an Incident Demobilization Plan detailing specific responsibilities and release priorities and procedures.
- Prepare appropriate directories (such as maps and instructions) for inclusion in the Demobilization Plan.
- Distribute Demobilization Plan (on and offsite).
- Provide status reports to appropriate requestors.
- Ensure that all Sections/Units understand their specific demobilization responsibilities.
- Supervise execution of the Incident Demobilization Plan.
- Brief the PSC on demobilization progress.

ENVIRONMENTAL UNIT LEADER

- Participate in Planning Section meetings.
- Identify sensitive areas and recommend response priorities.
- Following consultation with natural resource trustees, provide input on wildlife protection strategies (such as pre-emptive capture, hazing, and/or capture and treatment).
- Determine the extent, fate, and effects of contamination.
- Acquire, distribute, and provide analysis of weather forecasts.
- Monitor the environmental consequences of cleanup actions.
- Develop shoreline cleanup and assessment plans. Identify the need for, and prepare any special advisories or orders.
- Identify the need for, and obtain, permits, consultations, and other authorizations including Endangered Species Act (ESA) provisions.
- Following consultation with the FOOSC's Historical/Cultural Resources Technical Specialist identify and develop plans for protection of affected historical/cultural resources.
- Evaluate the opportunities to use various response technologies.
- Develop disposal plans.
- Develop a plan for collecting, transporting, and analyzing samples.

LOGISTICS



LOGISTICS SECTION CHIEF (LSC)

- Plan the organization of the Logistics Section.
- Assign work locations and preliminary work tasks to Section personnel.
- Notify the Resources Unit of the Logistics Section units activated including names and locations of assigned personnel.
- Assemble and brief Branch Directors and Unit Leaders.
- Participate in preparation of the IAP.
- Identify service and support requirements for planned and expected operations.
- Provide input to and review the Communications Plan, Medical Plan, and Traffic Plan.
- Coordinate and process requests for additional resources.
- Review the IAP and estimate Section needs for the next operational period.
- Advise on current service and support capabilities.
- Prepare service and support elements of the IAP.
- Estimate future service and support requirements.
- Receive Incident Demobilization Plan from the Planning Section.
- Recommend release of Unit resources in conformity with Incident Demobilization Plan.
- Ensure the general welfare and safety of Logistics Section personnel.

SERVICE BRANCH DIRECTOR

- Determine the level of service required to support operations.
- Confirm dispatch of Branch personnel.
- Participate in planning meetings of Logistics Section personnel.
- Review the IAP.
- Organize and prepare assignments for Service Branch personnel.
- Coordinate activities of Branch Units.
- Inform the Logistics Section Chief (LSC) of Branch activities.
- Resolve Service Branch problems.

COMMUNICATIONS UNIT LEADER

- Prepare and implement the Incident Radio Communications Plan (ICS Form 205).
- Ensure the Incident Communications Center and the Message Center is established.
- Establish appropriate communications distribution/maintenance locations within the Base/Camp(s).
- Ensure communications systems are installed and tested.
- Ensure an equipment accountability system is established.
- Ensure personal portable radio equipment from cache is distributed per Incident Radio Communications Plan.
- Provide technical information as required on:
 - Adequacy of communications systems currently in operation.
 - Geographic limitation on communications systems.
 - Equipment capabilities/limitations.
 - Amount and types of equipment available.
 - Anticipated problems in the use of communications equipment.
- Supervise Communications Unit activities.
- Maintain records on all communications equipment as appropriate.
- Ensure equipment is tested and repaired.
- Recover equipment from Units being demobilized.

MEDICAL UNIT LEADER

- Participate in Logistics Section/Service Branch planning activities.
- Prepare the Medical Plan (ICS Form 206).
- Prepare procedures for major medical emergency.
- Declare major emergency as appropriate.
- Respond to requests for medical aid, medical transportation, and medical supplies.
- Prepare and submit necessary documentation.

FOOD UNIT LEADER

- Determine food and water requirements.
- Determine the method of feeding to best fit each facility or situation.

FOOD UNIT LEADER (Cont'd)

- Obtain necessary equipment and supplies and establish cooking facilities.
- Ensure that well-balanced menus are provided.
- Order sufficient food and potable water from the Supply Unit.
- Maintain an inventory of food and water.
- Maintain food service areas, ensuring that all appropriate health and safety measures are being followed.
- Supervise caterers, cooks, and other Food Unit personnel as appropriate.

SUPPORT BRANCH DIRECTOR

- Determine initial support operations in coordination with the LSC and Service Branch Director.
- Prepare initial organization and assignments for support operations.
- Assemble and brief Support Branch personnel.
- Determine if assigned Branch resources are sufficient.
- Maintain surveillance of assigned units work progress and inform the LSC of their activities.

- Resolve problems associated with requests from the Operations Section.

SUPPLY UNIT LEADER

- Participate in Logistics Section/Support Branch planning activities.
- Determine the type and amount of supplies en route.
- Review the IAP for information on operations of the Supply Unit.
- Develop and implement safety and security requirements.
- Order, receive, distribute and store supplies, and equipment.
- Receive and respond to requests for personnel, supplies, and equipment.
- Maintain an inventory of supplies and equipment.
- Service reusable equipment.
- Submit reports to the Support Branch Director.

FACILITY UNIT LEADER

- Review the IAP.
- Participate in Logistics Section/Support Branch planning activities.
- Determine requirements for each facility, including the ICP.
- Prepare layouts of incident facilities.
- Notify Unit Leaders of facility layout.
- Activate incident facilities.
- Provide Base and Camp Managers and personnel to operate facilities.
- Provide sleeping facilities.
- Provide security services.
- Provide facility maintenance services (such as sanitation, lighting, and cleanup).
- Demobilize Base and Camp facilities.
- Maintain facility records

GROUND SUPPORT UNIT LEADER

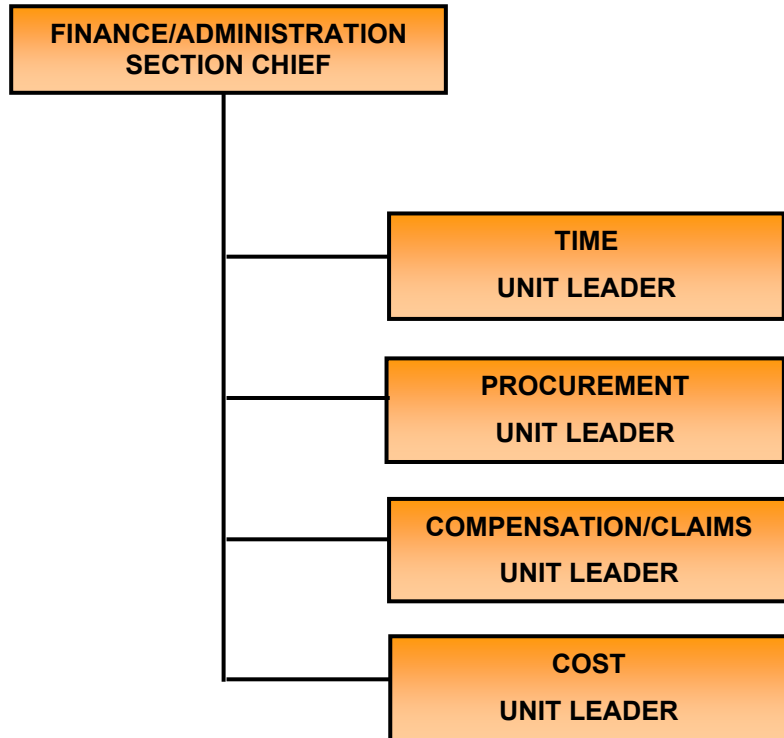
- Participate in Support Branch/Logistics Section planning activities.
- Develop and implement the Traffic Plan.
- Support out-of-service resources.
- Notify the Resources Unit of all status changes on support and transportation vehicles.
- Arrange for and activate fueling, maintenance, and repair of ground resources.
- Maintain Support Vehicle Inventory and transportation vehicles (ICS Form 218).
- Provide transportation services, In Agreement With (IAW) requests from the LSC or Support Branch Director.
- Collect information on rented equipment.
- Requisition maintenance and repair supplies (such as fuel and spare parts).
- Maintain incident roads.
- Submit reports to Support Branch Director as directed.

VESSEL SUPPORT UNIT LEADER

- Participate in Support Branch/Logistics Section planning activities.
- Coordinate development of the Vessel Routing Plan.
- Coordinate vessel transportation assignments with the Protection and Recovery Branch or other sources of vessel transportation.
- Coordinate water-to-land transportation with the Ground Support Unit, as necessary.
- Maintain a prioritized list of transportation requirements that need to be scheduled with the transportation source.
- Support out-of-service vessel resources, as requested.
- Arrange for fueling, dockage, maintenance, and repair of vessel resources, as requested.
- Maintain inventory of support and transportation vessels.



FINANCE/ADMINISTRATION



FINANCE/ADMINISTRATION SECTION CHIEF

- Attend planning meetings as required.
- Manage all financial aspects of an incident.
- Provide financial and cost analysis information as requested.
- Gather pertinent information from briefings with responsible agencies.
- Develop an operating plan for the Finance/Administration Section; fill supply and support needs.
- Determine the need to set up and operate an incident commissary.
- Meet with Assisting and Cooperating Agency Representatives, as needed.
- Maintain daily contact with agency(s) administrative headquarters on Finance/Administration matters.
- Ensure that all personnel time records are accurately completed and transmitted, according to policy.
- Provide financial input to demobilization planning.
- Ensure that all obligation documents initiated at the incident are properly prepared and completed.
- Brief administrative personnel on all incident-related financial issues needing attention or follow-up prior to leaving incident.

TIME UNIT LEADER

- Determine incident requirements for time recording function.
- Determine resource needs.
- Contact appropriate agency personnel/representatives.
- Ensure that daily personnel time recording documents are prepared and in compliance with policy.
- Establish time unit objectives.
- Maintain separate logs for overtime hours.
- Establish commissary operation on larger or long-term incidents as needed.
- Submit cost estimate data forms to the Cost Unit, as required.
- Maintain records security.
- Ensure that all records are current and complete prior to demobilization.
- Release time reports from assisting agency personnel to the respective Agency Representatives prior to demobilization.
- Brief the Finance/Administration Section Chief on current problems and recommendations, outstanding issues, and follow-up requirements.

PROCUREMENT UNIT LEADER

- Review incident needs and any special procedures with Unit Leaders, as needed.
- Coordinate with local jurisdiction on plans and supply sources.
- Obtain the Incident Procurement Plan.
- Prepare and authorize contracts and land-use agreements.
- Draft memoranda of understanding as necessary.
- Establish contracts and agreements with supply vendors.
- Provide for coordination between the Ordering Manager, agency dispatch, and all other procurement organizations supporting the incident.
- Ensure that a system is in place that meets agency property management requirements. Ensure proper accounting for all new property.

- Interpret contracts and agreements; resolve disputes within delegated authority.
- Coordinate with the Compensation/Claims Unit for processing claims.
- Coordinate use of impress funds, as required.
- Complete final processing of contracts and send documents for payment.
- Coordinate cost data in contracts with the Cost Unit Leader.
- Brief the Finance/Administration Section Chief on current problems and recommendations, outstanding issues, and follow-up requirements.

COMPENSATION/CLAIMS UNIT LEADER

- Establish contact with the incident Safety Officer (SO) and Liaison Officer (LO) (or Agency Representatives if no LO is assigned).
- Determine the need for Compensation for Injury and Claims Specialists and order personnel as needed.
- Establish a Compensation for Injury work area within or as close as possible to the Medical Unit.
- Review Incident Medical Plan (ICS Form 206).
- Ensure that Compensation/Claims Specialists have adequate workspace and supplies.
- Review and coordinate procedures for handling claims with the Procurement Unit.
- Brief the Compensation/Claims Specialists on incident activity.
- Periodically review logs and forms produced by the Compensation/Claims Specialists to ensure that they are complete, entries are timely and accurate, and that they are in compliance with agency requirements and policies.
- Ensure that all Compensation for Injury and Claims logs and forms are complete and routed appropriately for post-incident processing prior to demobilization.
- Keep the Finance/Administration Section Chief briefed on Unit status and activity.
- Demobilize unit in accordance with the Incident Demobilization Plan.

COST UNIT LEADER

- Coordinate cost reporting procedures.
- Collect and record all cost data.
- Develop incident cost summaries.
- Prepare resources-use cost estimates for the Planning Section.
- Make cost-saving recommendations to the Finance/Administration Section Chief.
- Ensure all cost documents are accurately prepared.
- Maintain cumulative incident cost records.
- Complete all records prior to demobilization.
- Provide reports to the Finance/Administration Section Chief.



ANNEX A

SOUTH FORK WIND

ANNEX A - SOUTH FORK WIND

A.1 Facility Specific Information

Once construction is complete the Facility will consist of twelve (12) offshore WTG of identical build specification, one (1) OSS, and dry cables connecting the installation to land. Refer to Chemical Information section below for chemical types and volumes.

The WTG are placed in a rectangle shape, three (3) rows each with four (4) turbines. Each WTG is equipped with helihoist platform, which is only for hoisting personnel - not helicopter landing. Each WTG post is painted yellow and marked with the WTG ID. Each WTG post also has a landing for the vessels to dock "bow on" and a vertical ladder to the platform.

The OSS is located in the row farthest from land and is equipped with a helicopter platform.

Main dimensions of the turbines are:

WTG PARAMETER	MAXIMUM TURBINE SIZE (12 MW)
Hub height (mean sea level [MSL])	472 feet (143.9 m)
Rotor diameter	735 feet (224 m)
Total height (top of the blade above MSL)	840 feet (256 m)
Rotor swept zone area	424,173 ft ² (39,406 m ²)
Air gap (bottom of the blade above MSL)	132 feet (40 m)
Blade length (feet)	358 feet (109.1 m)
Deck height above MSL	75 feet (22.9 m)

A.2 Chemical Information

WTG		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
Grease Optipit Castrol	11	0.25
Grease Mobilith 007	66	1.57
Grease Shell Rohodina BBZ0	42	1.01
Gear Oil Castrol Optigear Synthetic X320	63	1.51
Hydraulic Oil Castrol Hyspin AWH-M32	79	1.89
Hydraulic Oil Castrol Hyspin AWH-M32	63	1.51
Ester Oil Midel 7131	1,611	38.37
Total Volume	1,935	46

Note: Chemical capacities are the same for each of the twelve (12) offshore WTG installations

OSS		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
MGO Diesel	8,084	192.47
MGO Diesel	476	11.32
Gear Oil	0	0.00
Hydraulic Oil	311	7.40
Hydraulic Oil Castrol Hyspin AWH-M32	311	7.40
Transformer Oil HyVolt II NG	19,580	466.19
Transformer Oil, HyVolt II NG	6,045	143.92
Total Volume	34,807	829

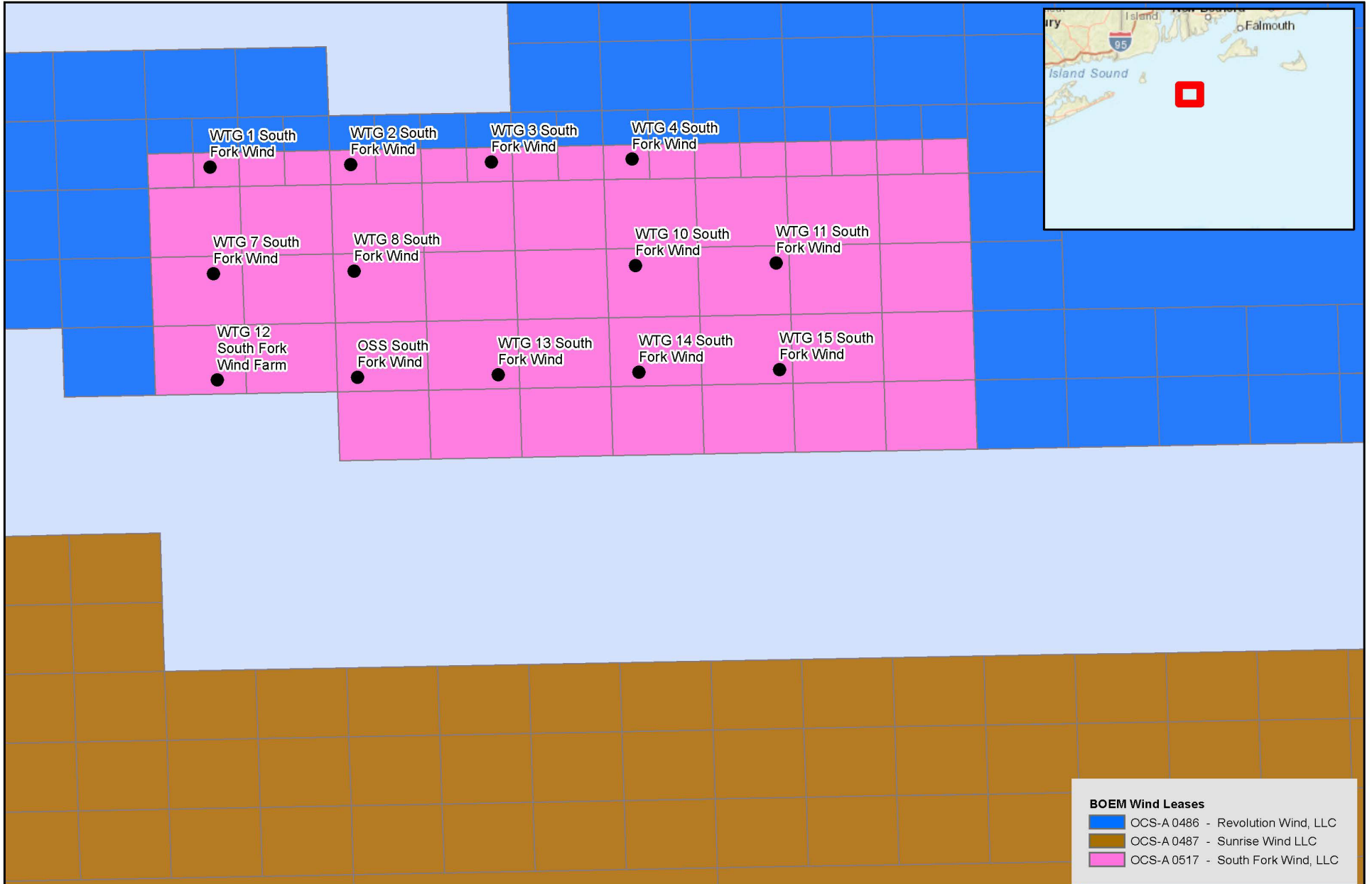
TRANSMISSION LINES		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
NONE		
Total Volume	0	0

Note: Transmission lines are dry and do not contain oil.

A.3 Location

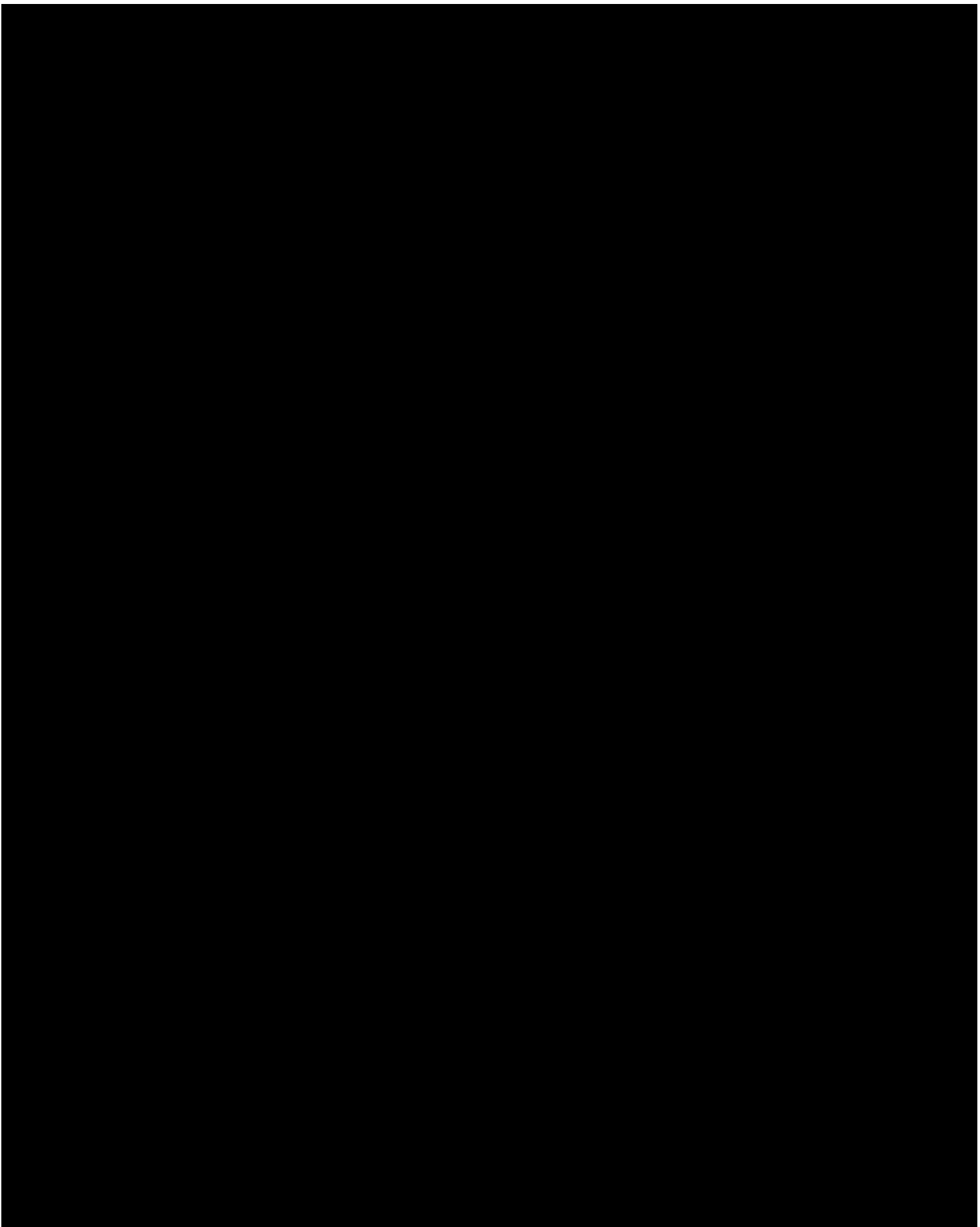
INSTALLATION	LONGITUDE (DD)	LATITUDE (DD)
WTG 1	-71.191104	41.108795
WTG 2	-71.169062	41.109212
WTG 3	-71.147021	41.109625
WTG 4	-71.124978	41.110034
WTG 7	-71.190550	41.092124
WTG 8	-71.168514	41.092541
WTG 10	-71.124441	41.093363
WTG 11	-71.102403	41.093767
WTG 12	-71.189996	41.075453
WTG 13	-71.145935	41.076283
WTG 14	-71.123904	41.076691
WTG 15	-71.101872	41.077095
OSS1	-71.167965	41.075870

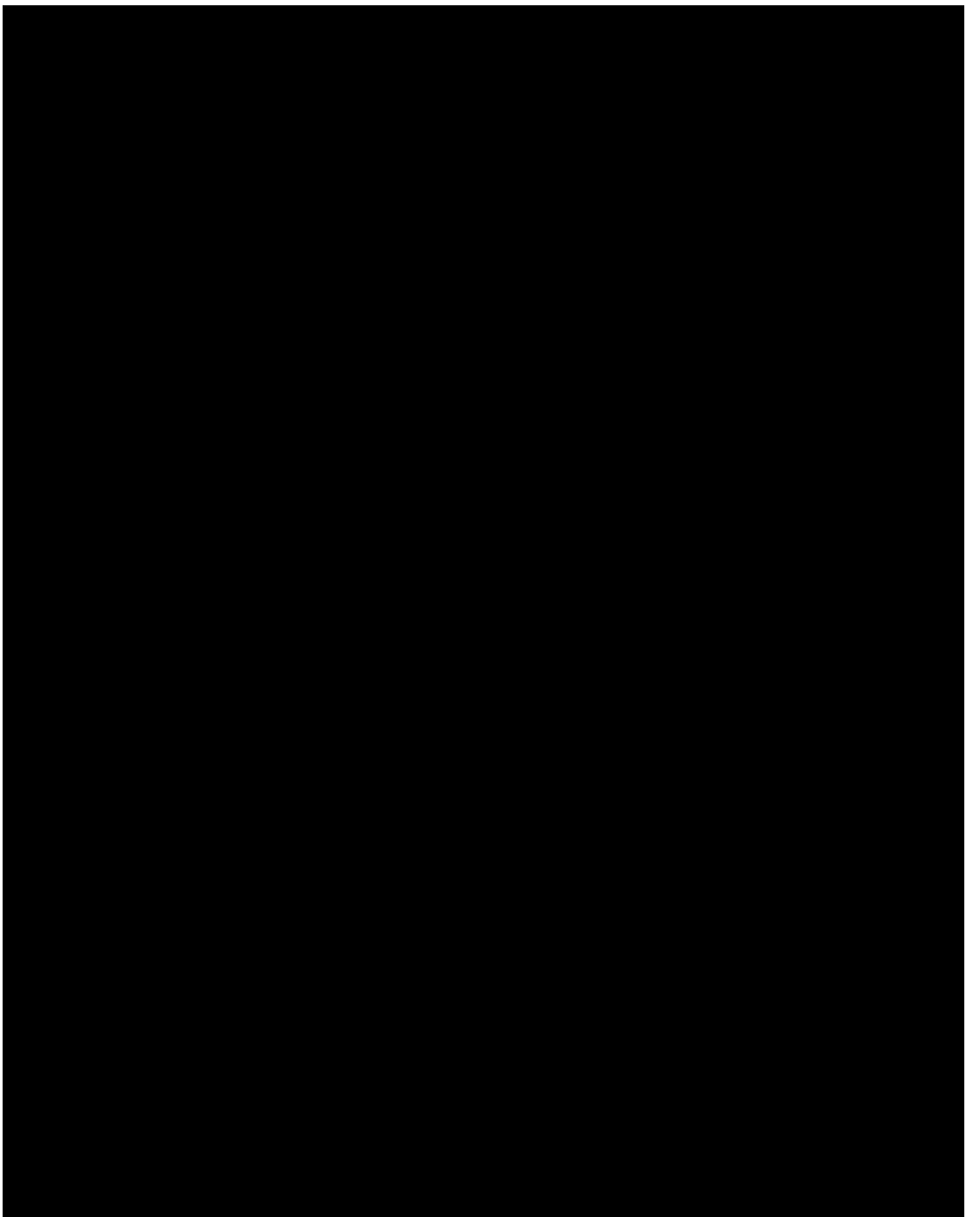
South Fork Wind WTG and OSS Layout

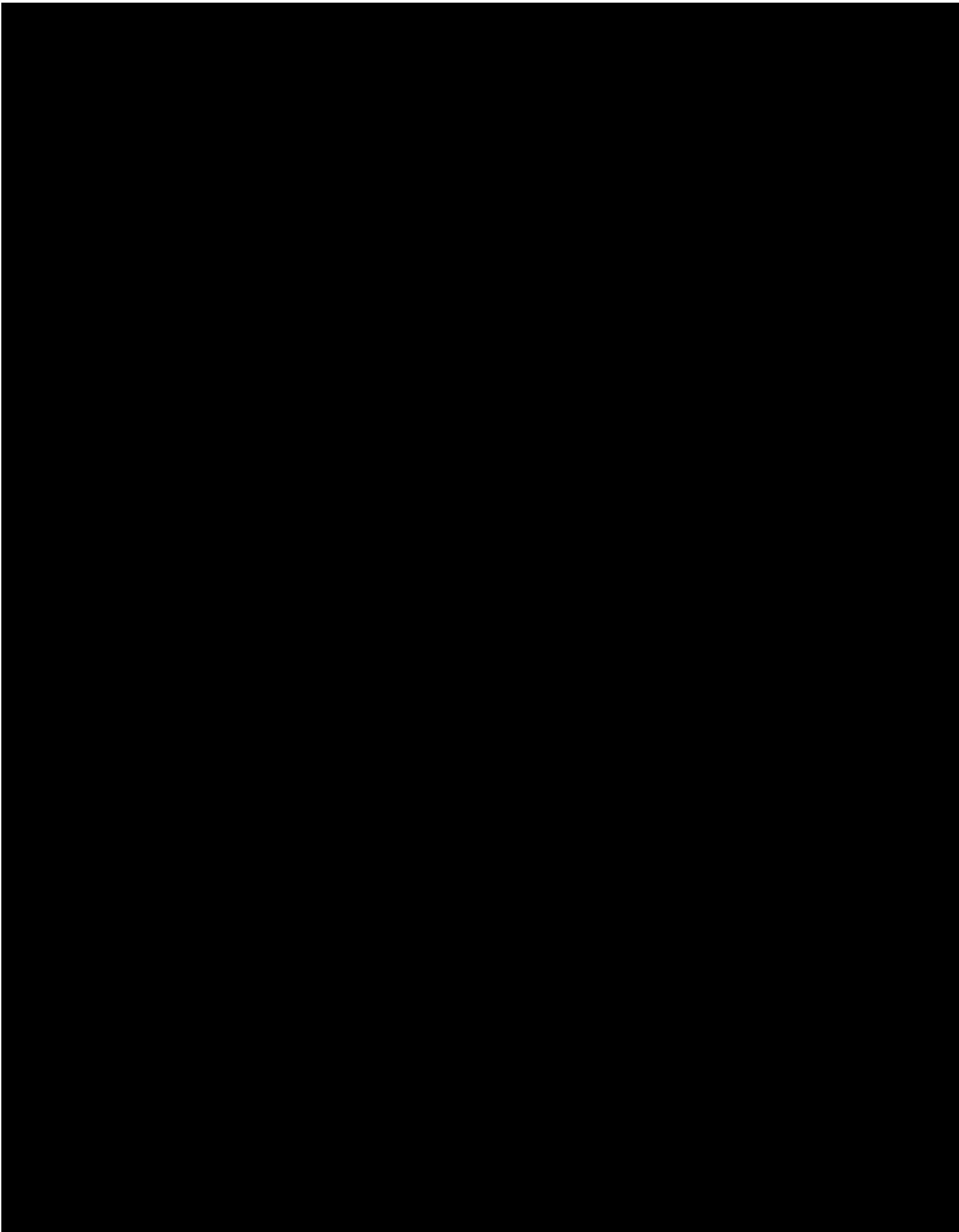


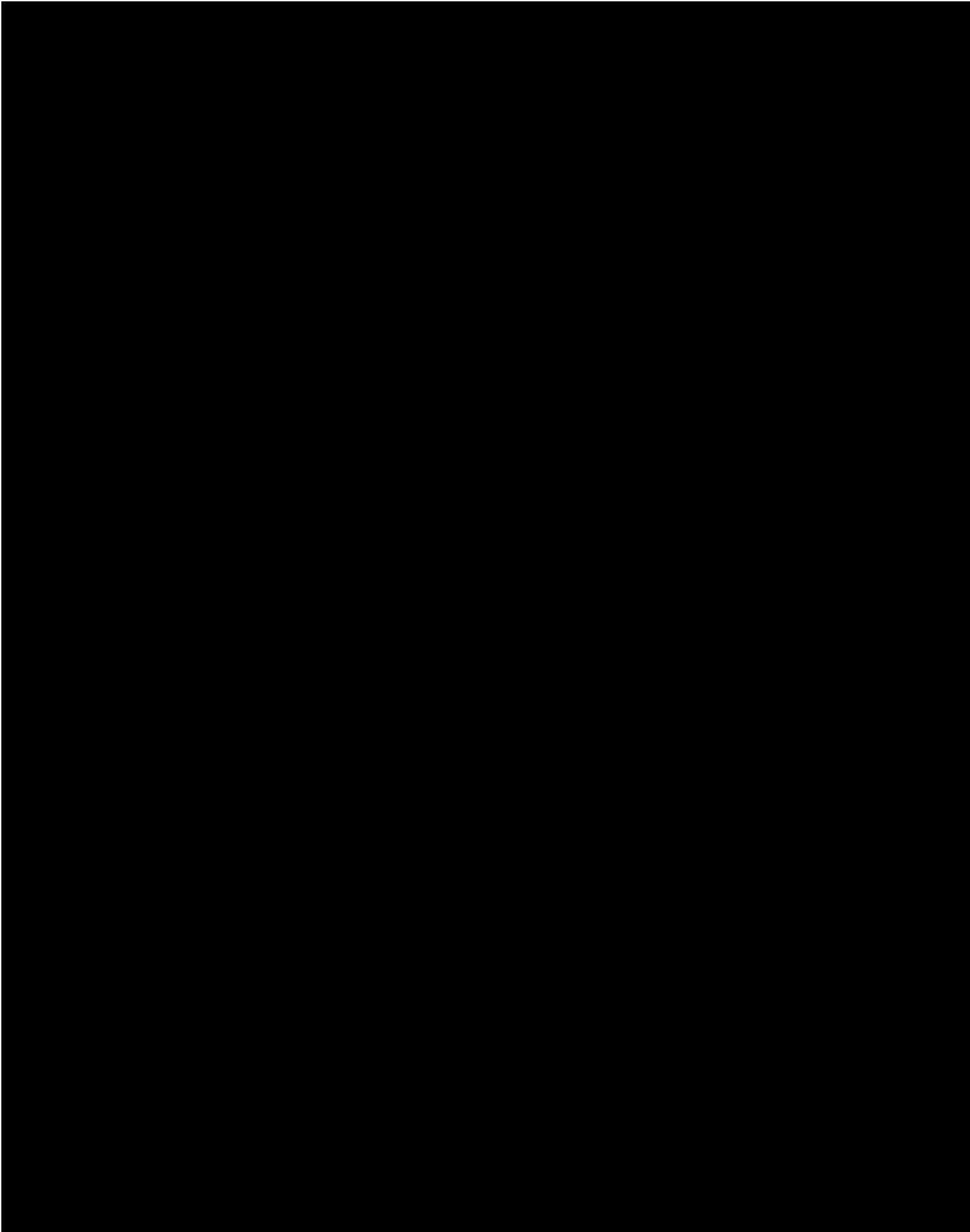
BOEM Wind Leases

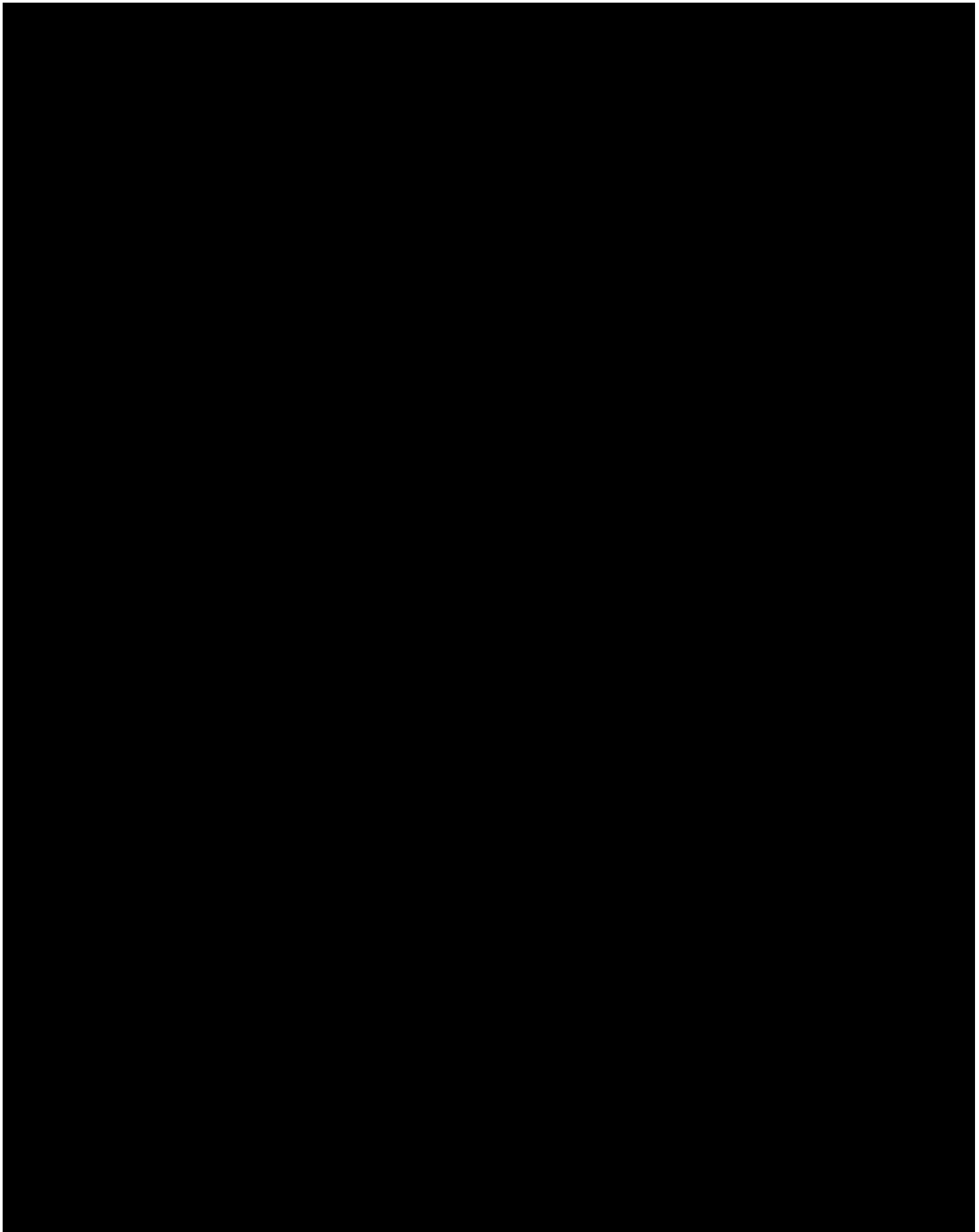
- OCS-A 0486 - Revolution Wind, LLC
- OCS-A 0487 - Sunrise Wind LLC
- OCS-A 0517 - South Fork Wind, LLC

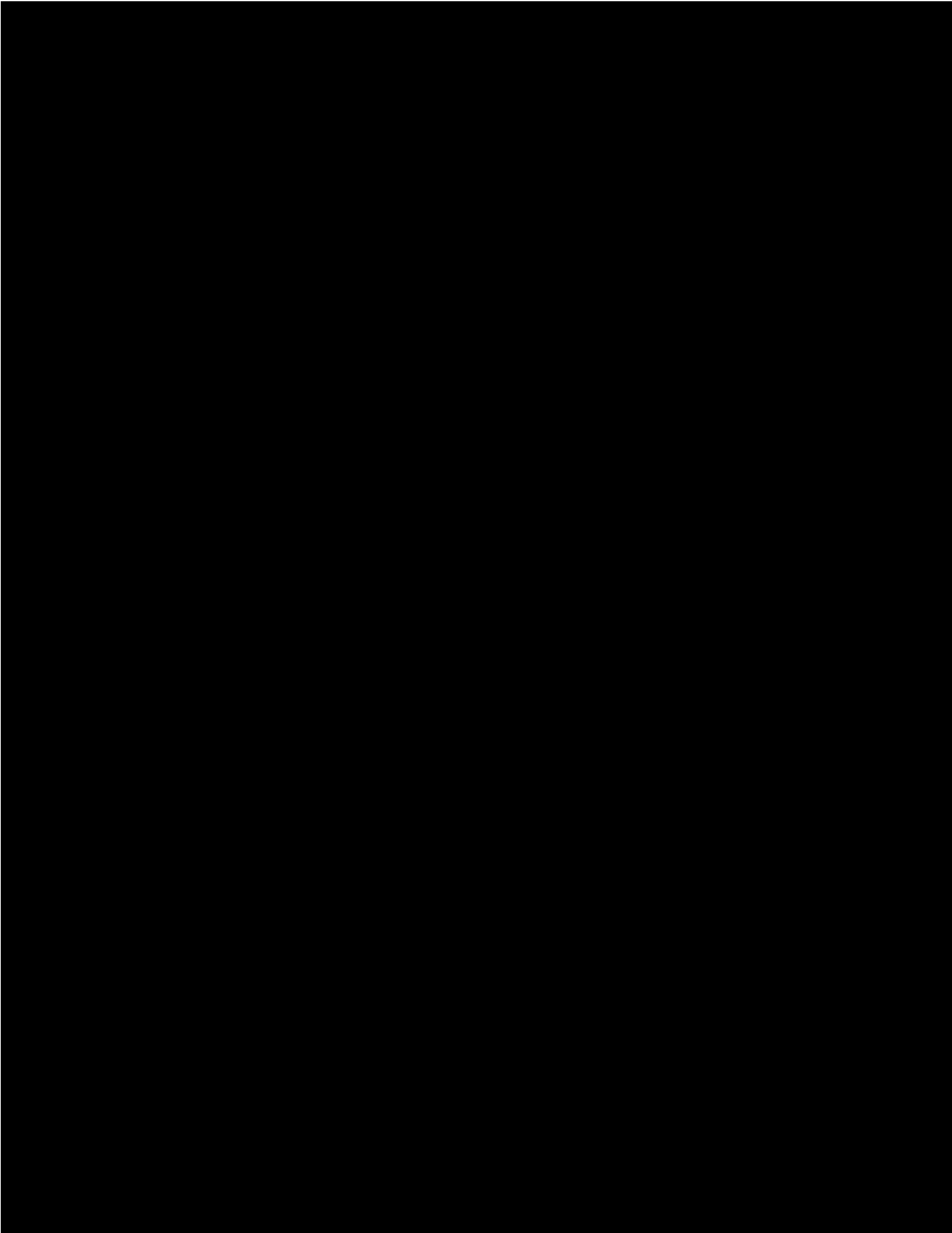


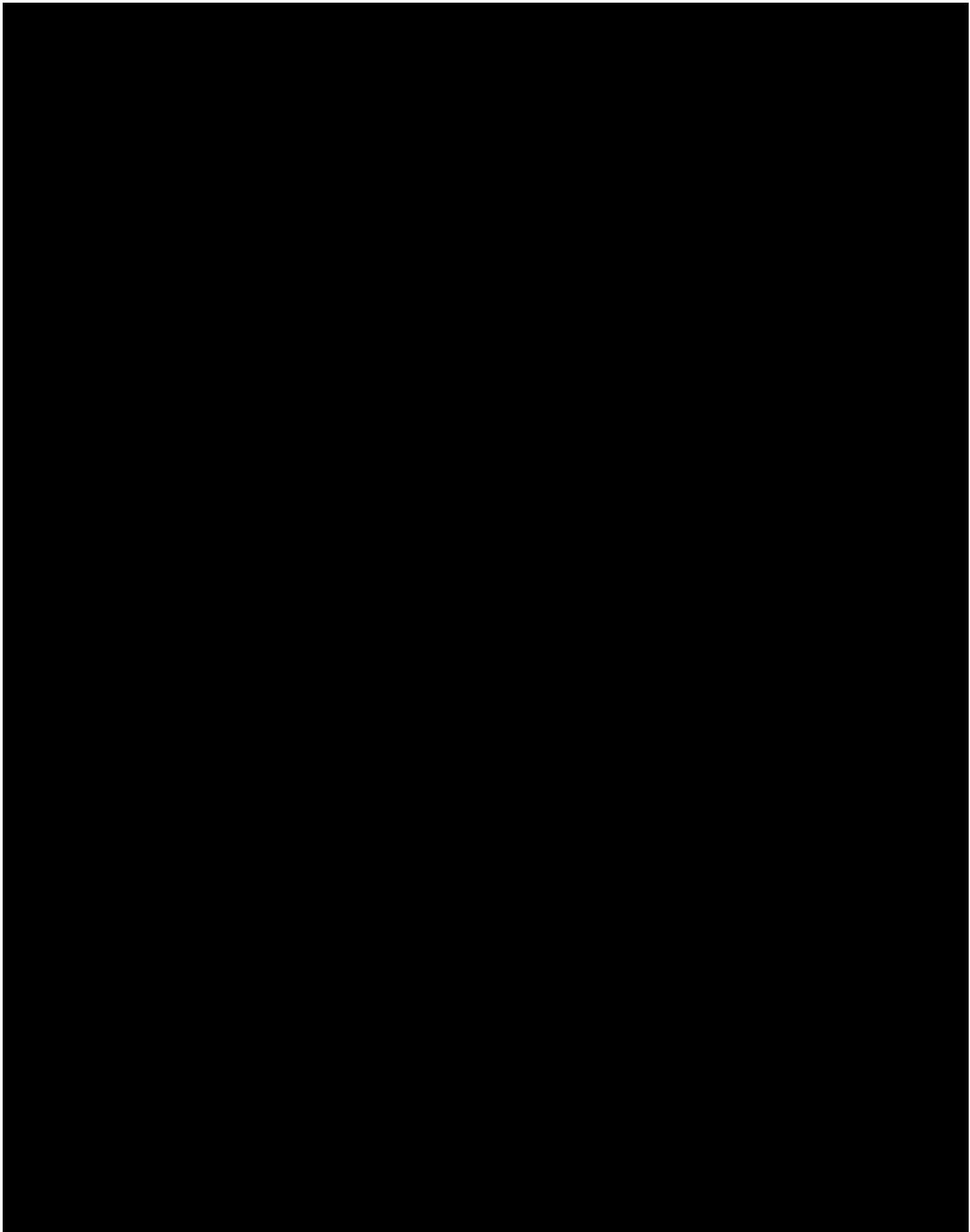


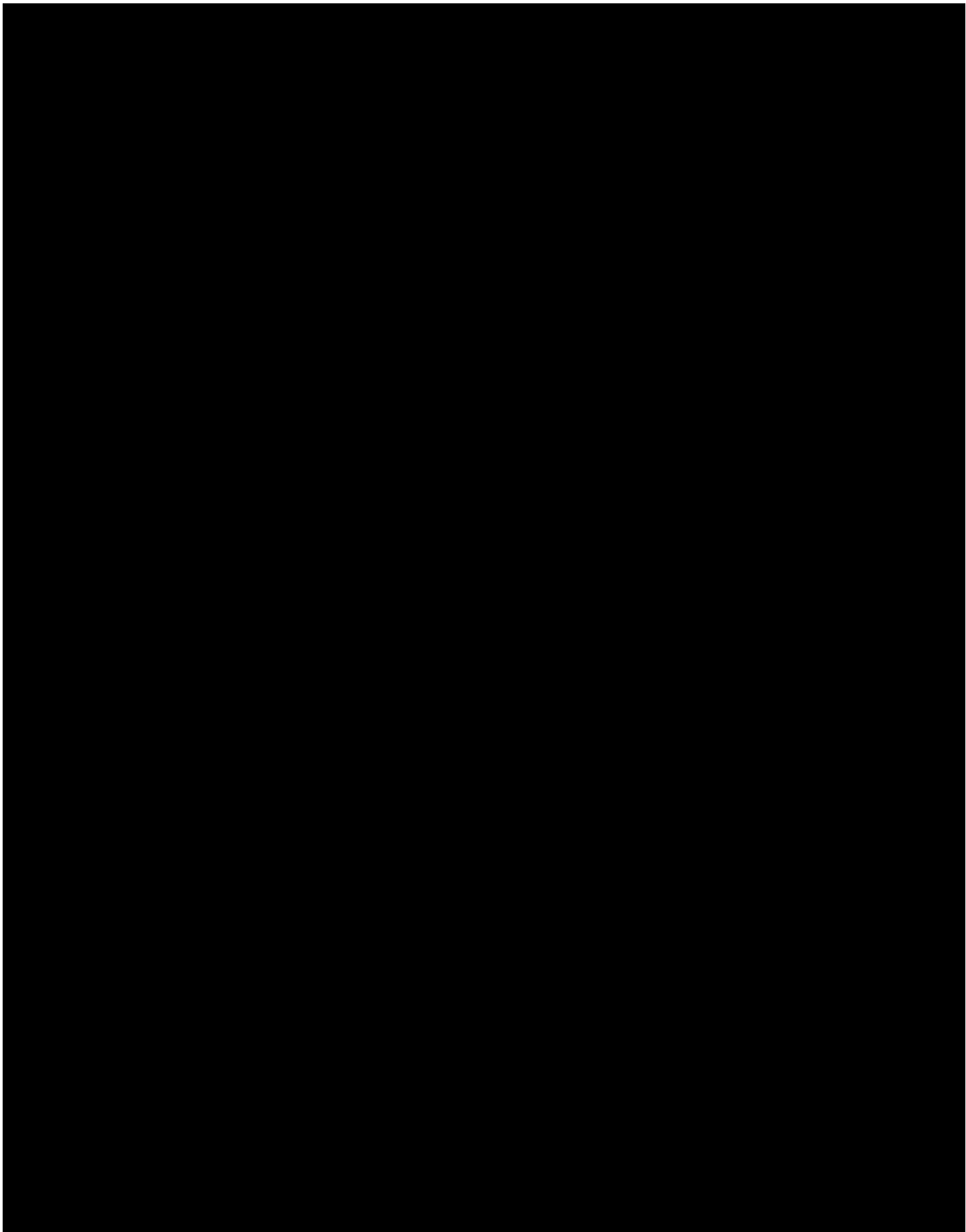


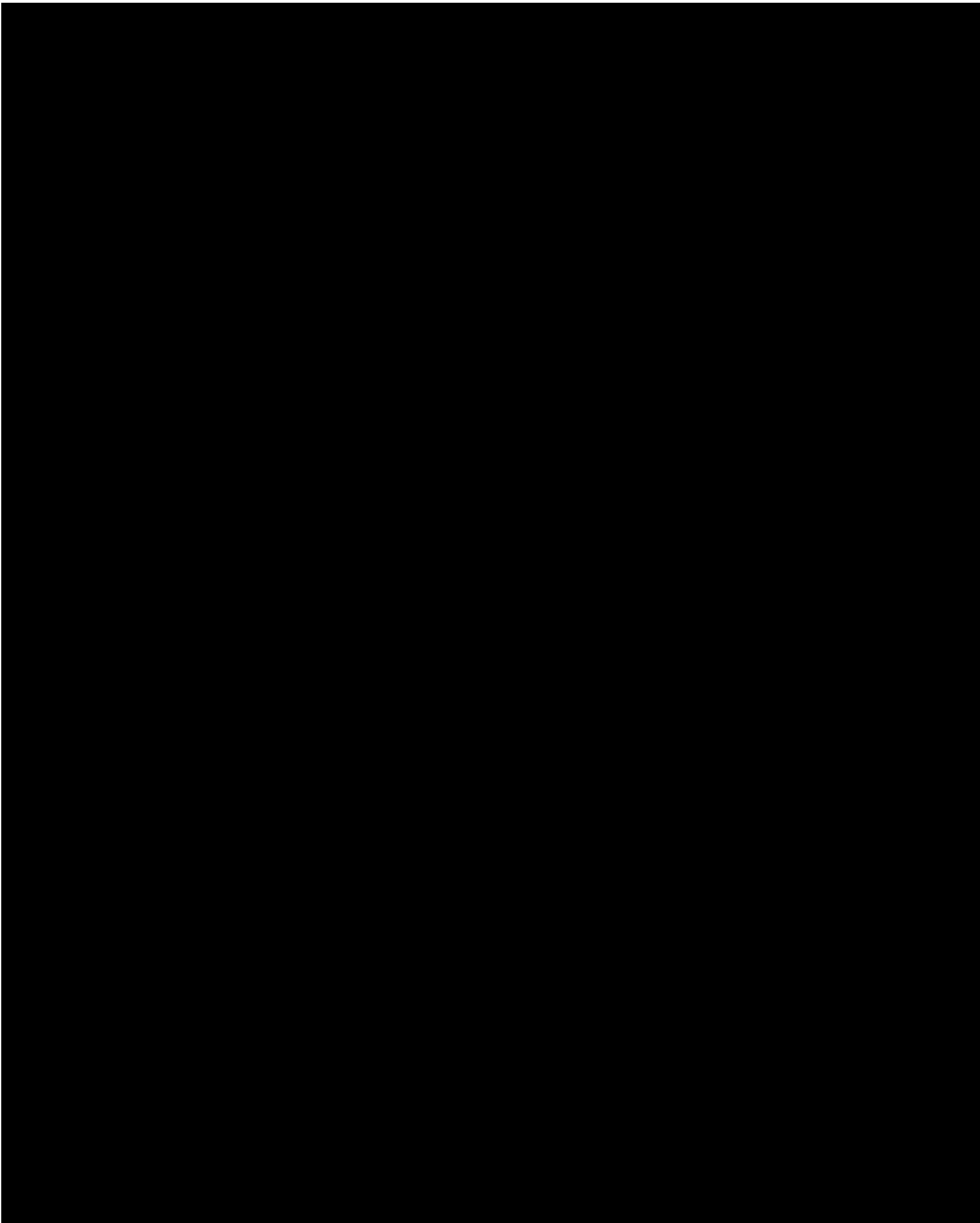


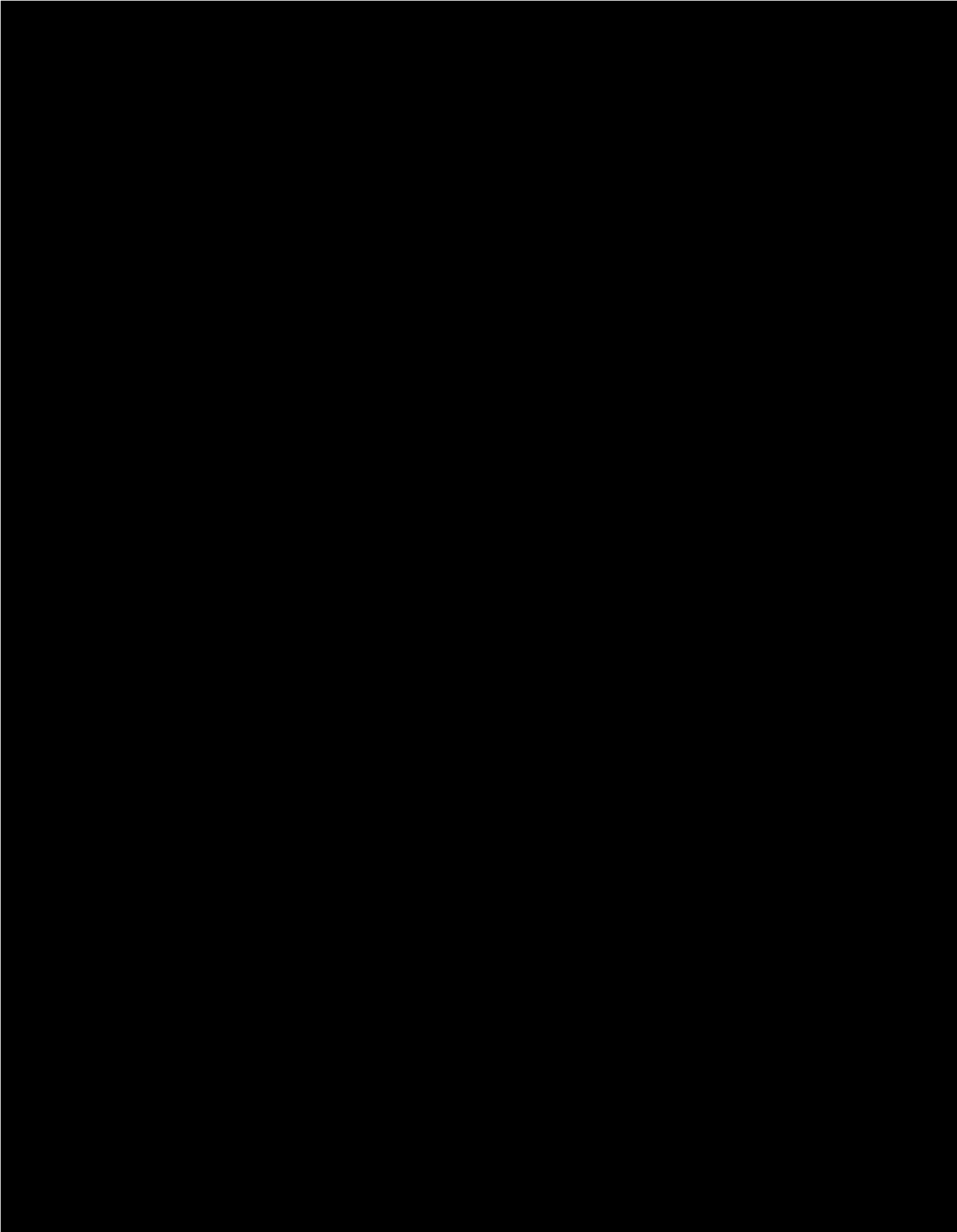


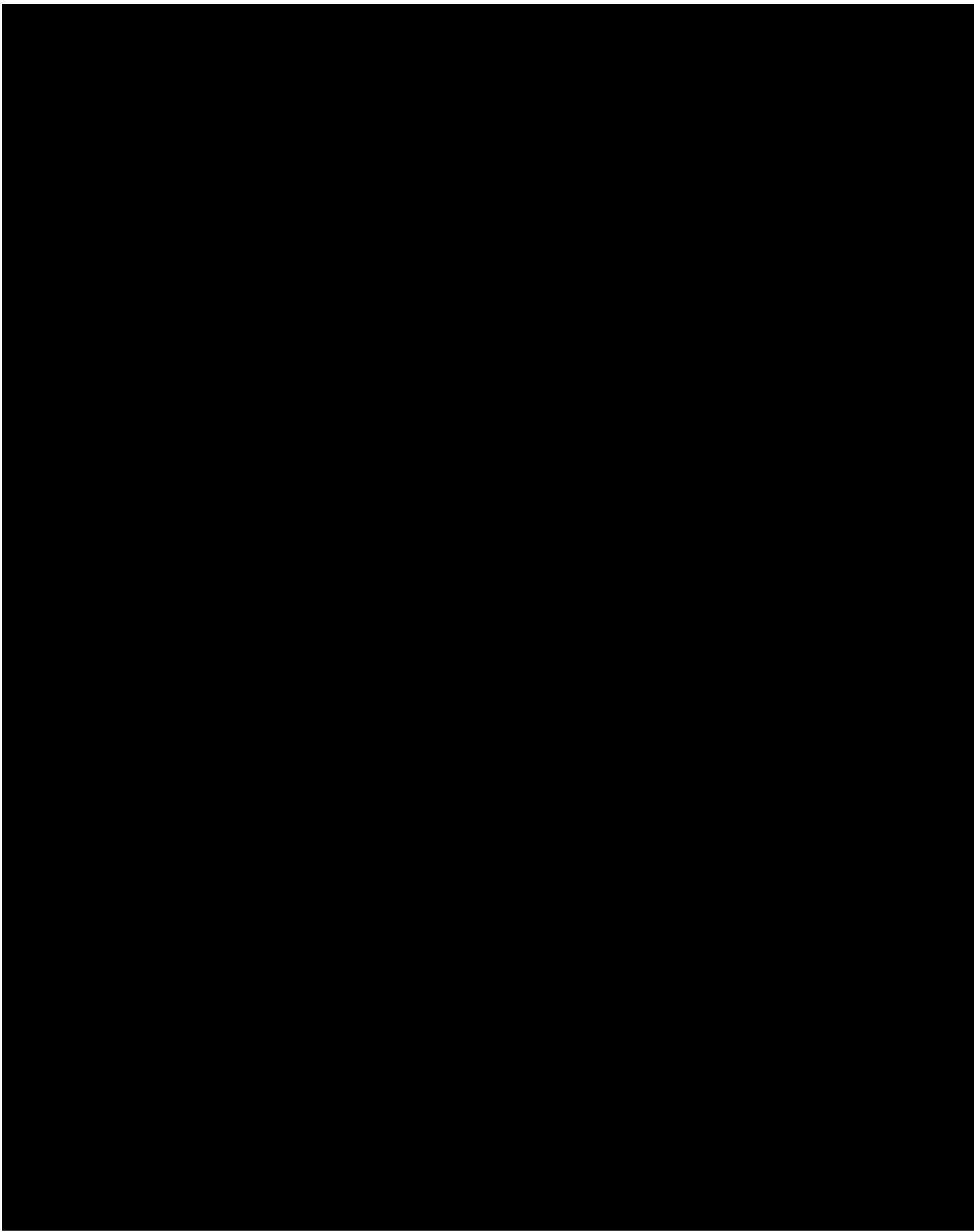


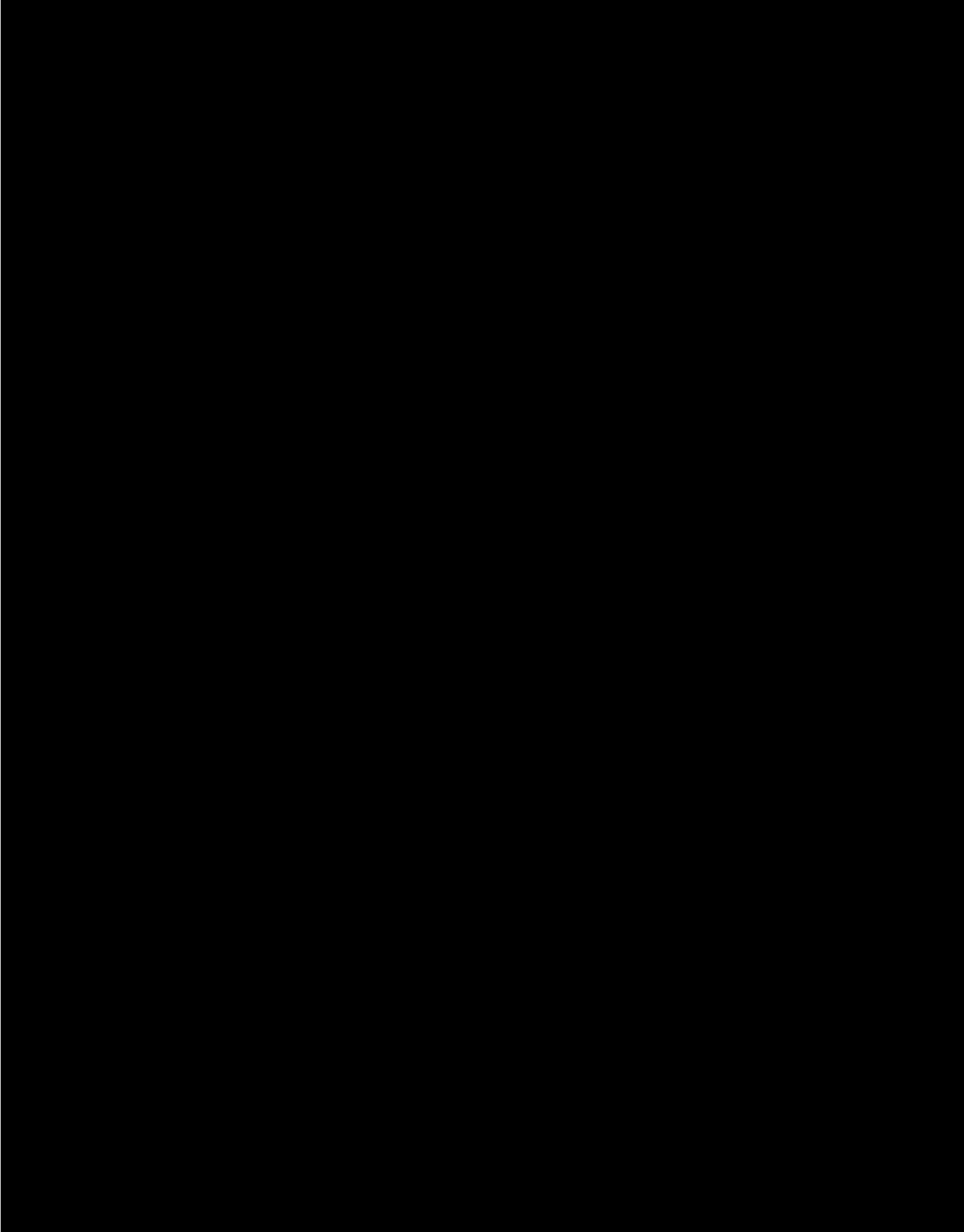


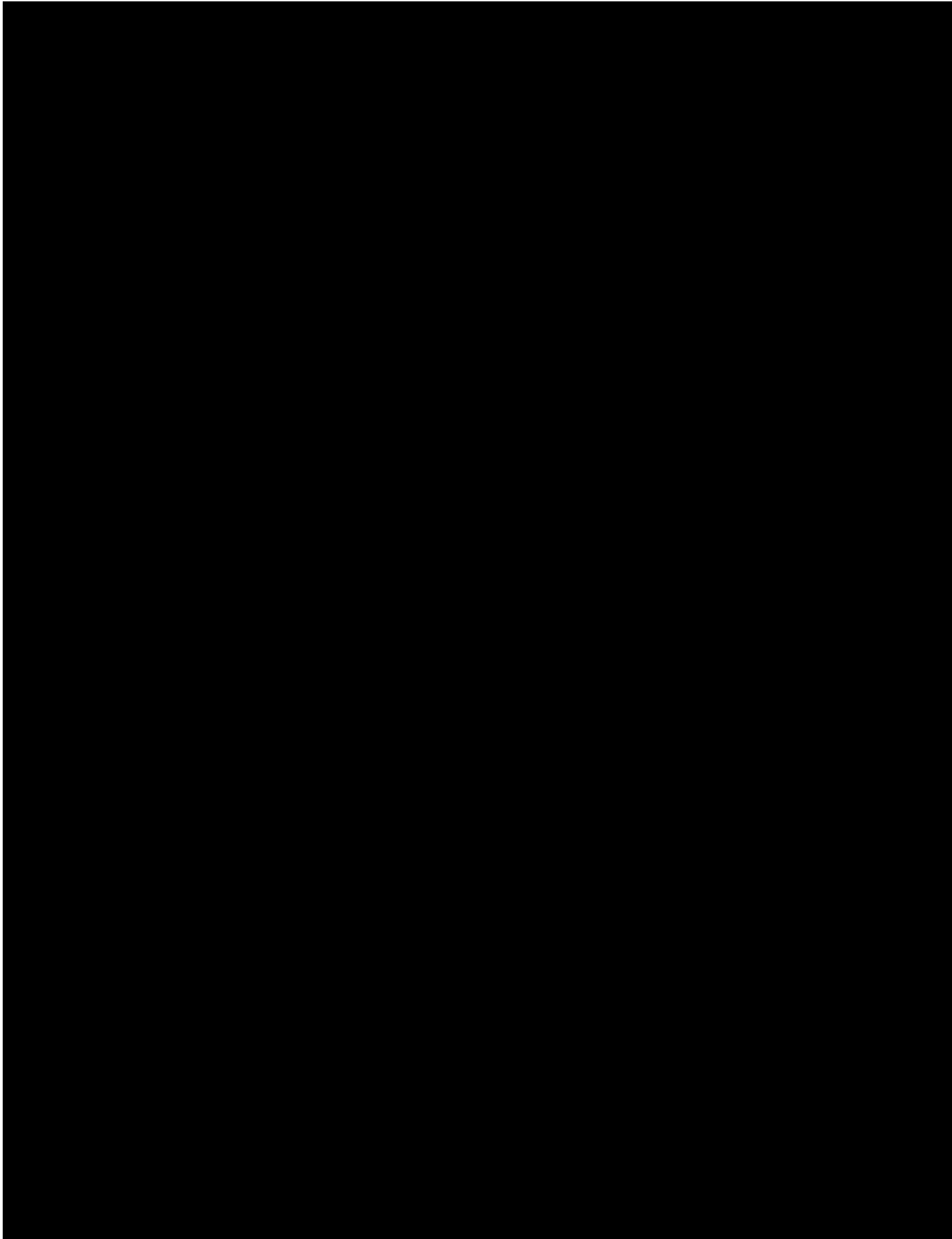


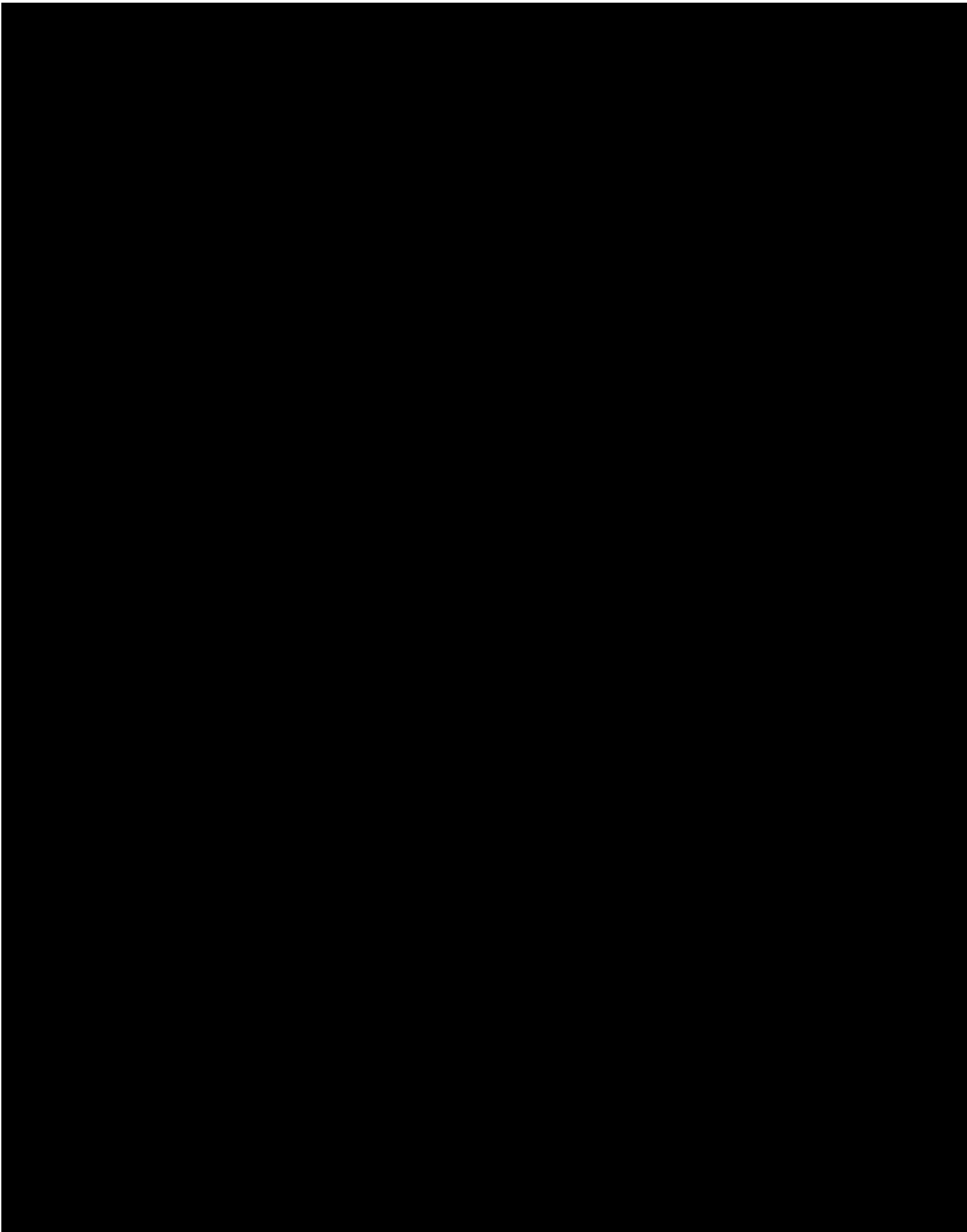


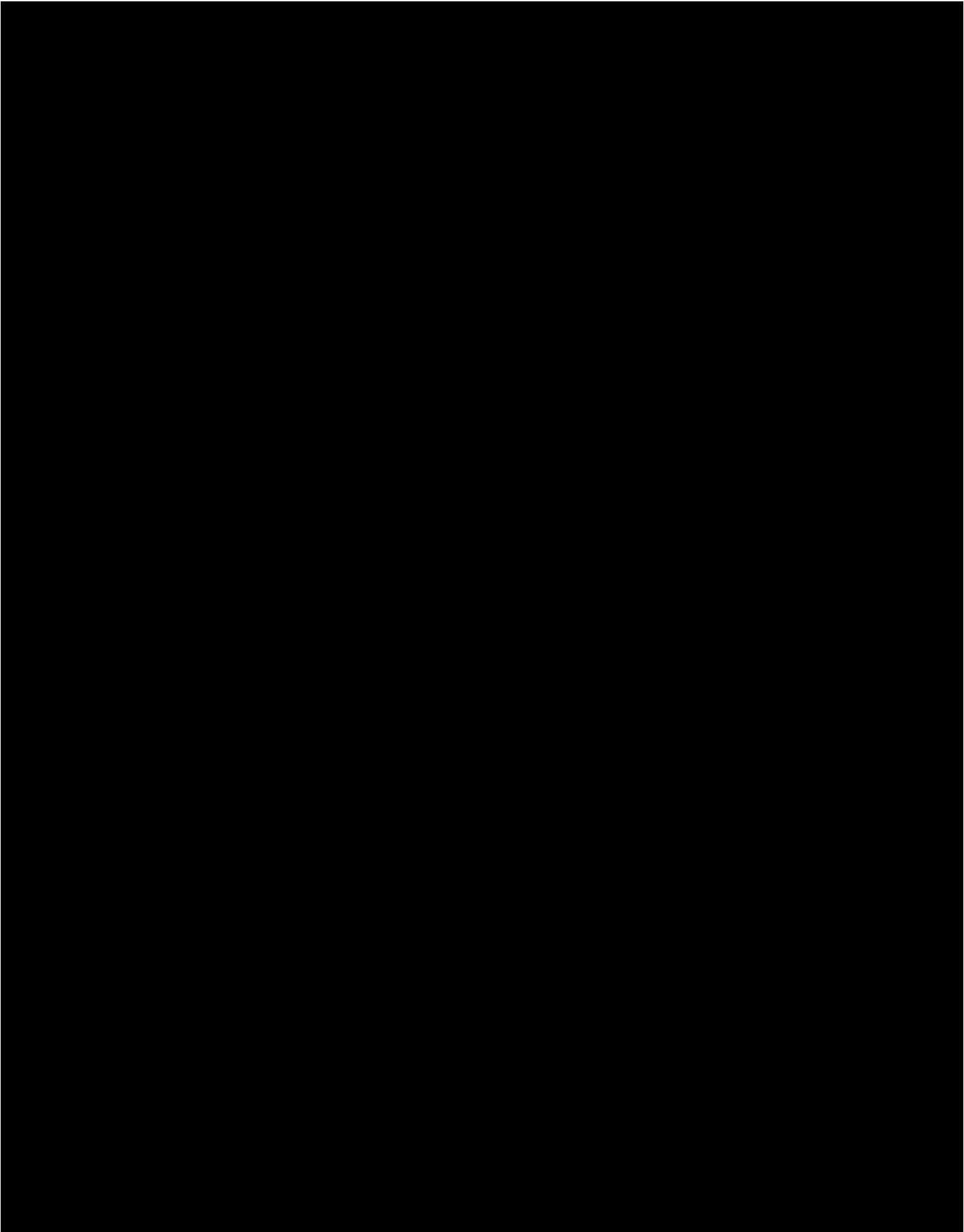


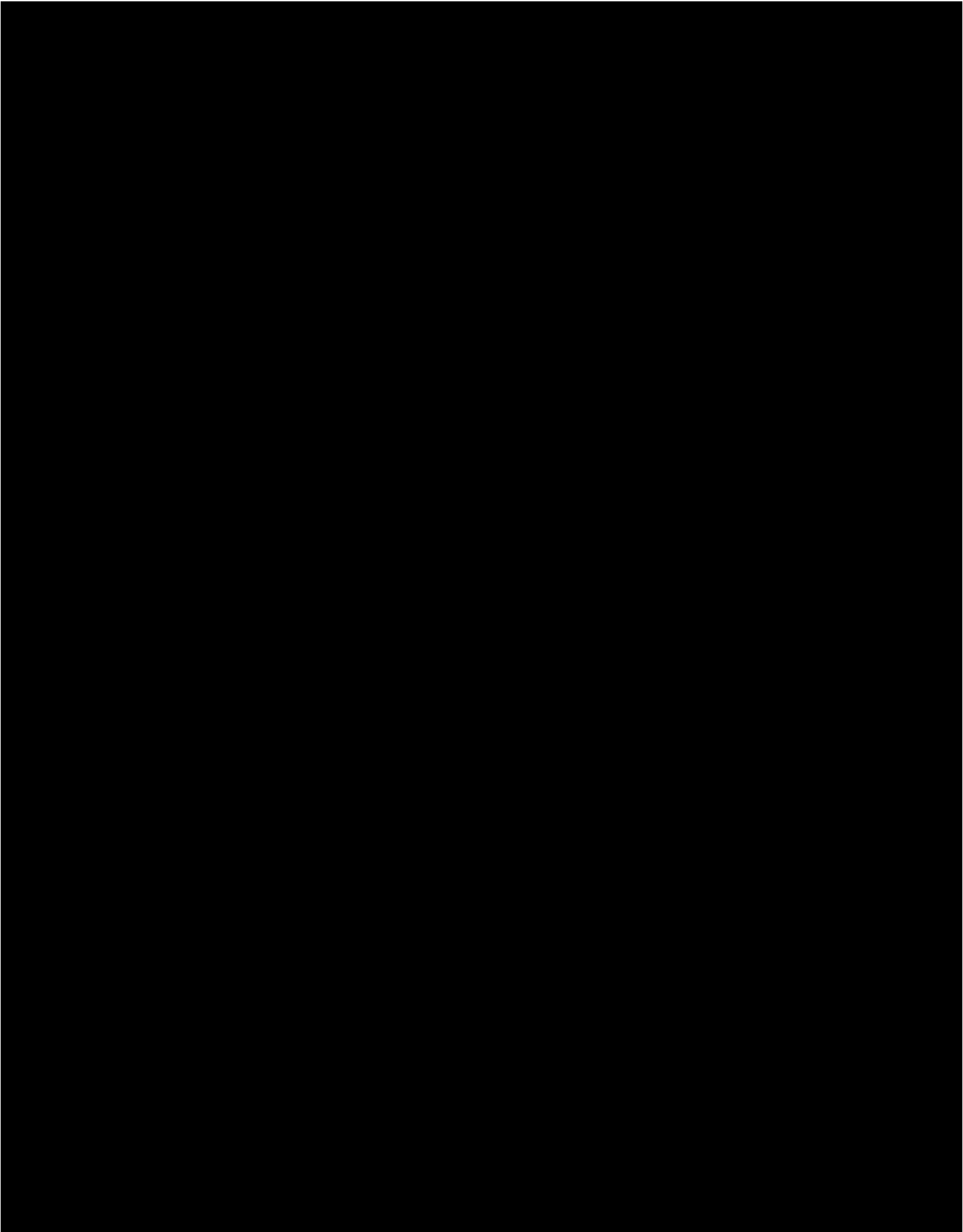


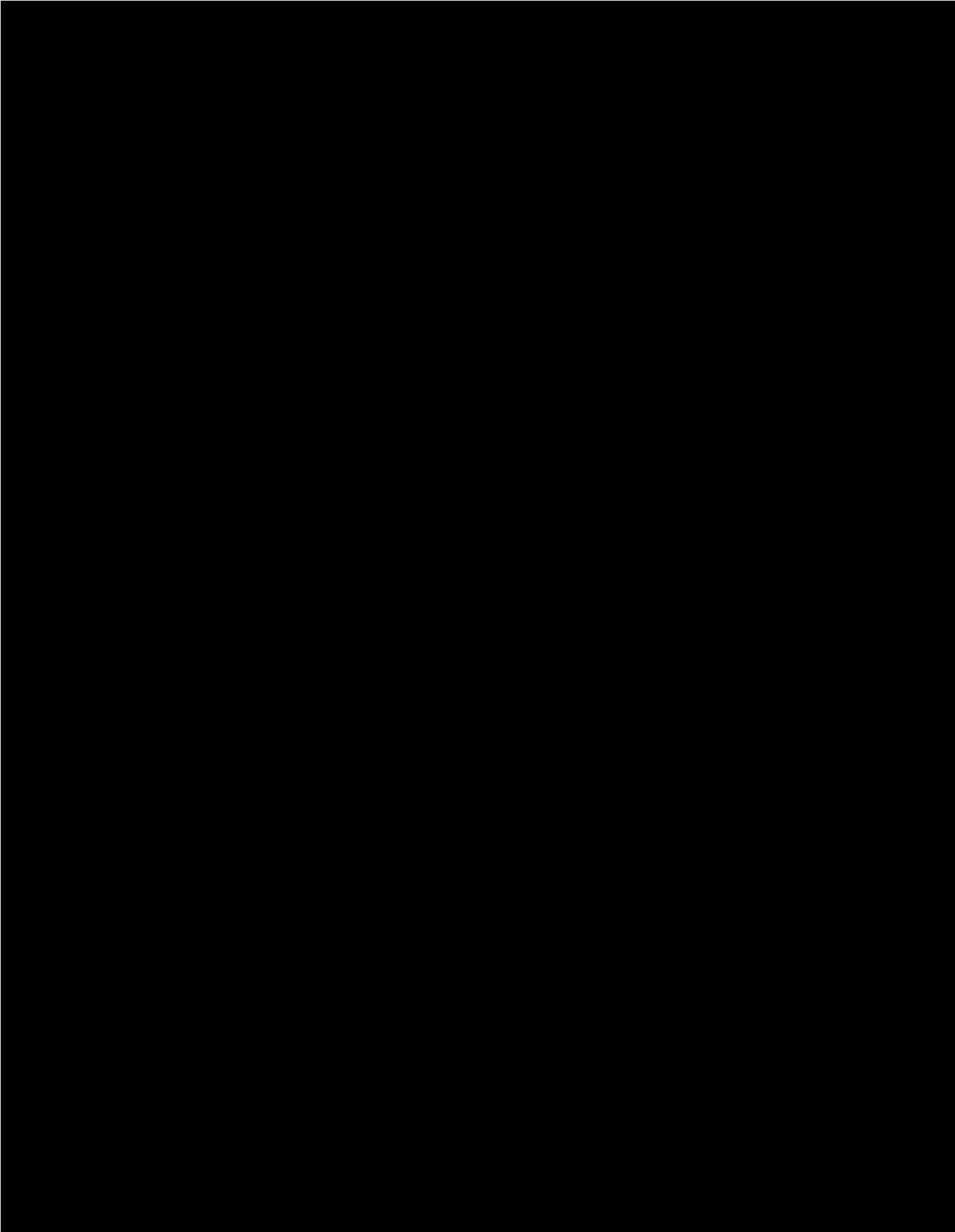


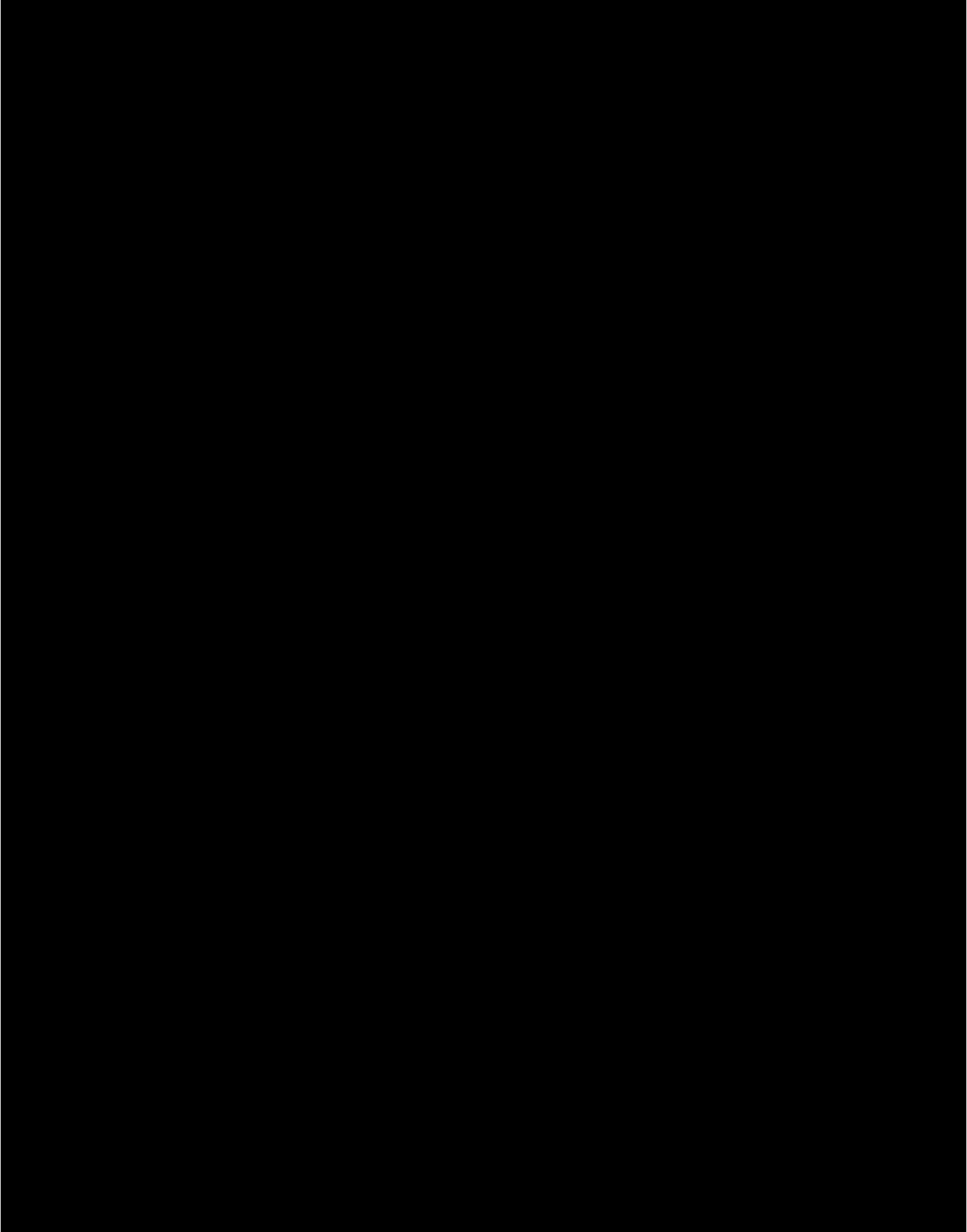


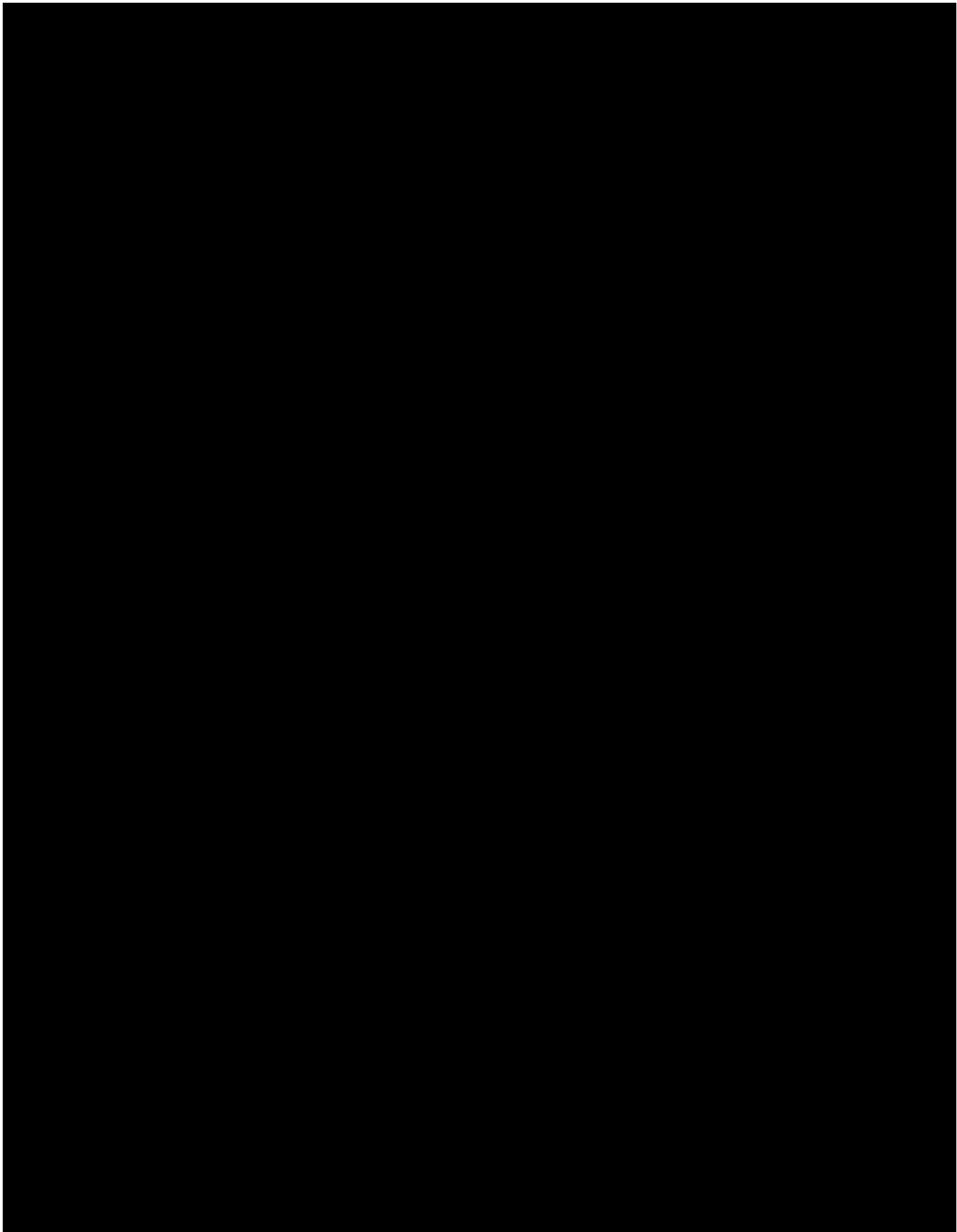


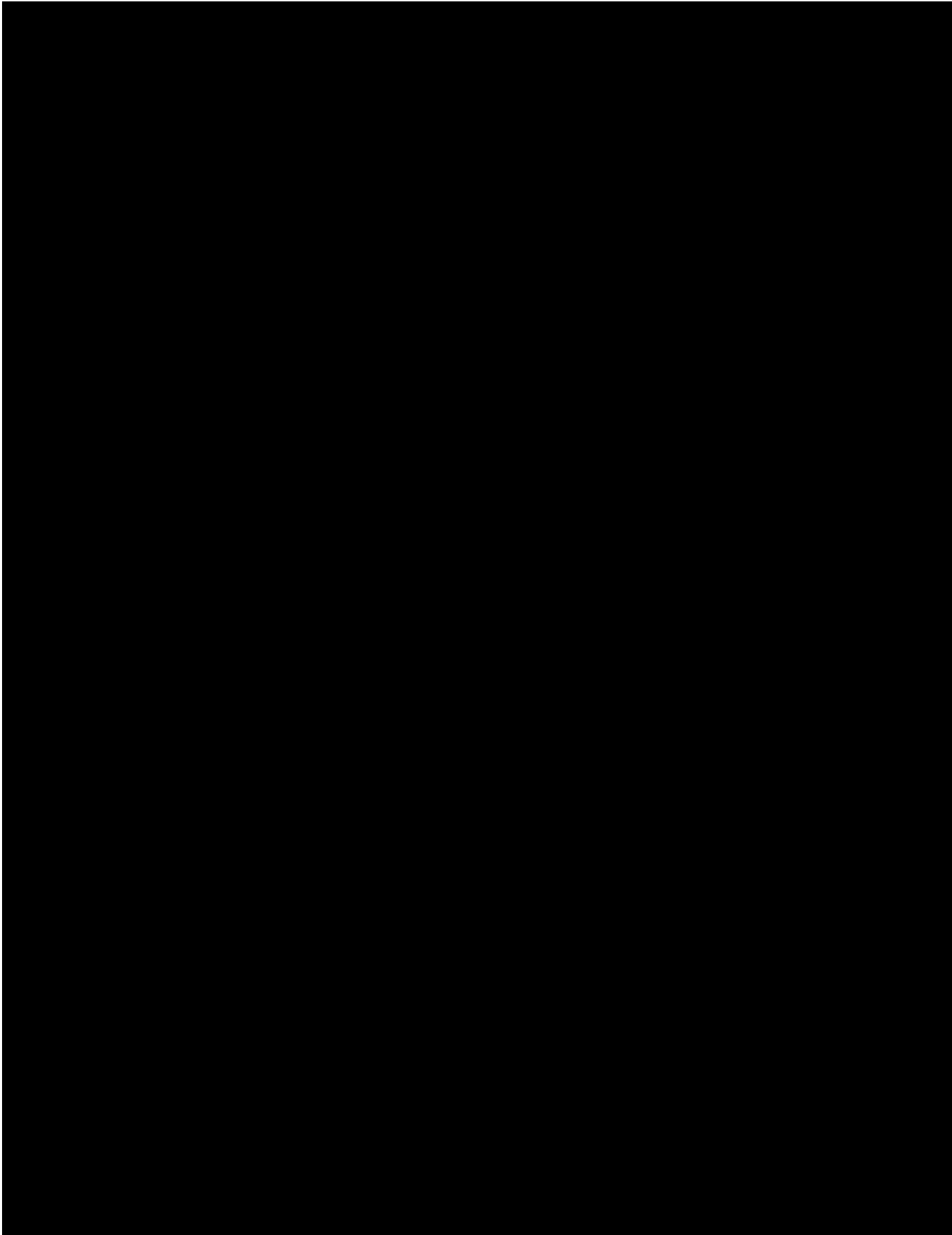


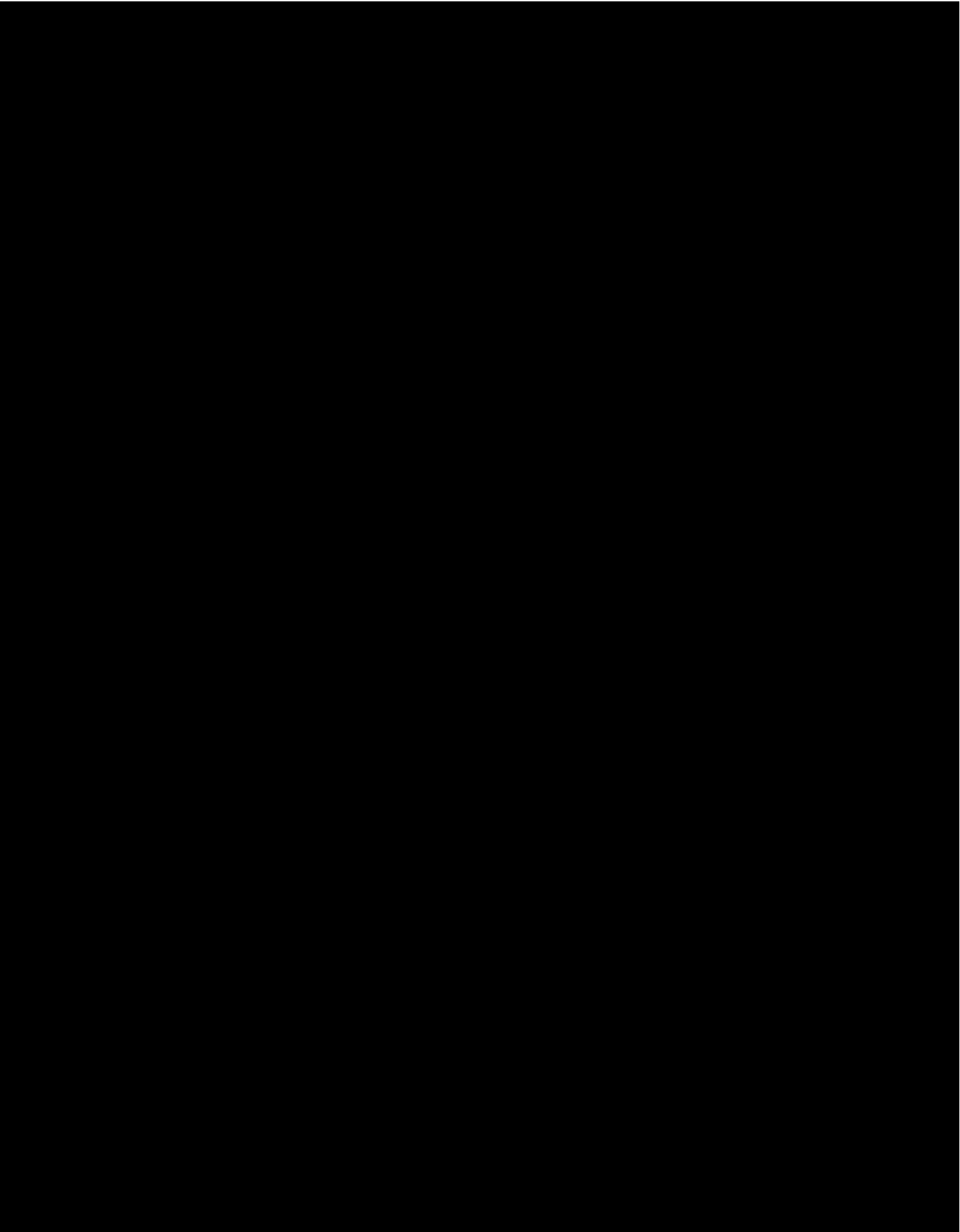


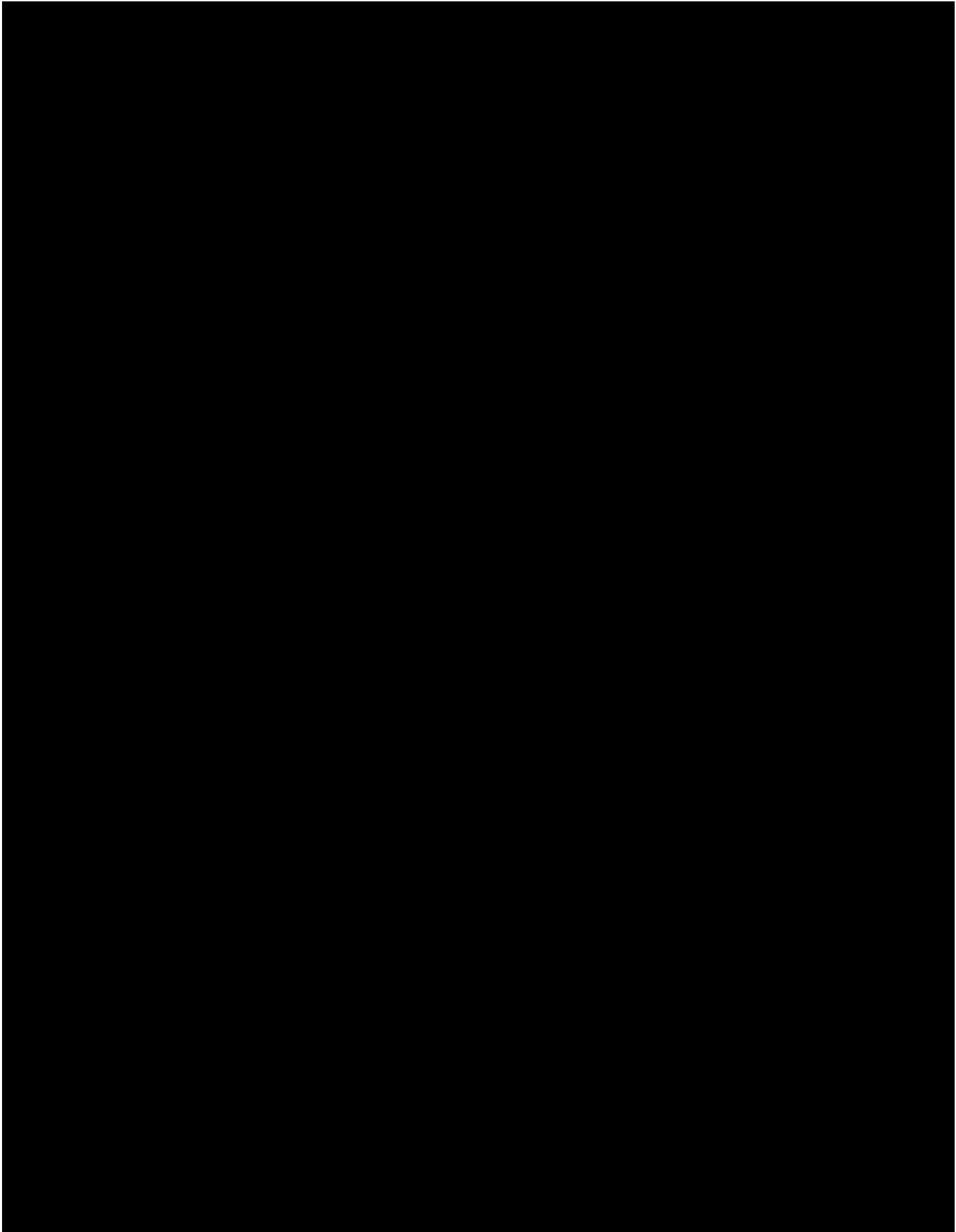


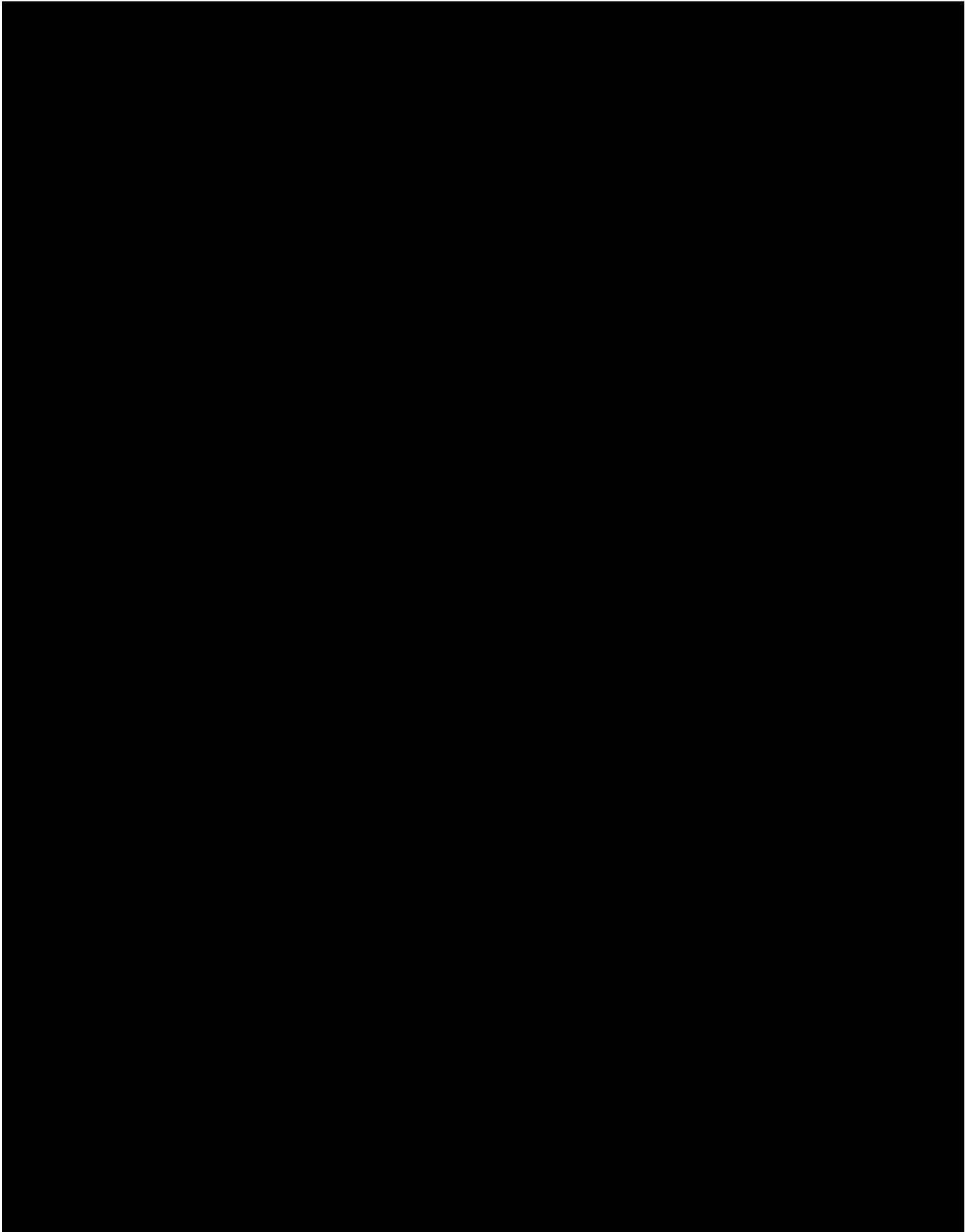


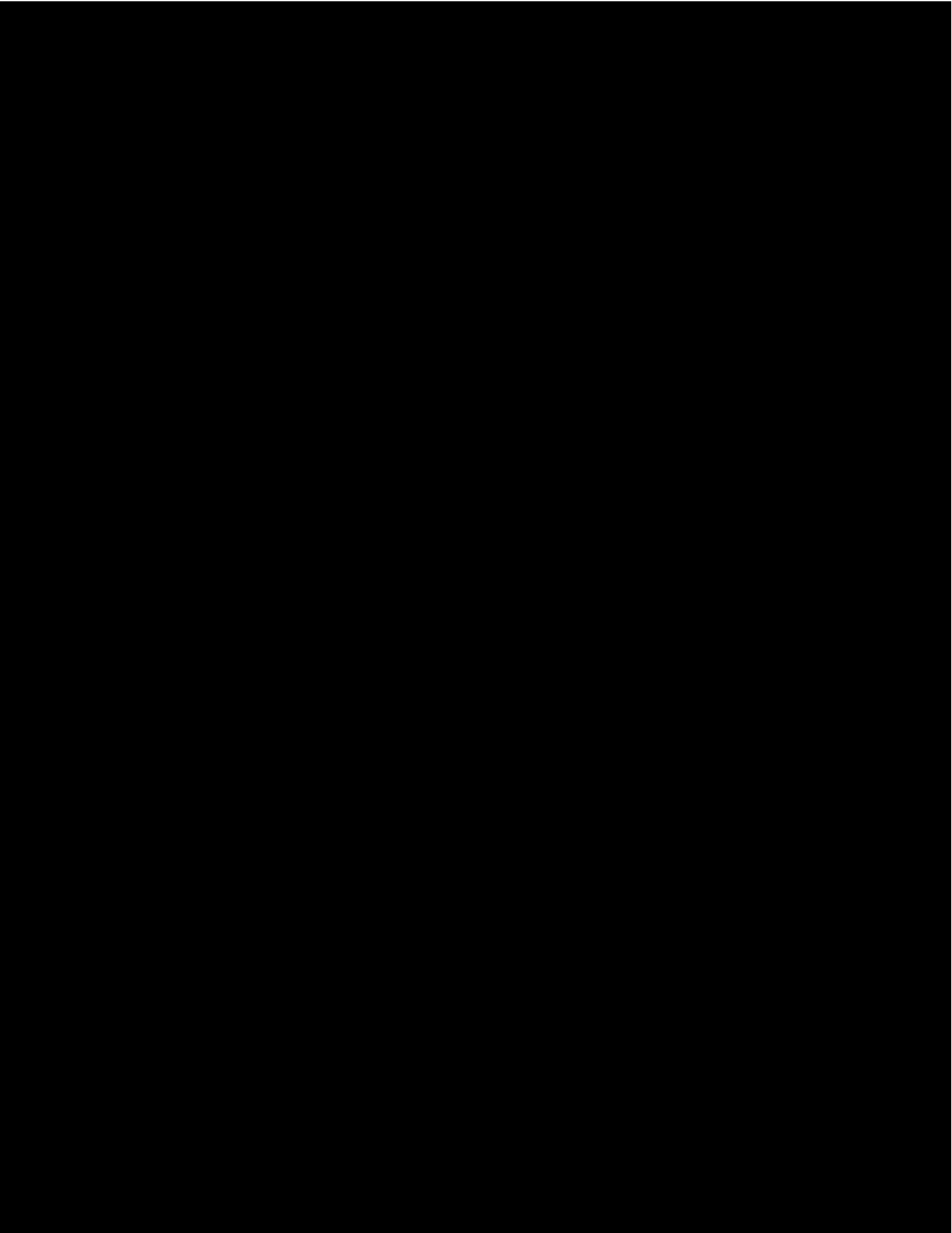


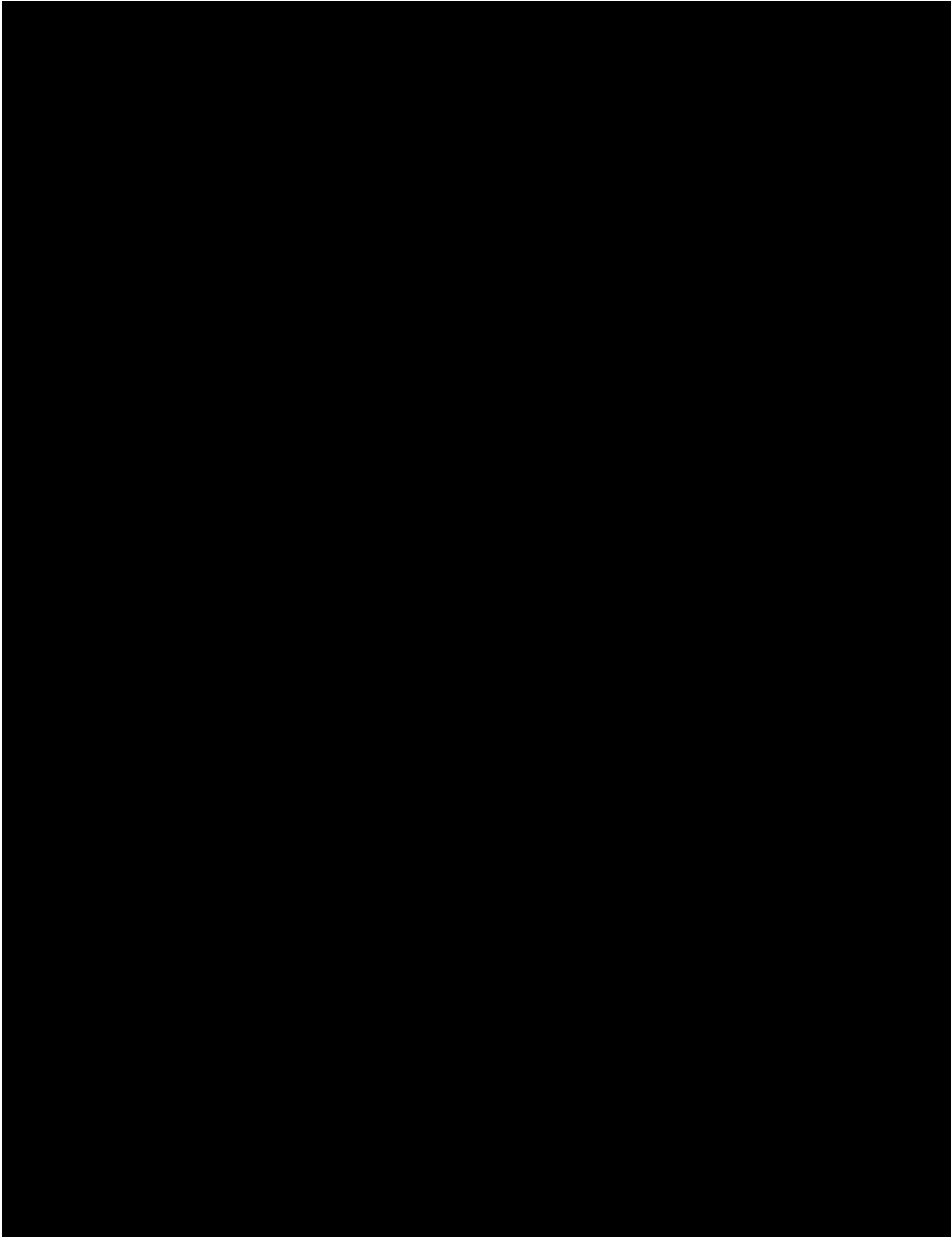


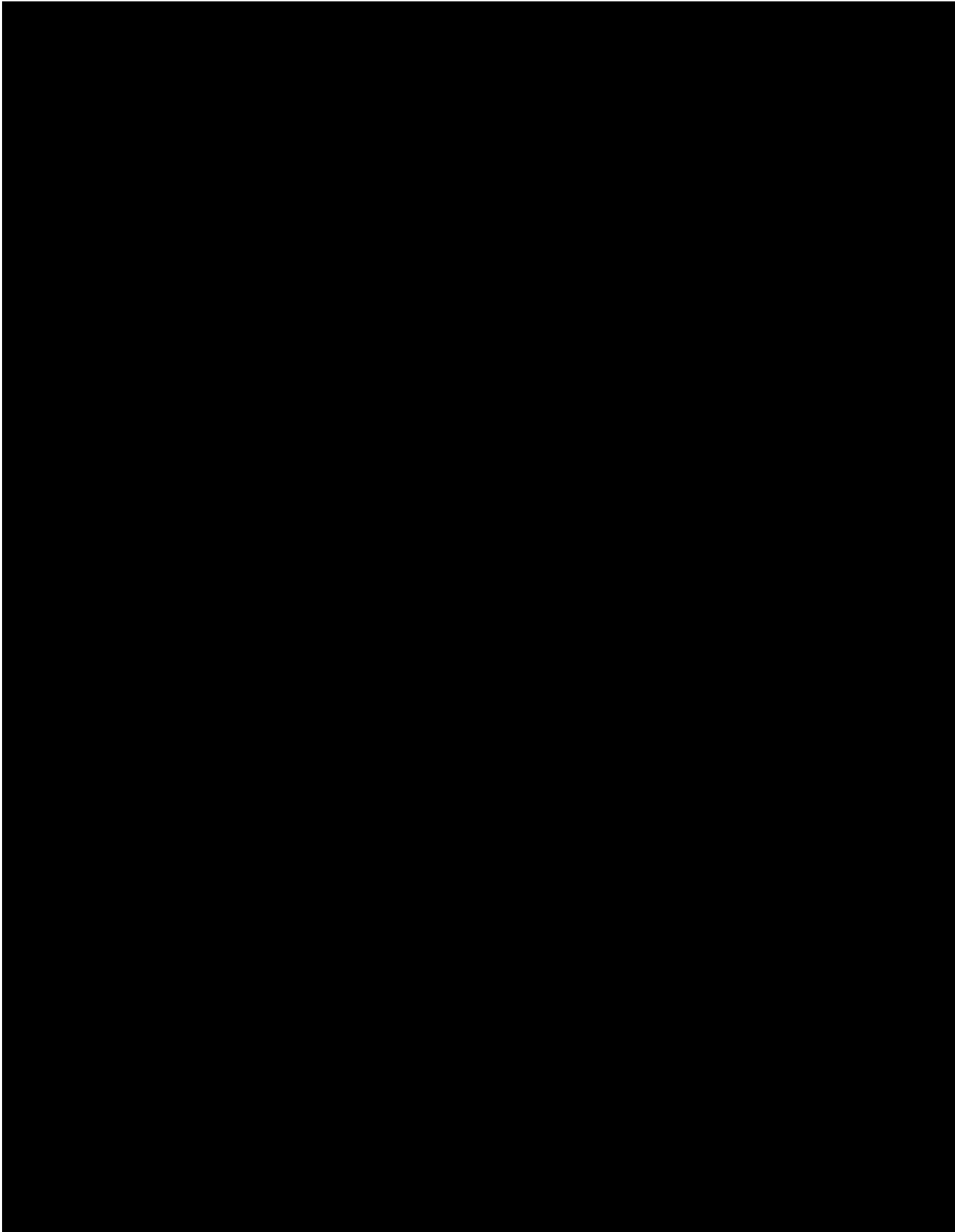


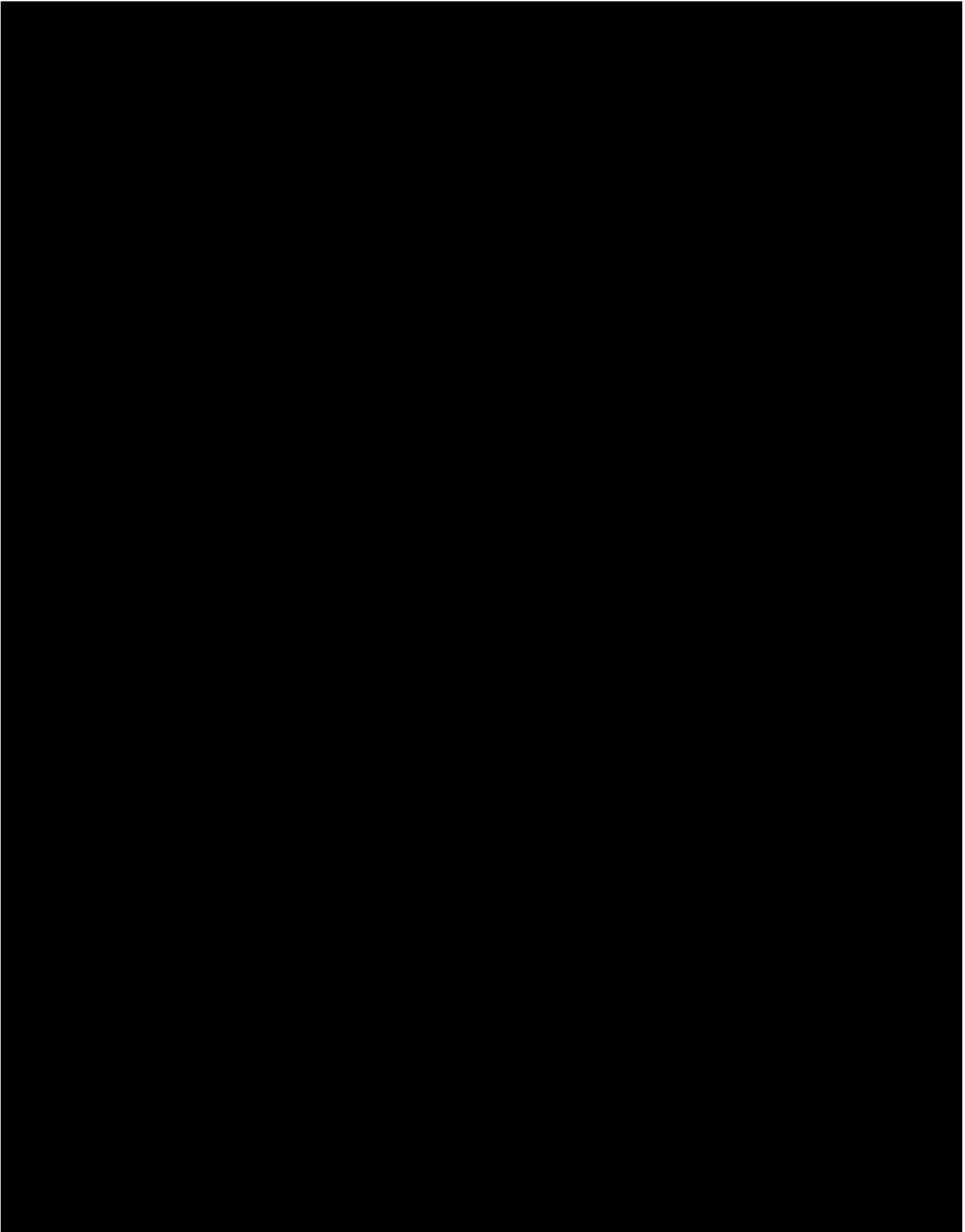


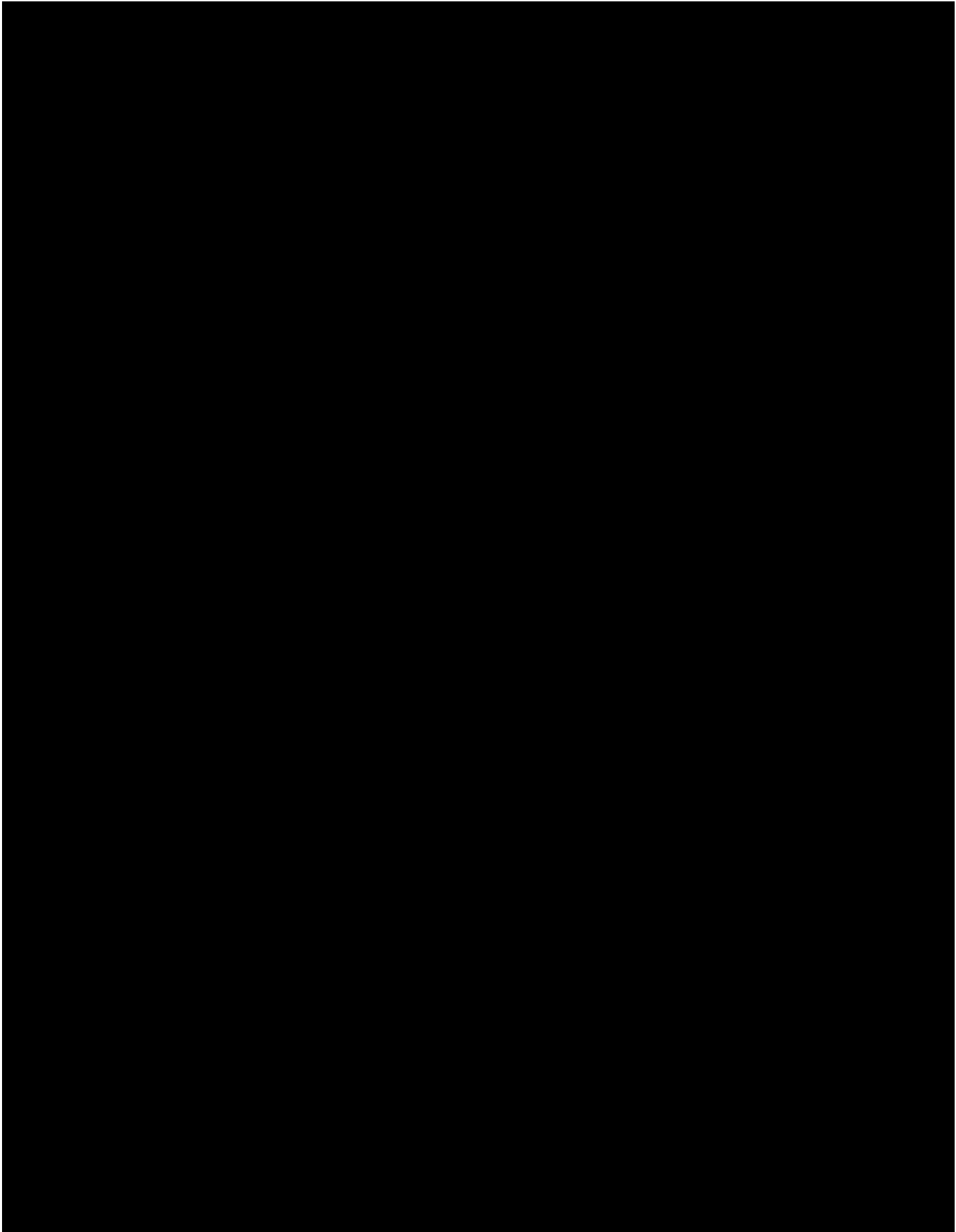


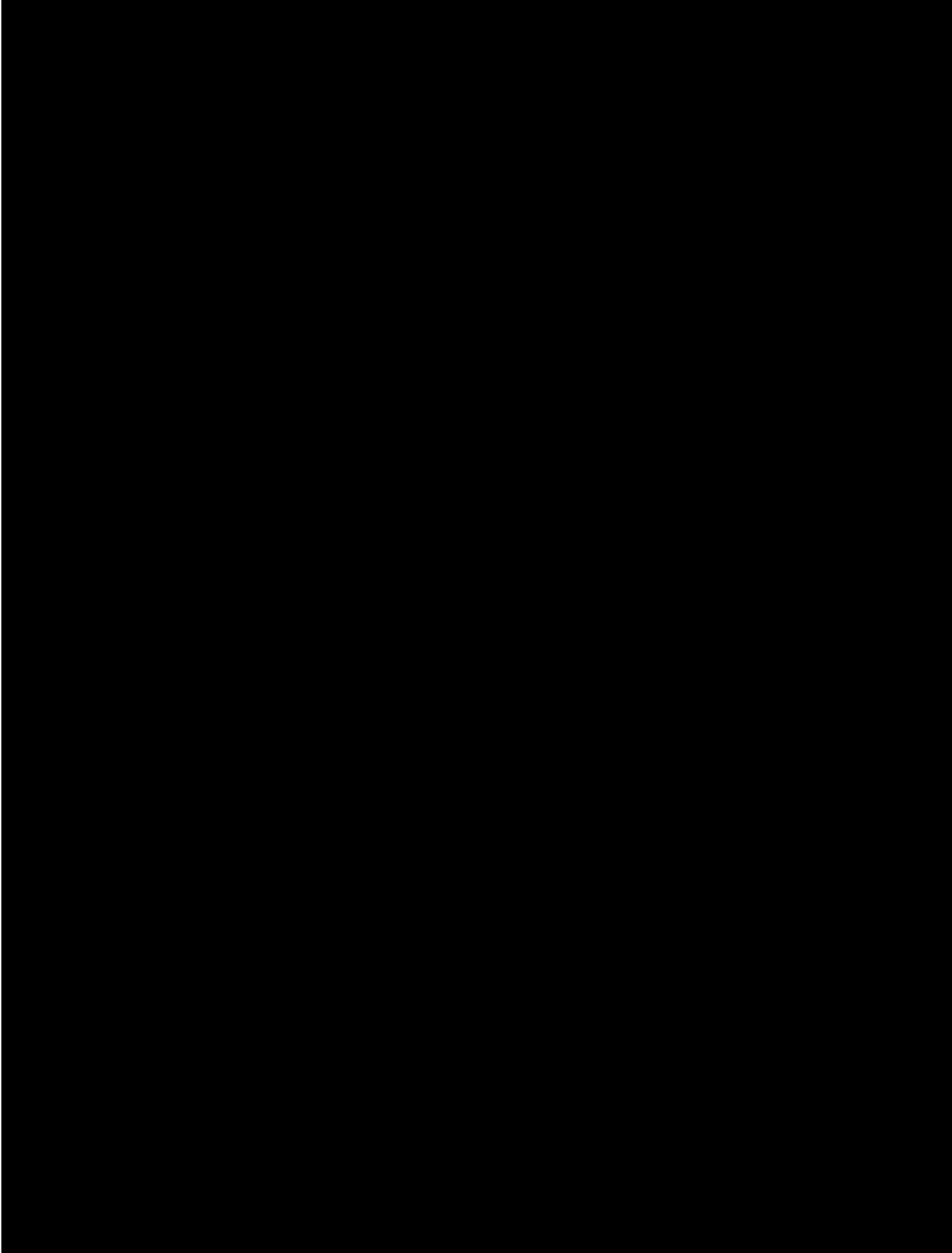


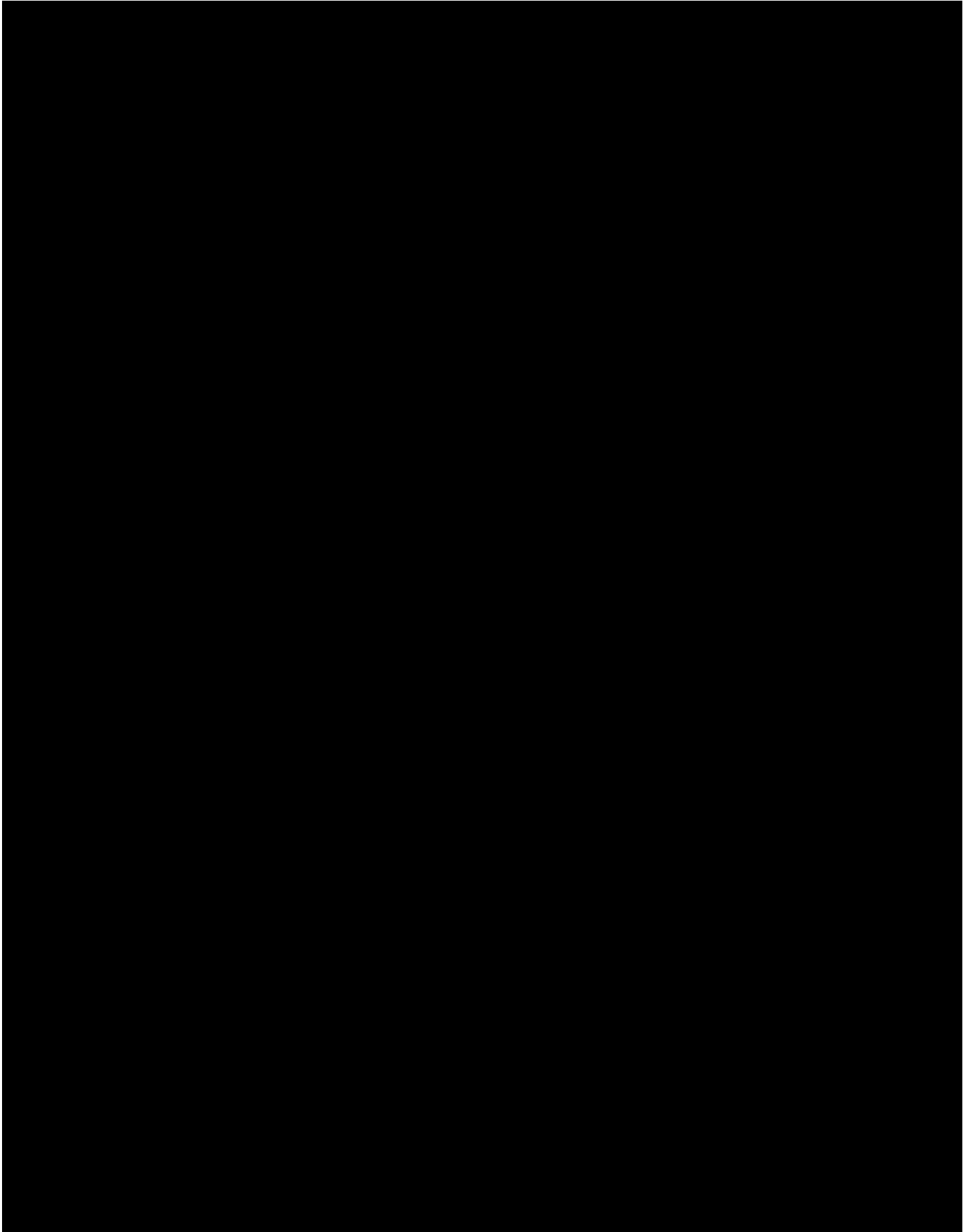


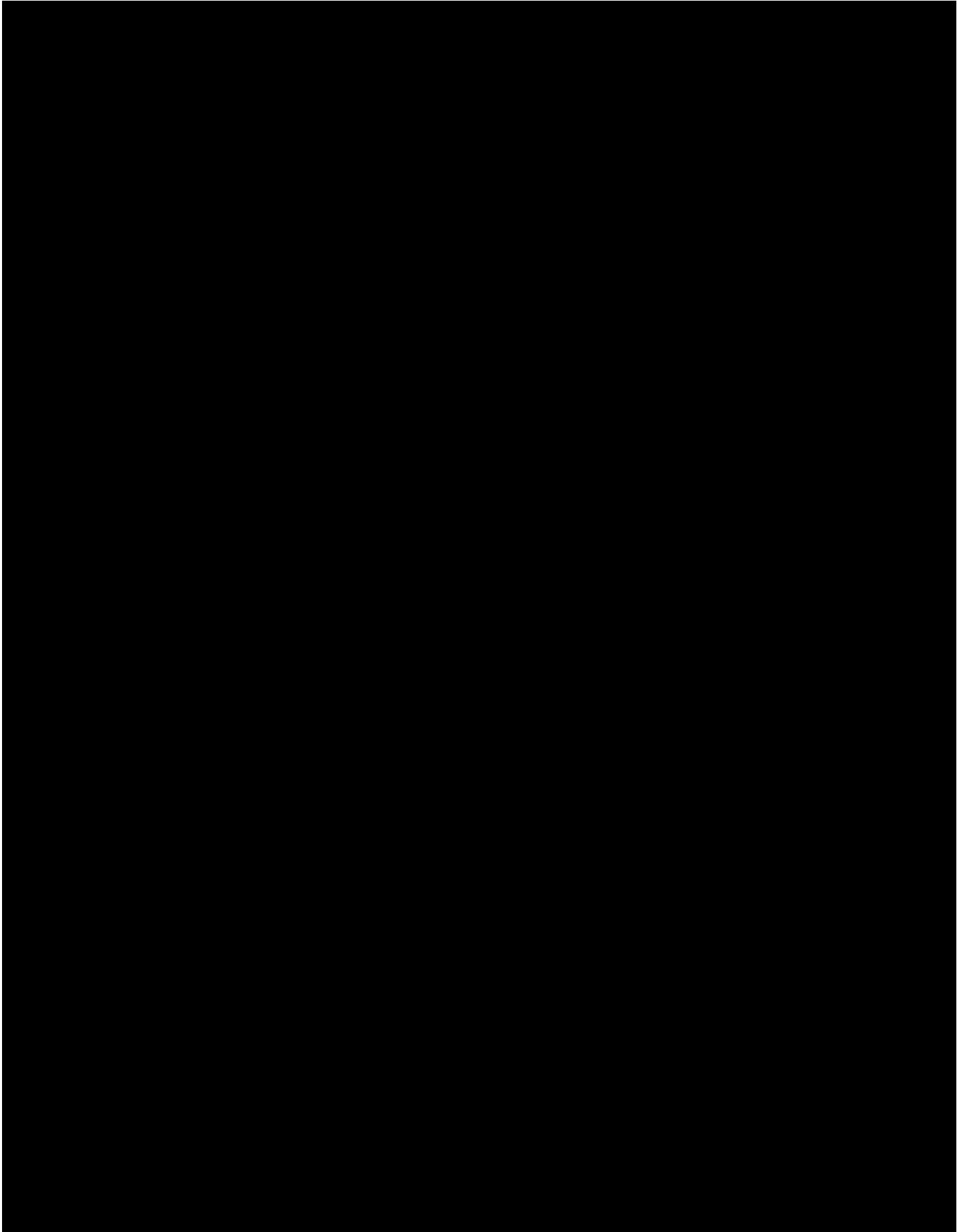


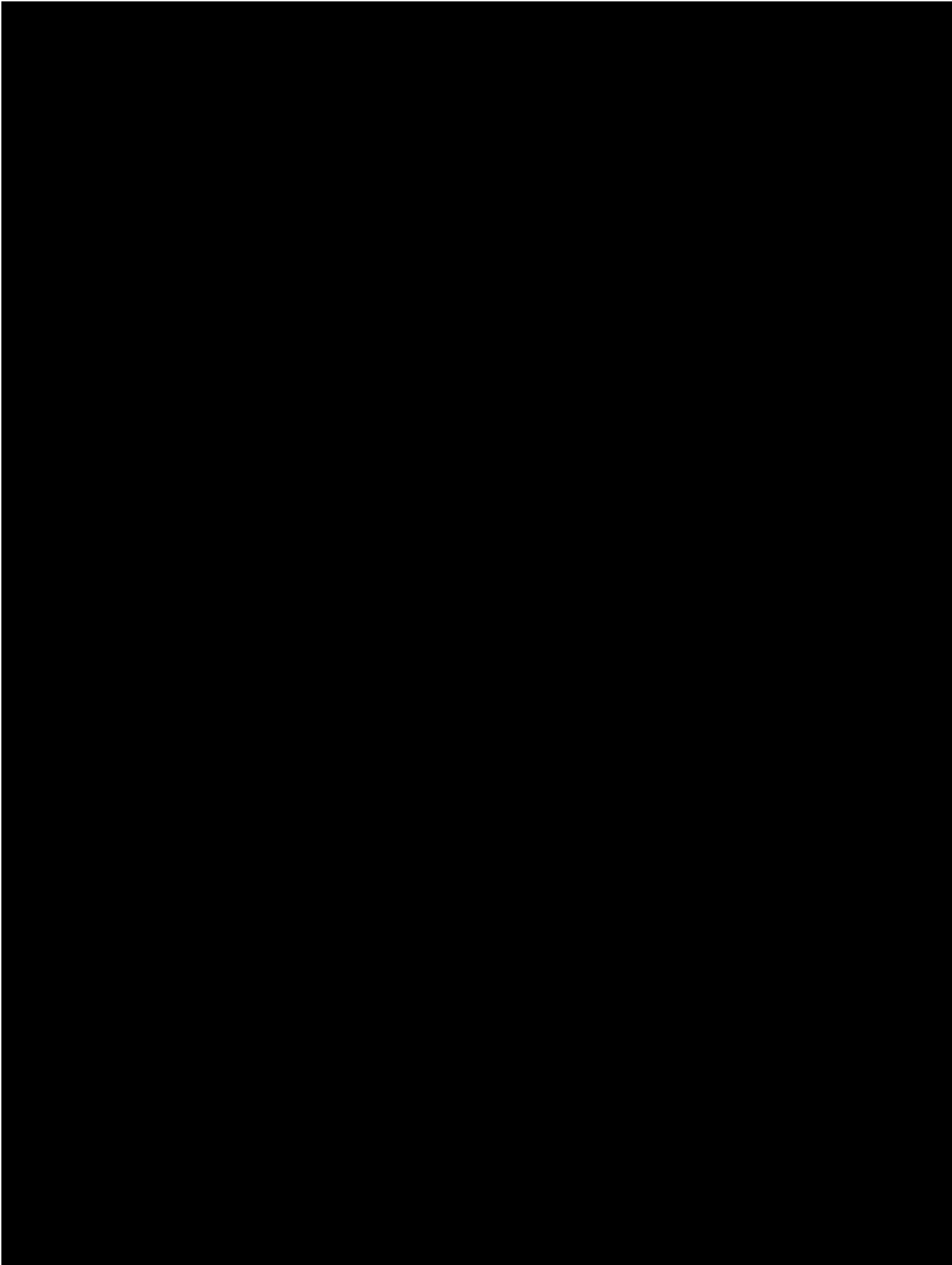


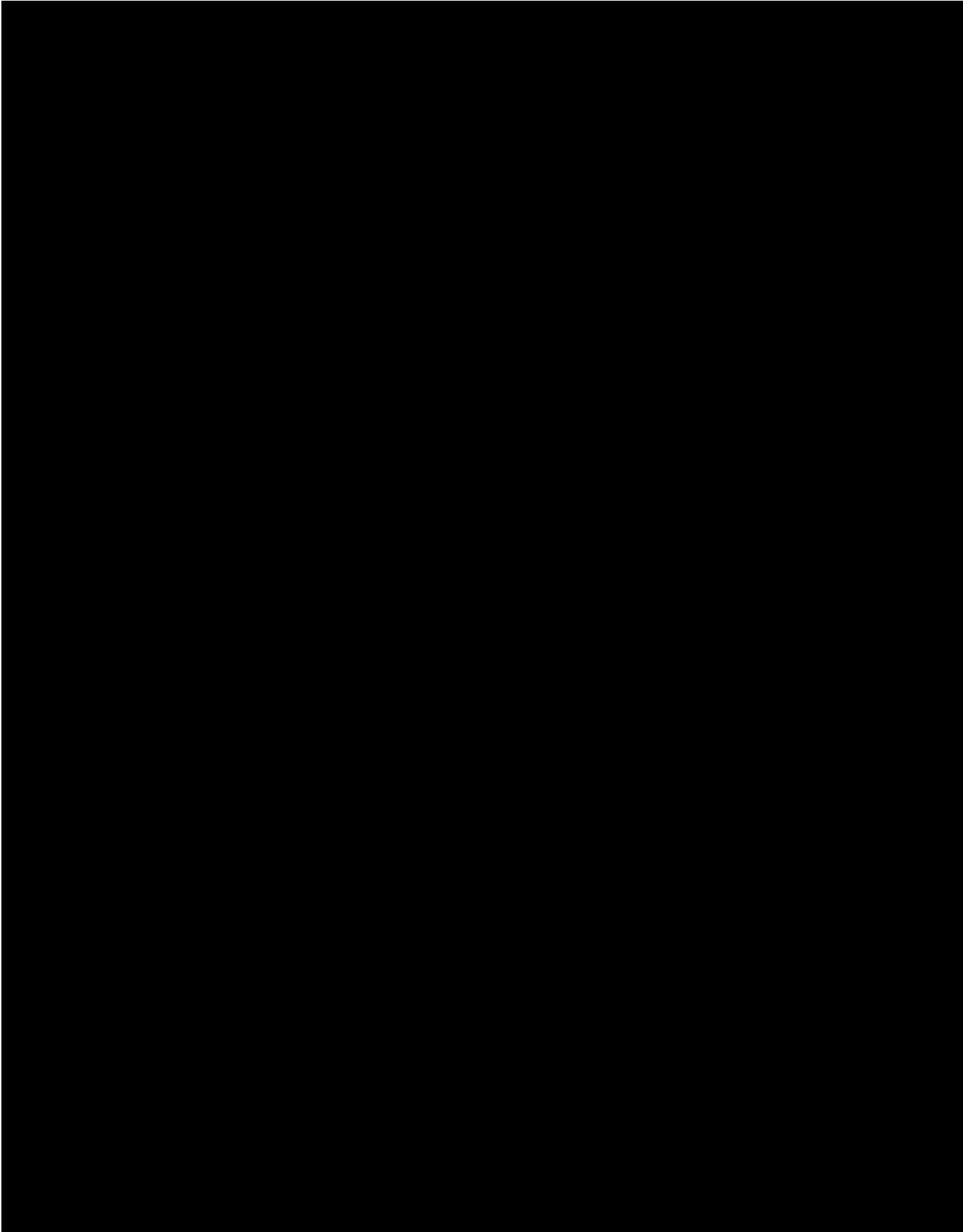


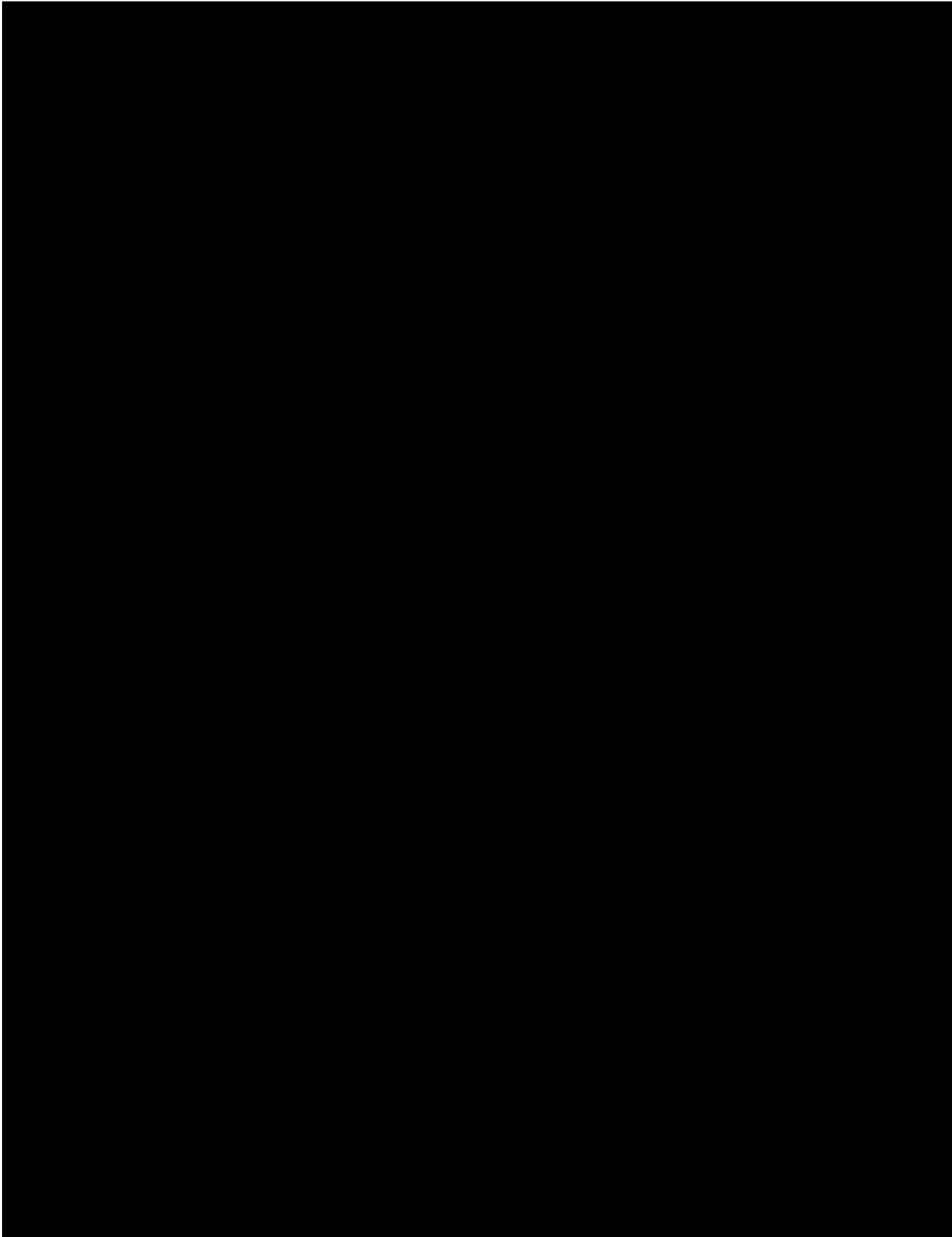


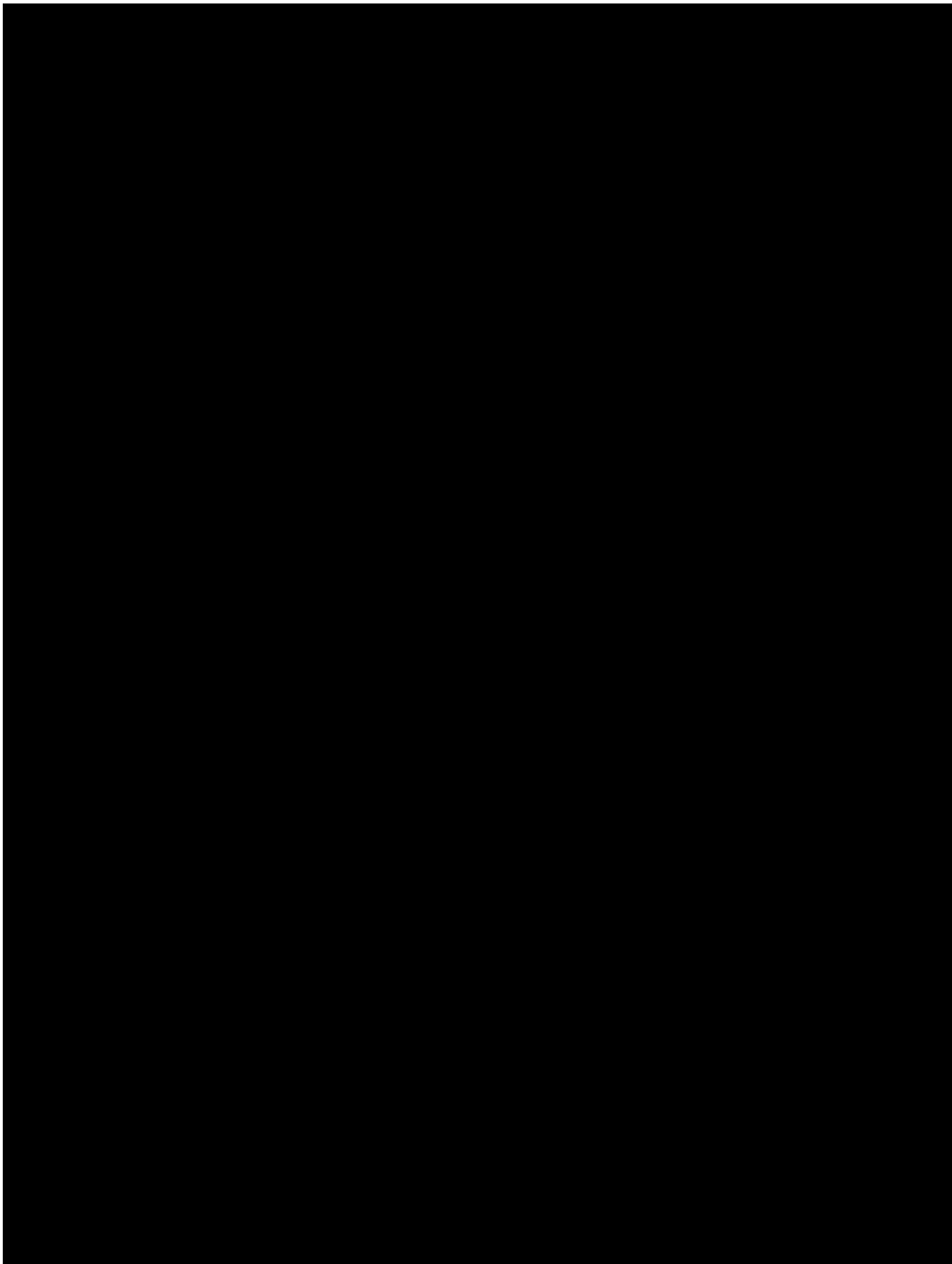


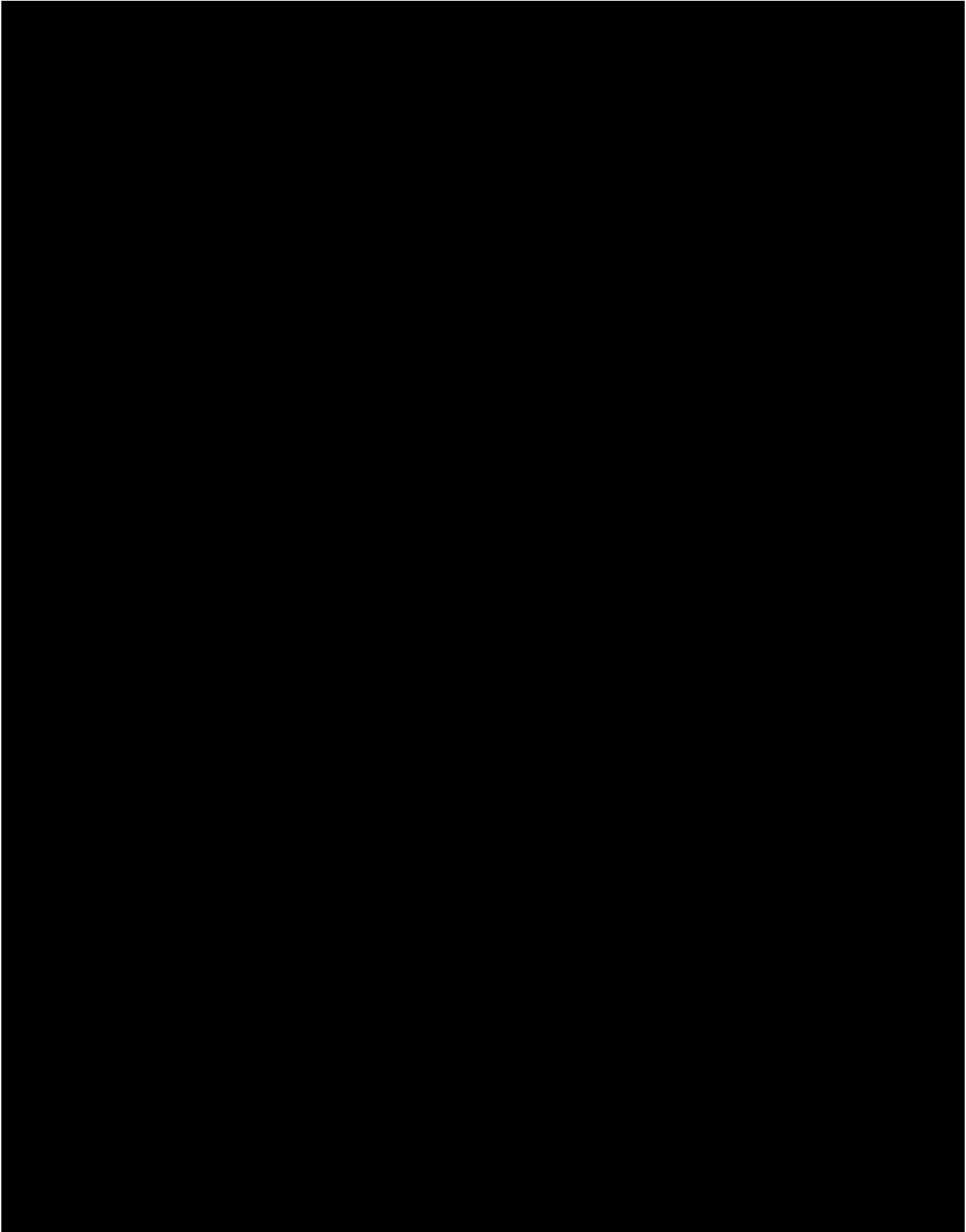


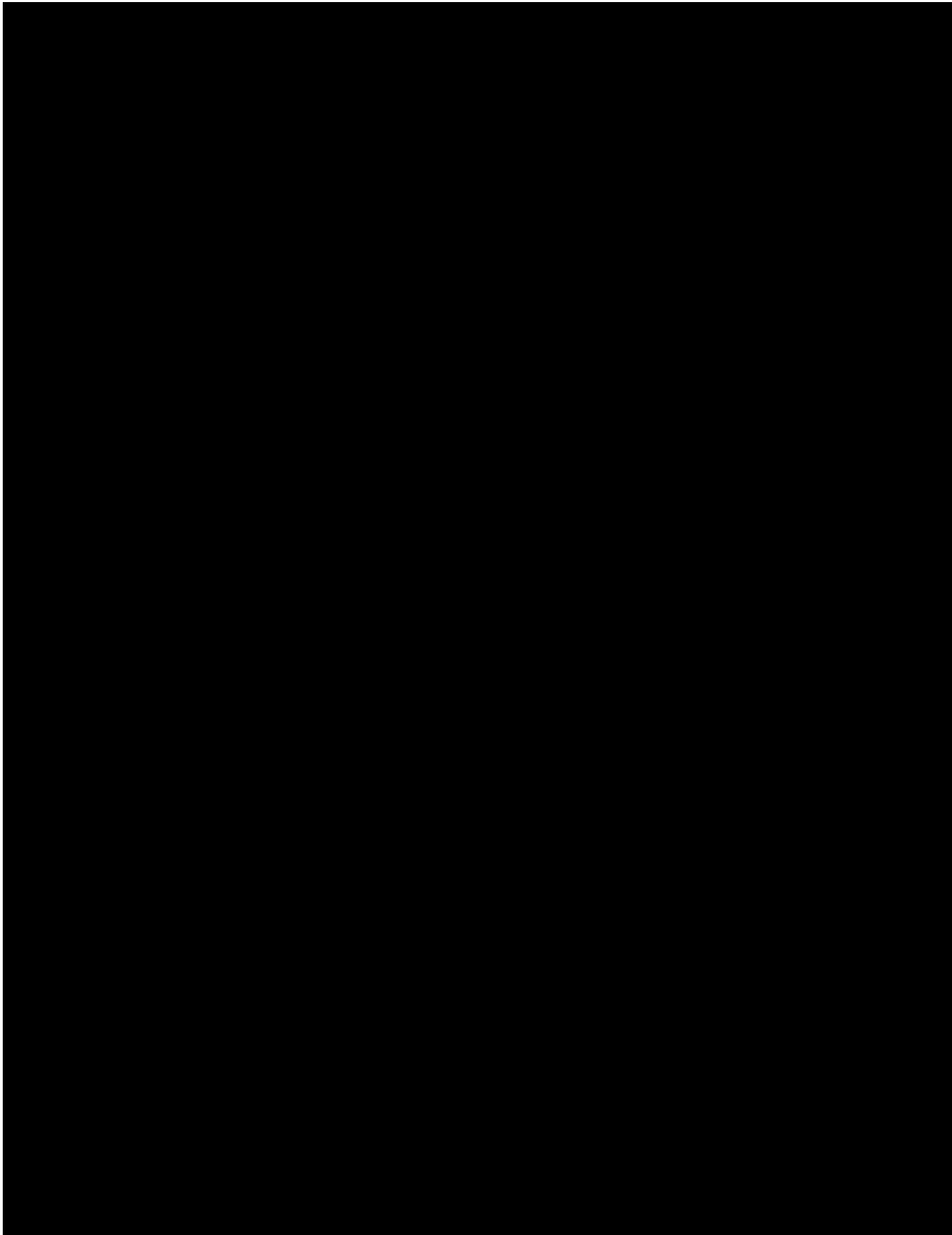


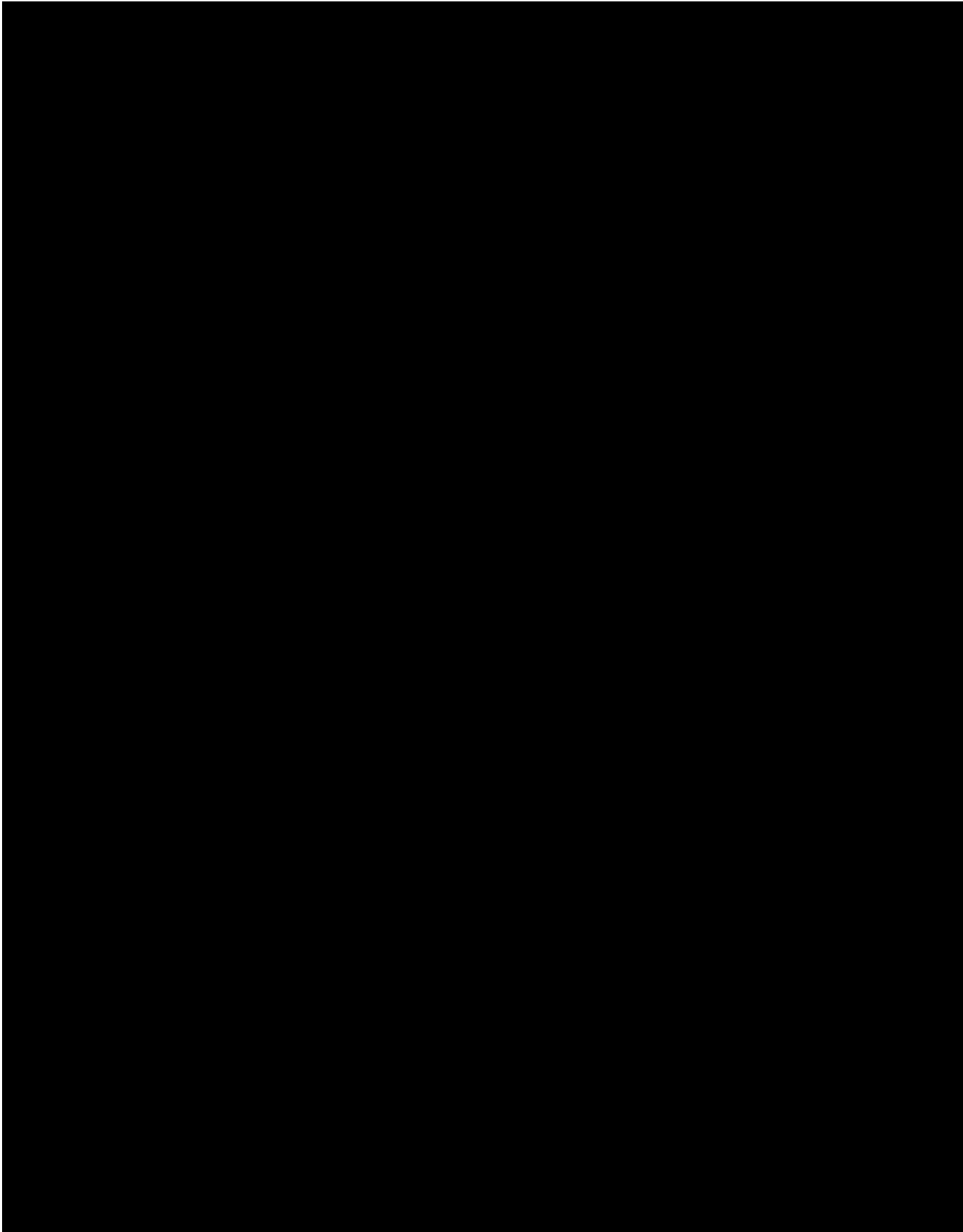


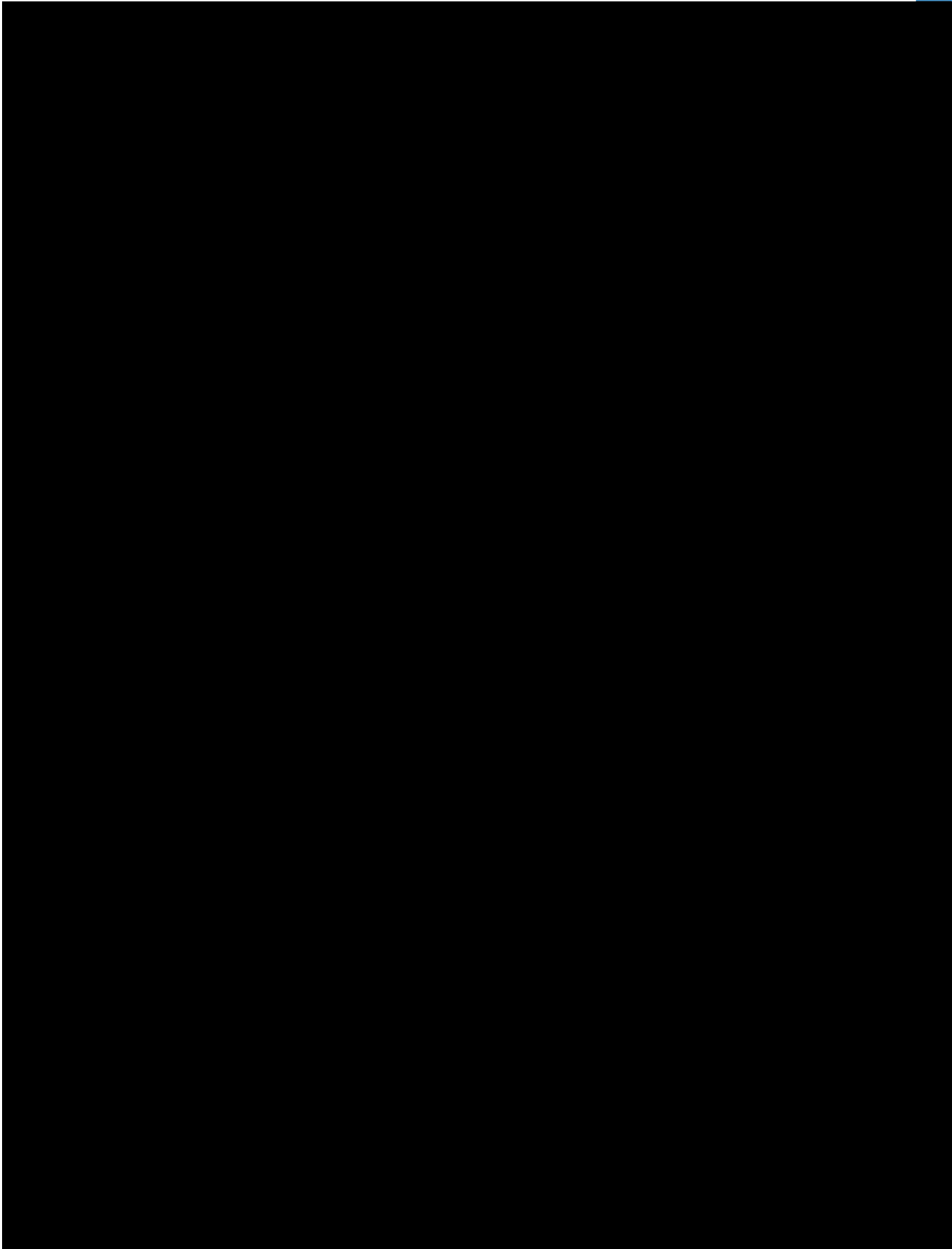












ANNEX B

REVOLUTION WIND (Initial DRAFT data)

ANNEX B – REVOLUTION WIND

B.1 Facility Specific Information

Once construction is complete the Facility will consist of a maximum of one hundred (100) offshore WTG of identical build specifications, two (2) OSSs, and dry cables connecting the installation to land. Refer to Chemical information section below for chemical types and volumes.

The WTG layout has not yet been finalized. Each WTG is equipped with a helihoist platform, which is only for hoisting personnel, not for helicopter landing. Each WTG post is painted yellow and marked with the WTG ID.

Final wind farm layout of WTGs and OSSs will be added once approved by BOEM.

Note: “This is a working document and will be revised upon ROD for REV01.”

Main Dimensions of the turbines are:

WTG PARAMETER	MAXIMUM TURBINE SIZE (12 MW)
Hub height (mean sea level [MSL])	512 feet (156 m)
Rotor diameter	722 ft (220 m)
Total height (top of the blade above MSL)	873 ft (266 m)
Rotor swept zone area	409,415 ft ² (38,013 m ²)
Air gap (bottom of the blade above MSL)	151 ft (46 m)
Blade length (feet)	351 ft (107 m)
Deck height above MSL	128 ft (39 m)

B.2 Chemical Information

WTG		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
Grease Optipit Castrol	11	0.25
Grease Mobilith 007	66	1.57
Grease Shell Rohodina BBZ0	42	1.01
Gear Oil Castrol Optigear Synthetic X320	63	1.51
Hydraulic Oil Castrol Hyspin AWH-M32	79	1.89
Hydraulic Oil Castrol Hyspin AWH-M32	63	1.51
Ester Oil Midel 7131	1,611	38.37
Total Volume	1,935	46

Note: Chemical capacities are the same for each of the offshore WTG installations.

OSS		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
Transformer Oil – Nytro 10 XN	79,252	1,886.95
Diesel Fuel	52,834	1,257.95
Hydraulic Oil – Castrol Hyspin AWH-M32	317	7.55
Total Volume	132,403	3,152.45

Note: To be updated after design is finalized.

TRANSMISSION LINES		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
NONE		
Total Volume	0	0

Note: Transmission lines are dry and do not contain oil.

B.3 Location

INSTALLATION	LONGITUDE (DD)	LATITUDE (DD)
TO BE UPDATED AFTER DESIGN FINALIZED		



Revolution Wind Installation Layout Map

(To Be Developed)

B.4 WTG SPILL TRAJECTORY

WTG SUMMER & FALL

To Be Developed

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WTG WINTER & SPRING

To Be Developed

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B.5 OSS SPILL TRAJECTORY

OSS SUMMER & FALL

To Be developed

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OSS WINTER & SPRING

To Be developed

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ANNEX C

SUNRISE WIND

ANNEX C – SUNRISE WIND

C.1 Facility Specific Information

Once construction is complete the Facility will consist of a maximum of ninety four (94) offshore WTG of identical build specifications, one (1) OCS-DC, and dry cables connecting the installation to land. Refer to Chemical information section below for chemical types and volumes.

The WTG layout has not yet been finalized. Each WTG is equipped with a helihoist platform, which is only for hoisting personnel, not for helicopter landing. Each WTG post is painted yellow and marked with the WTG ID.

Final wind farm layout of WTGs and OCS-DC will be added once approved by BOEM.

Note: “This is a working document and will be revised upon ROD for SRW01”

Main dimensions of the turbines are:

WTG PARAMETER	MAXIMUM TURBINE SIZE (11 MW)
Hub height (mean sea level [MSL])	459 feet (140 m)
Rotor diameter	656 ft (200 m)
Total height (top of the blade above MSL)	787 ft (240 m)
Rotor swept zone area	337,985 ft ² (31,416 m ²)
Air gap (bottom of the blade above MSL)	131 ft (40 m)
Blade length (feet)	318 ft (97 m)

C.2 Chemical Information

WTG		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
Grease Optipit Castrol	11	0.25
Grease Mobilith 007	66	1.57
Grease Shell Rohodina BBZ0	42	1.01
Gear Oil Castrol Optigear Synthetic X320	63	1.51
Hydraulic Oil Castrol Hyspin AWH-M32	79	1.89
Hydraulic Oil Castrol Hyspin AWH-M32	63	1.51
Ester Oil Midel 7131	1,611	38.37
Total Volume	1,935	46

Note: Chemical capacities are the same for each of the offshore WTG installations.

OCS-DC1		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
Transformer Oil – Nytro Lyra X_SE	105,700	2,517
Diesel Fuel	24,304	579
Hydraulic Oil Castrol Hyspin AWH-M32	528	13
Lube Oil – CAT DEO-ULS SYN 5W-40	172	4
Ester Oil Midel 7131	3,170	75.5
Total Volume	133,874	3,187

Note: To be updated after design is finalized.

TRANSMISSION LINES		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
NONE		
Total Volume	0	0

Note: Transmission lines are dry and do not contain oil.

C.3 Location

INSTALLATION	LONGITUDE (DD)	LATITUDE (DD)
OCS-DC1	71.121225	40.993341
TO BE UPDATED AFTER DESIGN FINALIZED		



Sunrise Wind Installation Layout Map

(To Be Developed)

C.4 WTG SPILL TRAJECTORY

WTG SUMMER & FALL

To Be Developed

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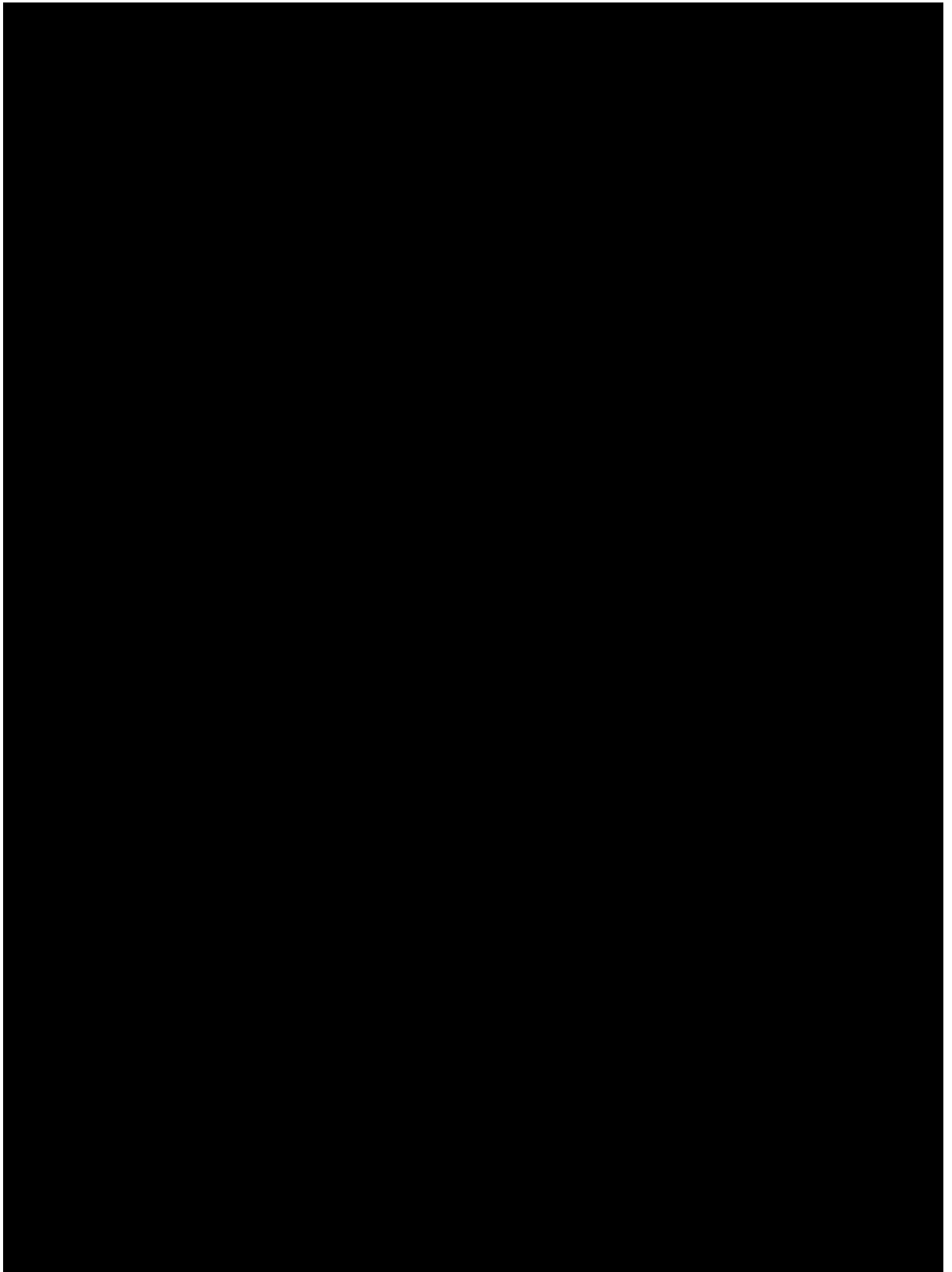
WTG WINTER & SPRING

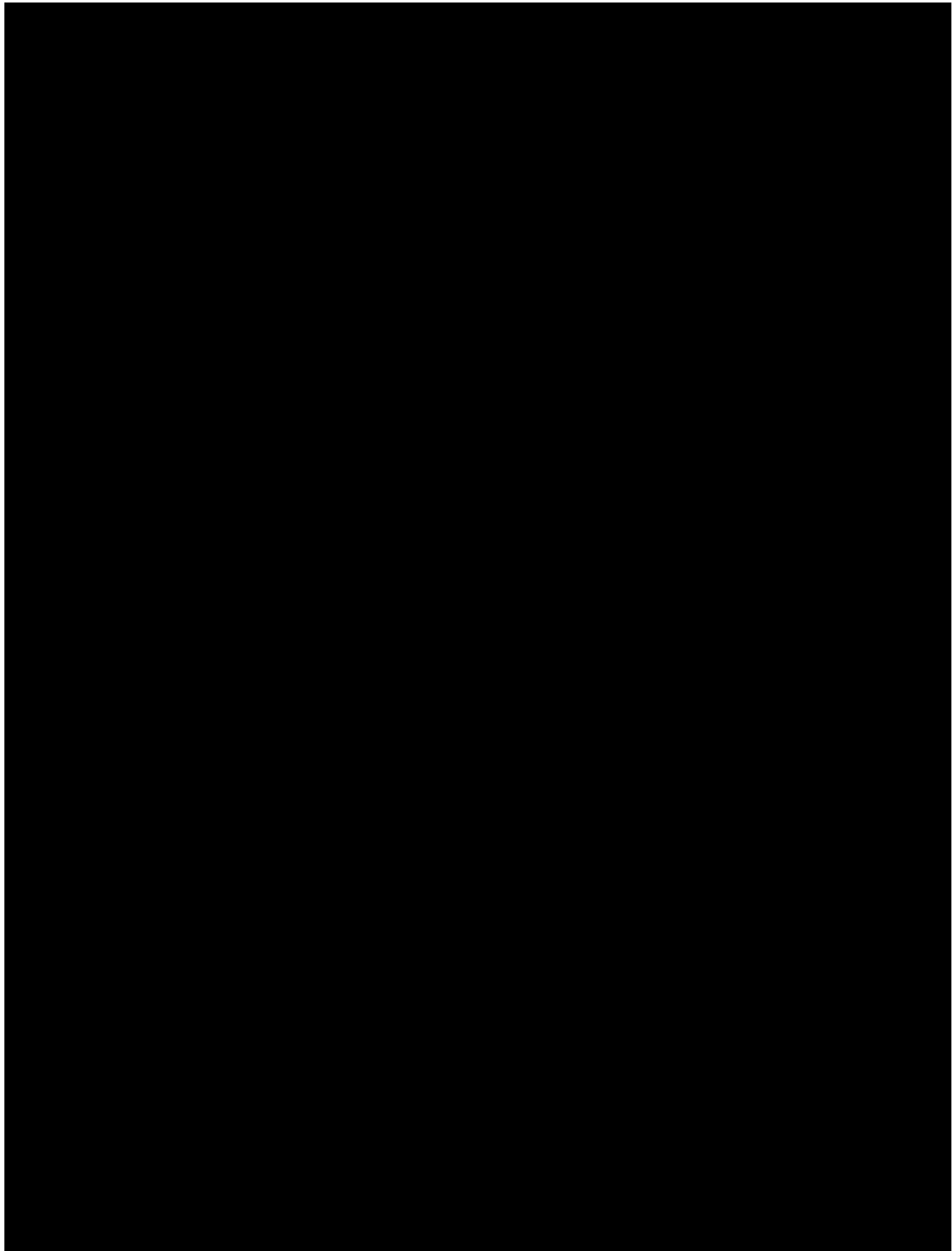
To Be Developed

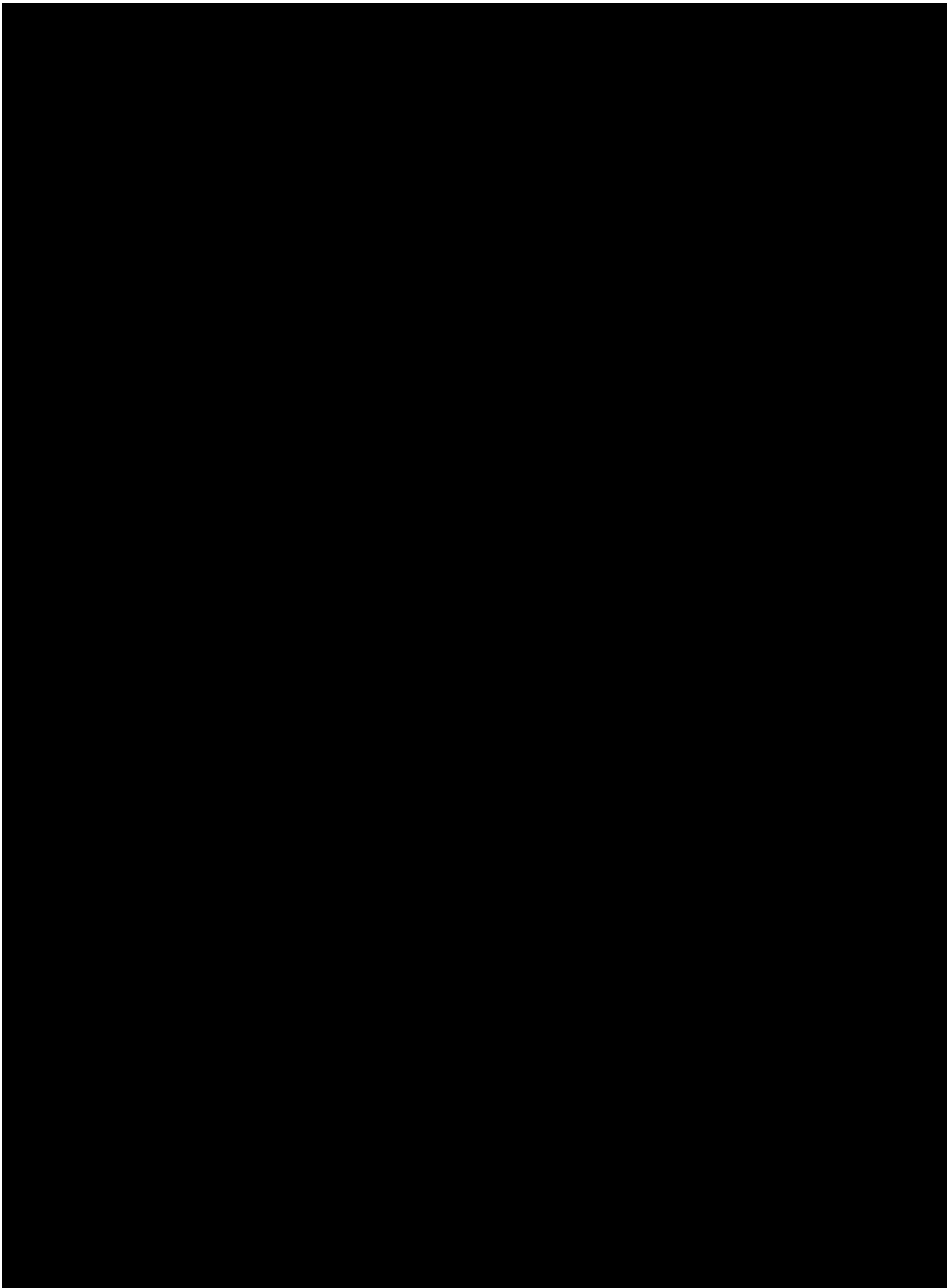
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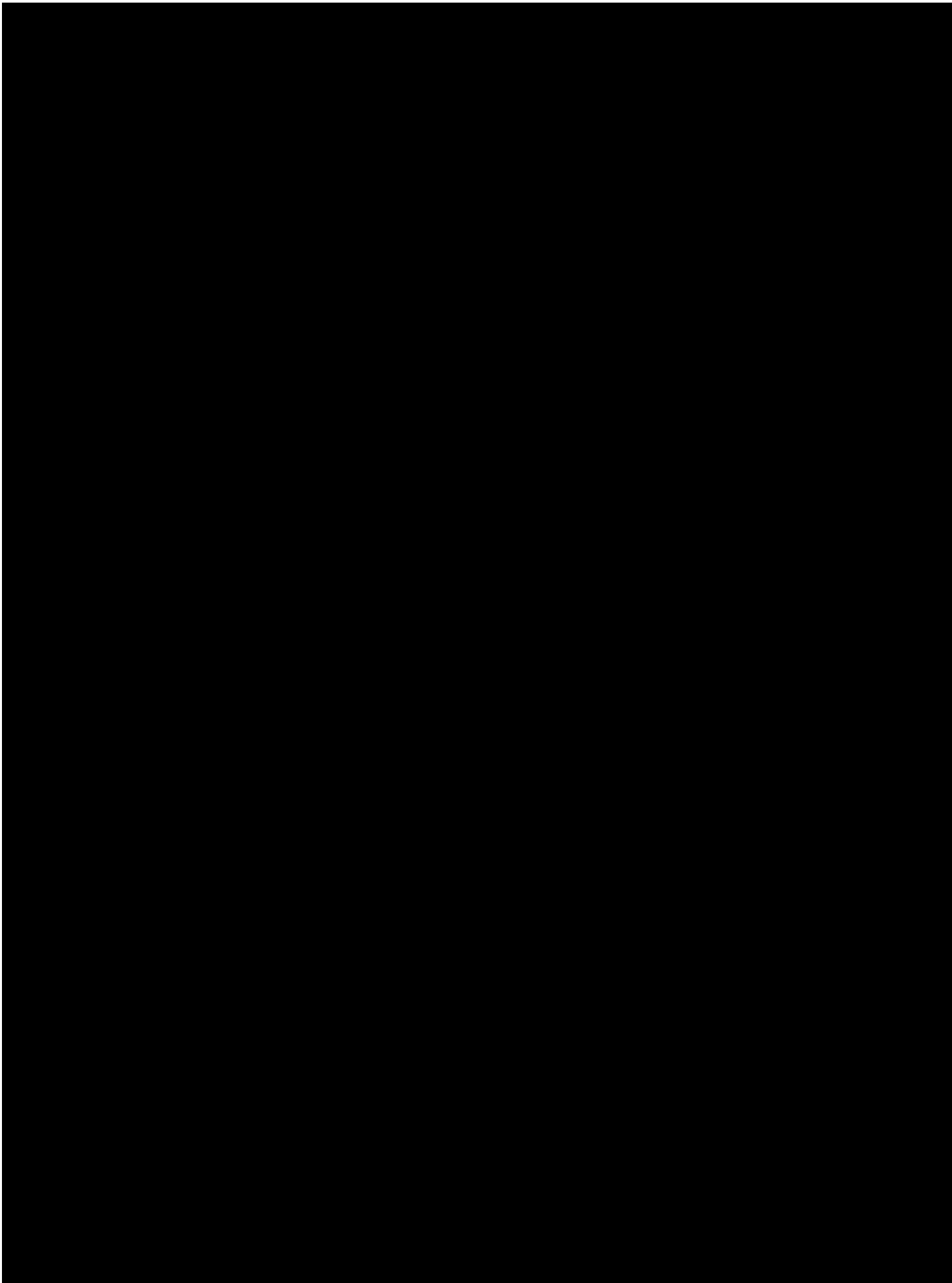
C.5 OCS-DC SPILL STOCHASTIC TRAJECTORY

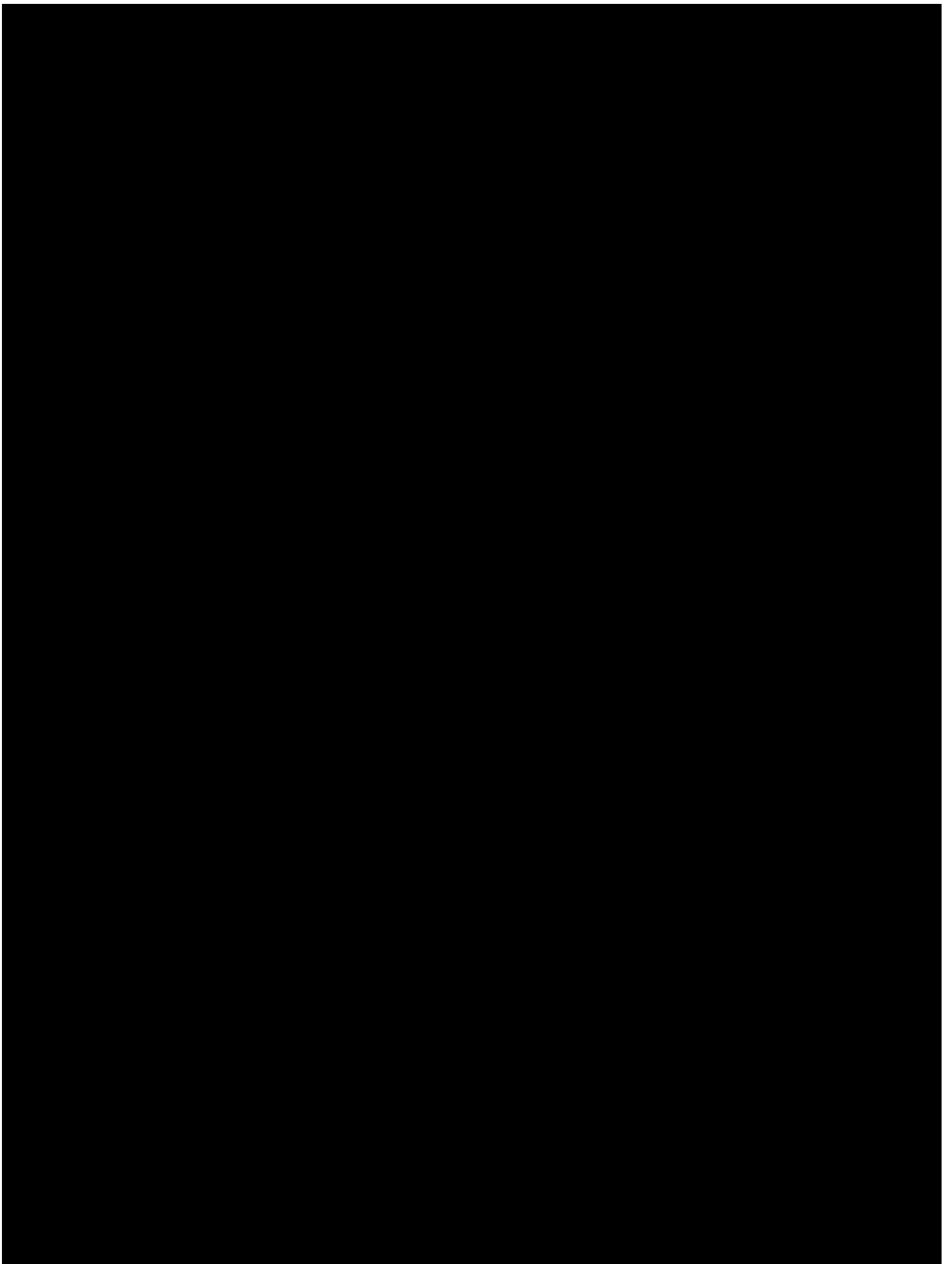
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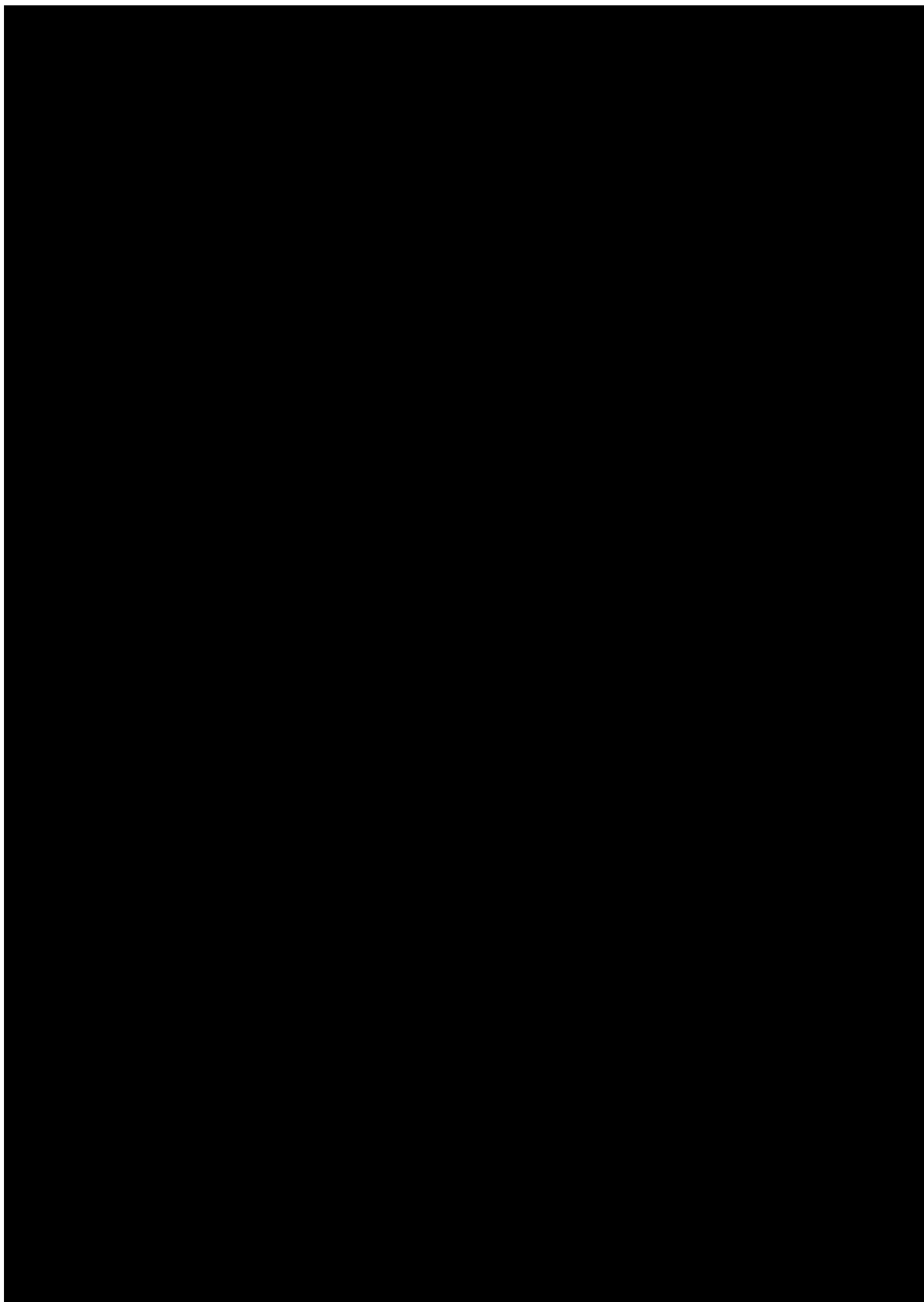


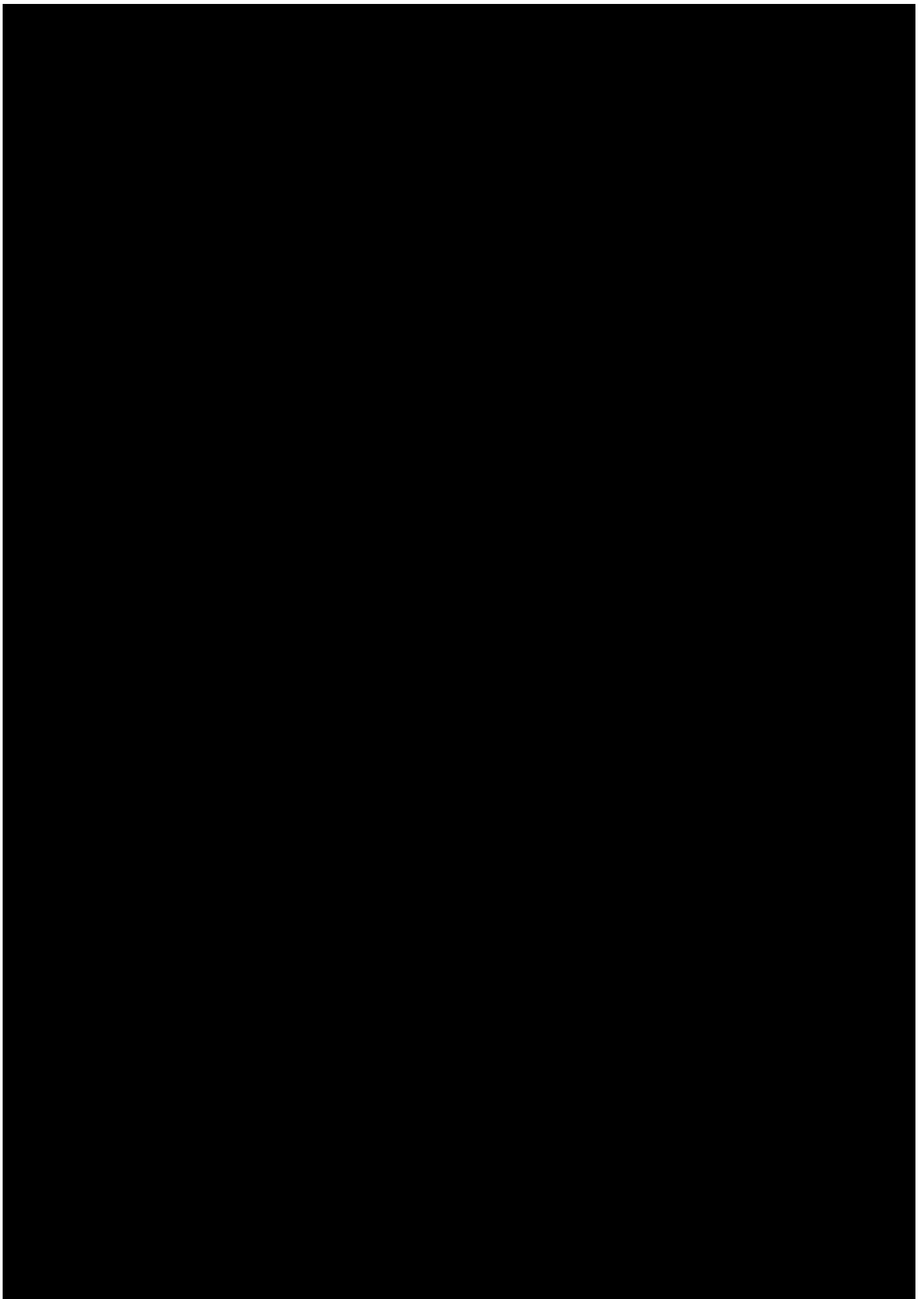


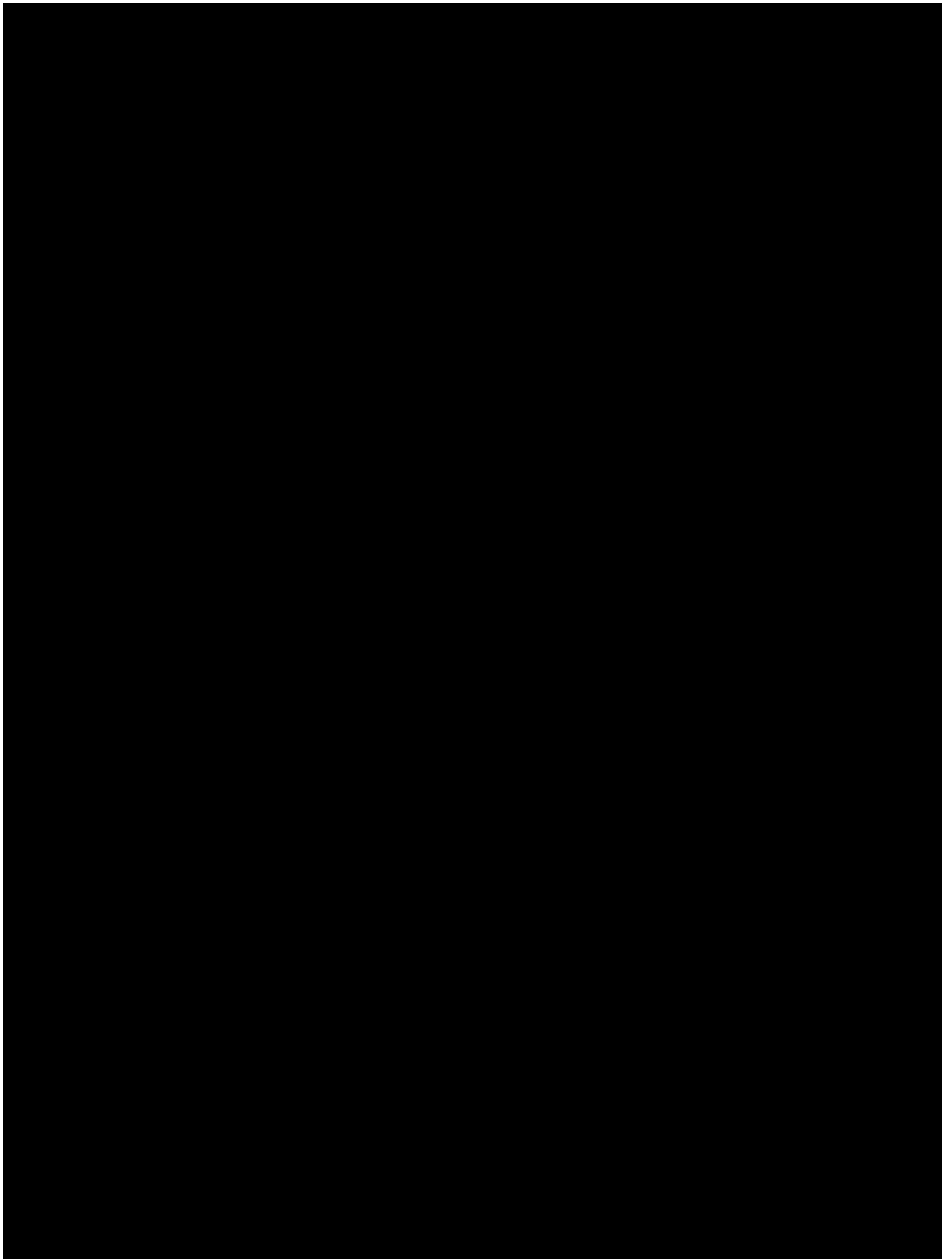


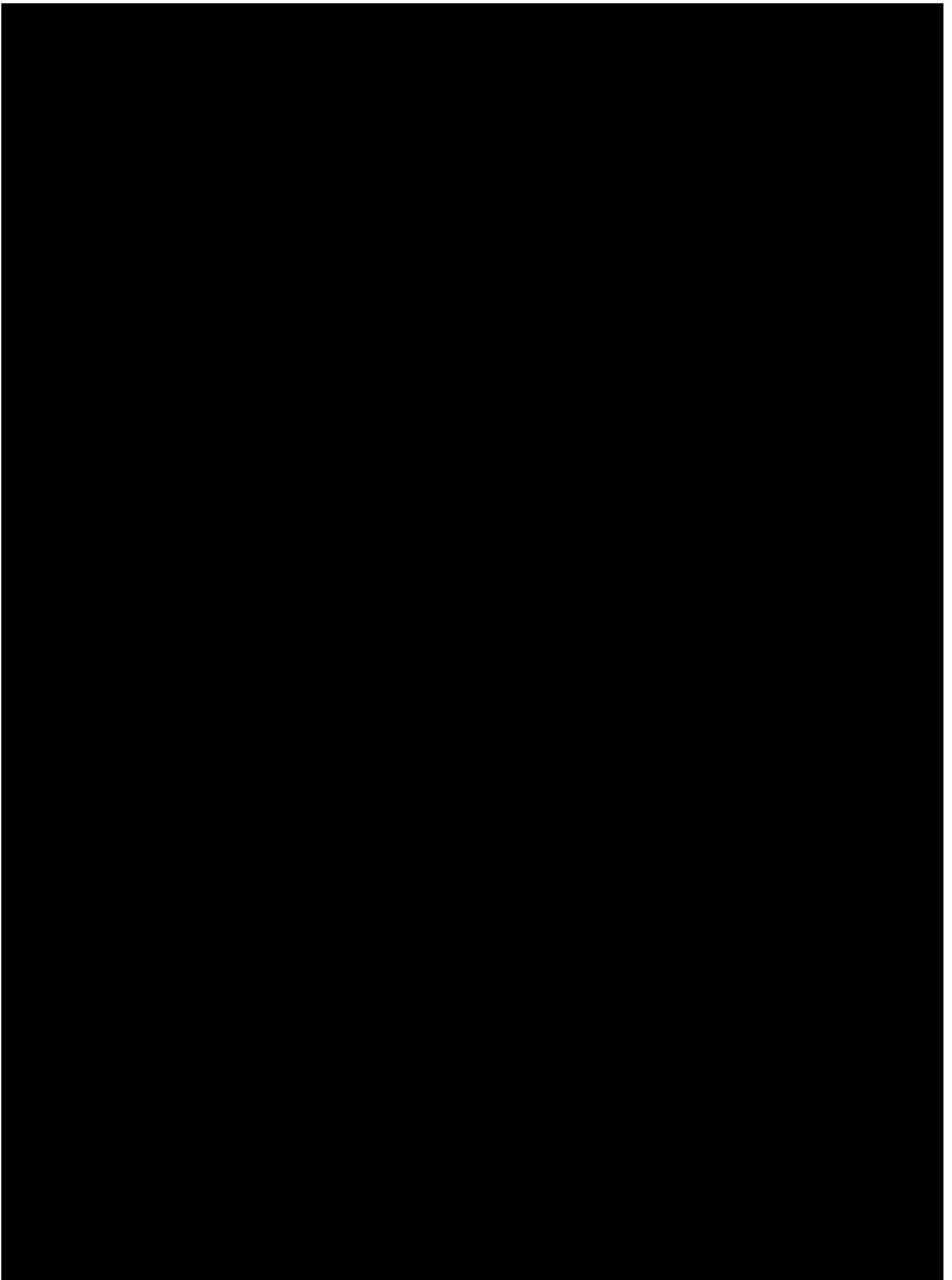


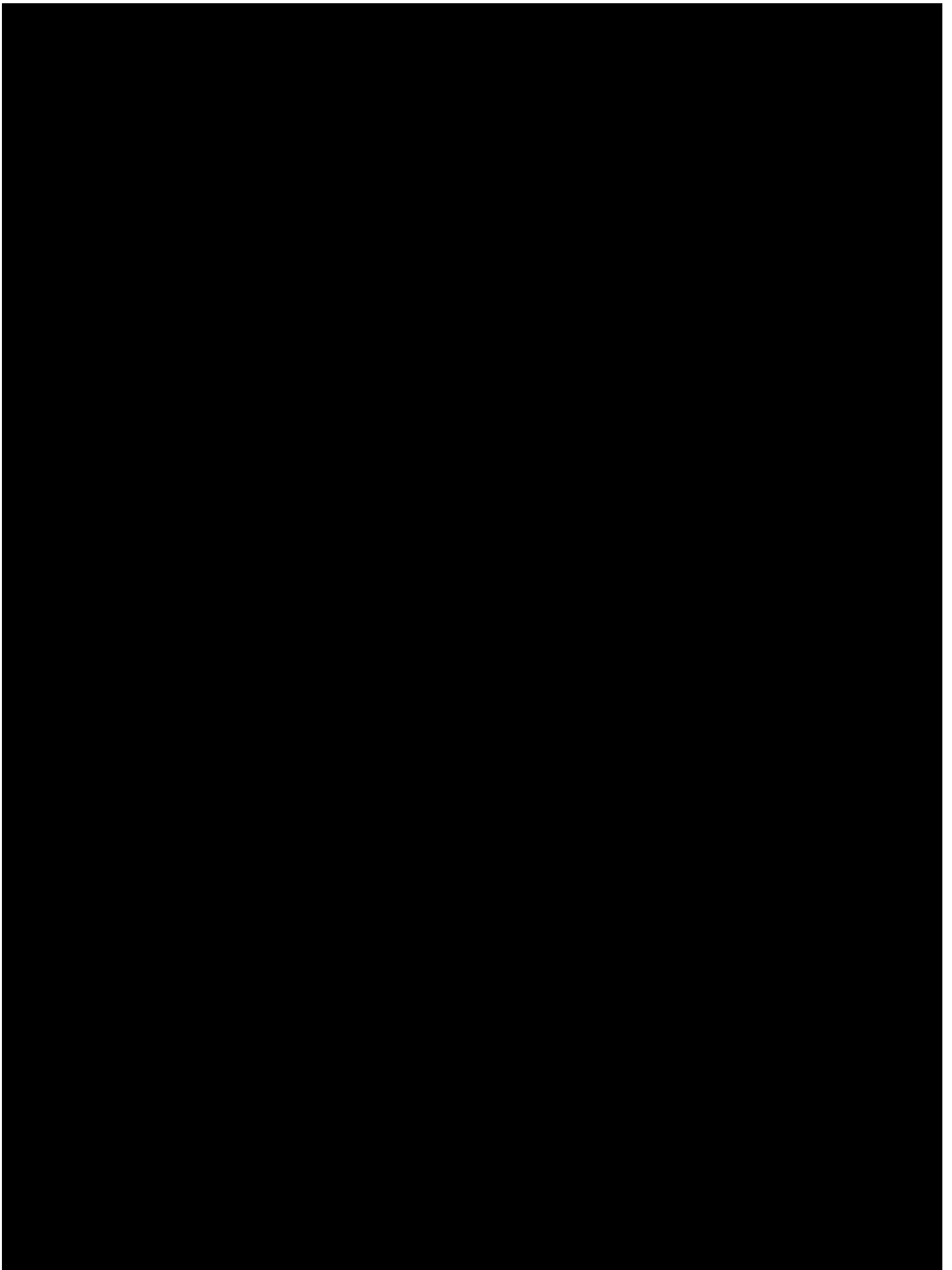


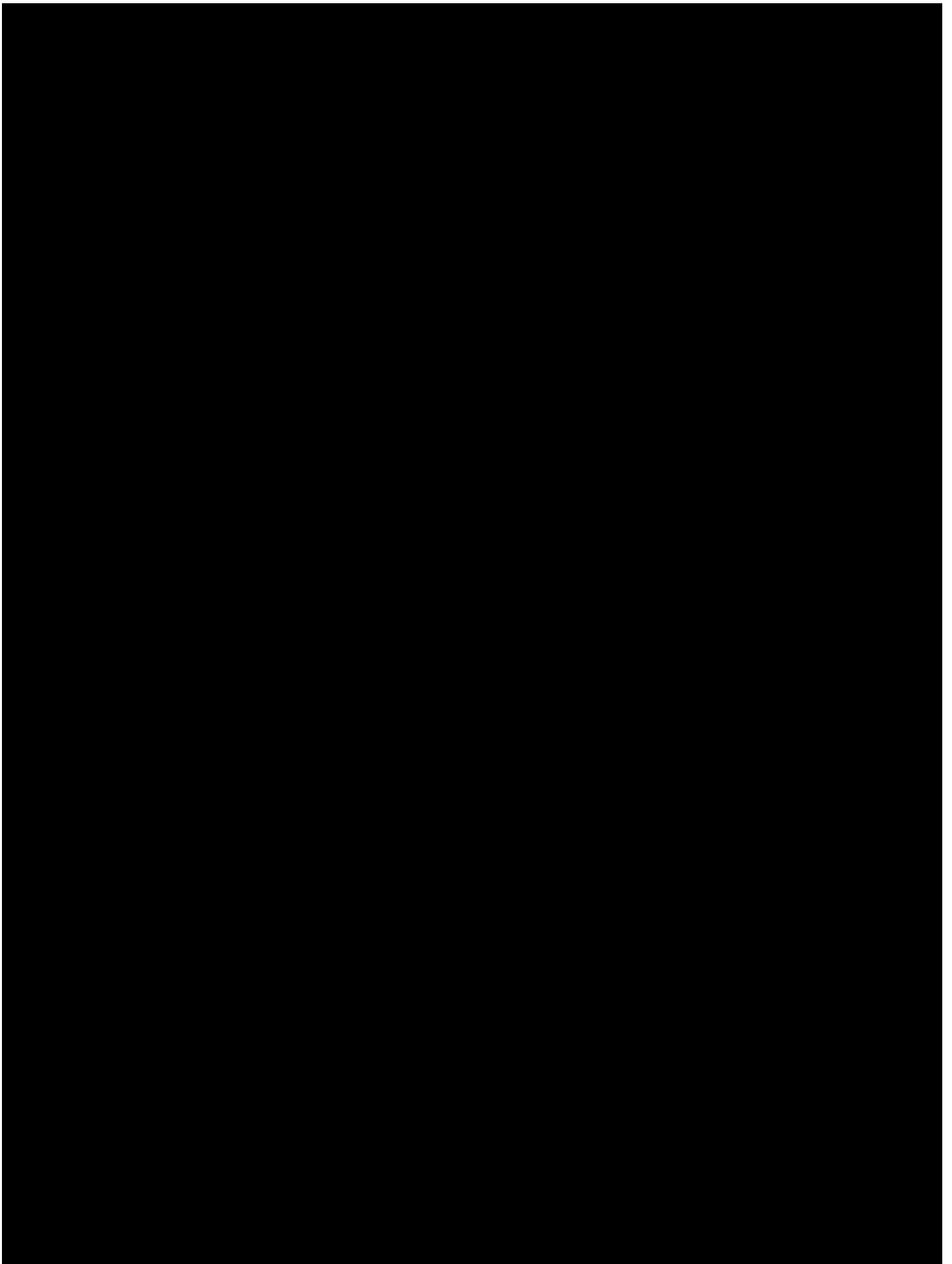


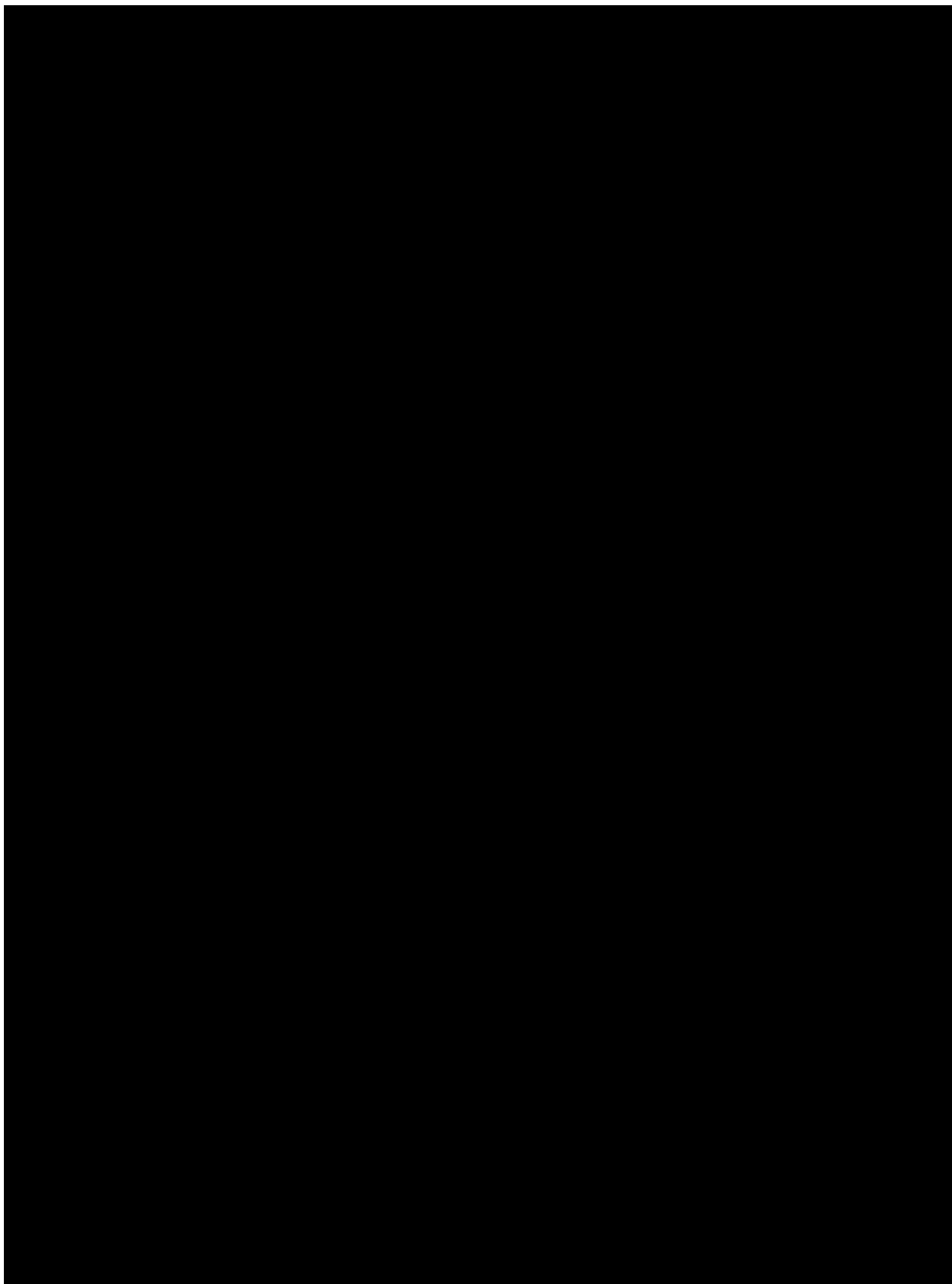


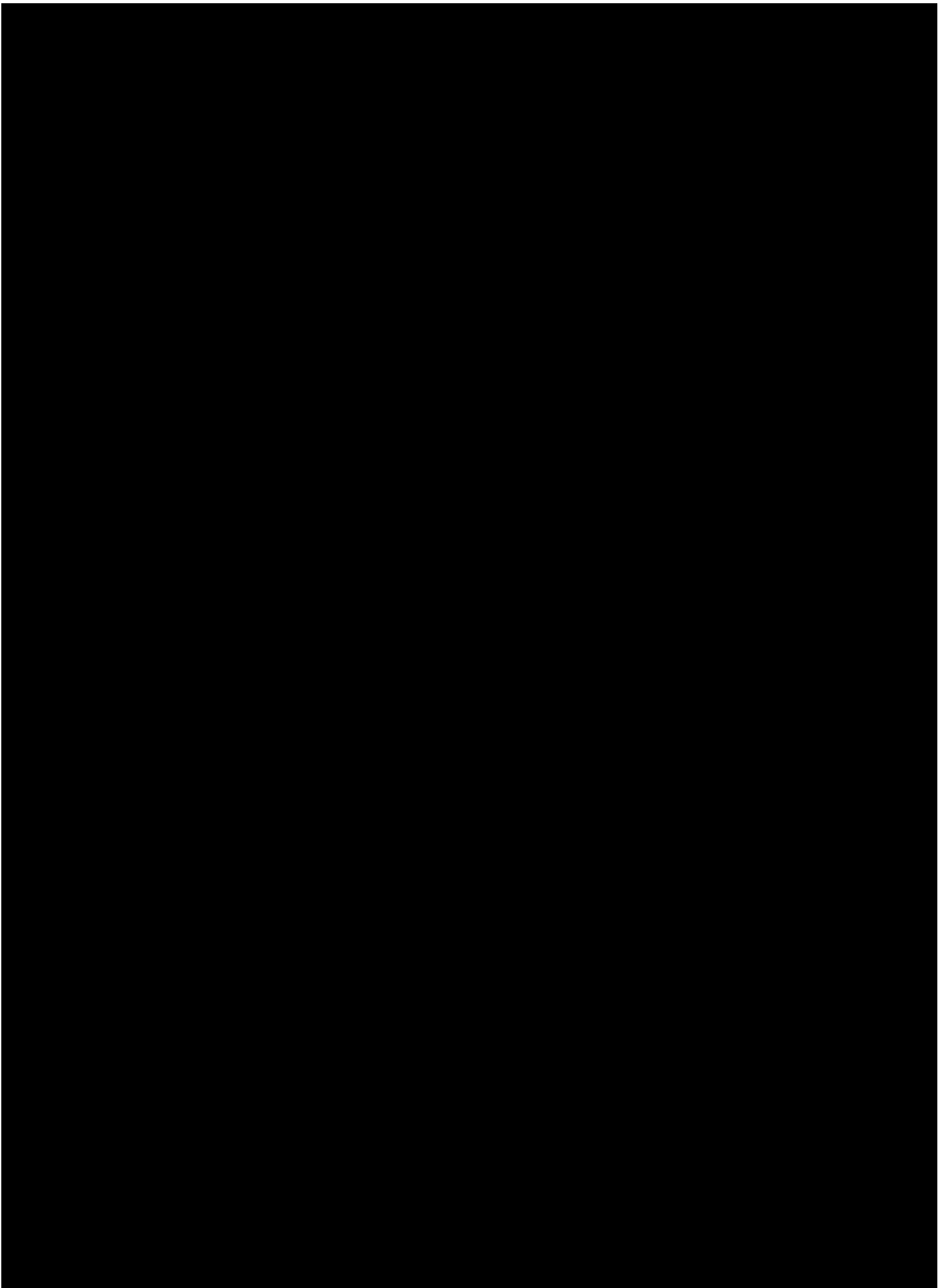


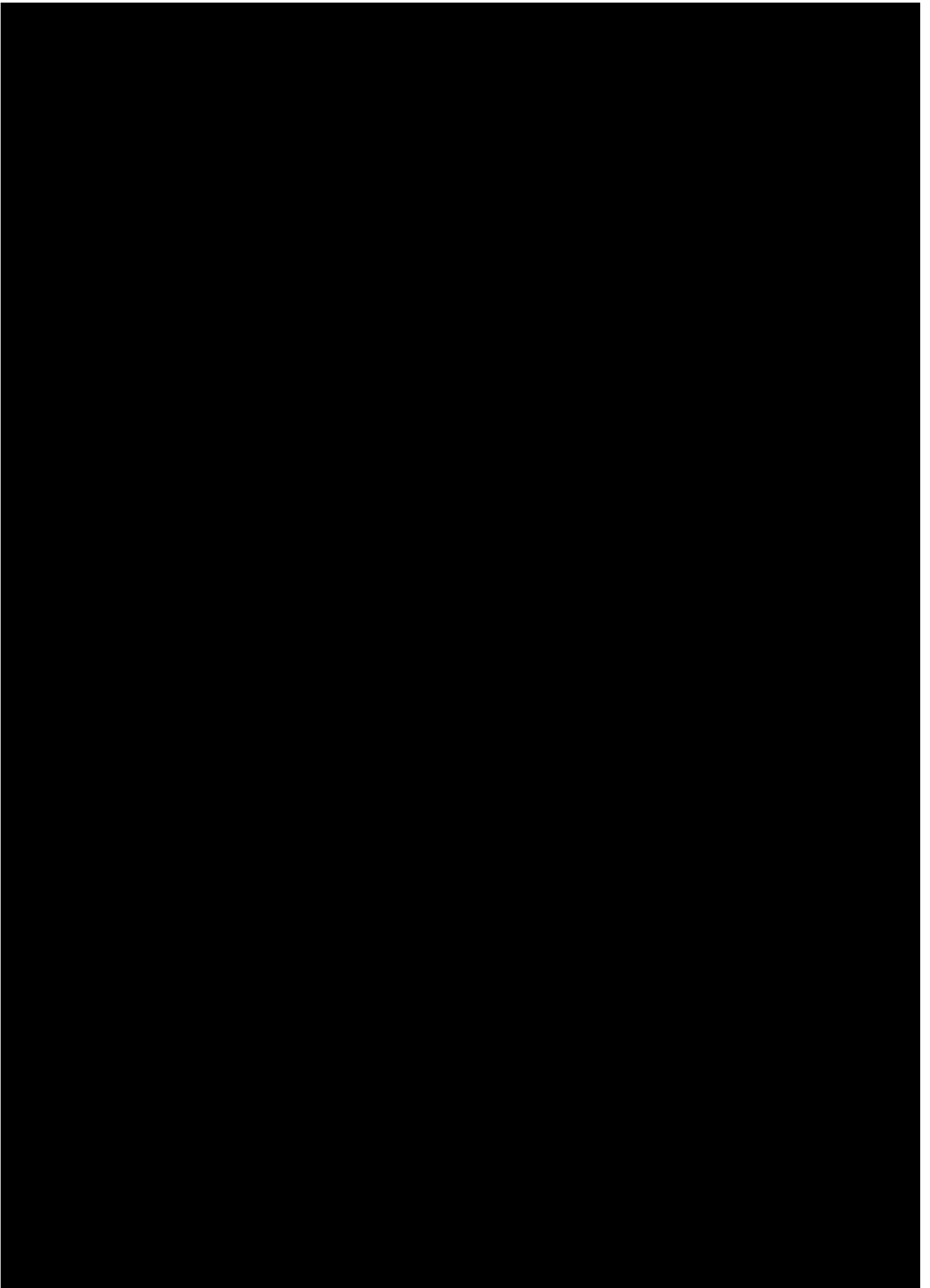


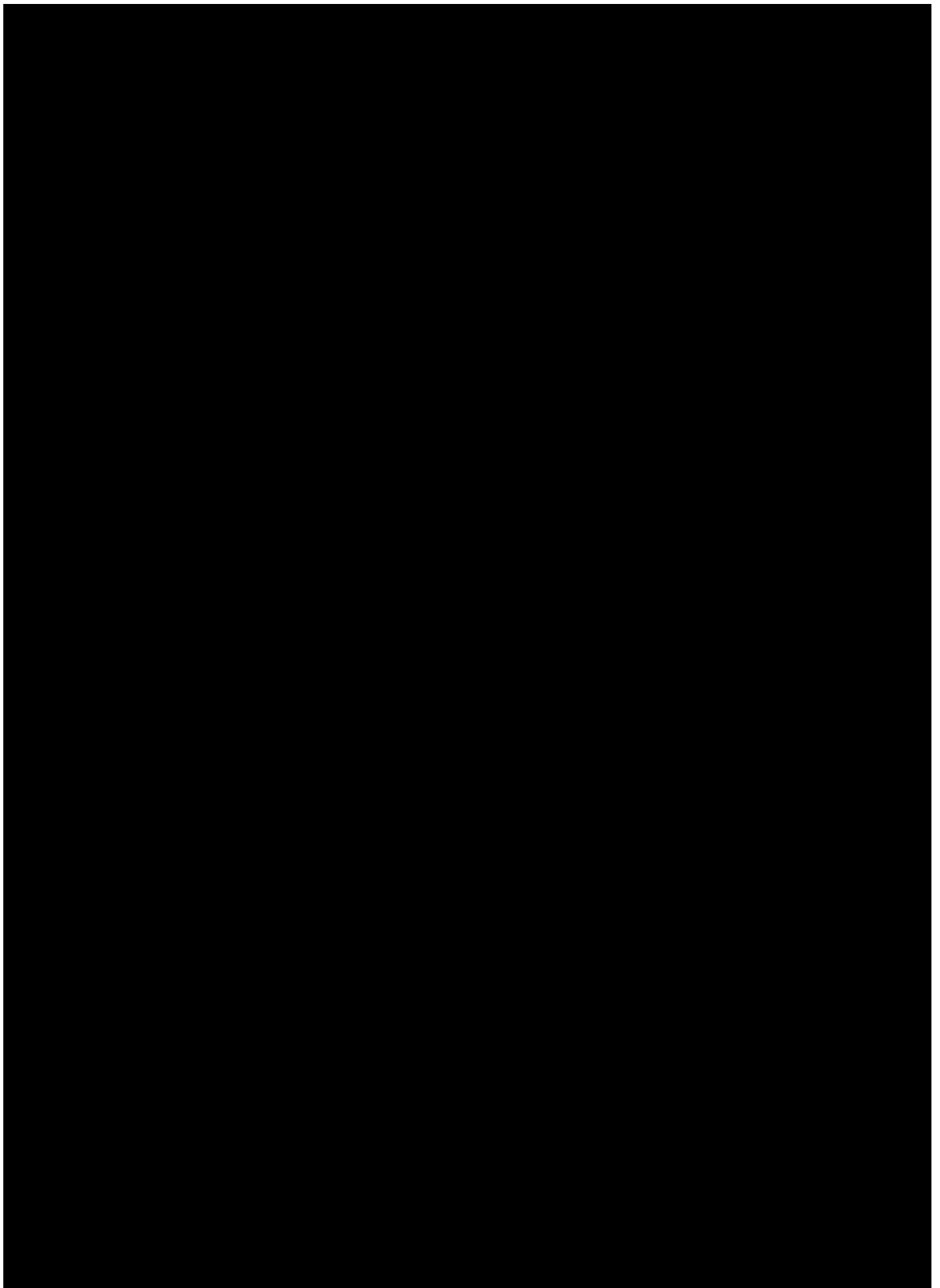


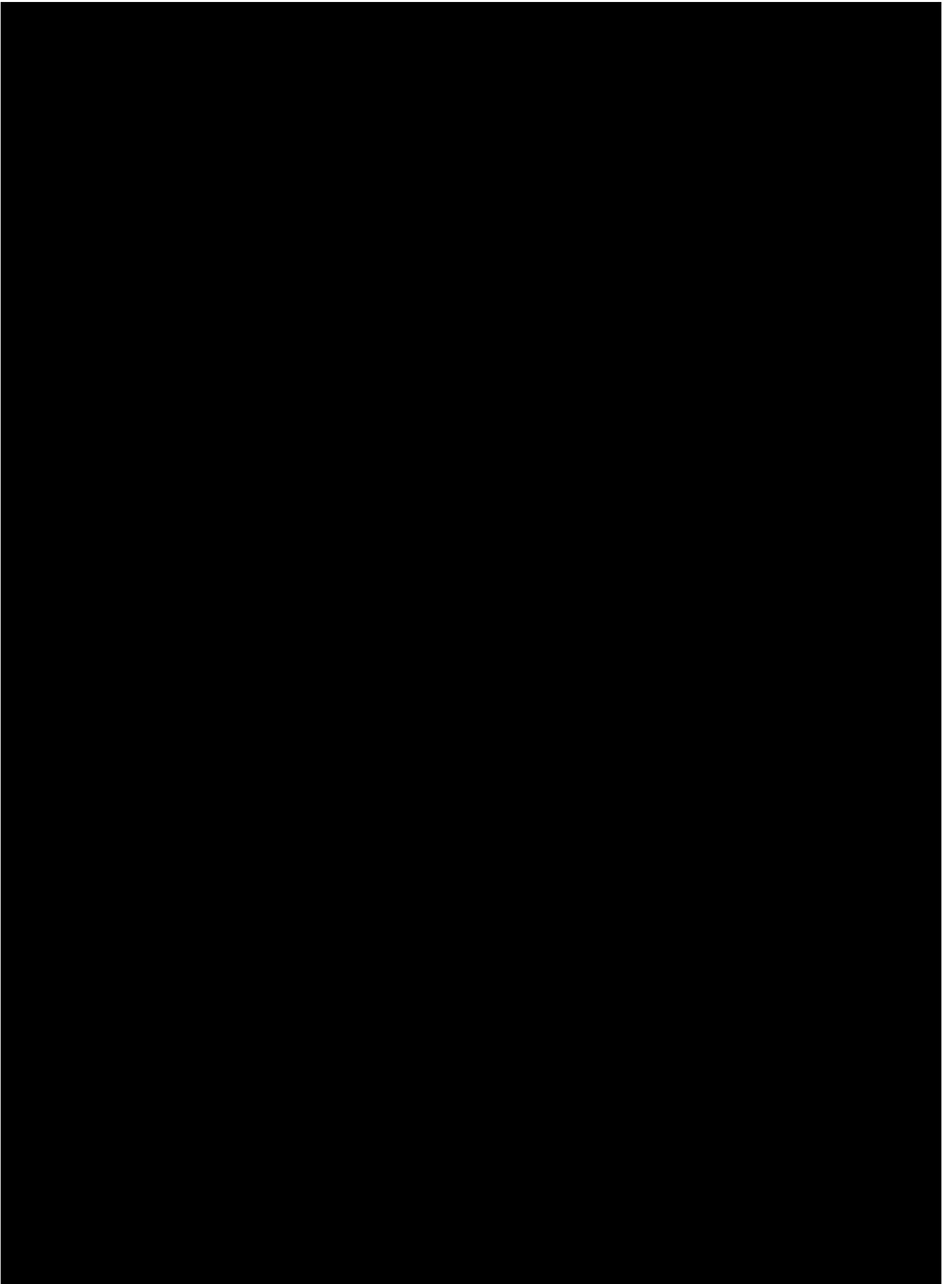


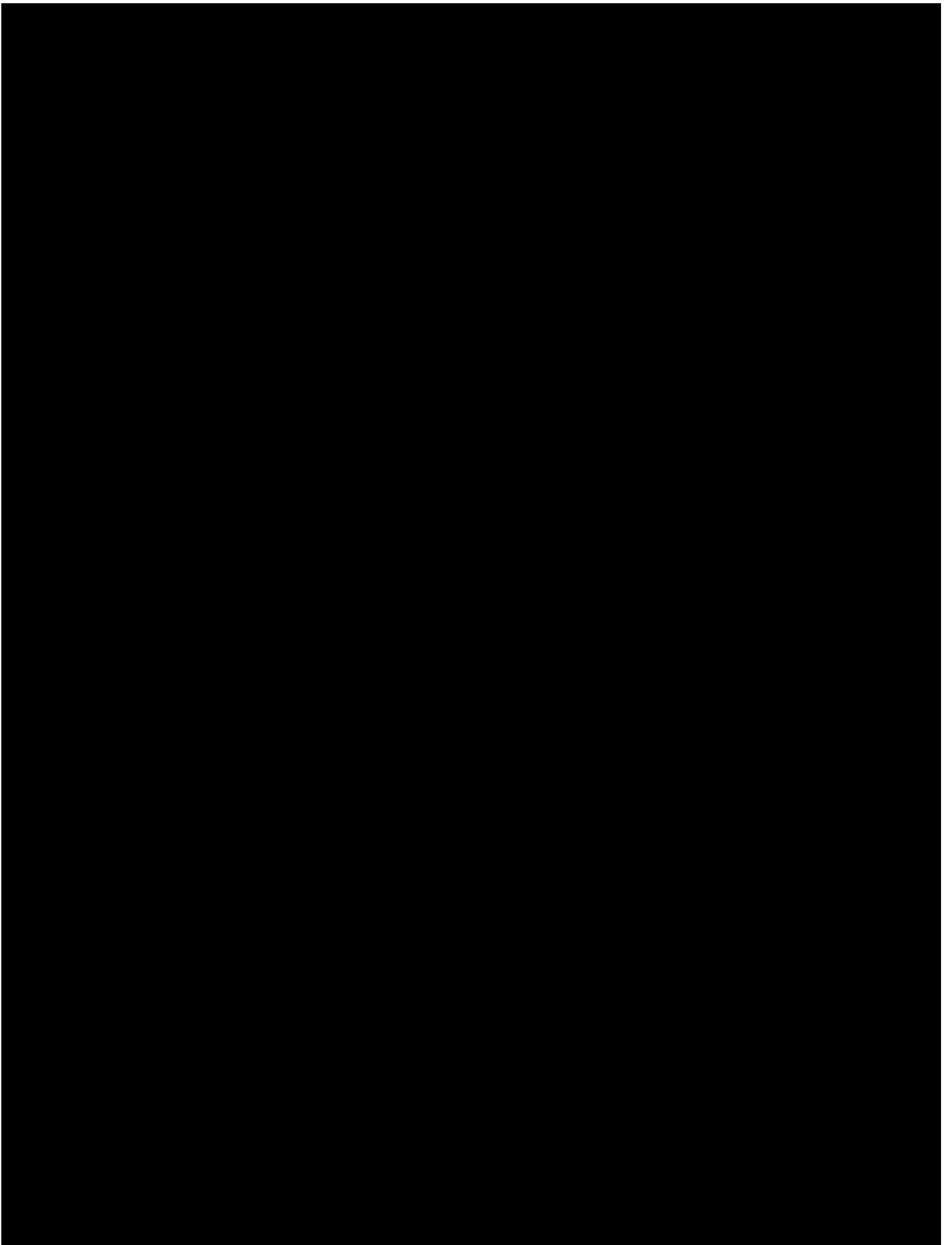


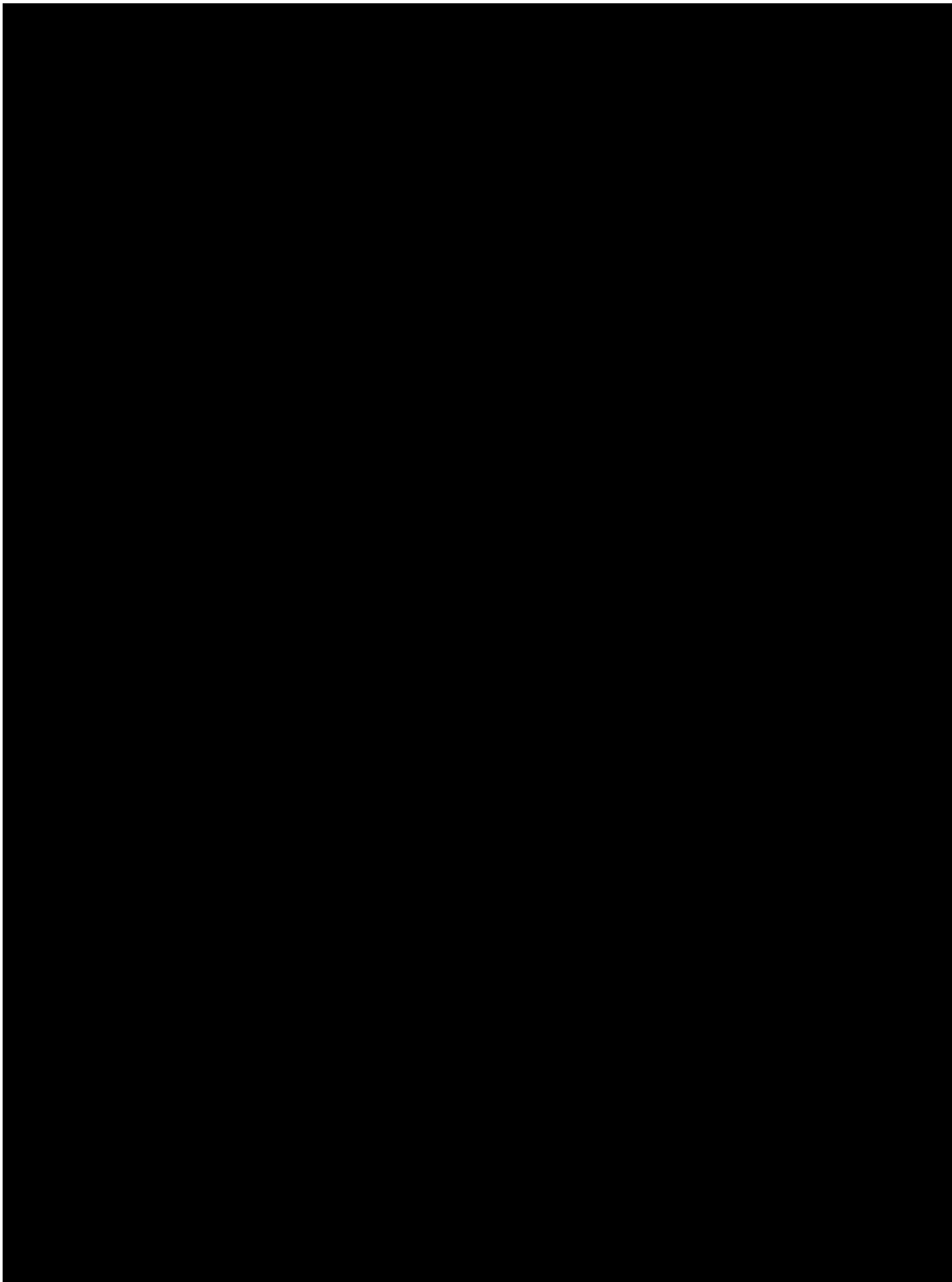


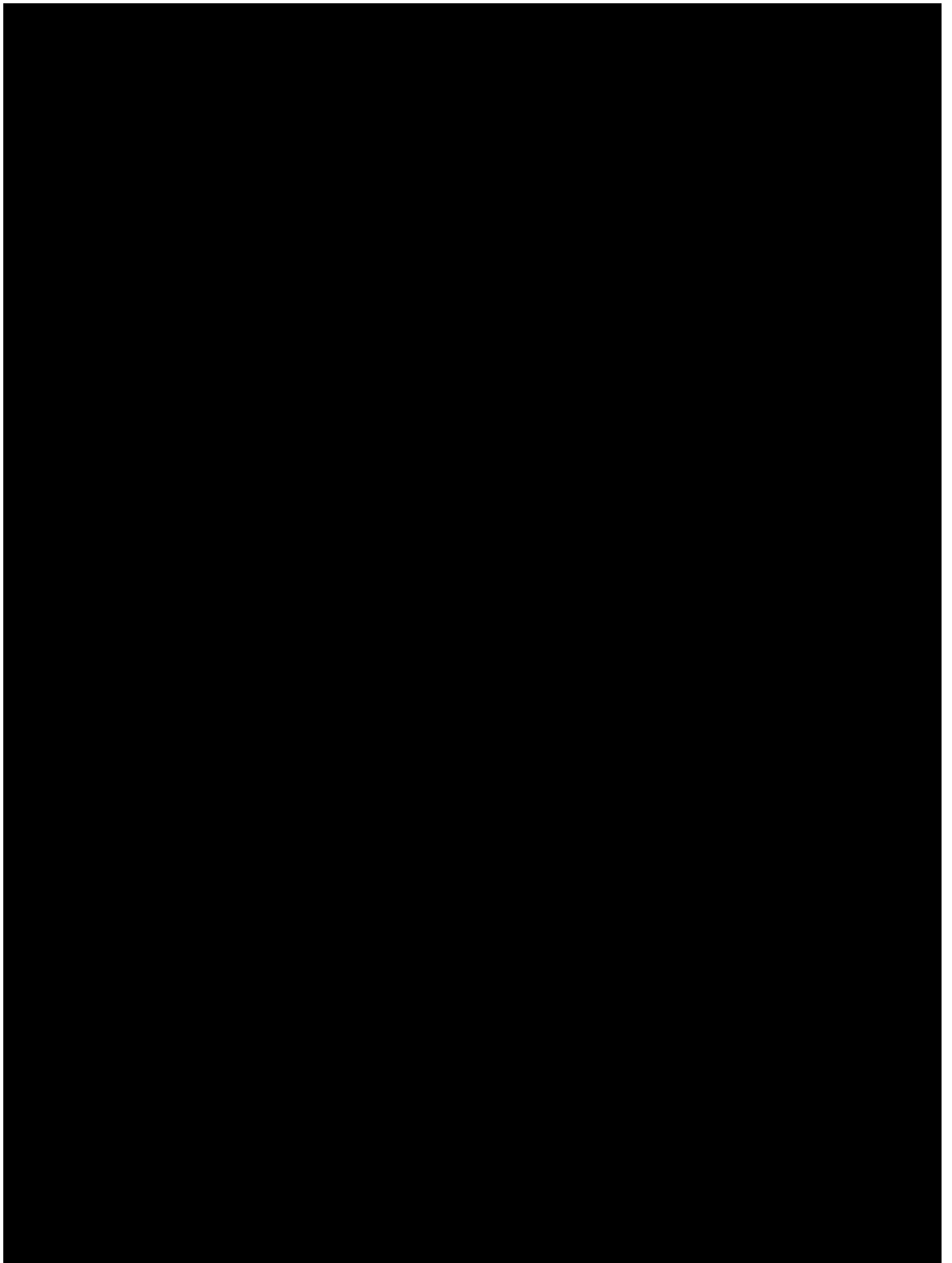


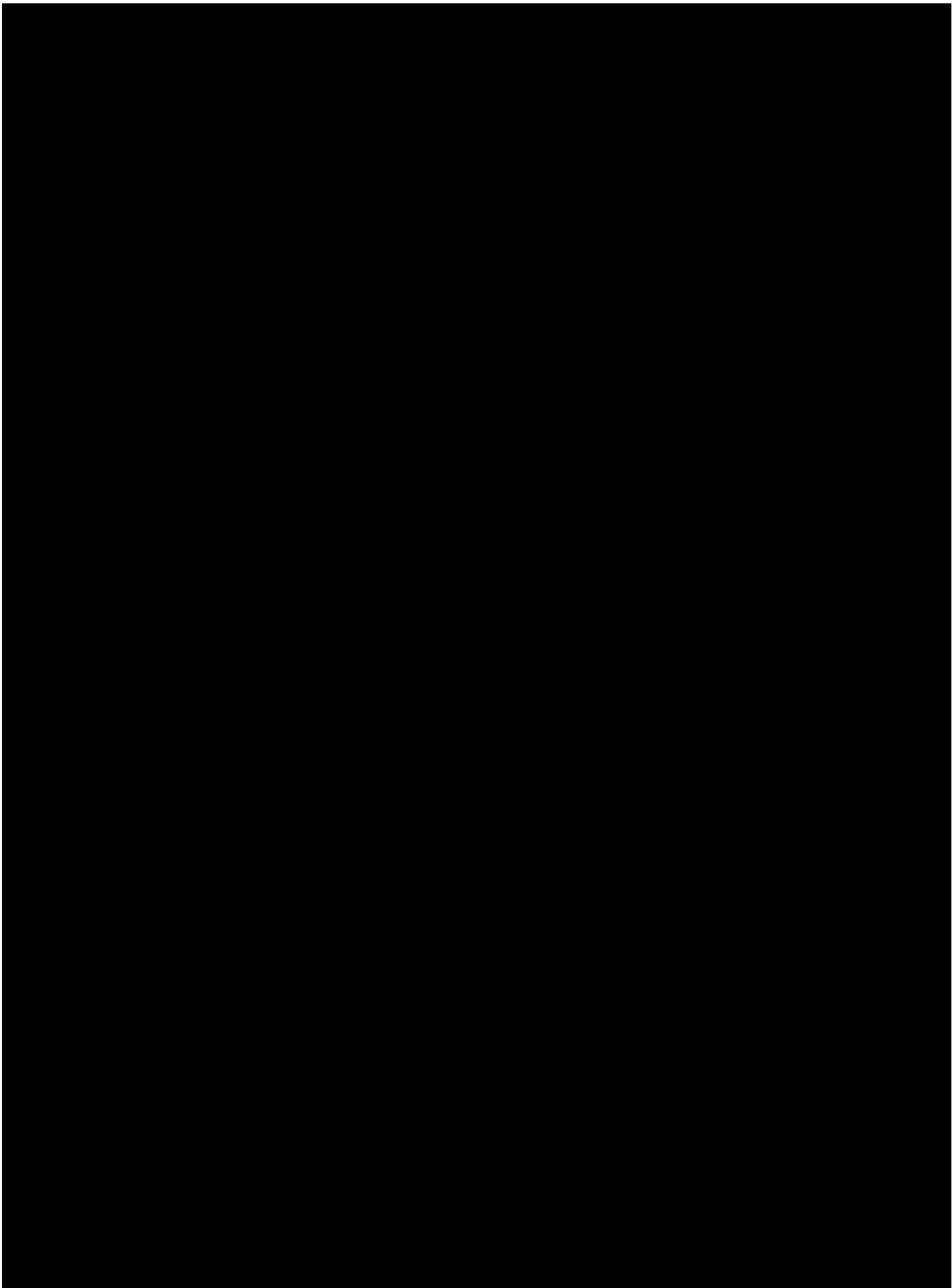


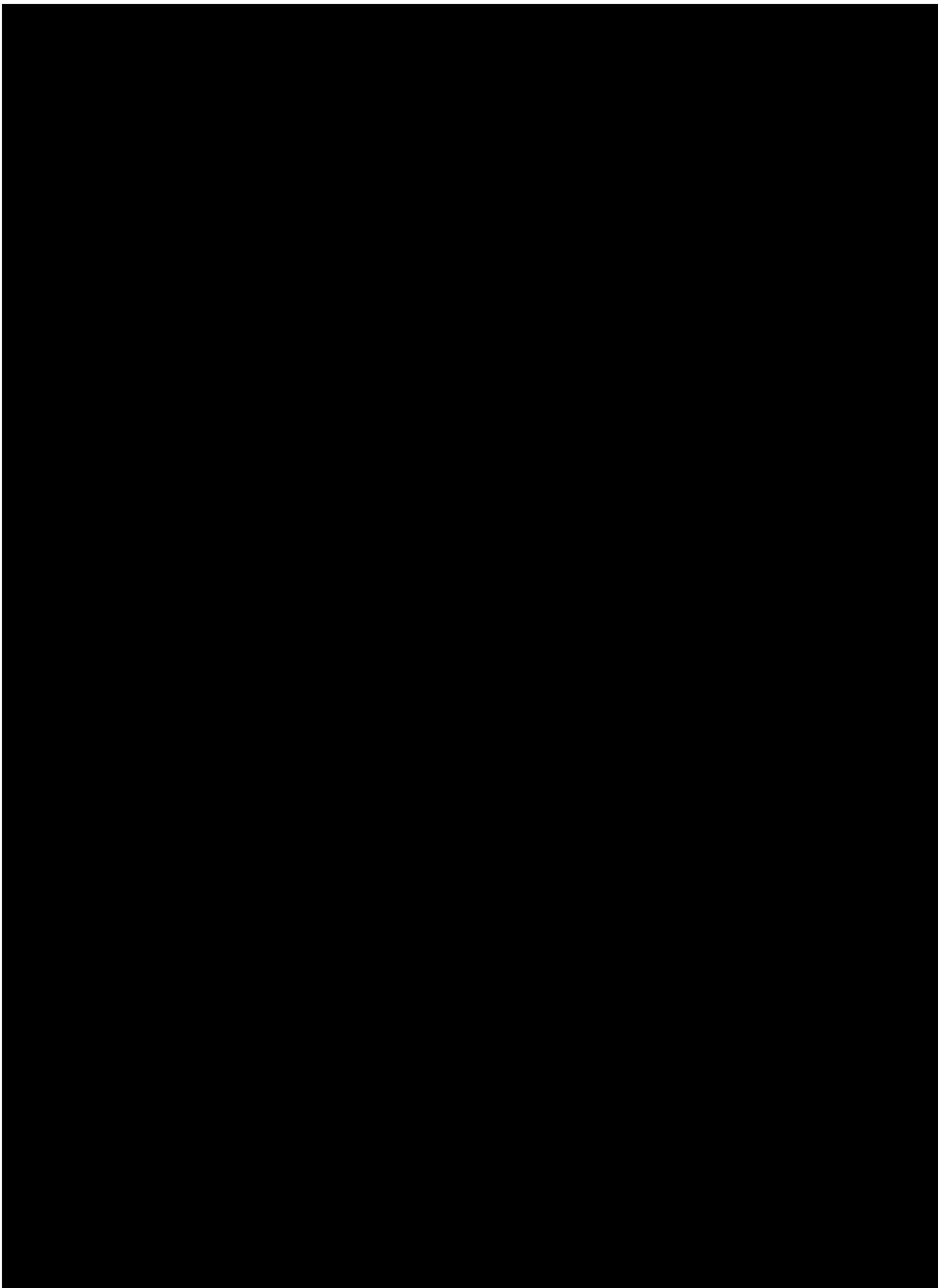


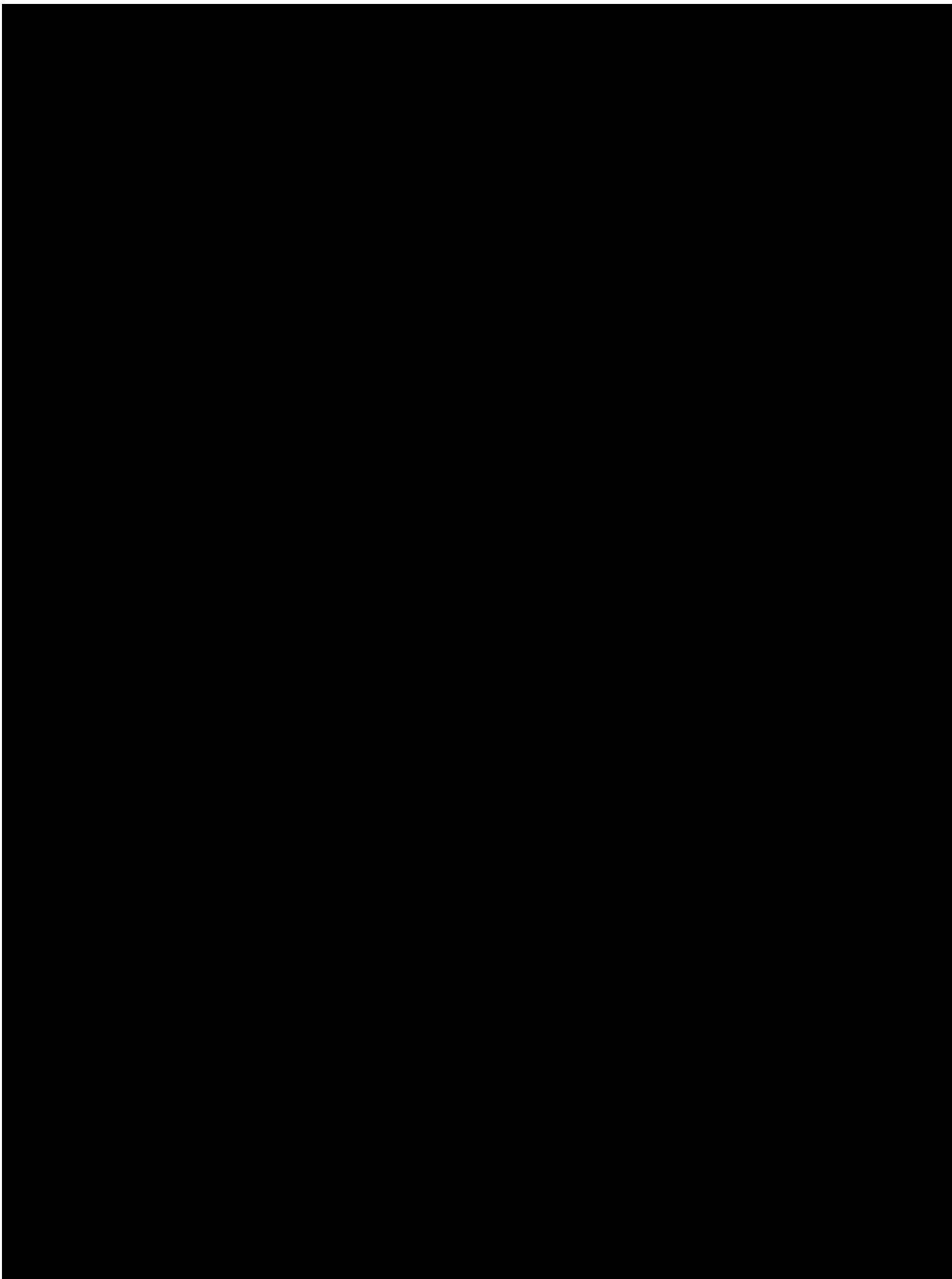


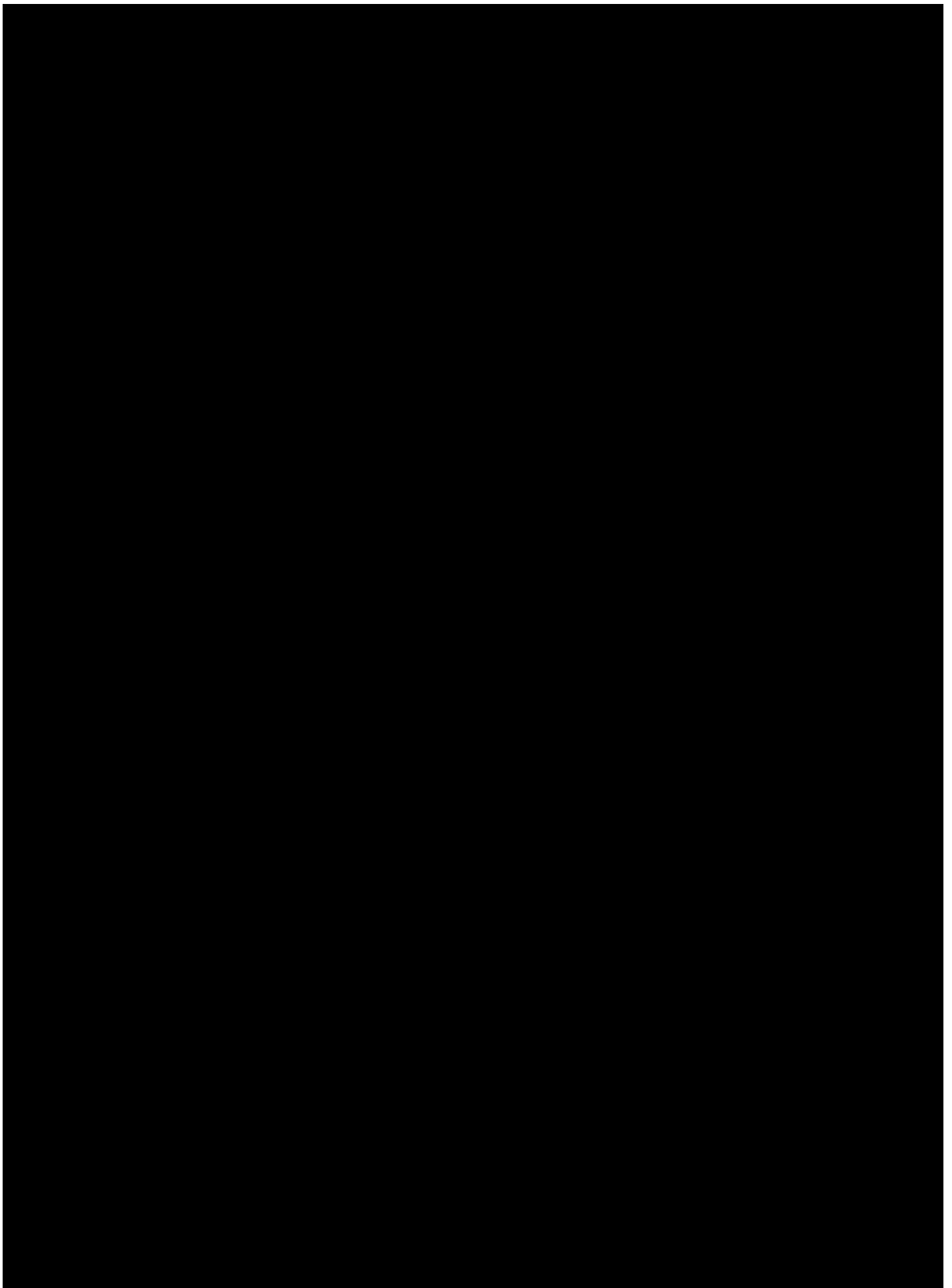


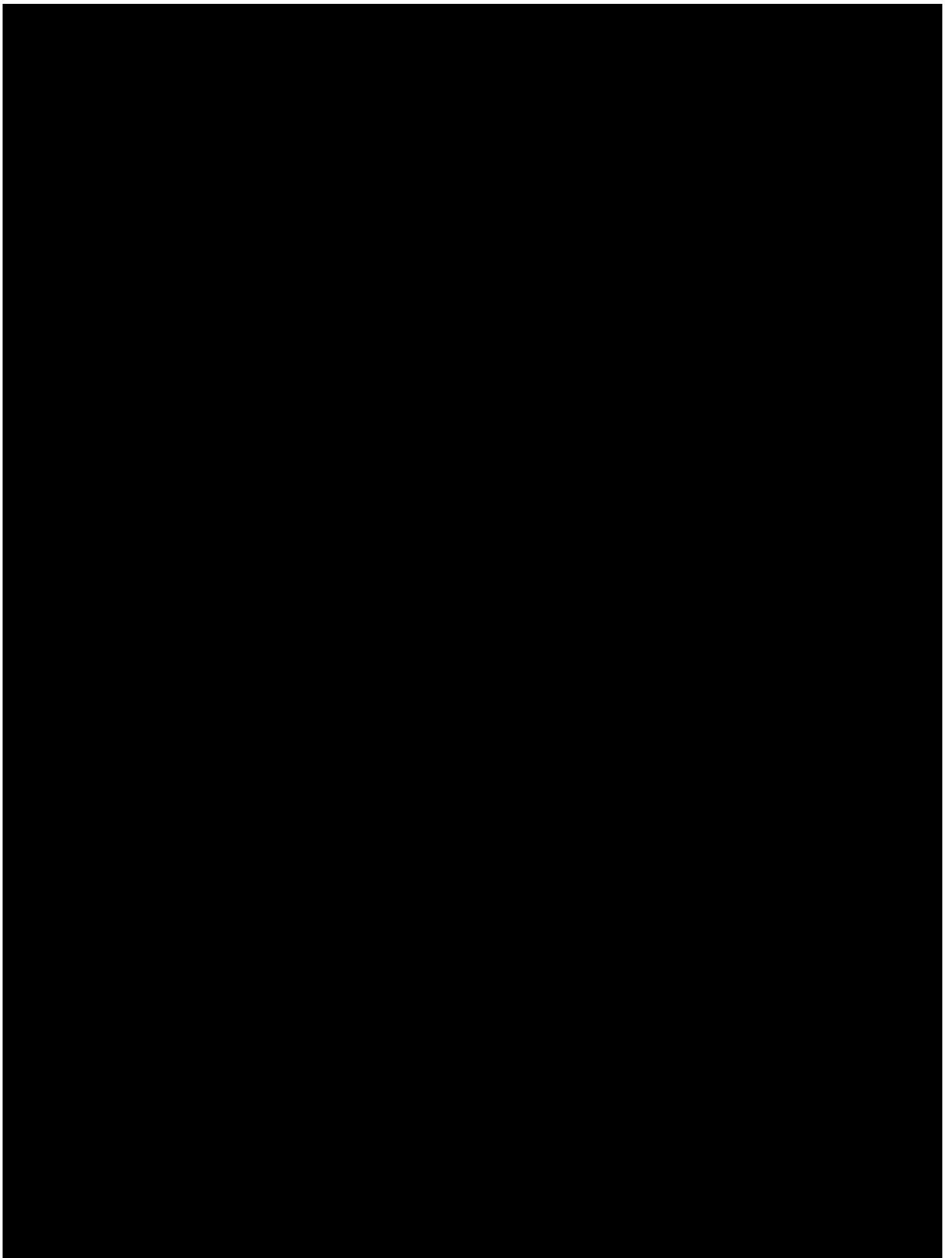


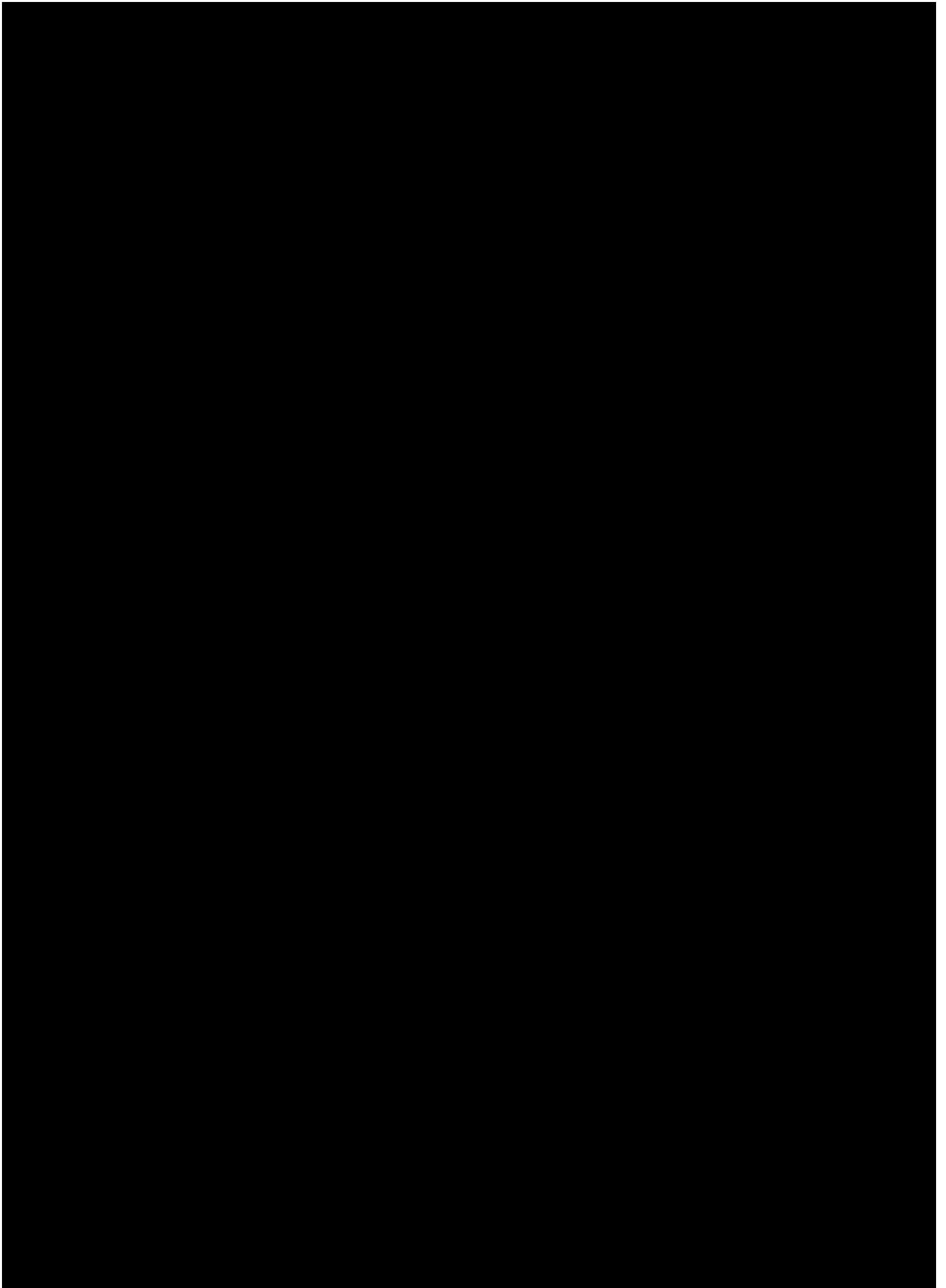


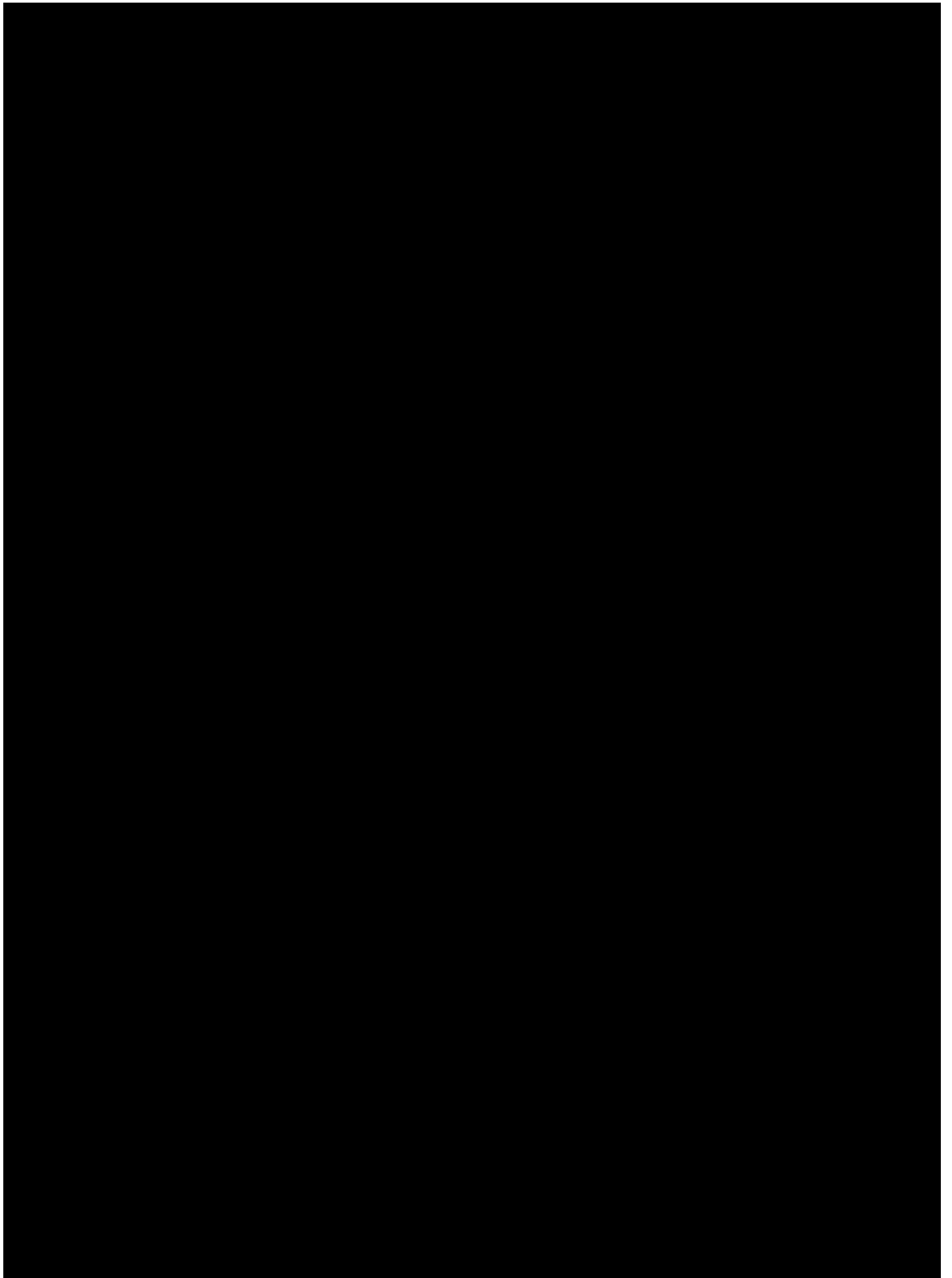


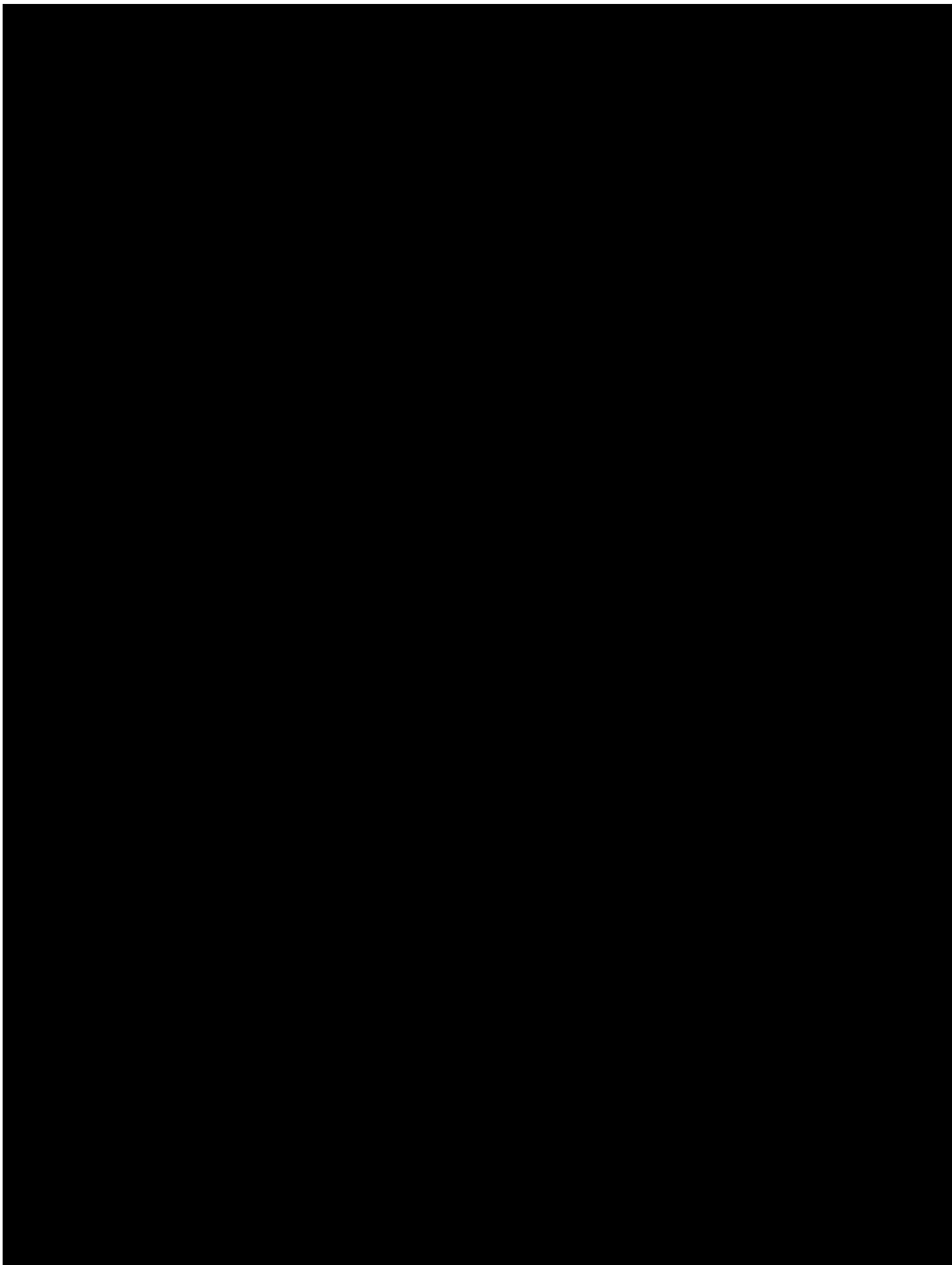


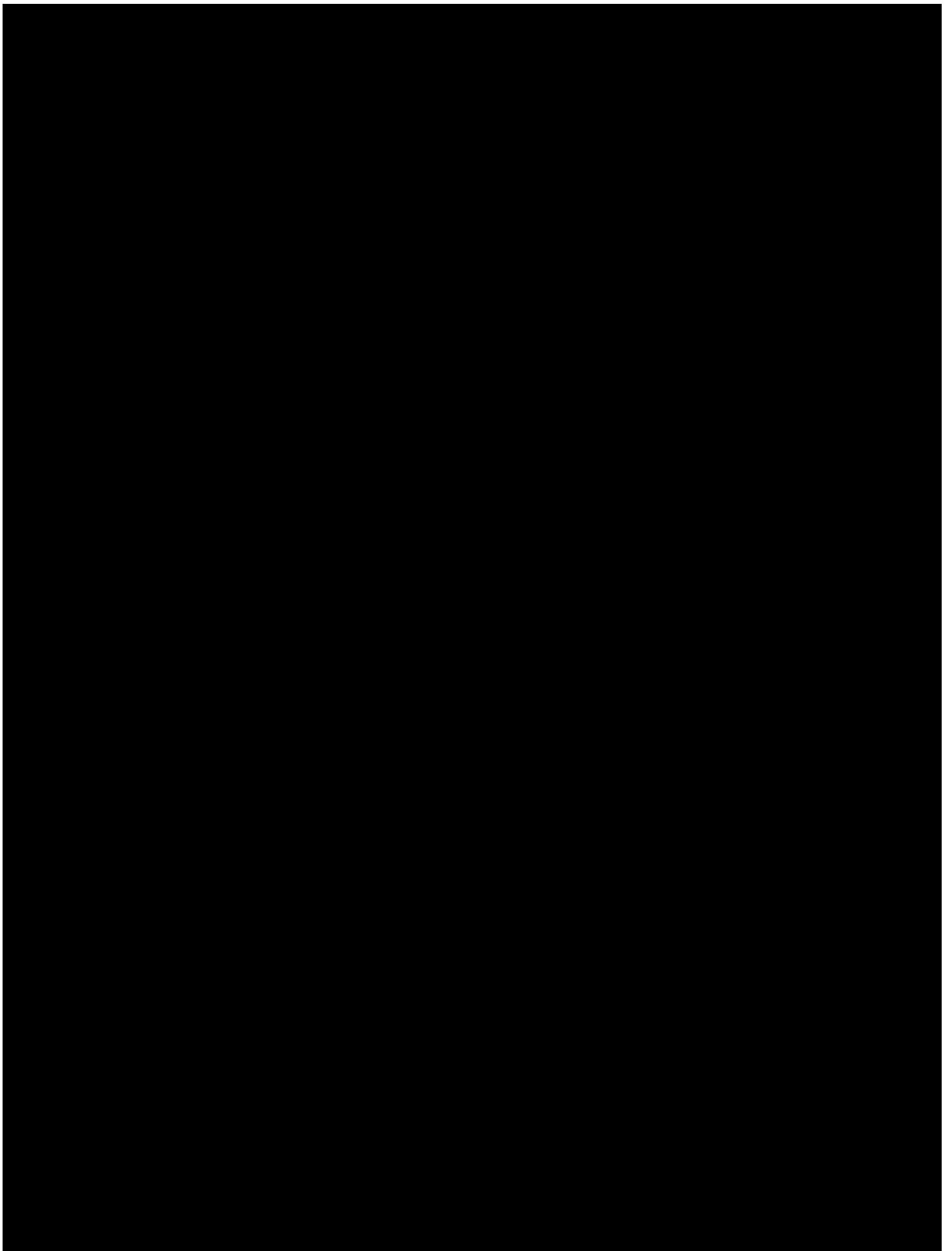


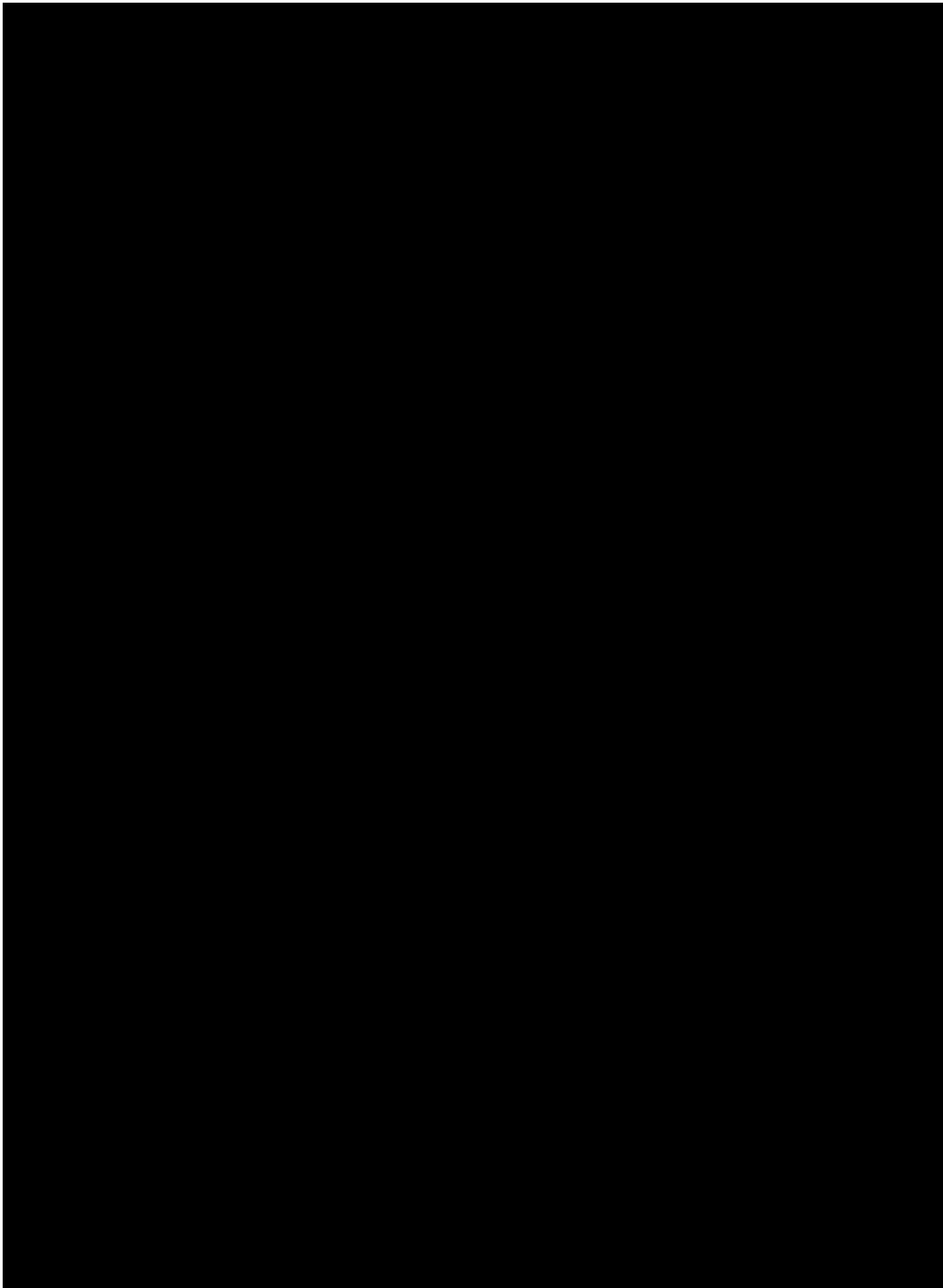


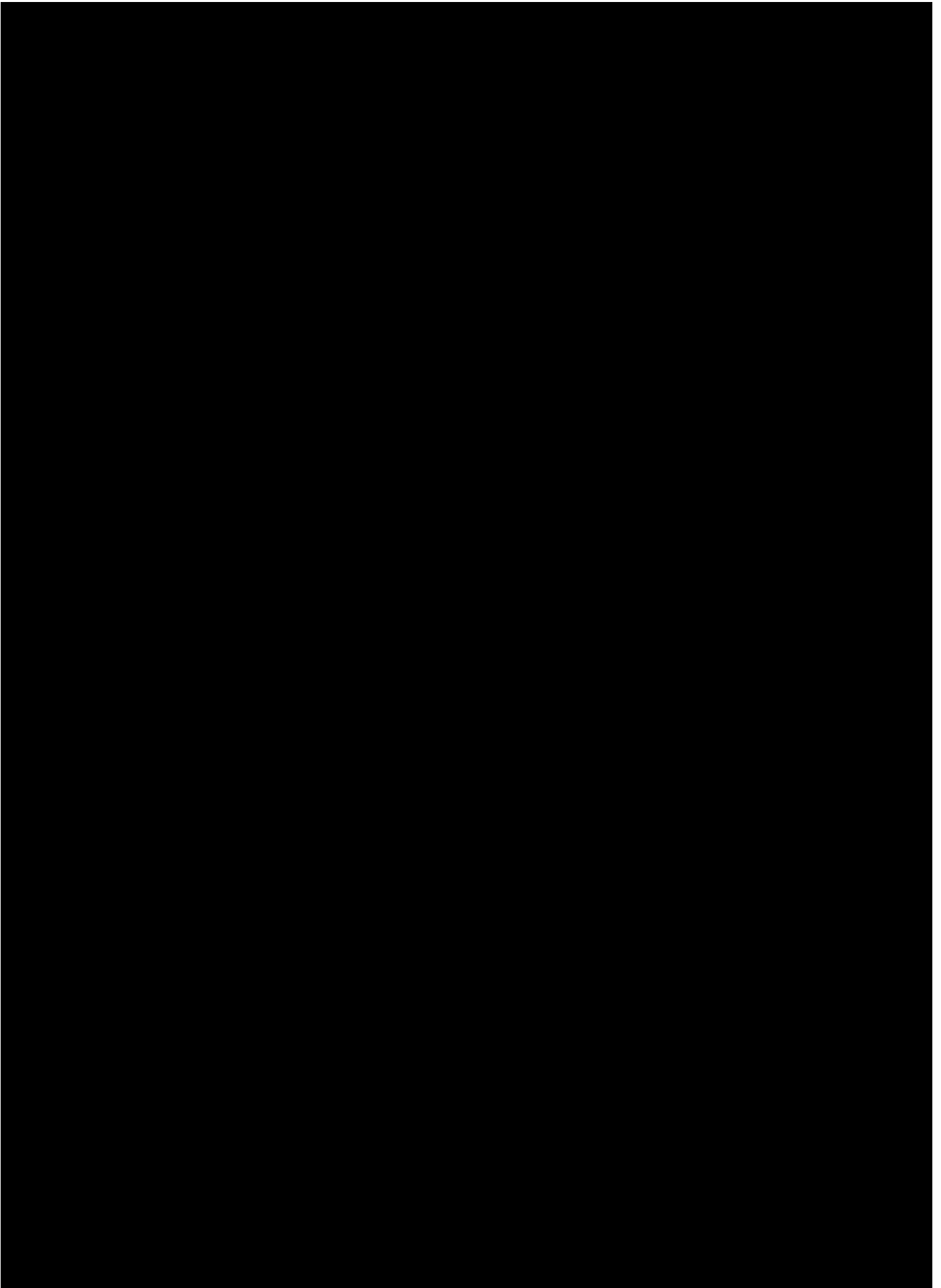


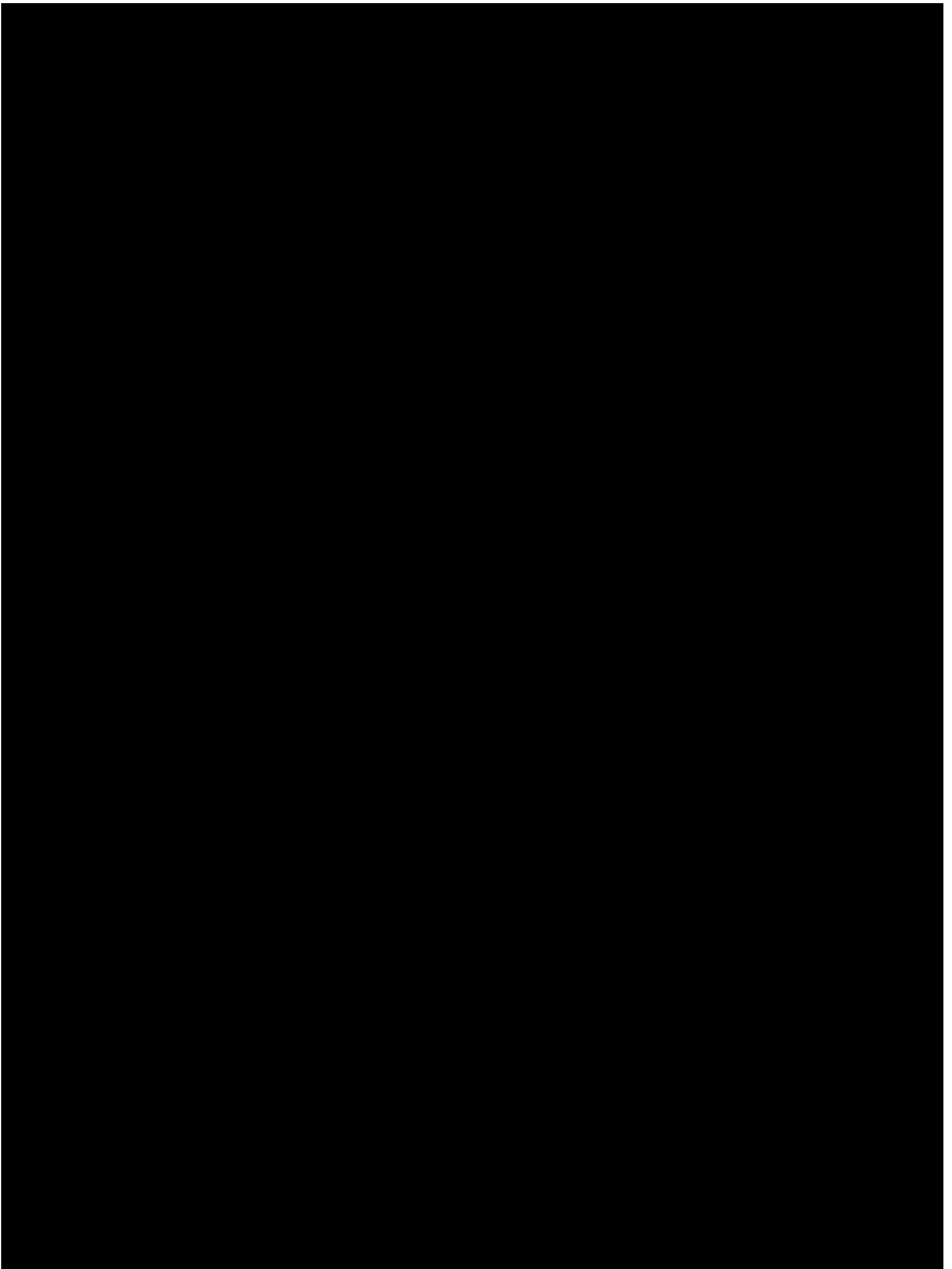


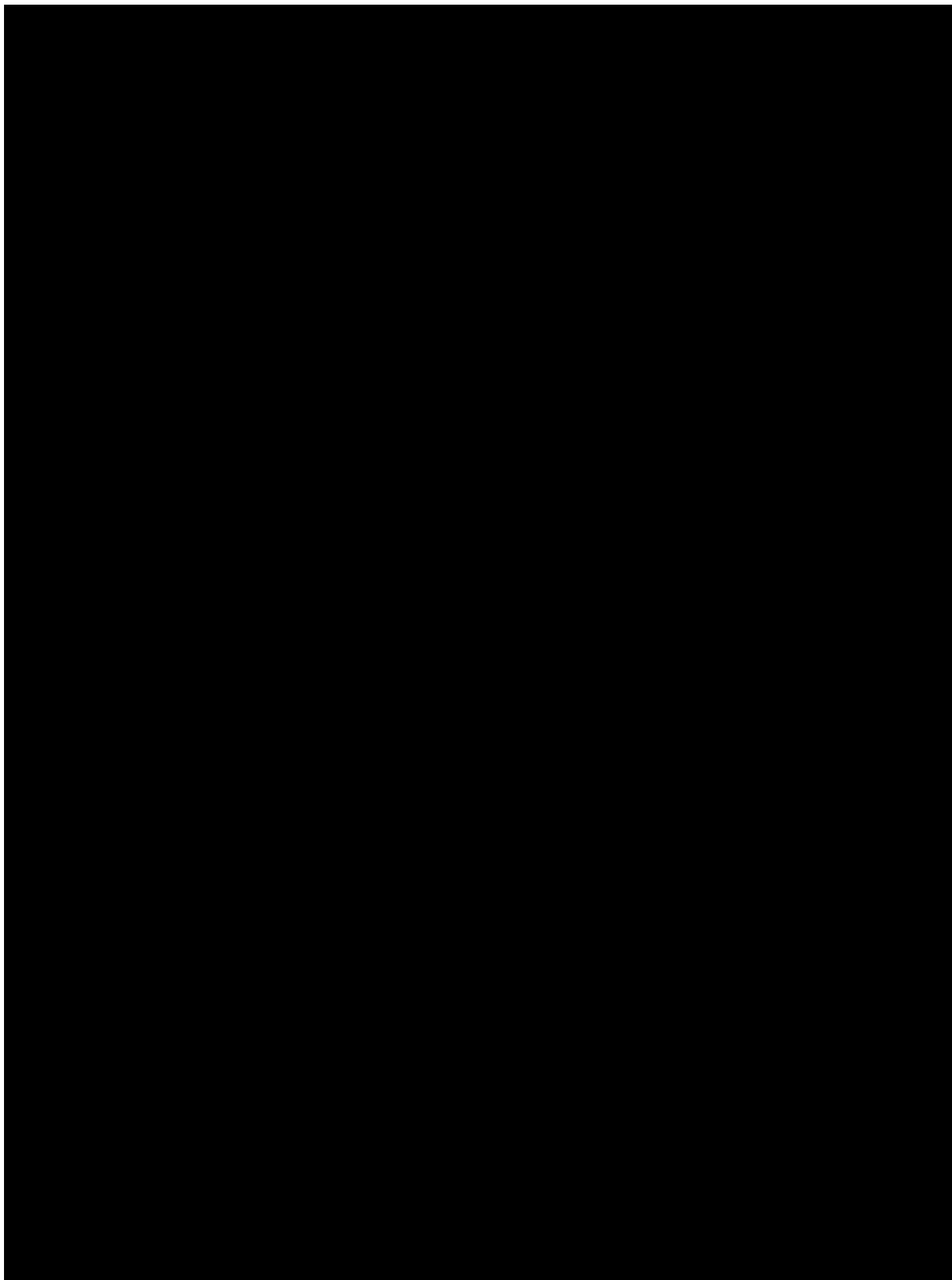


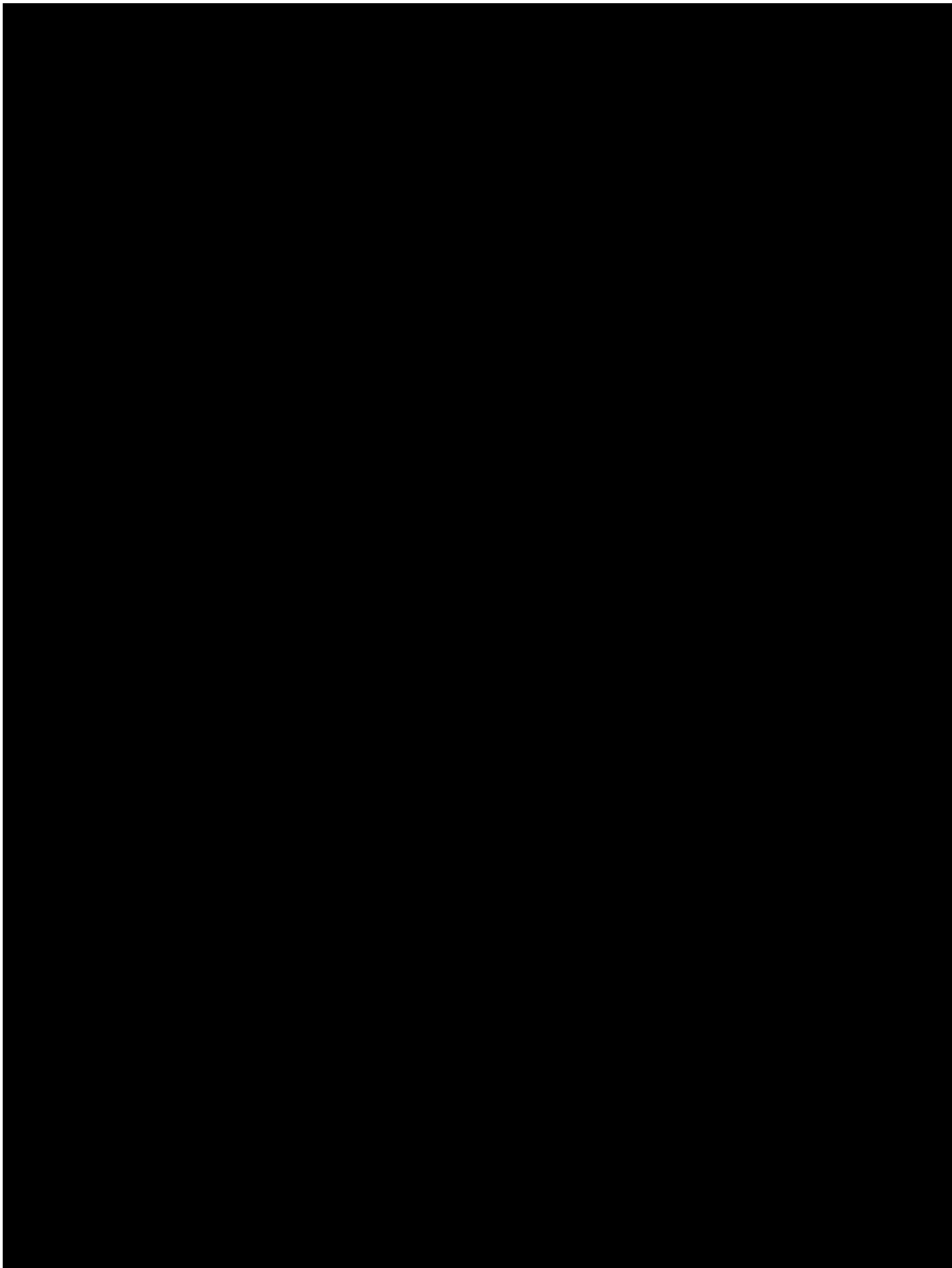


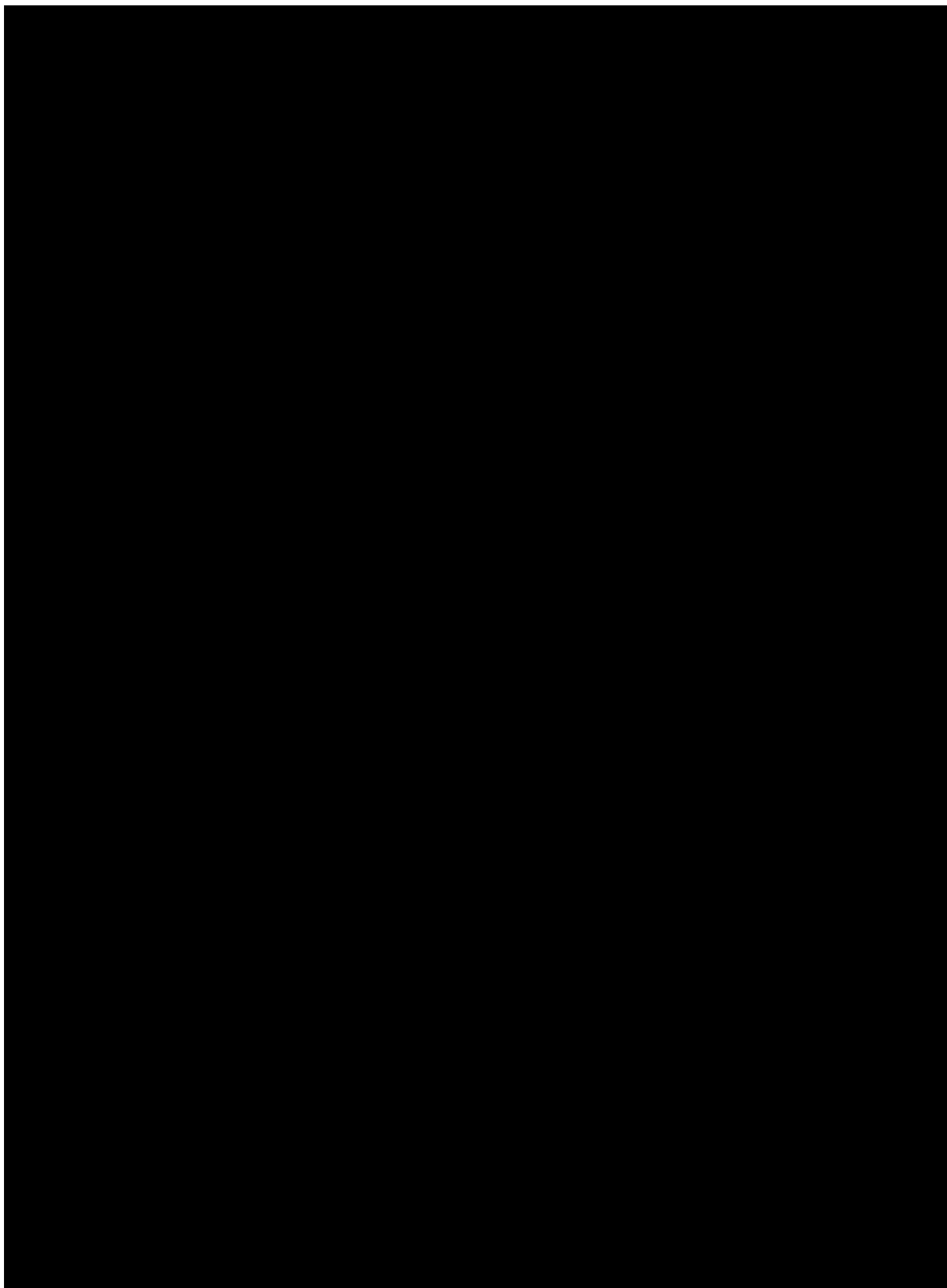


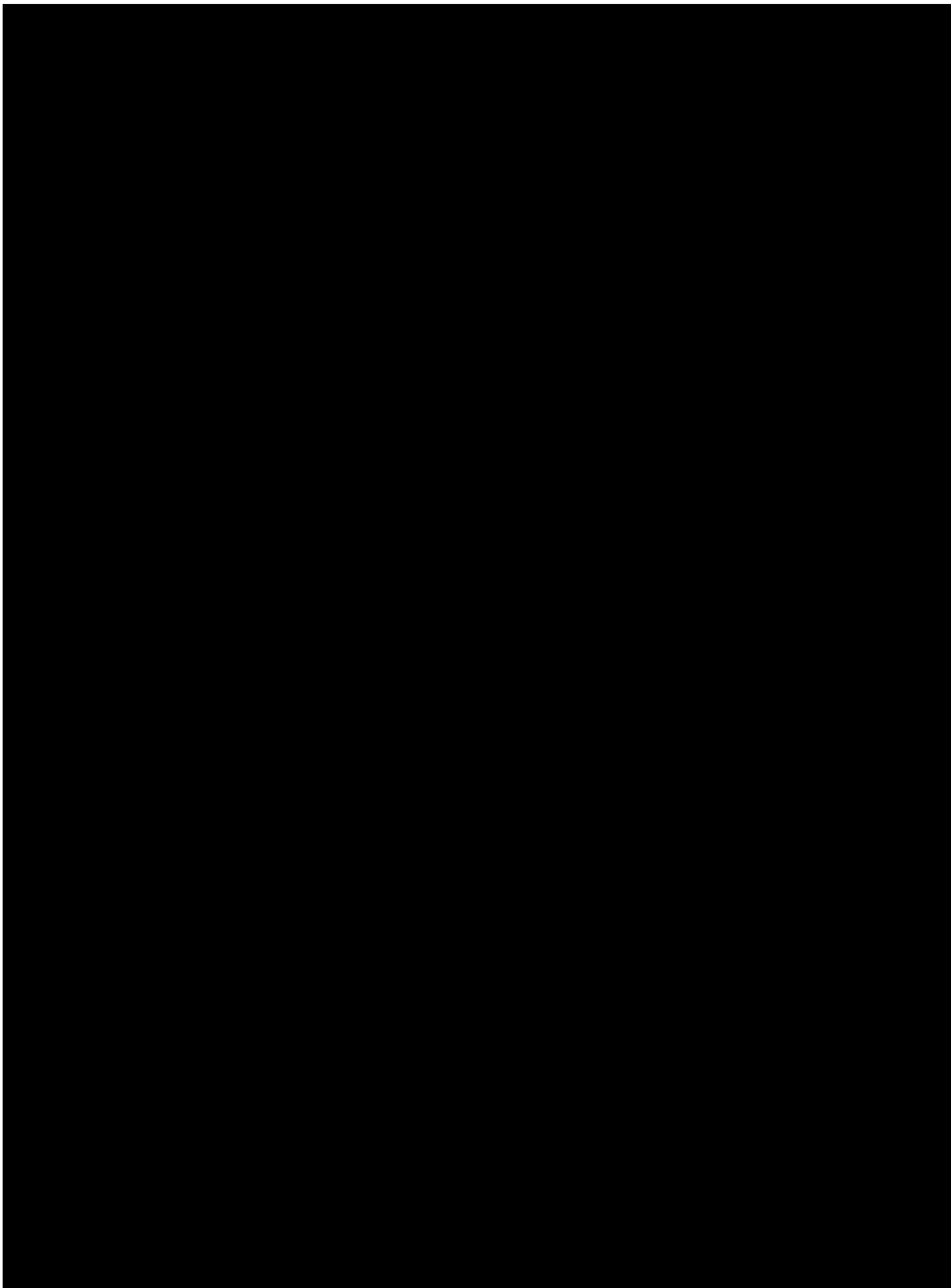


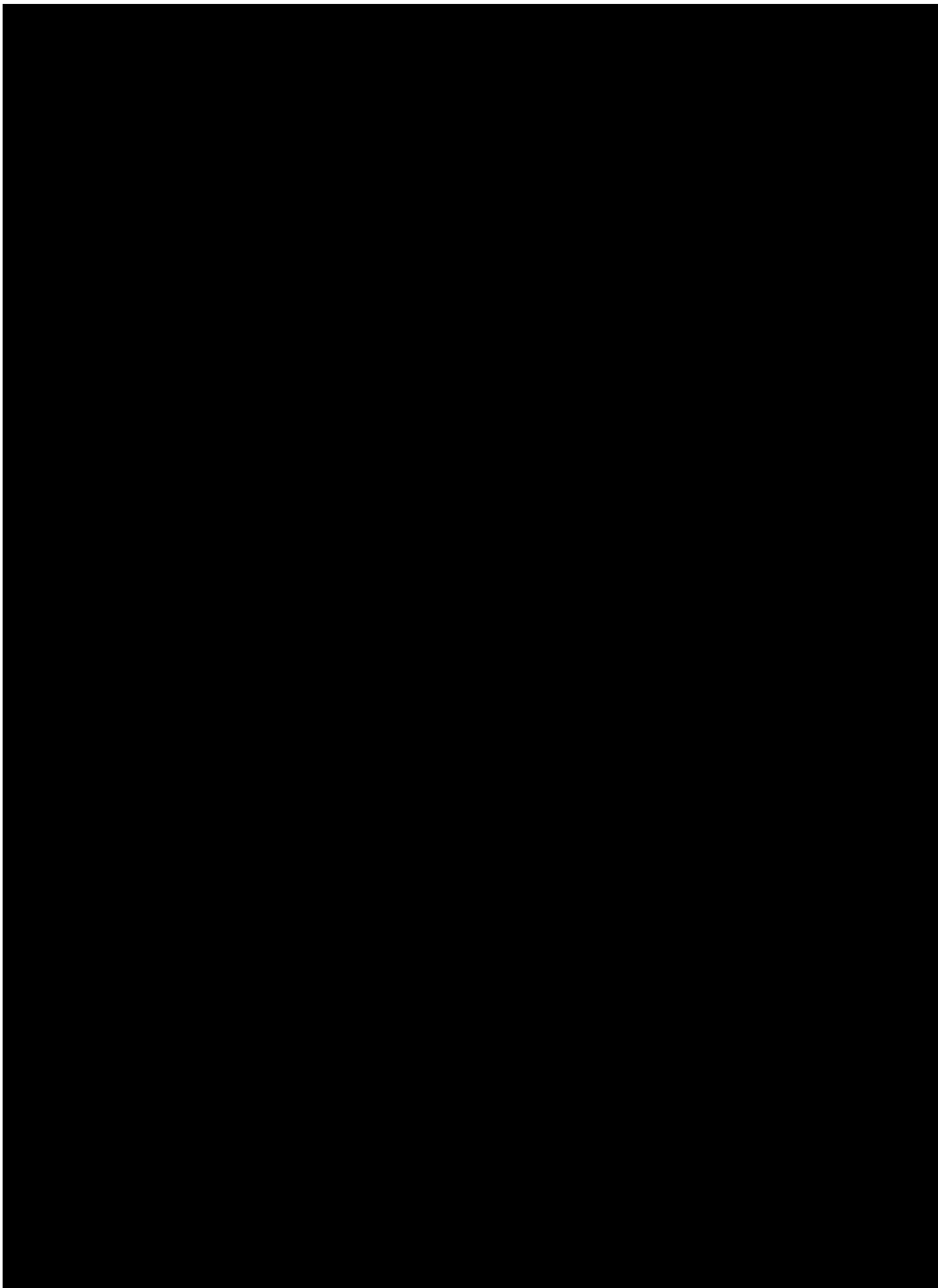


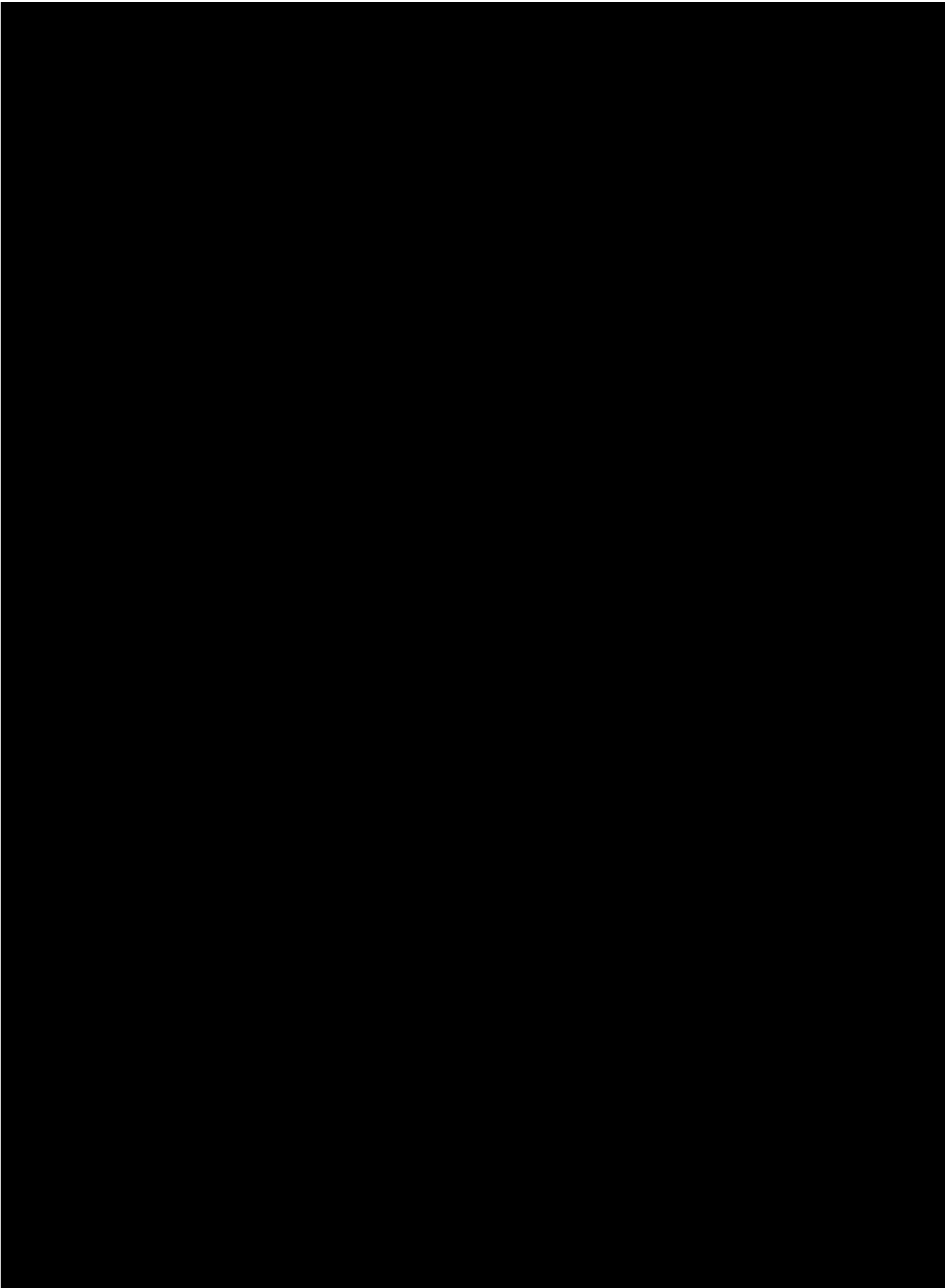


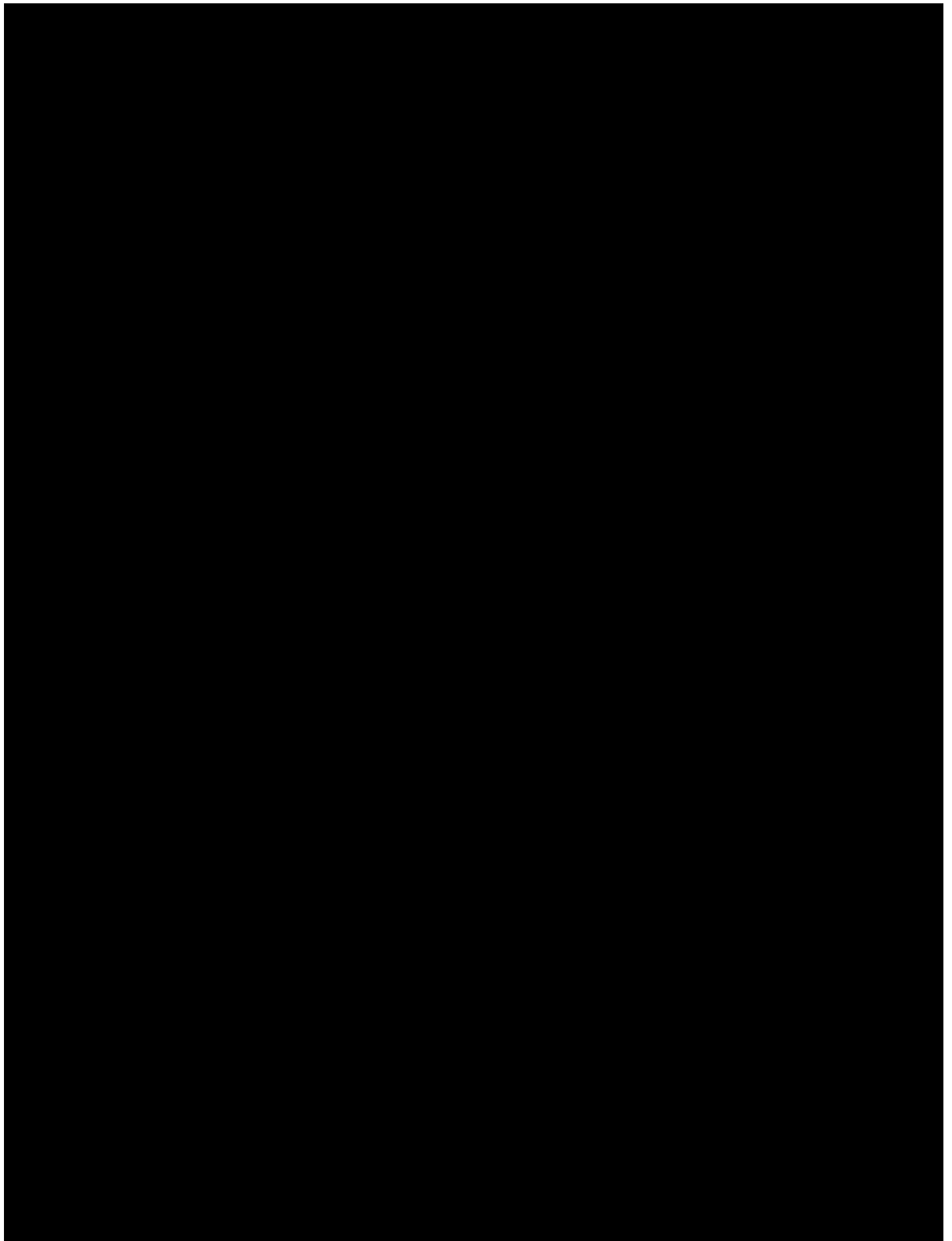


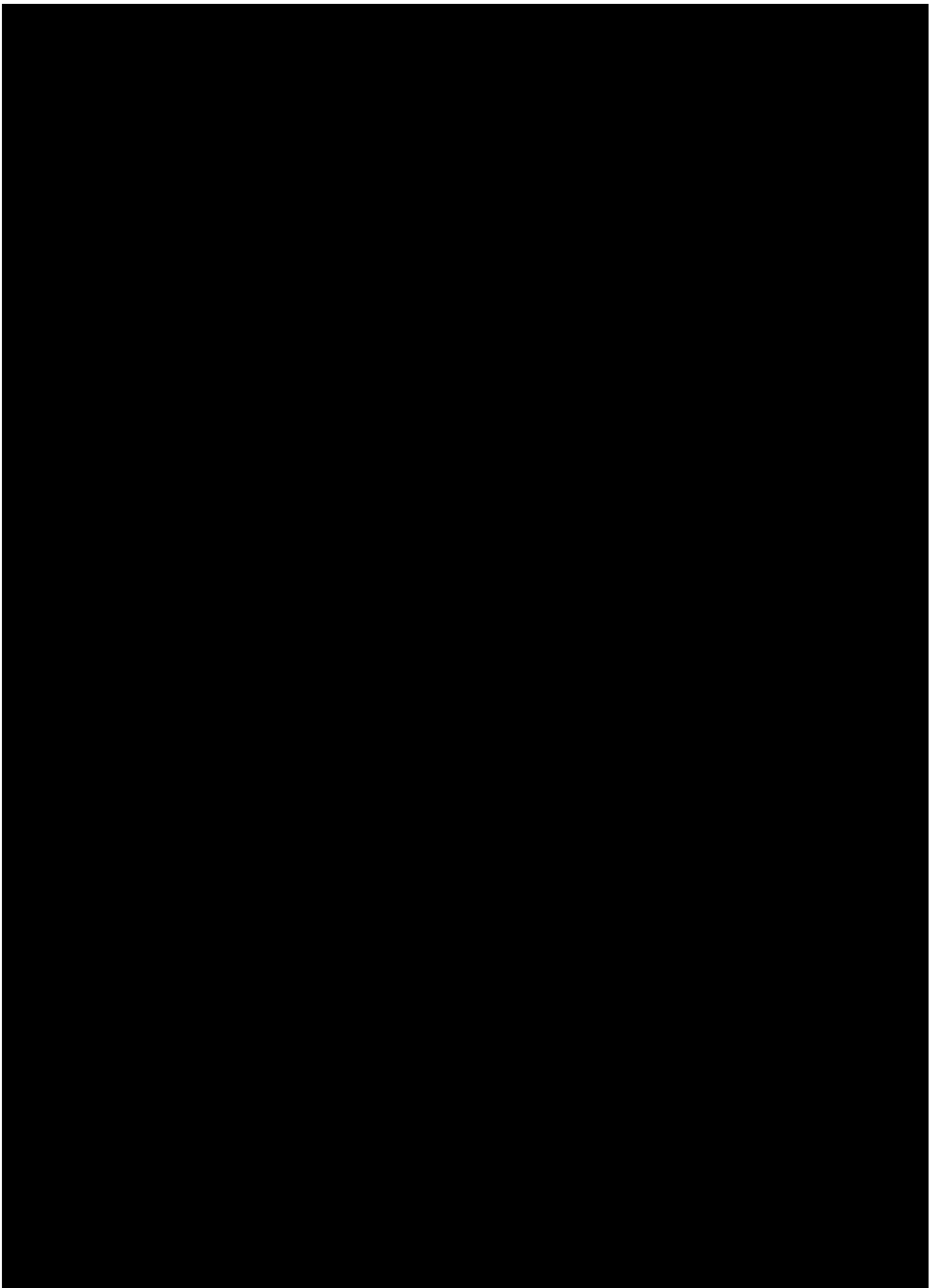


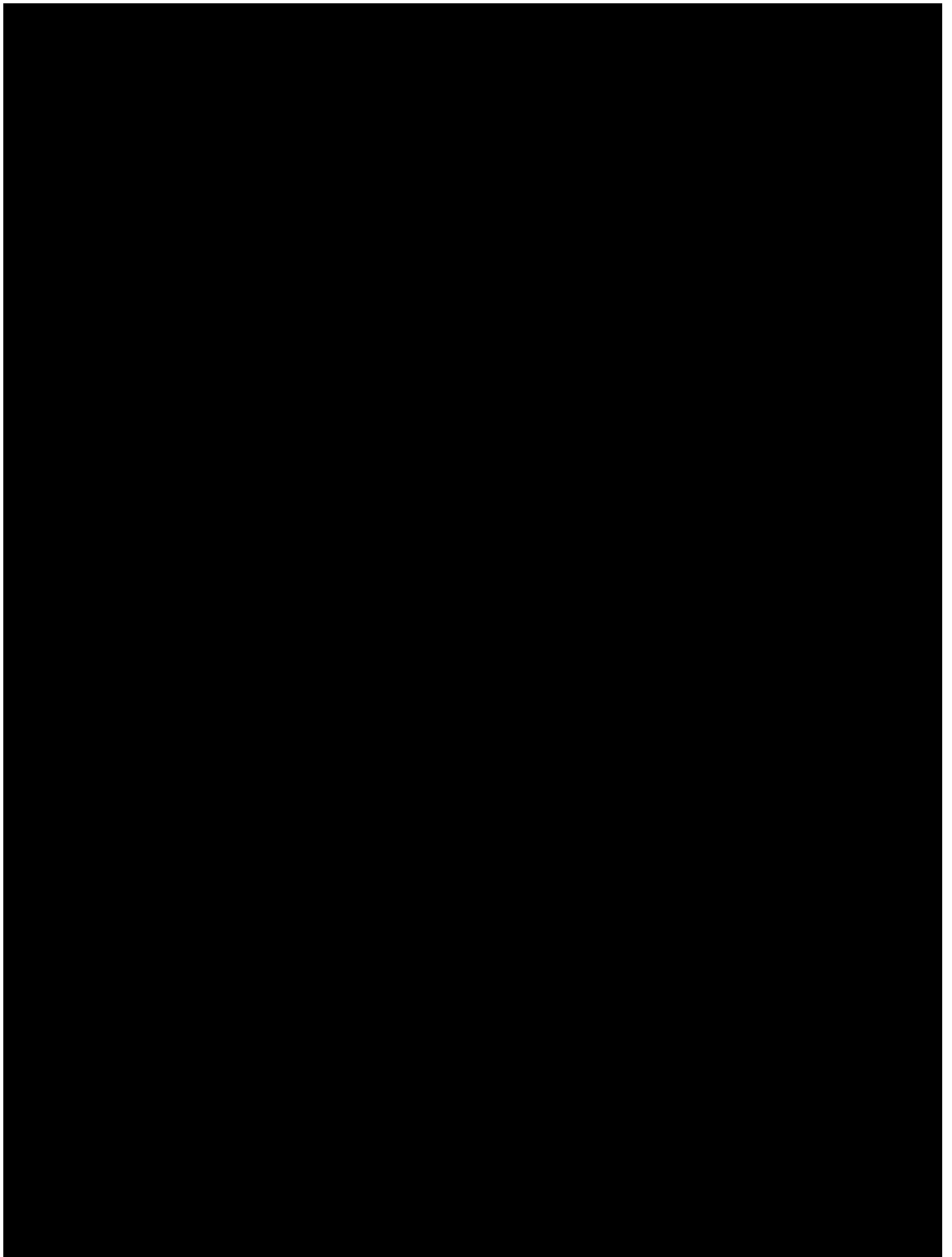


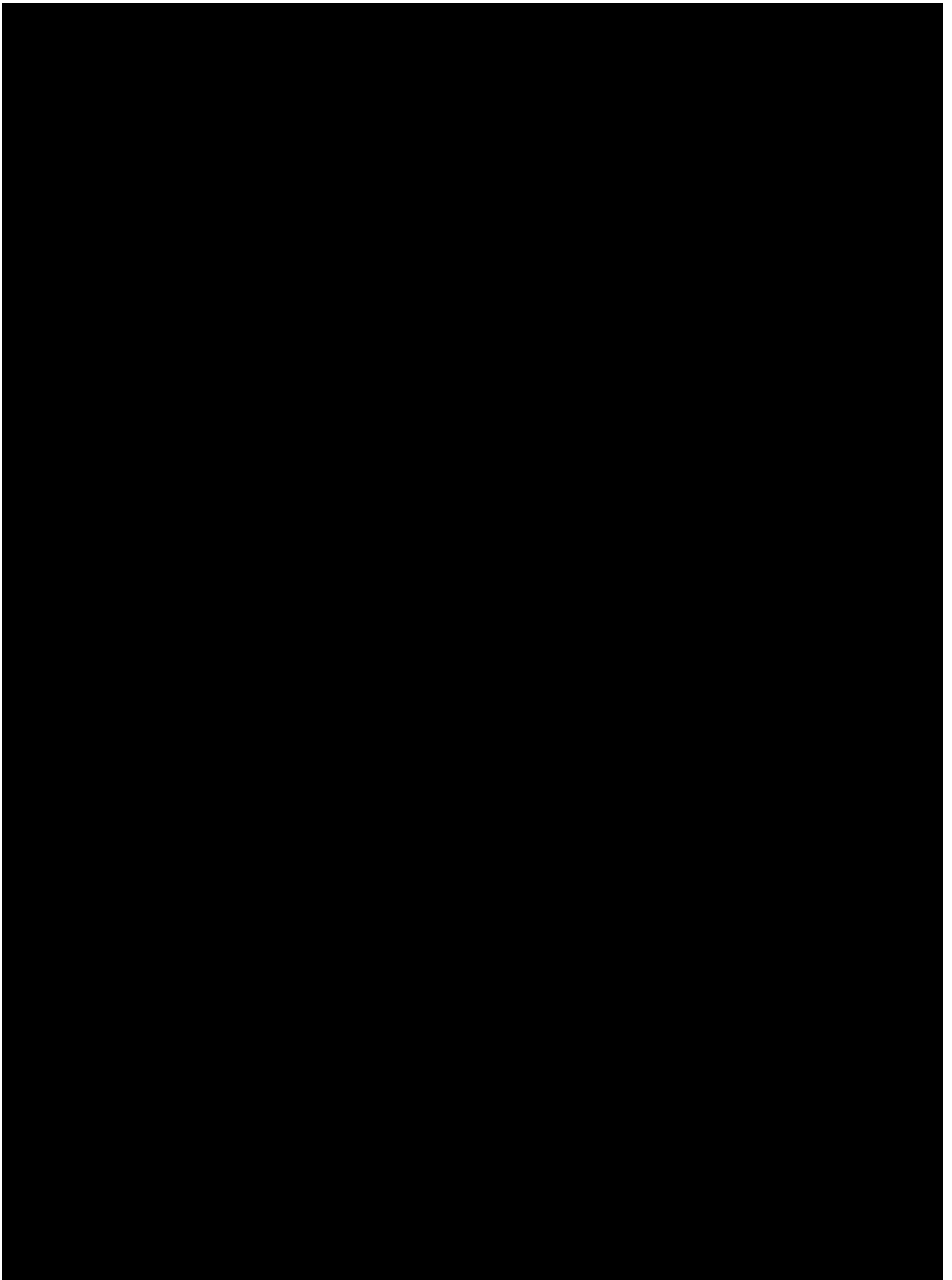


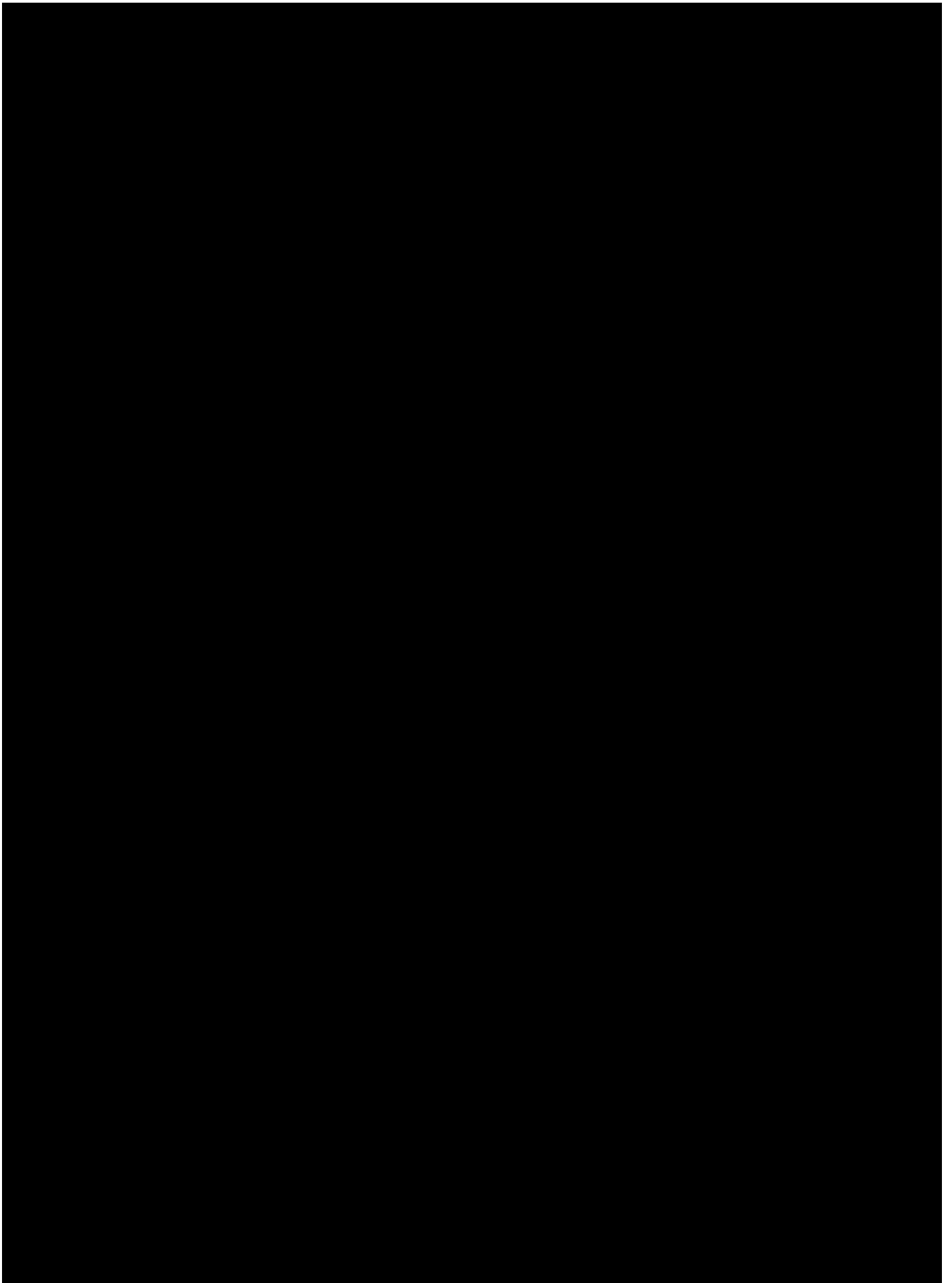


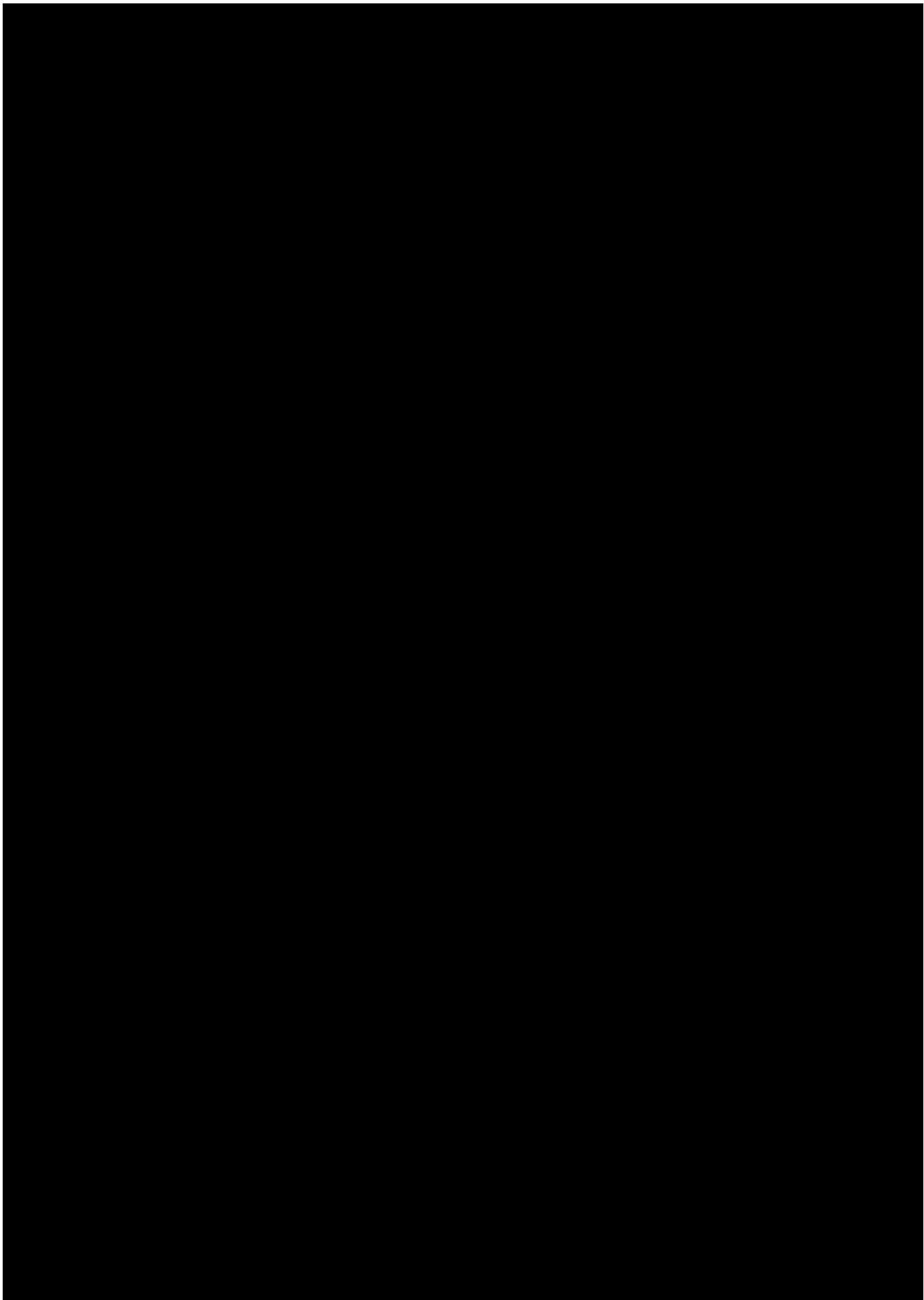


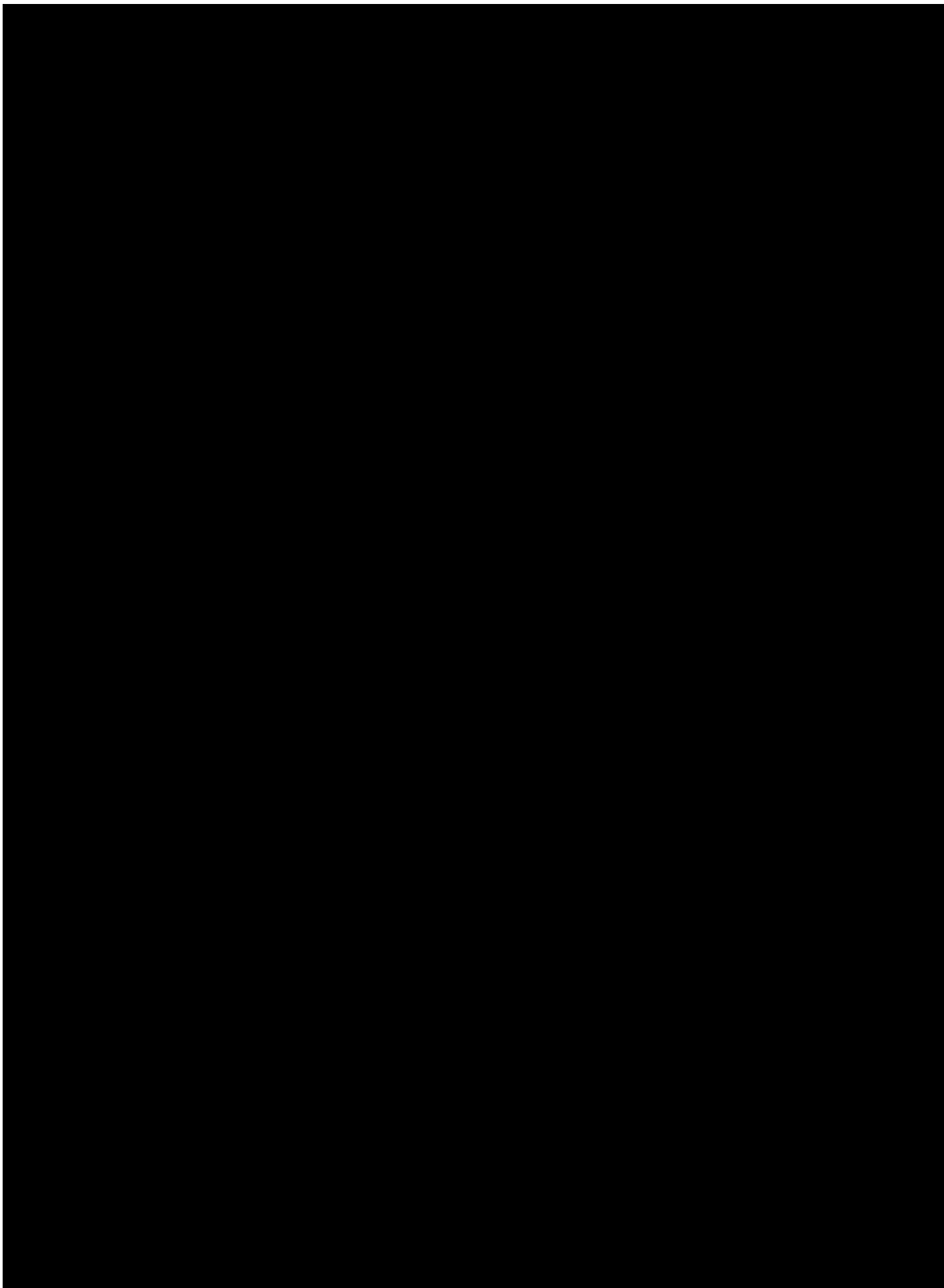


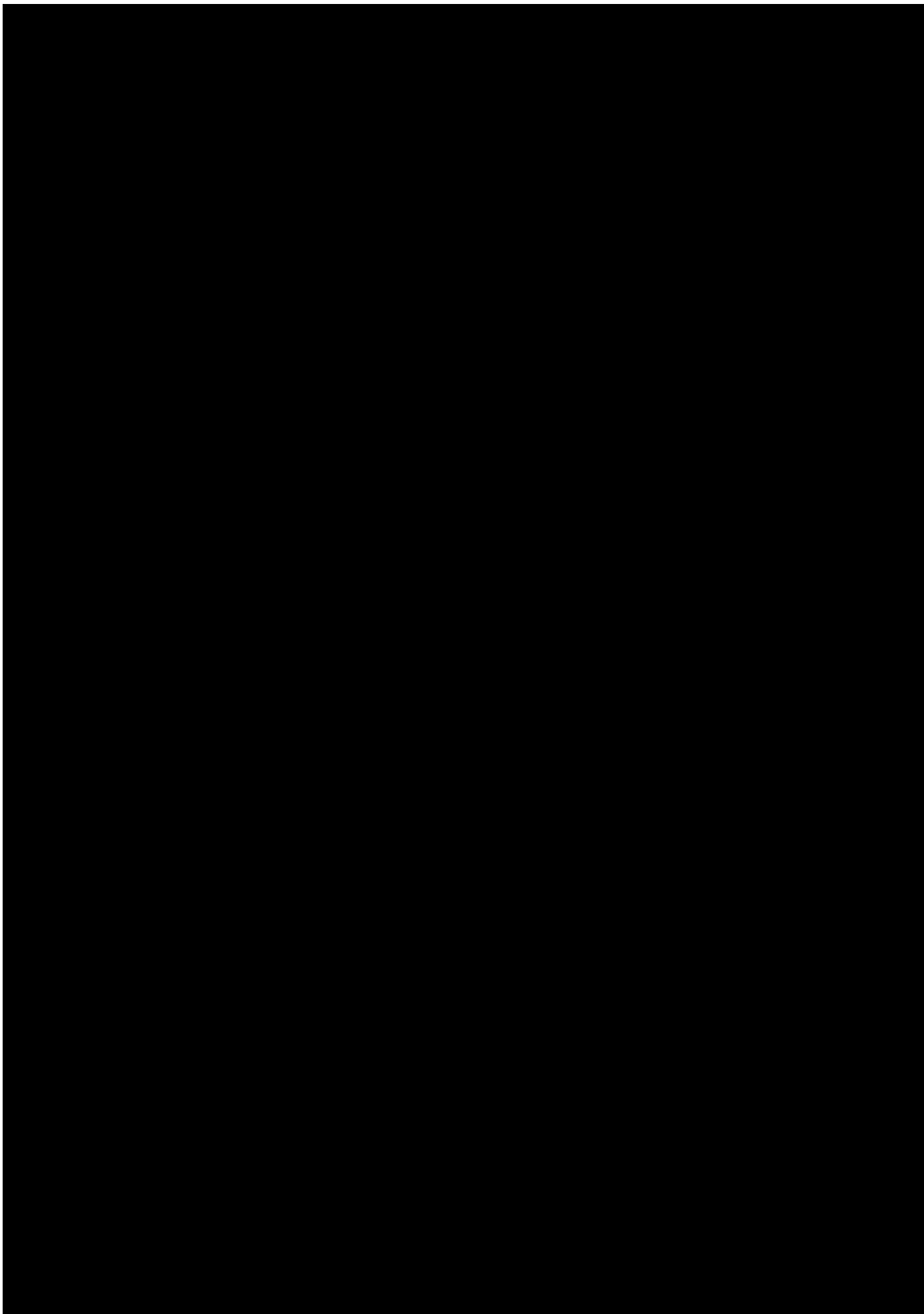


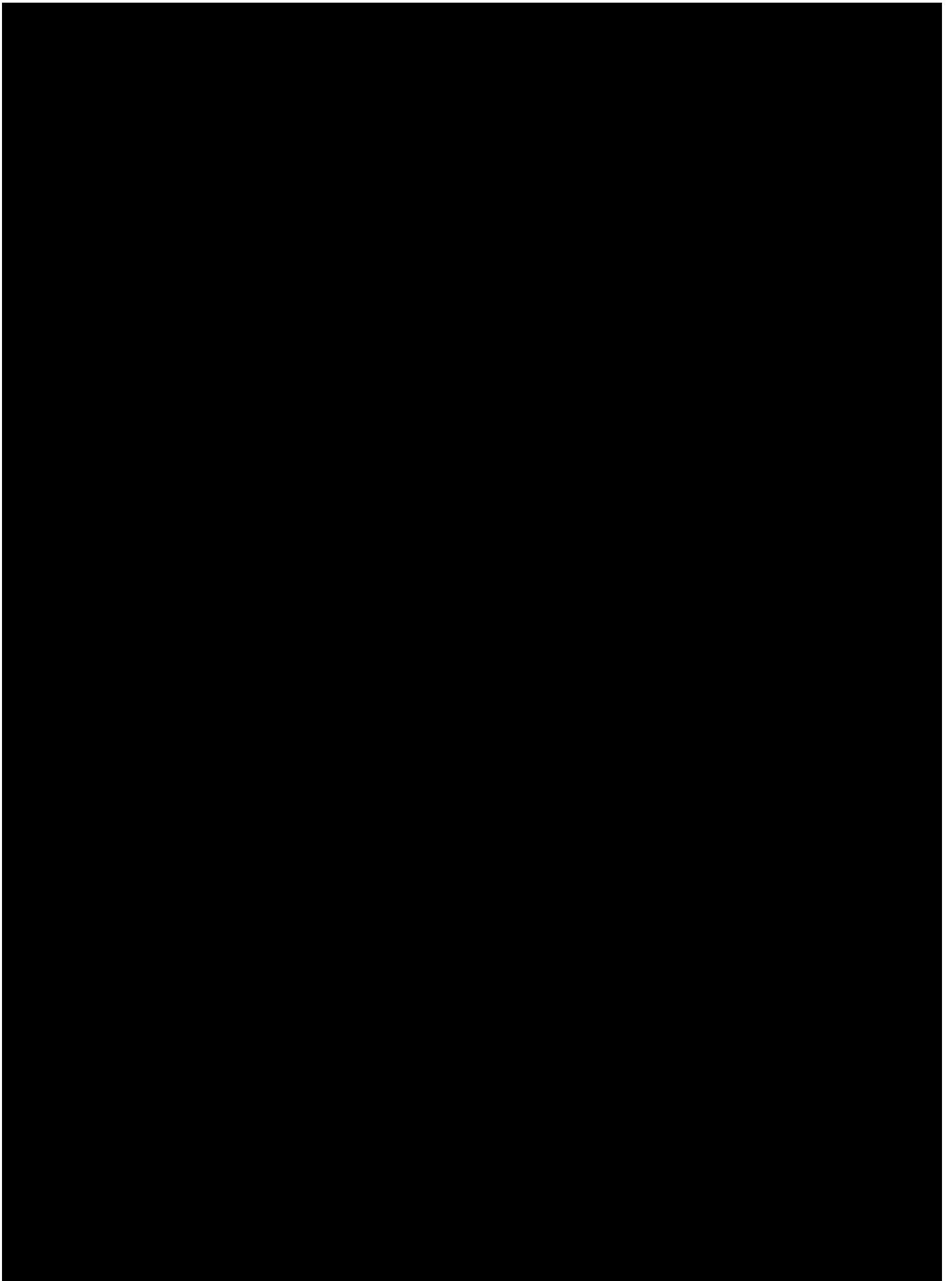


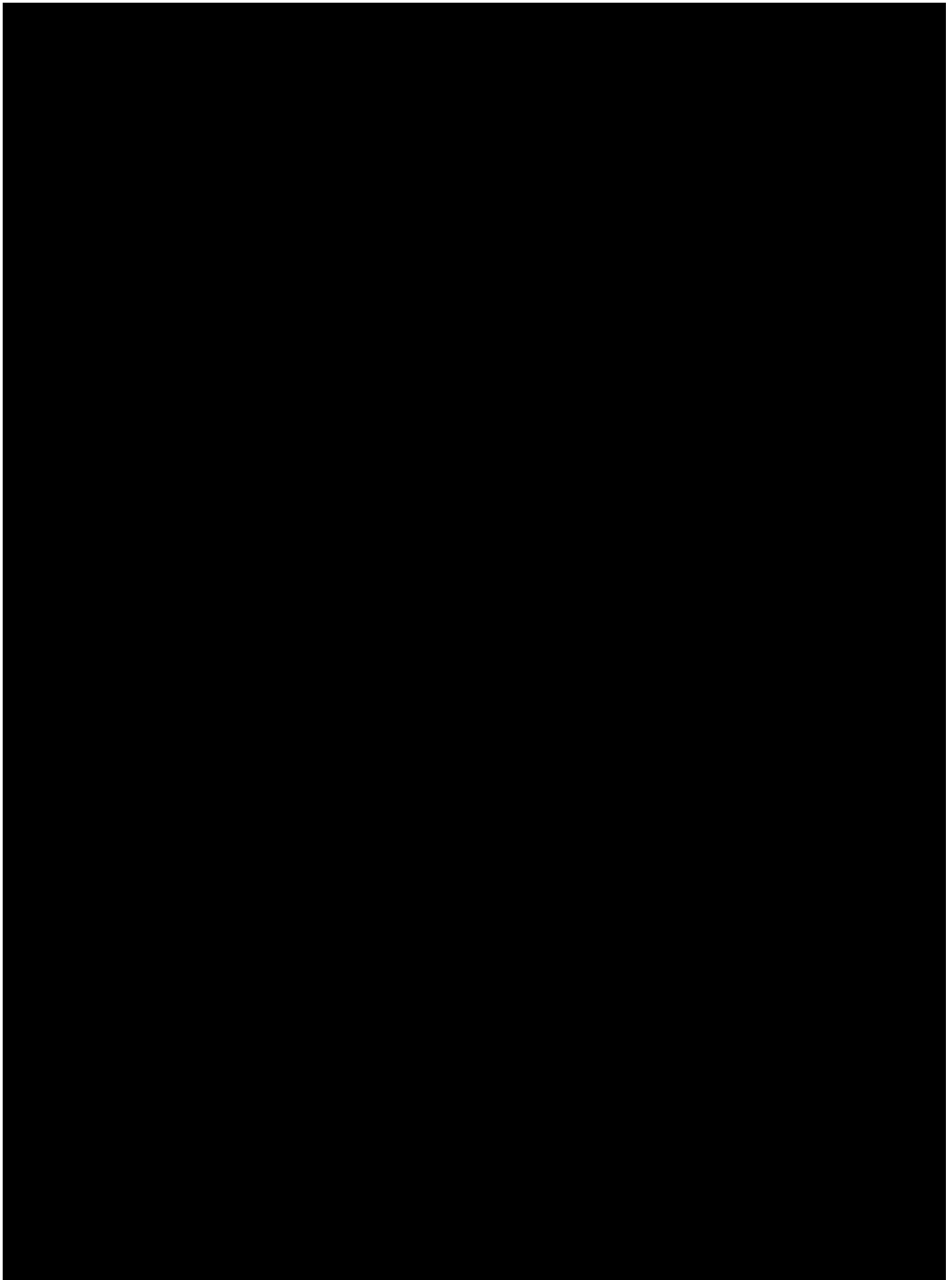


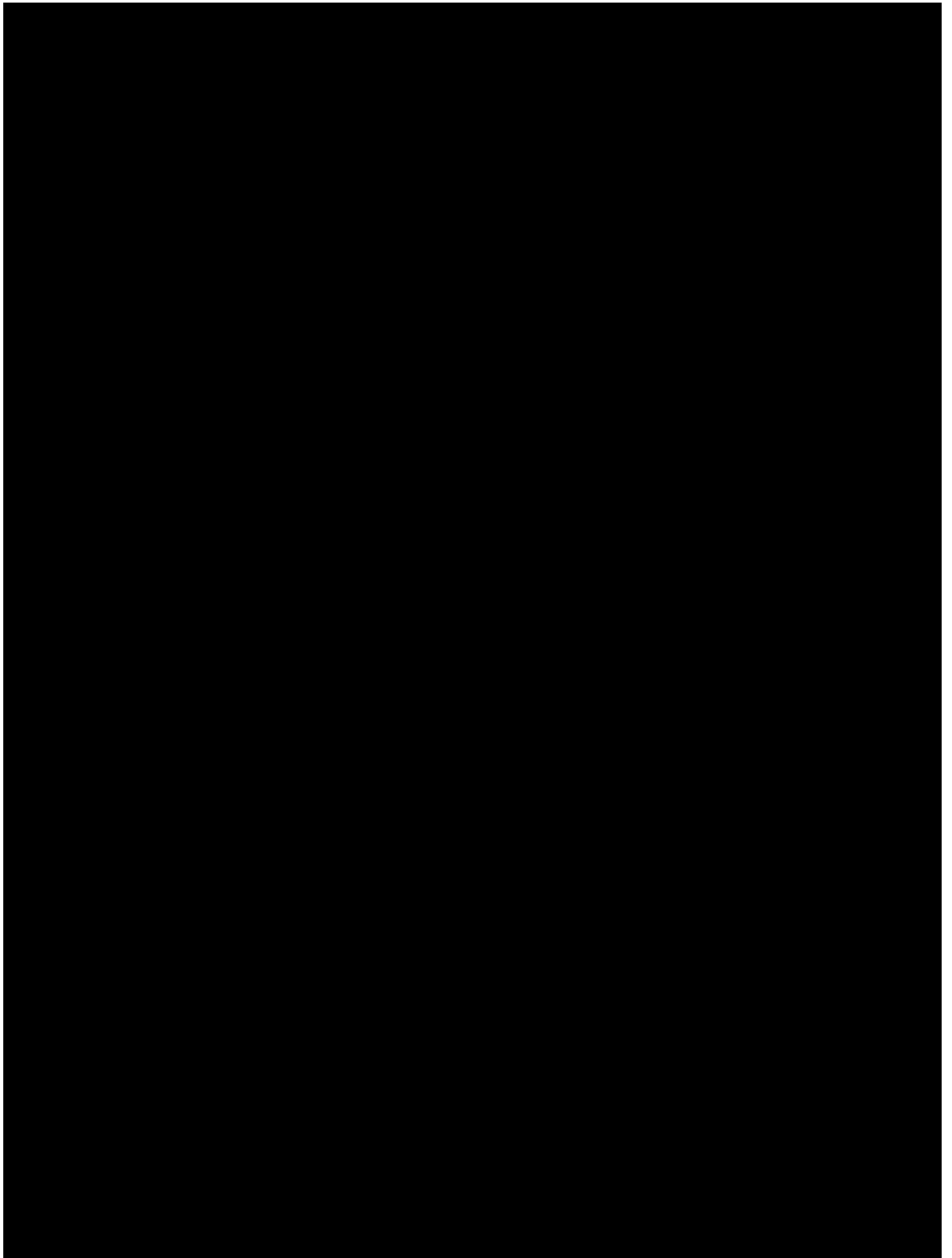


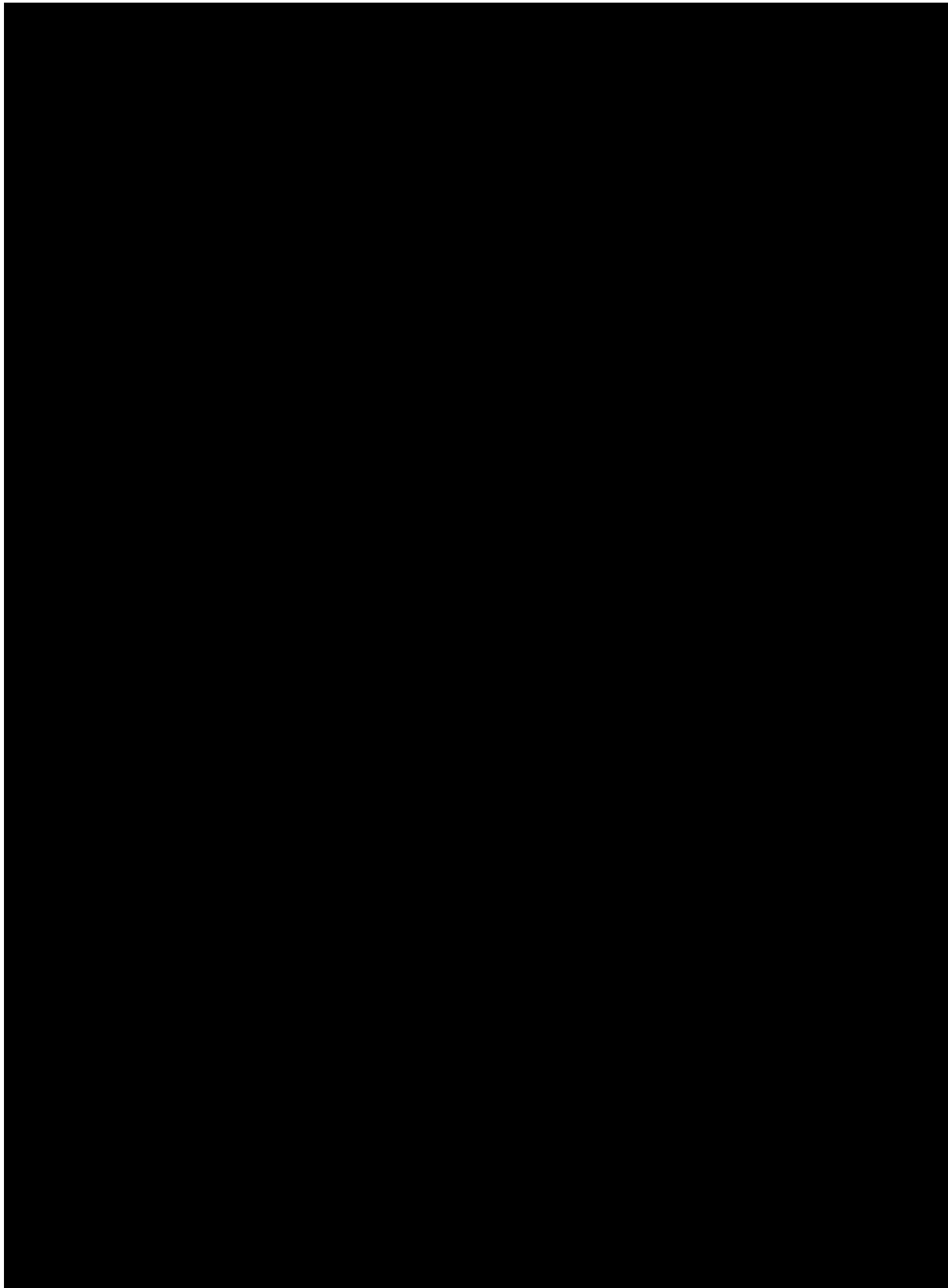


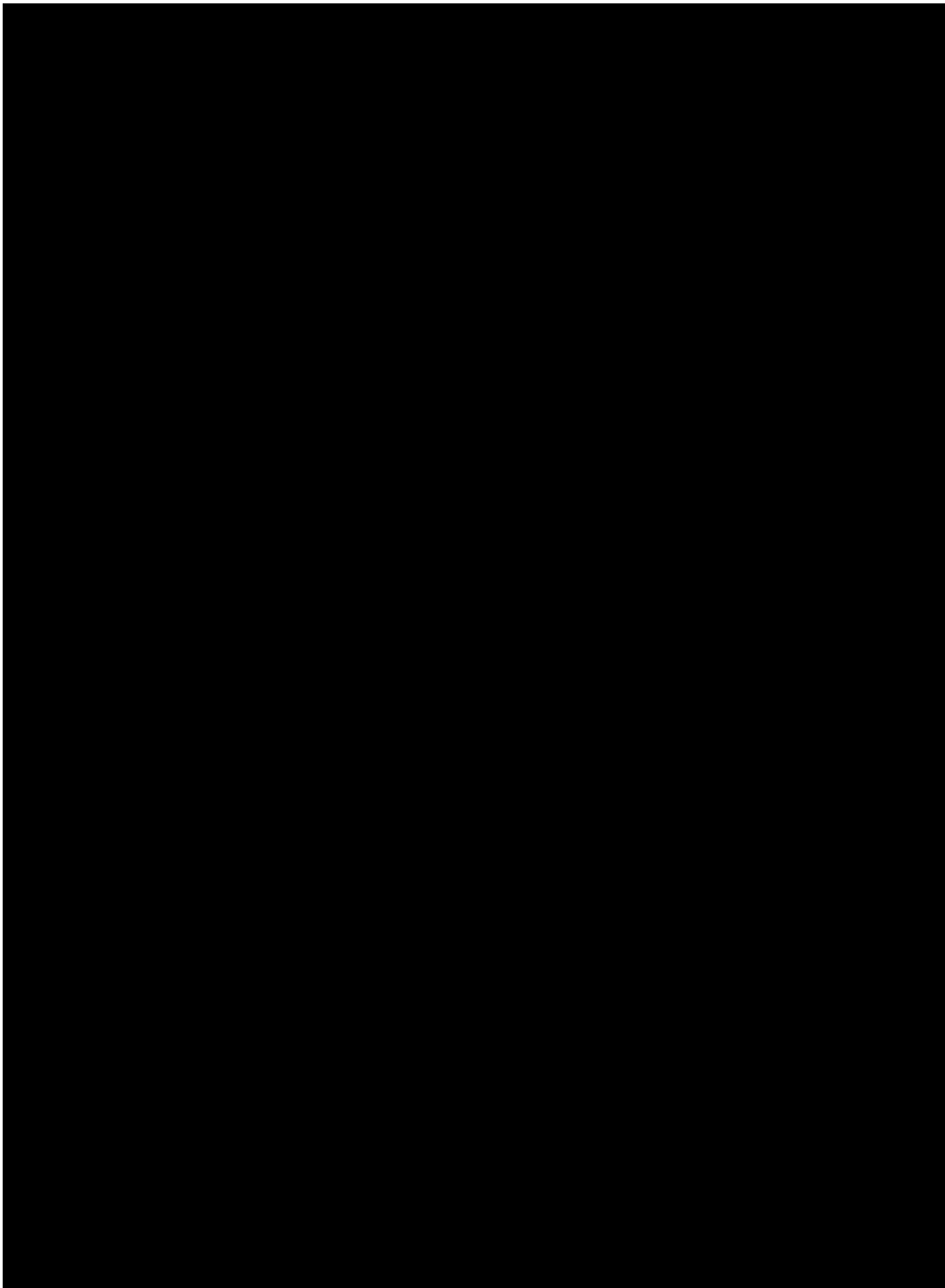


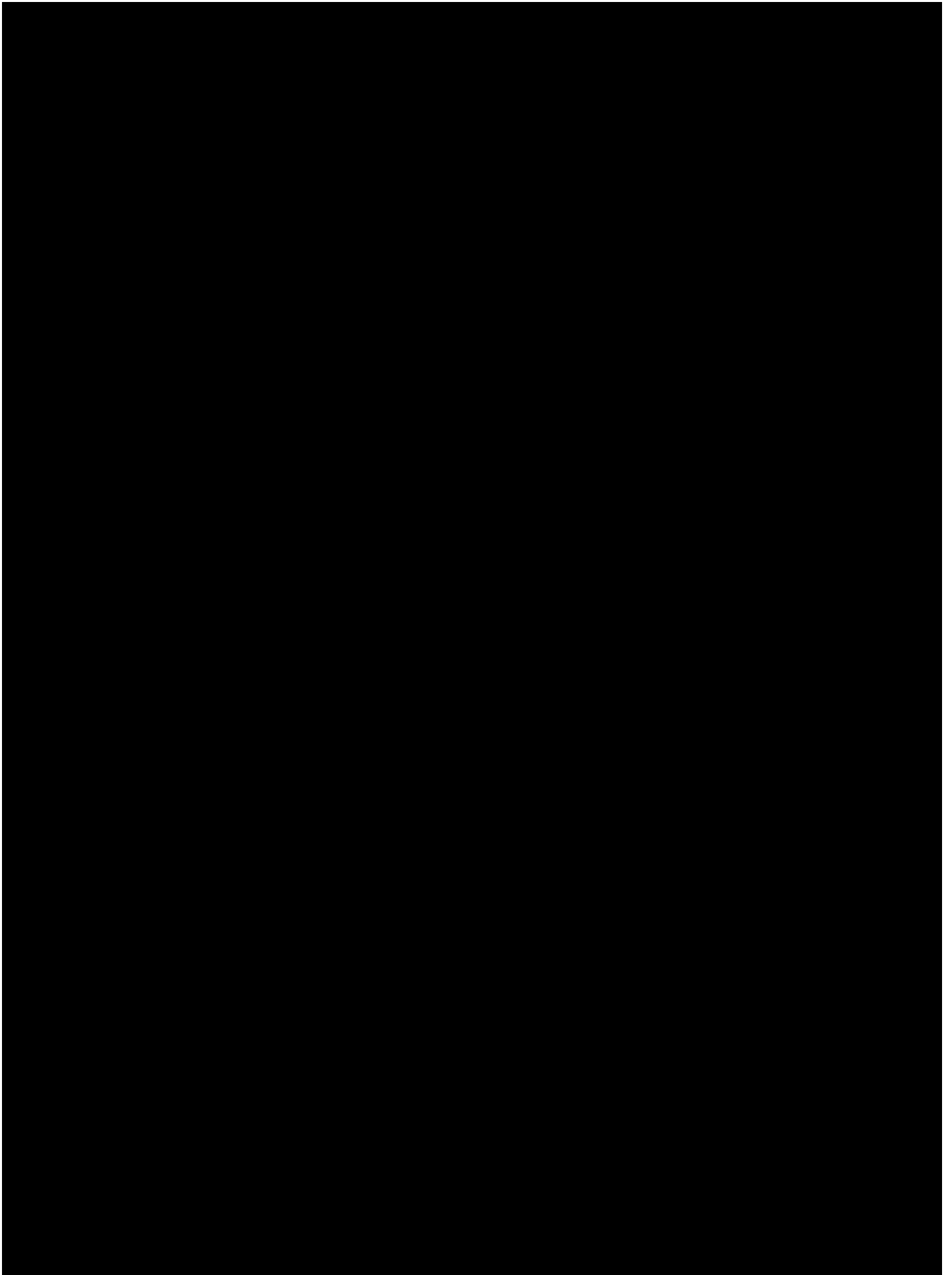














APPENDIX A - EMERGENCY EVENT NOTE

APPENDIX A: EMERGENCY EVENT NOTE

Time & Date:	Who Is reporting the event?	
What has happened?		
Incident Location		
Person/Medical concern	Environmental	Asset/Reputation concern
Who is injured? Nature of the injury?	What has been spilt? How much was spilt?	What is damaged? How bad is the damage? Reputation?
Initial actions taken		
When did it happen (time of incident)?		
Contractor involved – if any?		
Weather conditions		
Communications Sent		
Time	Who you talked to	Notes of the Conversation
Communications Received		
Time	Who called you	Notes of the Conversation



APPENDIX B - INITIAL NOTIFICATION PRO-FORMA

APPENDIX B: INTERNAL NOTIFICATION PRO-FORMA

MARINE INCIDENT INITIAL NOTIFICATION PRO-FORMA

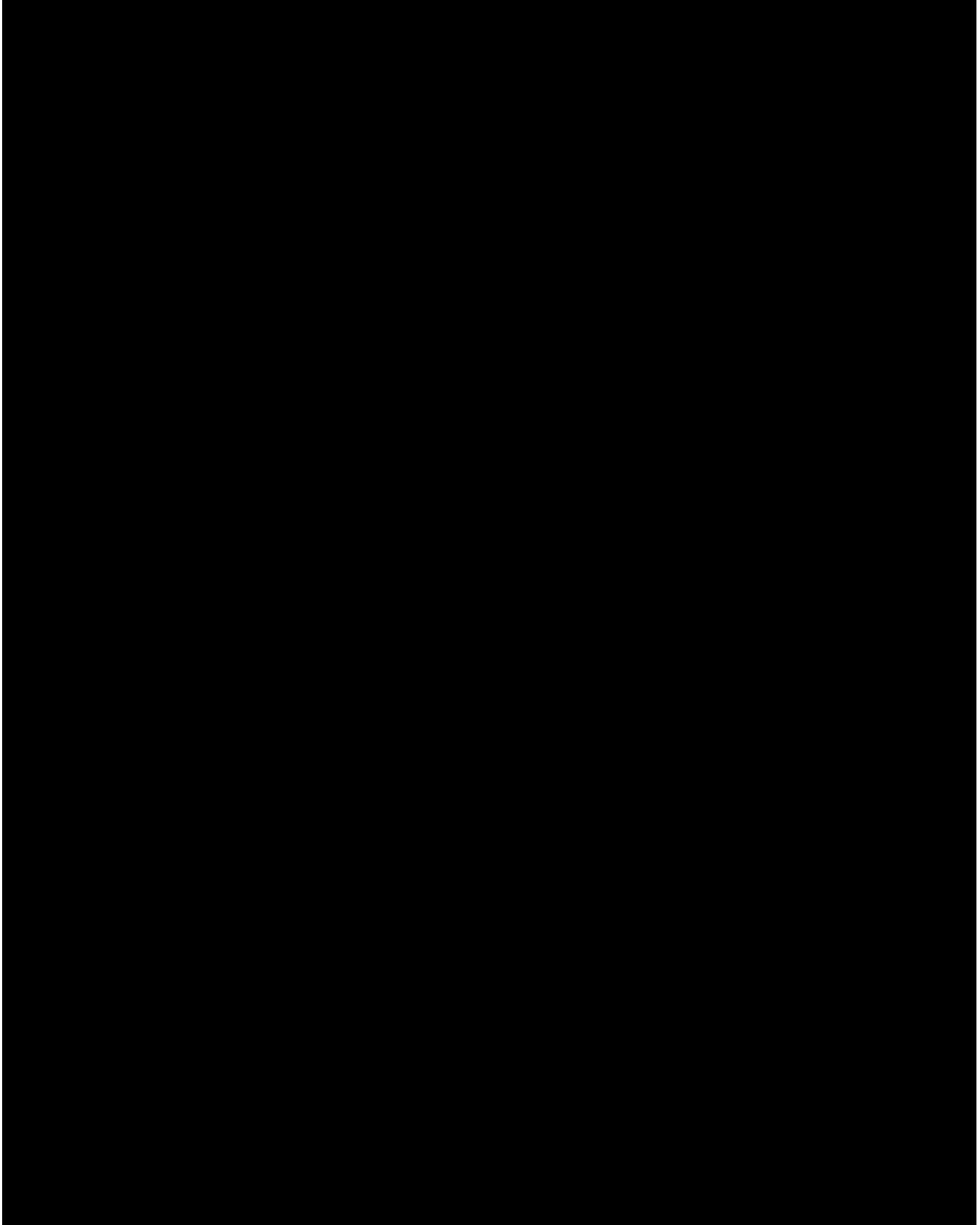
A) Ship name, IMO, call sign, flag:		B) Name and address of owners and name of master, skipper or person in charge.	
C) Date and time of incident:			
D) Position of incident:		E) Part of ship where accident occurred if on board:	
F) Name and port of registry of any other ship involved:		G) Number of people killed or injured, together with their names, addresses and gender:	
H) Course:		I) Speed:	
J) Intended track:		K) Weather Conditions:	
L) Communication channels monitored:			
M) Date and time of next report:			
N) Brief details of incident, including description of incident and injuries:			
O) Wind speed and direction:		P) Swell direction and height:	
Q) Contact details of ship's owner/operator/agent:			
R) Ship length, breadth, draft and type:			
S) Additional information			
T) Actions being taken:			

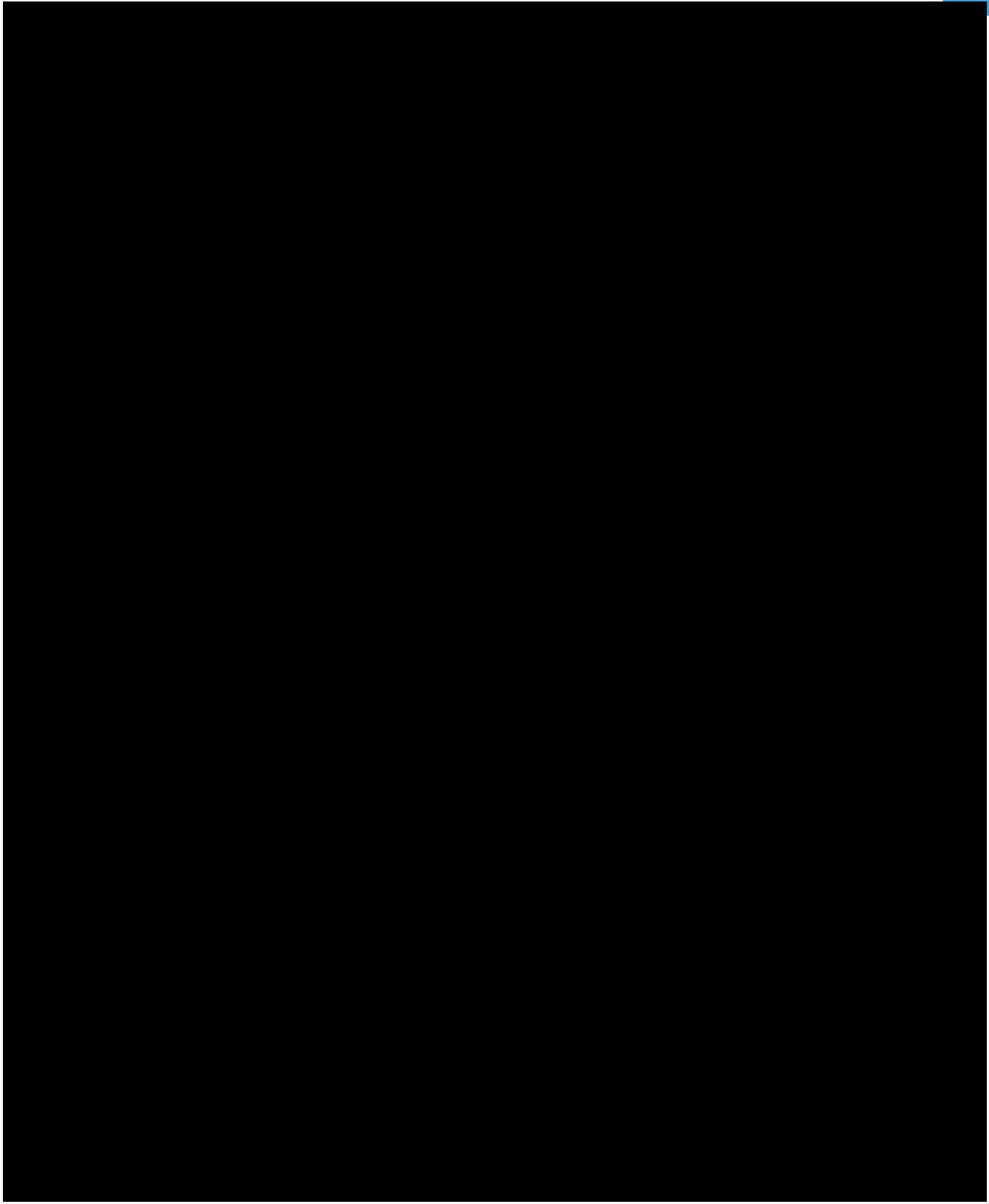


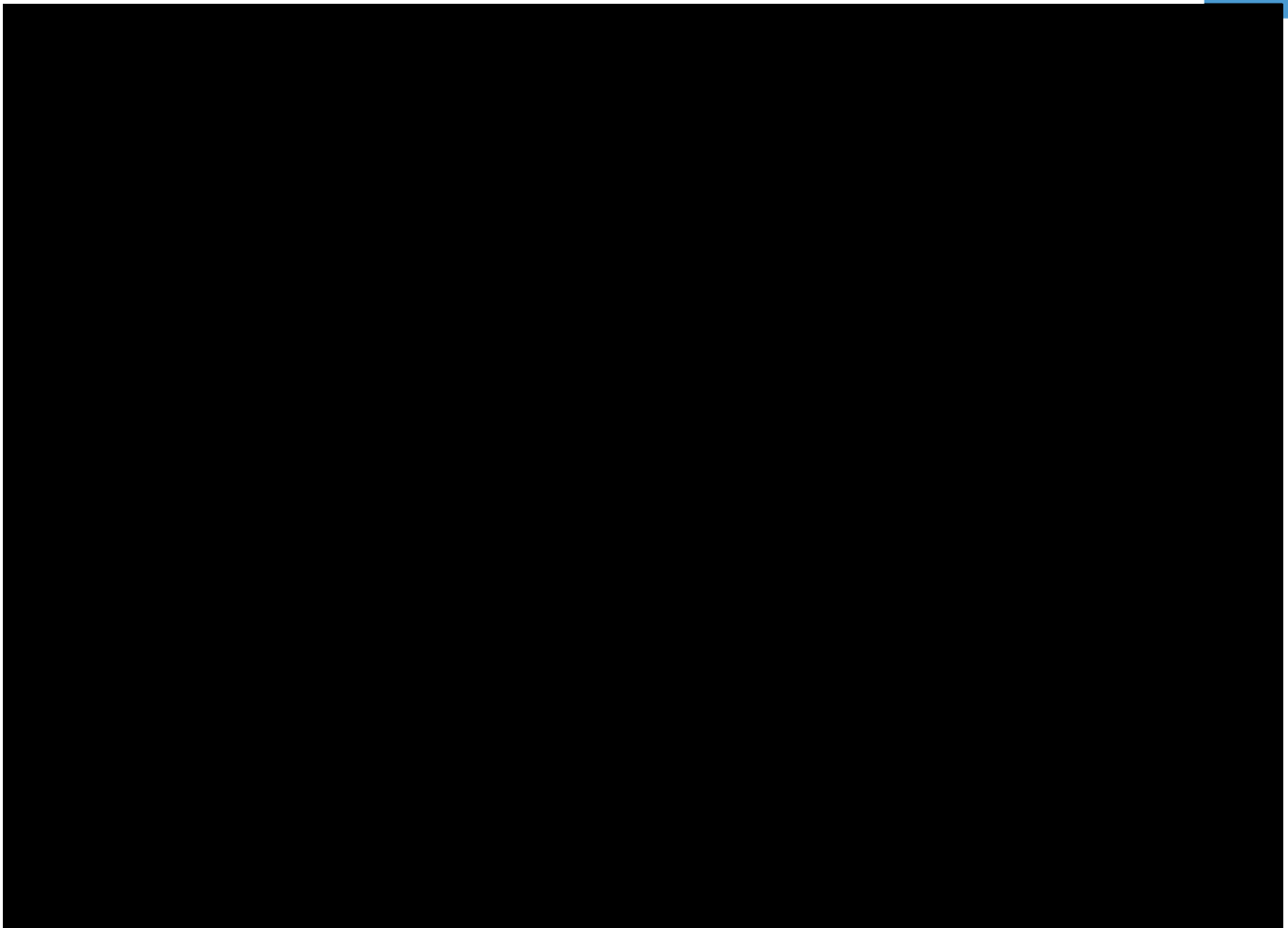
APPENDIX C - ESCALATION GUIDELINES



APPENDIX C: ESCALATION GUIDELINES









APPENDIX D - TABLE OF ABBREVIATIONS

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ABBREVIATIONS	
ACP	Area Contingency Plan
AHJ	Authority Having Jurisdiction
BID01	Block Island Wind Farm
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety & Environmental Enforcement
CCMO	Corporate Crisis Management Organization
CEMT	Country Emergency Management Team
CIM	Crisis Incident Management
DORECO	Orsted Document Management System
EOC	Emergency Operations Center
EPC	Engineering, Procurement, Construction (Project
ER	Emergency Response
ERCC	Emergency Response Coordination Center
ERMA	Environmental Response Management Application
ERP	Emergency Response Plan
ERT	Emergency Response Team
FOSC	Federal On-Scene Coordinator/Commander
HSE	Health, Safety & Environment
IC	Incident Commander
ICS	Incident Command System
JRCC	Joint Rescue Coordination Centre
LERT	Local Emergency Response Team
MAYDAY	Distress call
MAYDAY RELAY	Relayed transmission of distress call
MHC	Marine and Helicopter Coordinator
MHCC	Marine and Helicopter Coordination Center
MLLW	Mean Lower Low Water
MOB	Man overboard
MRCC	Maritime Rescue Coordination Centre
MW	Megawatts
NCP	National Contingency Plan
NOAA	National Oceanic Atmospheric Administration
NRC	National Response Center
O&M	Operation and Maintenance
OPA-90	Oil Pollution Act of 1990
OSC	On-Scene Coordinator/Commander
OSRO	Oil Spill Response Organization

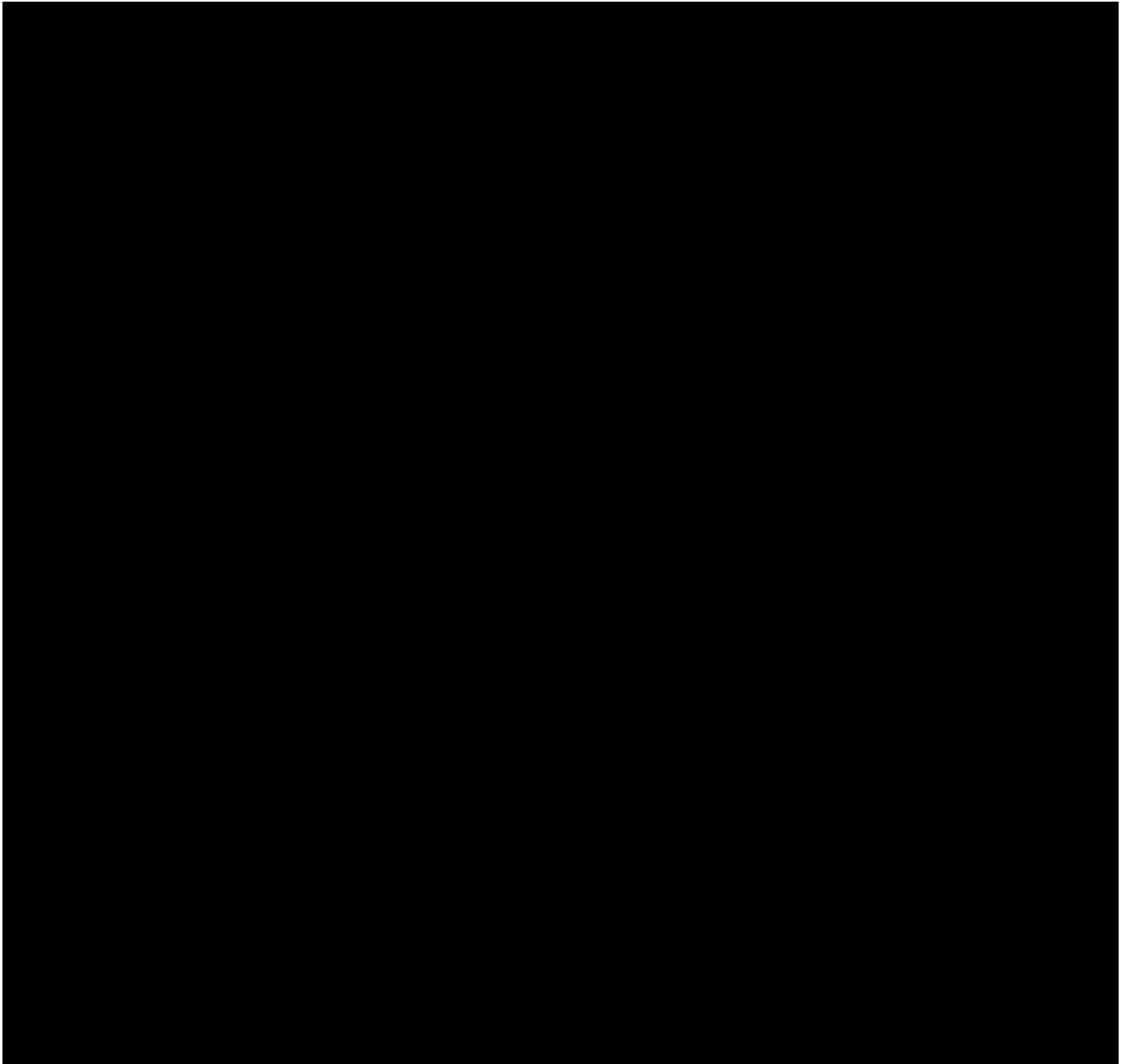
ABBREVIATIONS

OSRP	Oil Spill Response Plan
PAN-PAN	Urgency call
PEAR	People, Environment, Asset, Reputation,
QI	Qualified Individual
REV01	Revolution Wind
SDS	Safety Data Sheet
SFW01	South Fork Wind
SOLAS	Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Procedure
SRW01	Sunrise Wind
TP	Transition Pieces
USCG	U.S. Coast Guard
VHF	Very High Frequency (Range of Radio Waves 30-
VOO	Vessel of Opportunity
VRP	Vessel Response Plan
WCD	Worst Case Discharge
WTG	Wind Turbine Generator



APPENDIX E - LERT ACTION CARDS

APPENDIX E: LERT ACTION CARDS





APPENDIX F - MSRC MAJOR EQUIPMENT LIST

APPENDIX F: MSRC MAJOR EQUIPMENT LIST

A full list of MSRC's available equipment and resources is located on MSRC's website <https://www.msrc.org/equipment-capabilities>. The website includes:

1. Equipment site map
2. Major equipment list
3. Response team
4. STARS contract network

MSRC is responsible for the inspections (at least monthly) and maintenance, as necessary, to ensure optimal performance of response equipment. Records of the inspections and maintenance activities must be kept for at least 2 years and made available to any authorized BSEE representative upon request.

Equipment Storage Location Map



Notes & disclaimers:

- The customer and its plan writer have sole responsibility for all plan writing. The following is intended only as information about potentially available MSRC resources that may be cited in that plan, subject to the contract terms between MSRC and its customer.
- This information is subject to change without notice.
- MSRC cannot and does not represent or guarantee that all or any of the following resources will be available at any one time, due to other spills, drydocks, periodic maintenance requirements, repair, etc. If resources become unavailable, MSRC has no obligation to notify customers or their plan writers, but will (a) provide OSRO reduction notices to the USCG as required by USCG regulation, and (b) notify customers if material changes occur that would reduce MSRC's federal OSRO classification.
- The following lists the resources potentially available. Actual availability depends on circumstances, including commitments to prior spill responses and other circumstances such as noted above. Use and availability of specific equipment will also depend on local conditions, availability of contractors, traffic, weather, safe navigation and other conditions permitting.
- Listed resources may not be appropriate for all operating environments (e.g., offshore vs. Nearshore vs. Inland), and the customer and its plan writer must plan for and allocate resources accordingly.
- Resources may be deployed in various combinations as directed by customer and dictated by circumstances. For example, skimmers and boom may be deployed with different vessels than those listed (including, potentially, appropriate vessels of opportunity (VOO) as identified by MSRC, the customer or its plan writer). The customer and its plan writer accept responsibility for plan reference and/or reliance on specific VOOs, given they may or may not be available at the time of an incident.
- Estimates provided re: resources (EDRC, storage capacity, etc.) Are not performance guarantees or warranties. Actual recovery rates, storage capacities, etc. Will vary and will depend on the specifics of the individual response, the type of oil involved, etc.
- EDRC is the Coast Guard and BSEE-prescribed measurement of skimming capability for planning purposes and may not represent actual performance.
- Preparation and implementation of plans remains the responsibility of the customer and its plan writer. The following is only a summary of potentially available MSRC resources, subject to above notes and disclaimers, and subject to other contract terms between MSRC and the customer. The customer and its plan writer are solely responsible for determining the total package of resources needed for planning purposes (MSRC and other) and for arranging for all necessary resources.
- The MEL is a comprehensive list of resources nation-wide within MSRC's three regions, *i.e.*, Atlantic, Gulf, and Pacific regions. Due to various state regulations in California and Washington, the resources listed in the Pacific region cannot be listed in a Gulf region plan without the express written permission of MSRC. These exclusions do not apply to dispersant aircraft or dispersant inventory.

COASTAL STARs

* This list represents those companies and/or company locations that have participated in an MSRC training evolution, an MSRC response call-out, or an inspection/review of their facility by MSRC personnel in the last 18 month period.

Coverage Area by COTP Zone	STARs Contractor Name	City	State	Street Address	Zip Code
Long Island, NY	Clean Harbors Environmental Services	Seymour	CT	770 Derby Ave	6483
Philadelphia, PA	Lewis Environmental	New Castle	DE	101 Carroll Drive	19720
Bear, DE	Miller Environmental Group	Smyrna	DE	40 Artisan Dr.	10077
Philadelphia, PA	Moran Environmental Recovery	Newark	DE	9 Garfield Way	19713
Savannah, GA	IntraCoastal Environmental (ICE)	Garden City	GA	5578 Export Blvd.	31408
Savannah, GA	Moran Environmental Recovery	Savannah	GA	2600 Seaboard Coastline Dr.	31415
Boston, MA	Boston Line & Service Co., Inc.	Boston	MA	1 Black Falcon Ave	02210
Boston, MA	Clean Harbors Environmental Services	Weymouth	MA	609 Pleasant St.	02189
Boston, MA.	Environmental Restoration	Rockland, MA	MA	222 Weymouth St.	02370
Boston, MA	Moran Environmental Recovery	Randolph	MA	75-D York Ave	02368
Baltimore, MD	ACV Enviro	Baltimore	MD	2931 Whittington Ave	21230
Baltimore, MD	Clean Harbors Environmental Services	Laurel	MD	3527 Whiskey Bottom Road	20724
Baltimore, MD	HEPACO	Baltimore	MD	7112 Commercial Ave	21237
Baltimore, MD	Miller Environmental Group	Baltimore	MD	4616 Newgate Ave	21224
Baltimore, MD	Miller Environmental Group	Curtis Bay	MD	7320 Carbide Rd.	21226
Portland, ME	Clean Harbors Environmental Services	South Portland	ME	17 Main St.	04106
Portland, ME.	Environmental Restoration	Falmouth	ME	46 Grey Road	04105
North Carolina	Atlantic Coast Marine Group	Morehead City	NC	201 Arendell St.	28557
North Carolina	Containment Control Inc (CCI)	Hope Mills	NC	3434 Black & Decker Rd.	28348
North Carolina	Southeast Response & Remediation (SR&R)	N. Wilmington	NC	4920 Hwy 421	28402
Baltimore, MD	ACV Enviro (Clean Venture)	Clayton	NJ	600 Cenco Blvd.	8312
New York, NY	Atlantic Response	Edison	NJ	12 Connerty Ct.	08816
Delaware Bay	Clean Harbors Environmental Services	Bridgeport	NJ	2858 Rt. 322	8014
New York, NY	Clean Harbors Environmental Services	Edison	NJ	3 Sutton Pl	8817
Delaware Bay	Clean Harbors Environmental Services	Bridgeport	NJ	2858 Rt. 322. PO Box 337	08014
New York, NY	Ken's Marine Service, Inc.	Bayonne	NJ	117 East 22 St.	07002
Philadelphia, PA	Miller Environmental Group	Paulsboro	NJ	105 Riverview Dr.	08066
Philadelphia, PA	Northstar Environmental	Clermont	NJ	36 Clermont Dr.	8210
New York, NY	TOPS	Westfield	NJ	PO box 698	07091

COASTAL STARS

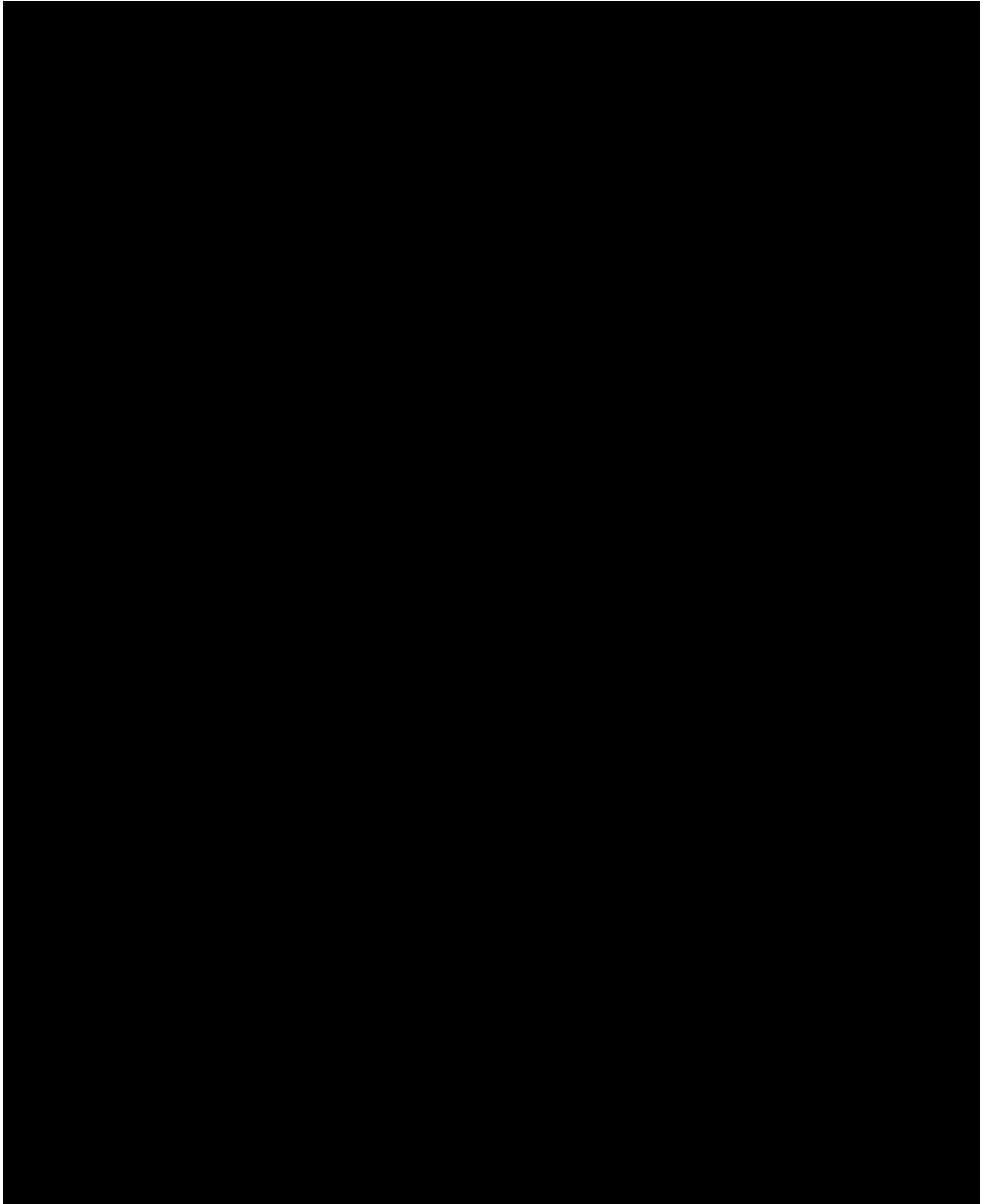
* This list represents those companies and/or company locations that have participated in an MSRC training evolution, an MSRC response call-out, or an inspection/review of their facility by MSRC personnel in the last 18 month period.

Coverage Area by COTP Zone	STARs Contractor Name	City	State	Street Address	Zip Code
Albany, NY	Hepaco	Albany	NY	23A Walker Way	12205
Long Island, NY	Miller Environmental Group	Calverton	NY	538 Edwards Ave	11933
Long Island, NY	Miller Marine Services, Inc.	Port Jefferson	NY	146 Beech St	11777
New York, NY	Miller Marine Services, Inc.	Port Jefferson	NY	146 Beech St	11777
New York, NY	Miller's Launch	Staten Island	NY	Pier 7 1/2	10301
Delaware Bay	HEPACO	Bethlehem	PA	1650 Riverside Dr.	18015
Delaware Bay	HEPACO	Philadelphia	PA	6901 Kingsessing Ave	
Delaware Bay	Lewis Environmental	Royersford	PA	155 Railroad Plaza	19468
Delaware Bay	Lewis Environmental	New Cumberland	PA	144 Reno Street	17070
Delaware Bay	Lewis Environmental	Bloomsburg	PA	18 Industrial Dr.	17815
Delaware Bay	Miller Environmental Group	Mechanicsburg	PA	17 Brenneman Circle	17050
Providence, RI	Clean Harbors Environmental Services	Providence	RI	8 Dexter Rd.	02915
Providence, RI	Moran Recovery Environmental	East Providence	RI	100 Water St.	02914
Charleston, SC	Moran Recovery Environmental	No. Charleston	SC	7325 Peppermill Pkwy.	29418
Hampton Roads, VA	Accurate Environmental Marine	Portsmouth	VA	3965 Burtins Point Rd.	23704
Hampton Roads, VA	LCM Corp.	Hampton	VA	11 Ranhome Ct.	23661
Hampton Roads, VA	Moran Recovery Environmental	Norfolk	VA	1901 Brown Ave	23504



APPENDIX G - CONTRACTUAL AGREEMENTS

APPENDIX G: CONTRACTUAL AGREEMENTS





Place holder for Witt O'Brien's All Hazards QI and SMT contract



APPENDIX H - WORST CASE DISCHARGE SCENARIO

APPENDIX H: WORST CASE DISCHARGE SCENARIO

Worst Case Discharge Planning

The location of all three wind farms in this Plan are adjacent to each other. As agreed with BSEE for this regional plan, this section captures the WCD for all 3 windfarms. The WCD for this regional plan is the OCS-DC for Sunrise Wind.

30 CFR 254.47 was used to determine the volume of each offshore installation's worst-case discharge (WCD) scenario. The facilities covered in this Plan are offshore wind turbine generation (WTG) installations comprised of fixed WTG and offshore substation(s) (OSS). The fixed WTG and OSS platforms hold a set quantity of oil in them used for operations of the installations. Offshore WTG installations fall under 30 CFR 254.47 (d) a facility that does not fall into categories (a), (b), or (c) and requires consultation with the Chief, OSPD for instructions on the calculation of the WCD scenario.

30 CFR 154.47 (d) If your facility which stores, handles, transfers, processes, or transports oil does not fall into the categories listed in paragraph (a), (b), or (c) of this section, contact the Chief, OSPD for instructions on the calculation of the volume of your worst-case discharge scenario.

Through consultation with BSEE and reviewing BOEM requirements detailed in the Construction and Operations Plan (COP). The company was directed to use the largest cumulative volume of oil and other oil based substances contained on a single type of platform at the offshore WTG installation. Offshore WTG installations have two types of platforms WTG and OSS. The oil holding volume of each WTG and OSS at the installation was evaluated and the WTG and OSS with the highest oil holding volume were chosen for the WCD scenario of each type of platform.

Installation vessels on scene

This vessel scenario is stated for informational purposes only, details are not covered in this plan. This would be covered under the vessel's Ship Oil Pollution Emergency Plan (SOPEP). All oil spills from a vessel are the ship owner's responsibility. During installation, vessels will be on the scene to support the development of the site. The worst-case scenario for a vessel would be a Marine Gas Oil discharge from the installation vessel, the Vol au Vent, which carries a maximum of 1490 m³ (393,616 gallons).

Spill Containment Measures

A contained discharge / release within the WTG is the most likely marine pollutant discharge/release. All oil / hazardous substances within an offshore WTG are expected to be contained within the WTG. Each fluid source within an offshore WTG has drip trays, pans, or other systems to collect any discharged/released fluids. Each pan or tray has a drain system leading down the tower to a collection point in the lower storage space.

One potential exception to this is a material handling crane located on the foundation of each offshore WTG. The crane contains some oil and grease within it. The crane is only operated during normal manned operations so personnel can conduct visual observations of any releases during use and maintenance of the crane system.

Each member of the service team is trained and qualified for the cleanup of small spills contained within the foundation and only authorized to do so if it may be done safely. The service team is not authorized nor trained to conduct oil discharge cleanup activities on the water. If there is a release to the ocean environment, the National Response Center and the Qualified Individual shall be notified immediately.

In the case of a contained oil release from the WTG that enters the marine environment, the involved personnel shall notify the MHCC. The MHCC will contact the Qualified Individual and initiate the LERT. Where no risk to personnel is present, Site Manager or MHCC shall coordinate the cleanup activities. For oil and hazardous substance releases from an offshore installation, the MHCC will notify the NRC. For oil and hazardous substance releases from a vessel, the vessel operator shall notify the NRC in accordance with MARPOL.

In the event of the worst-case discharge scenario involving the full release of chemicals within the WTG or OSS, the table below identifies the maximum amount that could be released from each Facility.

Worst-Case Discharge Planning Volumes

SUNRISE WIND OCS -DC1 WCD (WCD FOR REGIONAL PLAN)		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
Transformer Oil – Nytro 10 XN	105,700	2,517
Diesel Fuel	24,304	579
Hydraulic Oil Castrol Hyspin AWH-M32	528	13
Lube Oil CAT DEO-ULS SYN 5W-40	172	4
Ester Oil Midel 7131	3,170	75.5
Total WCD	133,874	3,187

Additional Planning Volumes

WTG WORST CASE DISCHARGE (All WTG have identical oil holding capacity)		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
Grease Optipit Castrol	11	0.25
Grease Mobilith 007	66	1.57
Grease Shell Rohodina BBZ0	42	1.01
Gear Oil Castrol Optigear Synthetic X320	63	1.51
Hydraulic Oil Castrol Hyspin AWH-M32	79	1.89
Hydraulic Oil Castrol Hyspin AWH-M32	63	1.51
Ester Oil Midel 7131	1,611	38.37
Total WCD	1,935	46

SOUTH FORK WIND OSS WORST CASE DISCHARGE		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
MGO Diesel	8,084	192.47
MGO Diesel	476	11.32
Gear Oil	0	0.00
Hydraulic Oil	311	7.40
Hydraulic Oil Castrol Hyspin AWH-M32	311	7.40
Transformer Oil, HyVolt II NG	19,580	466.19
Transformer Oil, HyVolt II NG	6,045	143.92
Total WCD	34,807	829

REVOLUTION WIND OSS WORST CASE DISCHARGE		
Oil or Hazardous Substance	Quantity (gallons)	Quantity (Barrels)
Transformer Oil – Nytro 10 XN	79,252	1,886.95
Diesel Fuel	52,834	1,257.95
Hydraulic Oil Castrol Hyspin AWH-M32	317	7.55
Total Volume	132,403	3,152.45

Worst Case Discharge Scenario

The initial response to a WCD in adverse weather conditions from the Facility. Later summer, all contents of the OSS or a WTG are instantly released into the ocean due to the collapse of an entire structure (OSS or WTG). Weather conditions are heavy rain, eight (8) foot seas, and fifteen (15) knot westerly winds. The National Weather Service (NWS) has issued a small craft advisory due to the adverse weather conditions. Summer ocean currents and current weather conditions would be pushing the oil east towards Martha's Vineyard and Cape Cod. The structure failure is identified by personnel aboard an onsite support vessel and is immediately reported to the MHCC and ERCC. The LERT classifies the incident as a Level 3 incident and immediately notifies QI who activates the SMT and notifies agencies.

Due to the adverse weather conditions, aerial tracking, small craft, dispersants and in-situ burning are NOT a response option. Tactic would be to locate and contain the oil using a large vessel and open water booming techniques. The QI/IC contacts the SROT/OSRO to deploy equipment staged in Perth Amboy, NJ. The following equipment is mobilized and enroute within two (2) hours.

Perth Amboy NJ resources deployed:

- Responder Class Oil Spill Response Vessel (OSRV) with 4000 bbls onboard storage
- 2,640 feet 67" Curtain Pressure-Inflatable Boom
- One (1) Munson Support Boat
- One (1) Vessel Mounted X-band & FLIR Systems
- One (1) Stress Skimmer 15,840 bbl/day Estimated daily recovery capacity (EDRC)
- One (1) Transrec 350 Skimmer 10,567 bbl/day EDRC
- One (1) Fast Advancing Encounter System #4

Due to adverse weather, the vessel travels at a reduced speed of Ten (10) knots and arrives on the scene 19 hours after mobilization. While underway oil spill modeling would be conducted to predict the spill trajectory and help direct the vessel. Once on scene, the vessel would use X-band, FLIR Systems, and visual means to locate oil. Skimming operations would be postponed until sea calm and conditions are suitable and safe for operations. When conditions are suitable, the Fast Advancing Encounter System #4 would be deployed to remove oil on the water's surface.

The Geographic Response Strategies can be located in the below referenced ACPs:

Rhode Island and Southeastern Massachusetts Area Contingency Plan (**PRIMARY**):

<https://homeport.uscg.mil/Lists/Content/Attachments/2471/2020%20SEMA%20and%20RI%20Area%20Contingency%20Plan.pdf>

Sector Long Island Sound Area Contingency Plan:

https://homeport.uscg.mil/Lists/Content/Attachments/65980/SLIS_ACP_2016_2.0.pdf

AND

https://homeport.uscg.mil/Lists/Content/Attachments/65980/SLIS_ACP_2016_ANNEXES_2.0.pdf

Oil spill modeling would be used to determine onshore and wildlife resources at risk of oil impact. Resource trustees would be consulted to prioritize locations and species to protect. Staging areas would be

established, and initial response resources (e.g., boom, absorbents) would be mobilized to the sites from the OSRO's Providence, RI, and Edison, NJ warehouses to those locations for deployment when conditions allow.

The use of dispersants and in-situ burning would be evaluated. Due to weather conditions, the quantity of oil, and emulsification, these tactics would not be suitable options.

The adverse weather conditions would most likely cause much of the oil to emulsify and enter the water column making it unrecoverable.

Initial Response Times

The response time for each individual piece of equipment is listed in the table below. A breakdown of the initial response equipment deployment is listed below.

RESPONSE TIME OSRV - PERTH AMBOY, NJ TO SOUTH FORK OFFSHORE WIND FARM	
Category	Hours
Mobilization and loadout time	2
Travel Time to Spill Site: 170 Nautical Miles at 12 Knots	14
Deployment Time	1
Total Estimated Response Time	17

Additional Spill Scenarios

Scenario 1:

During the installation process, the connected WTG hub and nacelle is lifted via installation vessel crane onto the WTG tower where the WTG hub and nacelle is secured to a yaw ring on the WTG tower. In the event that the WTG hub and nacelle becomes dislodged from its rigging, it would fall into the water and assumed to release all contents into the ocean environment. Internal and external notification would be made. The OSRO would deploy a vessel and response equipment from the STARS network to contain and recover the oil. Construction vessels on scene would utilized to salvage the Nacelle from the sea floor.

CHEMICAL TYPE	GREASE	HYDRAULIC OIL	COOLANT "NON OIL"
Chemical Quantity	147 liters (39 gallons)	4160 liters (1,099 gallons)	660 liters (175 gallons)

Scenario 2:

During the installation process, portable generators are needed to power various tools and equipment used in construction and commissioning. During the movement of these materials from the installation vessel to the foundation or potentially a support vessel to the foundation, all portable generators and refueling containers that are completely full were to fall into the water with all fuel contents releasing into the ocean environment. Internal and external notification would be made. The OSRO would deploy a vessel and response equipment from the STARS network to contain and recover the oil. Construction vessels on scene would utilized to salvage the portable generators and fuel containers from the sea floor.

CHEMICAL TYPE	DIESEL FUEL
Chemical Quantity	793 liters (209 gallons)

Scenario 3:

During the installation process, the foundation with davit crane is lifted via installation vessel crane onto the monopile. In the event that the foundation becomes dislodged during the lift, the foundation with davit crane would fall into the water and assumed to release into the ocean environment. Internal and external notification would be made. Personnel on site would deploy absorbent response equipment from the to contain and recover the oil. Construction vessels on scene would utilized to salvage the crane from the sea floor.

CHEMICAL TYPE	LUBRICATING OIL	GREASE
Chemical Quantity	< 1 liter	< 1 liter

Scenario 4:

During the installation process, three sets of hydraulic tools will be lifted onto the foundation for use on the foundation and WTG. In the event that the tools are lifted in a single container and the container becomes dislodged during the lift, the tools may fall into the water and assumed to release into the ocean environment. Internal and external notification would be made. Personnel on site would deploy absorbent response equipment from the to contain and recover the oil. Construction vessels on scene would utilized to salvage the tools from the sea floor.

CHEMICAL TYPE	HYDRAULIC OIL (COMBINED FOR 3 SETS OF TOOLS)
Chemical Quantity	12 liters (3 gallons)

Response Equipment

Response equipment for this discharge scenario is listed in Appendix F: MSRC Major Equipment List. The tables and link list the response equipment necessary to respond to the WCD. The tables and link include equipment, materials, and personnel (crew size) to deploy and operate the response equipment promptly and effectively.

Surveillance

Surveillance will be initiated with the first available aircraft using personnel most readily available at the time the incident is discovered. The observer on the initial over flight will be instructed to document the slick and gather information such as latitude and longitude of leading edge, direction of travel, size, color, etc. and pass this information to the Command Center. A trained observer will be dispatched as soon as possible and will communicate directly with the Command Center to pass on information so that informed decisions regarding deployment of resources can be made. Depending upon the scope and duration of the spill, Operations will utilize Vessel Mounted Infrared Cameras to conduct night operations and/or to position resources for daylight operations. The use of advanced monitoring equipment such as the integrated X-Band/IR system should be taken into consideration during an oil spill response. Utilizing systems such as these can allow for a more precise recovery by allowing response personnel to operate more efficiently 24 hours a day.

Spill Trajectory Analysis

Spill trajectory analyses were conducted for each product associated with the WCD for two (2) time frames: June through November (summer & fall) and December through May (winter & spring). Because of the seasonal change in ocean currents, during the summer & fall time frame, ocean currents will carry a product in a northeast direction with projected impacts on land. During the winter & spring time frame, ocean currents will carry a product in a southeast direction into the open ocean with no projected land impacts. All trajectory analyses assume all oil products are instantly released into the environment.

Modeling Software

The 2021 version of OILMAP modeling software was used to complete the spill trajectory analyses. OILMAP Professional – version 7.1.8.0. Oilmap is an Oil Spill Model and Response System with EDS: Environmental Data Server Access. The oil characters were pulled from RPS's database. The wind was pulled from COASTMAP EDS – and used GFS – Global Forecast System (NCEP – National Centers for Environmental Prediction) historical data. The current data we used is also from COASTMAP EDS and was pulled from Global HYCOM (NCEP).

Environmental Resource Identification

The following is a list of resources of special economic importance that could be impacted in the areas identified by the OILMAP trajectory analysis. ACPs, US Fish and Wildlife websites and

National Marine Sanctuary			
NOAA Office of National Marine Sanctuaries			
NOAA's Office of National Marine Sanctuaries serves as the trustee for a network of underwater parks encompassing more than 600,000 square miles of marine and Great Lakes waters. The network includes a system of 15 national marine sanctuaries and Papahānaumokuākea and Rose Atoll marine national monuments. Few places on the planet can compete with the diversity of the National Marine Sanctuary System, which protects America's most iconic natural and cultural marine resources. The system works with diverse partners and stakeholders to promote responsible, sustainable ocean uses that ensure the health of our most valued ocean places. A healthy ocean is the basis for thriving recreation, tourism and commercial activities that drive coastal economies. The Office of National Marine Sanctuaries also leads the National Marine Protected Areas Center, the nation's hub for building innovative partnerships and tools to protect our special ocean.			
Resources	Contact	Phone	Email
NONE			

National Estuarine Research Reserve System (NERRS)			
Source Link: National Estuarine Research Reserves (noaa.gov)			
The National Estuarine Research Reserve System is a network of <u>estuaries</u> — places where freshwater from the land mixes with saltwater from the sea — established across the nation for long-term research, education, and coastal stewardship. The reserves are a partnership between NOAA and the coastal states and territories. NOAA's Office for Coastal Management is responsible for administering the reserve system. Each reserve is managed on a day-to-day basis by a lead state agency or university, with input from local partners. The mission of the reserves is to practice and promote coastal and estuarine stewardship through innovative research and education, using a system of protected areas.			
Resources	Contact	Phone	Email
Waquoit Bay NERRS	Tonna-Marie Rogers	774-255-4270	tonna-marie.surgeon-rogers@mass.gov
Narragansett Bay NERRS	Caitlin Chaffee – Reserve Manager	401-683-7365 401-222-4700 ext 2774417	Caitlin.Chaffee@dem.ri.gov

National Wildlife Refuge (NWR) System			
Source Link: Visit the National Wildlife Refuge System U.S. Fish & Wildlife Service (fws.gov)			
Each unit of the Refuge System whether refuge, national monument, conservation area, or wetland production areas is established to serve a statutory purpose that targets the conservation of native species dependent on its lands and waters. All activities on those acres are reviewed for compatibility with this statutory purpose.			
Resources	Contact	Phone	Email
Nomans Land Island NWR, Martha's Vineyard	Eastern Massachusetts NWR Headquarters	978 579 4025	None listed
Nantucket NWR, 107 Wauwinet Rd. Nantucket, MA 02254	Nantucket NWR	978 443 4661	None
Monomoy NWR, 30 Wikis Way, Morris Island,	Momomoy NWR	508 945 0594	None

Chatham, MA 02633			
Sachuest Point NWR, 769 Sachuest Point Rd. Middletown, RI 02842	Charlie Vandemoer	401 619 2680	None
Trustom Pond NWR, 50 Bend Rd. Charlestown, RI 02813	Trustom Pond NWR	401 364 9124	None
Ninigret NWR, 50 Bend Rd. Charlestown, RI 02813	Ninigret NWR,	401 364 9124	None
Block Island NWR, 50 Bend Rd Charlestown, RI 02813	Block Island NWR	401 364 9124	None

Threatened and Endangered Species

The following are list of threatened and endangered species that reside in areas potentially impacted by an oil spill.

NOAA Fisheries New England/Mid Atlantic Region	
Link to Source: Threatened and Endangered Species Directory Page NOAA Fisheries	
Common Name	Scientific Name
Atlantic Salmon	<i>Salmo salar</i>
Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>
Giant Manta Ray	<i>Manta birostris</i>
Oceanic Whitetip Shark	<i>Carcharhinus longimanus</i>
Blue Whale	<i>Balaenoptera musculus</i>
Fin Whale	<i>Balaenoptera physalus</i>
North Atlantic Right Whale	<i>Eubalaena glacialis</i>
Sei Whale	<i>Balaenoptera borealis</i>
Sperm Whale	<i>Physeter macrocephalus</i>
Green Sea Turtle	<i>Chelonia mydas</i>
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>
Loggerhead Sea Turtle	<i>Caretta caretta</i>

Massachusetts

Link to Source: <https://www.mass.gov/info-details/list-of-endangered-threatened-and-special-concern-species>

Rhode Island

Link to Source: https://ballotpedia.org/Endangered_species_in_Rhode_Island

Connecticut

Link to Source: <https://portal.ct.gov/DEEP/Wildlife/Learn-About-Wildlife/Connecticut-Endangered-and-Threatened-Species-Fact-Sheets>

Long Island New York

Link to Source: <https://www.dec.ny.gov/animals/7494.html>

Geographic Response Strategies

Geographic Response Strategies

Geographic response strategies (GRS) for the region are located on National Oceanic Atmospheric Administration's Environmental Response Management Application (ERMA). The link below provides access to applicable response strategies. Note: not every area has developed GRS. Area that do not have GRS Environmental Sensitivity Indexes are provided.

Link to Source:

<https://erma.noaa.gov/atlantic#layers=15+13763+809+930+886+616+16513+16514+15648+15654+15699+15655+15697+49837+49836+49835+49834+49833+38278+38320+38317+38309+38322+38321+15700+15653+15698&x=-71.72269&y=41.55924&z=9&panel=layer>

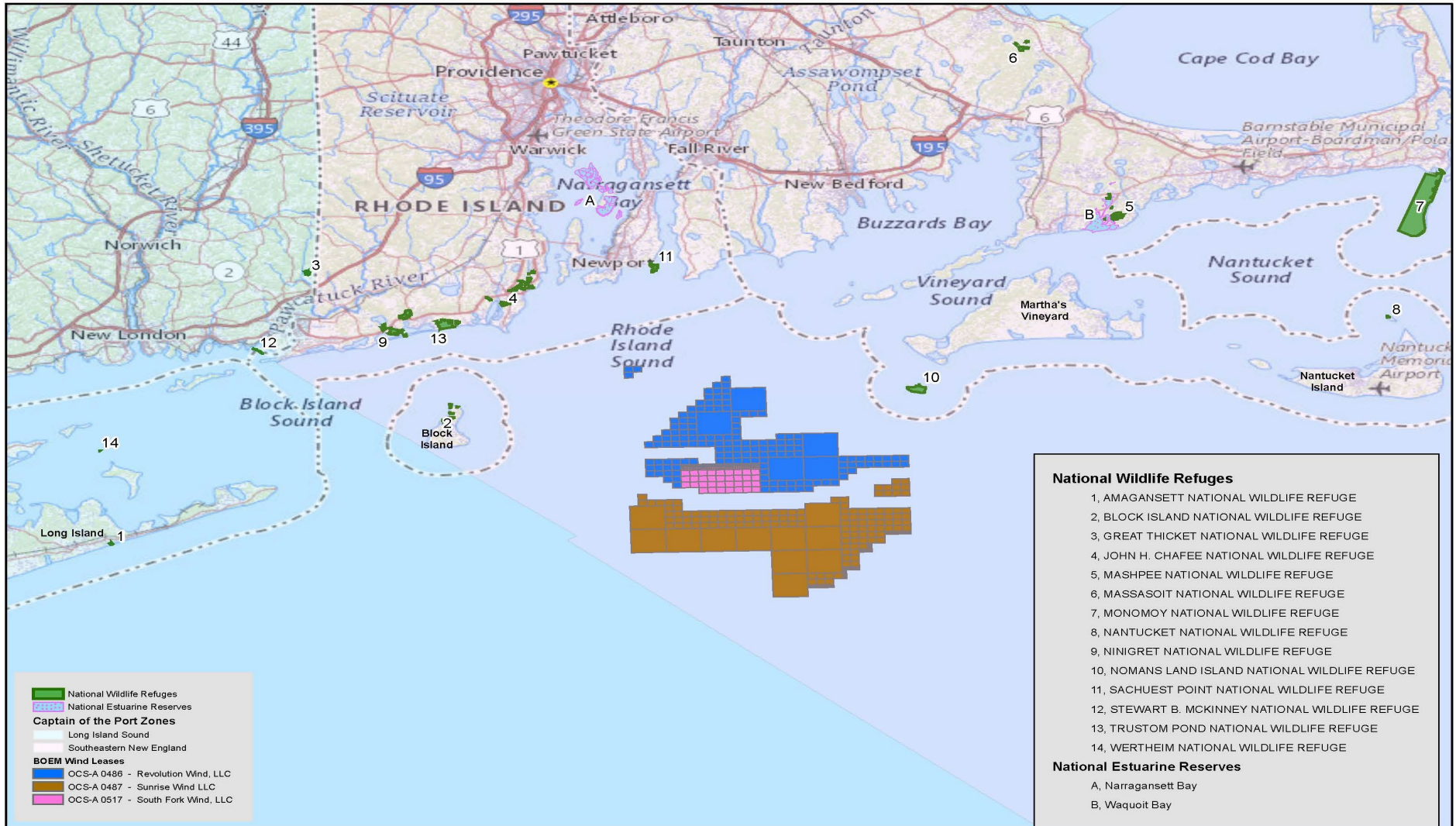
Geographic Response Strategies Area

ERMA[®] | Atlantic

LAYERS

Clear Layers Collapse Folders

- Environmental Quality & Monitoring
- Imagery & Remote Sensing
- Natural Resources, Habitats, & Managed Areas
- Navigation & Marine Infrastructure
- Public Safety & Infrastructure
- Response Planning
 - Area Contingency Plans
 - Sector Northern New England
 - Sectors Boston | Southeastern New England
 - Massachusetts GRP Boom (MassGIS)
 - Massachusetts GRP Booms (MassGIS WMS) (zoom level 13+)
 - Massachusetts GRP Tactics Points (MassDEP)
 - Massachusetts GRP Tactics Points (MassGIS WMS) (zoom level 14+)
 - Massachusetts GRP Other Points (MassGIS)
 - Massachusetts GRP Other Points (MassGIS WMS) (zoom level 15+)
 - MassDEP Oil Spill Response Trailers (MassGIS)
 - MassDEP Oil Spill response Trailers (MassGIS WMS)
 - Rhode Island Upper Narragansett Bay Booming Strategies (RI DEM)
 - Rhode Island Upper Narragansett Bay Tactics (RI DEM)
 - Sector Long Island Sound
 - Sector Long Island Sound Tactic Areas
 - Sector Long Island Sound Tactics
 - Sector Long Island Sound Points
 - Sector Long Island Sound Labels
 - Sector Long Island Sound Booms
 - New London GRS Index
 - New London Protection Booms (USCGA)
 - New London Deflection Booms - Flood (USCGA)
 - New London Deflection Booms - Ebb (USCGA)
 - New London Recovery Booms - Flood (USCGA)
 - New London Recovery Booms - Ebb (USCGA)
 - Sector New York GRS
 - Sector Delaware Bay



APPENDIX I - DISPERSANT USE PLAN

APPENDIX I: DISPERSANT USE PLAN

The use of dispersant is NOT a likely response option due to the quantity and types of oil present at the Facilities.

Dispersants are chemicals used to remove oil from water surfaces by dispersing it into the water column in order to reduce its impact to environmentally sensitive shoreline habitats. Dispersants are sprayed onto the affected oil slicks by aircraft or vessel. The dispersants reduce the oil/water surface tension and break the oil product down into small particles and mix into the water column.

The IC shall use a set of criteria to determine if dispersant operations are the optimum countermeasure during cleanup operations. Dispersant use requires approval of the Regional Response Team (RRT) through the Federal On-Scene Coordinator (FOSC) prior to use.

Dispersants Inventory

LOCATION	PROVIDER	DISPERSANT	STORAGE	AMOUNT (GAL)
Chesapeake City, MD	MSRC	Corexit 9500	330 Gal totes	9,570
Portland, ME	MSRC	Corexit 9500	330 Gal totes	990
Savannah, GA	MSRC	Corexit 9500	330 Gal totes	6,930
Tampa, FL	MSRC	Corexit 9500	Totes	5,280
Everett, WA	MSRC	Corexit 9500	330 Gal Totes	13,530
Moses Lake, WA	MSRC	Corexit 9500	330 Gal Totes/ISO tank	4,320
Lake Charles, LA	MSRC	Corexit 9500	Bulk	15,349
Galveston, TX	MSRC	Corexit 9500	Bulk	10,470
Ingleside, TX	MSRC	Corexit 9500	Bulk	3,300
TOTAL				69,741

Depending on the rate of dispersant being applied, Nalco (the manufacturer of Corexit) can be contacted to begin production of additional dispersant supplies. It is projected that Nalco requires 10 to 14 days in order to increase production and make delivery of additional resources.

COREXIT has a treatment rate of about 2 to 10 U.S. gallons per acre, or a dispersant to oil ratio of 1:50 to 1:10 depending on site conditions. Assuming a worse case ratio of 1:10, the below calculations for daily usage can be determined for MSRC's current fleet.

Aircraft	Spray Tank Capacity	GPM of Spray System	Spray Arm Length
C-130 Aircraft	3,250 Gallons	294	150 ft

Based on the daily usage rates, 35,351 gallons of dispersants can be utilized in a day. Since 180,651 gallons of dispersants is in stock, it is recommended that Nalco be contacted immediately to begin production, should dispersants be utilized during a response.

The duration times reflected in the above table show the travel distance of the aircraft in one fueling. Additional time needed for response can be contracted based on refueling time and pilot availability.

Toxicity Data

Corexit 9500 Toxicity		
Material Tested	Species	LC50 (ppm)
COREXIT EC9500	Menidia beryllina	25.20 96-hr
	Mysidopsis bahia	32.23 48-hr
No. 2 Fuel Oil	Menidia beryllina	10.72 96-hr
	Mysidopsis bahia	16.12 48-hr
COREXIT EC9500 & No. 2 Fuel Oil (1:10)	Menidia beryllina	2.61 96-hr
	Mysidopsis bahia	3.40 48-hr
Reference Toxicant (SDS)	Menidia beryllina	7.07 96-hr
	Mysidopsis bahia	9.82 48-hr

NOTE: This toxicity data was derived using the concentrated product and excerpted from the U.S. EPA Technical Product Bulletin #D-4.

Dispersant Effectiveness

Research on the effectiveness of dispersants over time has been conducted by organizations and committees such as the Committee on Understanding Oil Spill Dispersants and the International Petroleum Industry Environmental Conservation Association (IPIECA), both of which have representation of regulatory and industry representatives. Highlights of their findings include:

- Factors that influence the effectiveness of dispersant treatment include sea-state, oil properties, and dispersant brand¹.
- On sea trials, the effectiveness of dispersants decreases with time as the oil weathers¹.
- Dispersants do work at sea but not every time. The chances of effectiveness are higher during the early stages of the spill¹.
- For a particular oil, the time available before dispersant stops being effective depends upon such factors as sea state and temperature but is unlikely to be longer than a day or two. Therefore, it is important to apply dispersants during a timely or early “window of opportunity”.
- After a period of time, oils which can be dispersed initially may become resistant as the viscosity increases as a result of evaporation and emulsification².

1. Committee on Understanding Oil Spill Dispersants, Conclusions from Sea Trials, presented by A. Lewis, March 2004
2. International Petroleum Industry Environmental Conservation Association (IPIECA), November 2001

Application Equipment

Description	Location	Estimated Arrival Time
C-130 Aircraft	Everett, WA	13 hours

NOTE: Estimated arrive time includes 2 hours prep plus transit time and 2 hours to refuel.

Application Methods

Once the application of dispersants has been deemed possible, acceptable and feasible, dispersants can be sprayed to a spill. Since dispersant loses its effectiveness when mixed with water, it must be applied neat to the slick. The recommended treatment rate for dispersants, applied undiluted is a dispersant to oil ratio of 1 to 20. Lower treatment rates have been shown to be effective with light, freshly spilled crude oils. It is always difficult to achieve exactly the recommended treatment rate because oil slicks have large and localized variations in oil layer thickness. Undiluted spraying from ships or aircraft is the preferred method of using dispersants, although seawater dilution can be used from vessels if the appropriate equipment is available. Note that seawater-diluted application is efficient only on low viscosity oils; for oils with viscosity above 1,000 mPa undiluted dispersant application is necessary.¹

Aerial Application

- Dispersant must be applied to the floating oil, not to the water around it.
- The application altitude depends on meteorological conditions and on the application system, but generally it has a range of 30 to 100 feet.

1. From Dispersants and Their Role in Oil Spill Response, 2nd edition, November 2001, IPIECA

- Since droplet size is important in order for dispersants to be effective, special care must be given to select the spray nozzle for the aerial dispersant application system. Although optimal droplet size is within the 250-500 µm range, it is always recommended to follow guidance from the manufacturer and the ASTM standard.
- A dispersant controller must be procured in order to fly over the spray zone(s) in a separate aircraft from the dispersant spray aircraft. The controller must be qualified and able to direct the dispersant spray aircraft in carrying out the operation. The controller must also provide direction to avoid the spraying of birds, marine mammals and turtles that may be in the spray zone(s).
- This plan incorporates by reference any manufacturer and ASTM guidance for application methods.

Boat Application

- Compliance to ASTM Guidelines F1460-93, F1413-92, and F1737-96 is required for boat dispersant systems that have spray arms or booms that extend over the edge of the boat and have fan type nozzles that spray a fixed pattern of dispersant.
- Dispersant must be applied in relatively large droplets and avoid being applied in small atomized droplets. Sufficient mixing energy should be created by normal wave action and the boat's wake.

- When applied from workboats, systems using a portable fire pump, or a fixed fire-fighting system is best. This should operate at approximately 40-80 psi depending on the requirements of the system used. This system should deliver dispersant at a rate adequate to maintain the spray pattern from the nozzles at the operating velocity of the vessel without blowing away before reaching the oil. Currently, there are no ASTM standards applicable to this fire monitor and/or fire nozzle dispersant application system.
- During boat application, using a metering pump for chemical addition.
- For slicks formed by more viscous crude or petroleum products, a hydrocarbon-based kerosene or other aliphatic solvent) dispersant is required.

SMART Protocol for Dispersant Use

Special Monitoring of Applied Response Technologies (SMART) is a cooperatively designed monitoring program for in situ burning and dispersant. SMART relies on small, highly mobile teams that collect real-time data using portable, rugged, and easy-to-use instruments during dispersant operations.

To monitor the efficacy of dispersant application, SMART recommends three options, or tiers.

Tier I: A trained observer, flying over the oil slick and using photographic job aids or advanced remote sensing instruments, assesses dispersant efficacy and reports back to the Unified Command.

Tier II: Tier II provides real-time data from the treated slick. A sampling team on a boat uses a monitoring instrument to continuously monitor for dispersed oil 1 meter under the dispersant-treated slick. The team records and conveys the data to the Scientific Support Team, which forwards it, with recommendations, to the Unified Command. Water samples are also taken for later analysis at a laboratory.

Tier III: By expanding the monitoring efforts in several ways, Tier III provides information on where the dispersed oil goes and what happens to it.

Two instruments are used on the same vessel to monitor at two water depths. Monitoring is conducted in the center of the treated slick at several water depths, from 1 to 10 meters. A portable water laboratory provides data on water temperature, pH, conductivity, dissolved oxygen, and turbidity.

Conditions For Use

Conditions For Use (Environmental)

Pre-approval is contingent upon the utilization of the dispersants listed on the most current NCP Product Schedule.

Dispersant application operations should only be conducted during daylight.

Very low water temperatures affect the dispersant's action as these tend to increase the viscosity of the oil and make dispersion more difficult.

Weathering of oil can have a negative effect on dispersion, but the amount of time to reach that point can vary widely from a few days to more than a month depending on meteorological conditions.

Conditional Use (Regulatory)

The decision to use dispersants must be made soon after the spill occurs. Weathering of oil will increase the viscosity and decrease the capability of chemically dispersing the oil. Factors to be considered in making this decision are 1) oil type and properties, 2) environmental conditions, 3) the availability of dispersant and application equipment and 4) the probable fate of the oil without treatment.

Only dispersants listed in the most recent NCP Product Schedule may be used. Maximum dispersant spray coverage of suitable slick areas is for only one complete treatment. Suitable slick areas are those having visibly thick oil, described as black or brown and not a sheen. Suitable coverage may mean more than one sortie to complete.

Approval Procedures and Forms

The Facility incorporates applicable sections of from the Primary ACP. The relevant Dispersant Plan forms and checklists are found in attachments 3000-3, 3000-4, and 3000-5. These forms and checklists can be found in the [Rhode Island and Southeastern Massachusetts ACP](#).

A blank Dispersant Pre-approval Initial Call Checklist is an attachment to this section. The spill and on-scene conditions will be obtained by the HSE/Planning Coordinator and provided to the RRT via the FOSC. Information on API gravity, pour point, crude type will be on file in advance of the spill.

APPENDIX J - IN SITU BURNING PLAN

APPENDIX J: IN SITU BURNING PLAN

The use of in-situation (in-situ) burning is NOT a likely response option due to the quantities and types of petroleum products present at the Facilities.

Idea's product factors for in-situ burning include fresh product that is flammable with a flash point under 100 degrees Fahrenheit and a maximum of 50% emulsification. The refined petroleum products at the Facilities are all combustible with a flash point greater than 100 degrees Fahrenheit, which greatly inhibits their ability to ignite and stay burning. In addition, the products are stored in limited quantities and emulsification will begin as soon as the product enters the marine environment, further reducing its already limited burnability. Due to these factors, it is anticipated the products will not be ignitable, making them an unsuitable candidate for in-situ burning.

For in situ burning operations, SMART recommends deploying one or more monitoring teams downwind of the burn, at sensitive locations such as population centers. The teams begin sampling before the burn begins to collect background data. After the burn starts, the teams continue sampling for particulate concentration trends, recording them both manually at fixed intervals and automatically in the data logger, and reporting to the Monitoring Group Supervisor if the level of concern is exceeded. The Scientific Support Team forwards the data, with recommendations, to the Unified Command.

In-Situ Burn checklist from the Rhode Island and Southeastern Massachusetts ACP is found in Attachment 3000-7 from the below link:

<https://homeport.uscg.mil/Lists/Content/Attachments/2471/2020%20SEMA%20and%20RI%20Area%20Contingency%20Plan.pdf>

Reference document: In-Situ Burn Unified Command Decision Verification Checklist. Sourced from National Ocean and Atmospheric Association (NOAA) Office of Response and Restoration website In-Situation Burning information page.

<https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/resources/in-situ-burning.html#:~:text=U.S.%20Coast%20Guard%29%20In%20situ%20burning%2C%20or%20ISB%2C,a%20facility%2C%20at%20the%20location%20of%20the%20spill.>

If the FOSC decides In-situ burning is a tactic that will be evaluated. The company will support this decision and has access through its OSRO to equipment necessary to conduct in-situ burning.

In Situ Burning Equipment

Description	Qty	Section Length	Height Inches	Location	Owner	Availability
500 ft, Pyro Fire Boom	2	50 ft	30	Perth Amboy, NJ	MSRC	Stand-By

The company has ready access to 1,000 feet of fire boom through their contracts with MSRC. Additional fire boom can be acquired from MSRC equipment inventory that is staged in the Gulf Region of the US. Refer to MSRC full equipment inventory list online.

<https://www.msrc.org/equipment-capabilities/major-equipment-list>

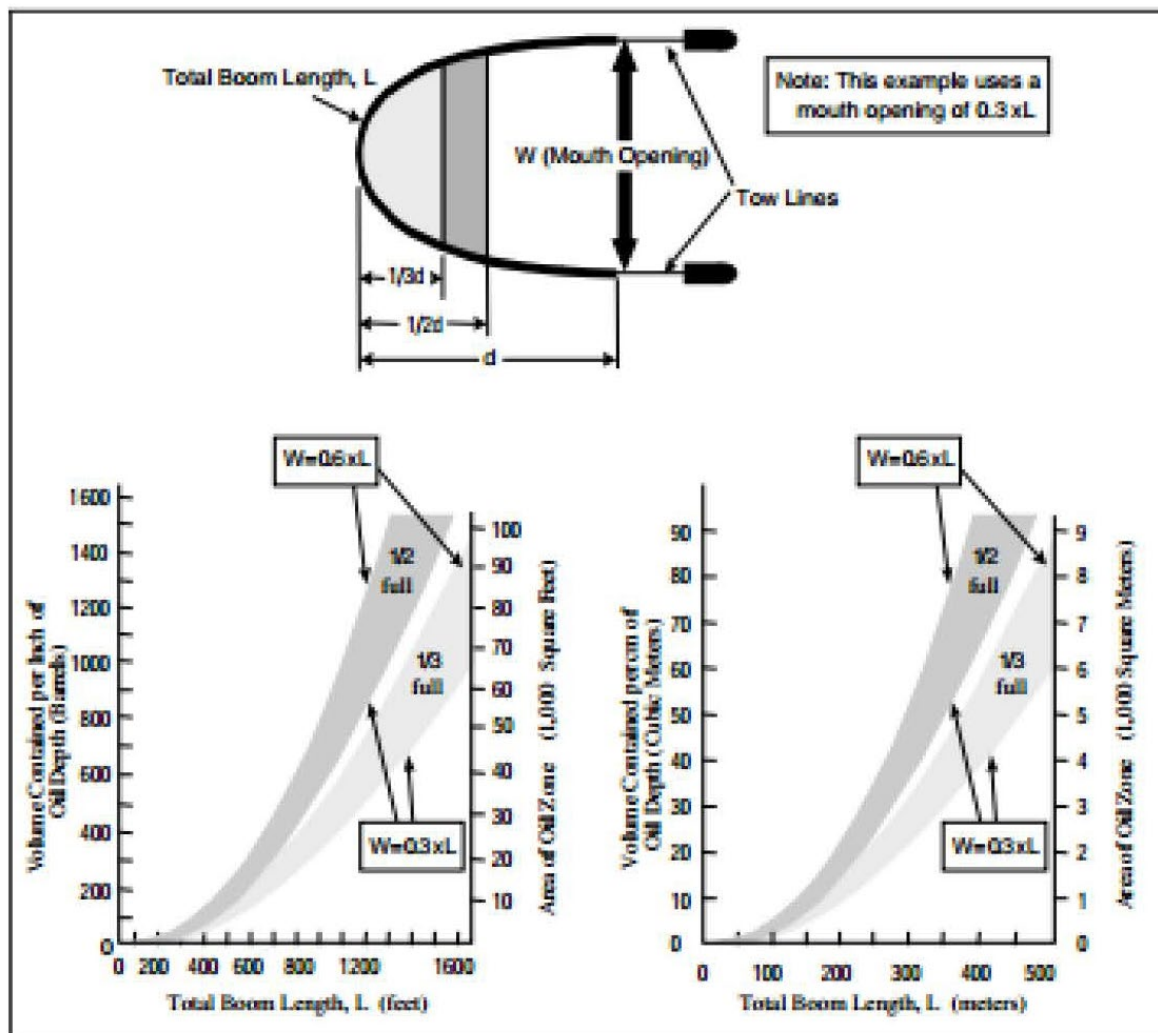


Figure 8-1 Estimating Boom Holding Capacity

ExxonMobil Research and Engineering Company, *Exxon Oil Spill Response Field Manual*: 142

Procedures

The deployment of fire boom is basically the same as any conventional boom. The fire boom can be deployed from dockside and towed at speeds of about 10 knots or less to the spill site, or deployed on location from the decks of vessels or pre-staged platforms. Once in the water, fire boom would look and behave like any other containment barrier of similar configuration. The primary difference would involve the use of longer tow lines - typically about the same length of line for each towing vessel as the length of fire boom being used. A U-configuration of fire boom 500 feet in length, towed by two vessels each with tow lines 500 feet in length, would put the stern of each vessel approximately 600 to 700 feet from a fire contained within the lower one-third of the boom's apex. Ignition may be provided by a Heli-Torch from a helicopter, a flame gun, hand-held igniters or other ignition sources as the situation demands.

Environmental Effects

The potential ecological impacts of ISB have not been extensively discussed or studied. Burning oil on the surface of the water could have a small adverse effect on organisms that inhabit the uppermost layers of the water column (such as fish larvae and eggs); however, the area affected would presumably be small relative to the total surface area and depth of a given body of water. In addition, burn residues may sink, potentially exposing some benthic (bottom-dwelling) plants and animals. It is possible that burn residues may foul gills, feathers, fur, or baleen. Overall, these impacts would be expected to be much less severe than those resulting from exposure to a large, uncontained oil spill.

While the main purpose of this brief review is to present the major human health and safety considerations of in-situ burning, mentioning the greater health aspects that affect our environment and, ultimately, our quality of life is definitely warranted. We will touch on a few points only. These points include the feasibility of burning the oil as opposed to leaving it to evaporate, waste generation, and possible effects on exposed wildlife.

Burning vs. Evaporation

A point to keep in mind is that leaving the oil in place will have a deleterious effect on air quality. Spilled oil left untreated would evaporate at a rate that depends on the type of oil, time elapsed from release, wind, waves, and water and air temperatures. The amount evaporated can be substantial. This evaporation pattern, similar in other oil types, emphasizes the need for quick action if in-situ burning is selected as the response tool.

The decision whether to burn or not to burn involves a tradeoff: burning the oil would reduce or eliminate the environmental impact of the oil slick and convert most of the oil to carbon dioxide and water. Burning, however, would generate particulates and cause air pollution. Not burning the oil would enable the slick to spread over a large area and impact the environment.

Waste Generation

Mechanical cleanup of oil spills generates large amounts of waste.

In-situ burning of oil is going to generate waste. Even the most efficient burning will leave a taffy-like residue that will have to be collected and treated or disposed of. Burning the oil at sea will not be as efficient as burning it in engines, furnaces, or power plants, and will generate a substantial amount of particulates. However, by minimizing the solid and liquid waste generated by beach cleanup, and by reducing the energy required to support the response operation, burning even some of the oil at sea is likely to reduce the overall waste generation of a spill.

Effects on Birds and Mammals

Based on our limited experience, birds and mammals are more capable of handling the risk of a local fire and temporary smoke plume than of handling the risk posed by a spreading oil slick. Birds flying in the plume can become disoriented and could suffer toxic effects. This risk, however, is minimal when compared to oil coating and ingestion, the result of birds' exposure to the oil slick.

The effect of in-situ burning on mammals is yet to be seen. It is not likely that sea mammals will be attracted to the fire, and the effect of smoke on marine mammals is likely to be minimal. Mammals, on the other hand, are adversely affected by oil ingestion and oil coating of their fur. Therefore, reducing the spill size by burning the spilled oil can reduce the overall hazard to mammals.

Once coated by oil, neither birds nor mammals have responded well to rehabilitation efforts, and although much has been learned and rehabilitation methods have greatly improved, the success rate of wildlife rehabilitation has been moderate at best.

In-situ burning of oil may provide an efficient and rapid method of oil spill response, providing that the requirements to carry on the response are met. Burning the oil on the water generates a large amount of smoke, which contains particulates and toxic gases. Among those, particulates seem to be the major agent of concern, as their concentration in the center of the plume remains above the level of concern for the general population for several miles downwind. It was found, however, that particulates concentration under the plume does not significantly exceeds background levels. Protection of response personnel can be achieved by adequate training and personal protective equipment. The general public can be protected by establishing burning guidelines that will prevent the burn from becoming a health hazard to the public.

When compared to conventional response methods and to beach cleanup, in-situ burning can reduce the number of people required to clean the beaches, and reduce the injuries associated with this hazardous work. By eliminating the oil at the source of the spill, contact with oil by marine birds and mammals can be reduced. Burning the oil to minimize beach impact will reduce the waste generated by conventional beach cleanup. While generating substantial amounts of combustion by-products, mostly carbon dioxide, water, and particulates, in-situ burning reduces the amount of VOCs evaporating from the spilled oil.

Since in-situ burning of oil has the potential to reduce the destructive impact of oil spills, and since the risk it poses to the responders and to the population downwind are, under most circumstances, acceptable, it should be one of the response options available to combat future oil spills.

As with all response methods, the environmental tradeoffs associated with in-situ burning must be considered on a case-by-case basis and weighed with operational tradeoffs. In-situ burning can offer important advantages over other response methods in specific cases, and may not be advisable in others, depending on the circumstances of a spill. In general, these are some of the pros and cons of ISB:

Pros:

- In-situ burning is one of the few response methods that can potentially remove large quantities of oil from the surface of the water with minimal investment of equipment and manpower.
- Burning may offer the only realistic means of removal that will reduce shoreline impacts in areas where containment and storage facilities may be overwhelmed by the sheer size of a spill, or in remote or inaccessible areas where other countermeasures are not practicable.
- If properly planned and implemented, in-situ burning may prevent or significantly reduce the extent of shoreline impacts, including exposure of sensitive natural, recreational, and commercial resources.
- Burning rapidly removes oil from the environment, particularly when compared to shoreline cleanup activities that may take months or even years to complete.
- In-situ burning moves residues into the atmosphere, where they are dispersed relatively quickly.
- Control of burn activities is relatively simple, provided containment is appropriate.

Cons:

- In-situ burning, when employed in its simplest form, generates large quantities of highly visible smoke that may adversely affect humans and other exposed populations downwind.
- Burn residues may sink, making it harder to recover the product and to prevent the potential exposure of benthic (bottom-dwelling) organisms.
- Plant and animal deaths and other adverse biological impacts may result from the localized temperature elevations at the sea surface. While these effects could be expected to occur over a relatively small area, in specific bodies of water at specific times of the year, affected populations may be large enough or important enough to reconsider burning as a cleanup technique.
- The long-term effects of burn residues on exposed populations of marine organisms have not been investigated. It is not known whether these materials would be significantly toxic in the long run.
- The burn must be carefully controlled in order to maintain worker safety.

In-Situ Burn Comparisons

The Newfoundland Offshore Burn Experiment (NOBE), so far the largest-scale experimental in-situ burn, took place on August 12, 1993, offshore of Newfoundland, Canada, and was organized and coordinated by Environment Canada. During each of two test burns, crude oil was poured into a U-shaped fire-proof boom, and ignited. The first test burn lasted for an hour and a half, the second for about an hour, with an average burning rate of 200 barrels of oil per hour observed during both burns.

Table 1, below, compares the rate of emissions generated by the NOBE test burns to typical rates of emissions from slash burns of agricultural debris and other emission sources, such as woodstoves and power plants. Most of the information in this table was produced by Dr. Ron Ferek of the University of Washington in Seattle. Dr. Ferek assumed an oil burning rate during the NOBE burns of 200 barrels per hour.

In Table 1, the Average Emission Factor is the quantity in grams of a particular substance, such as CO₂, emitted when 1 kilogram of oil was burned during NOBE. Emission Rate is the rate of emission of a particular substance measured during NOBE, in kilograms per hour. The Comparable Emissions column displays the magnitude or number of other emission sources that would produce about the same amount of a given substance as was generated by burning 200 barrels of oil during NOBE. For example, a 2-acre slash burn would generate about as much CO₂ as burning 200 barrels of oil.

Substance	Average Emission Factor For Nobe (G/KG Fuel Burned)	Emission Rate (KG/HR)	Comparable Emissions From Other Known Sources
CO ₂	2,800	75,600	Approx. 2-acre slash burn
CO	17.5	470	Approx. 0.1-acre slash burn or ~1,400 wood stoves
SO ₂	~15	405	7,400 kg/hr. (avg. coal-fired power plant)
Total smoke particle	150	4,050	Approx. 9-acre slash burn or 58,000 wood stoves
Sub-3.5-micrometer smoke particle	113	3,050	Approx. 9-acre slash burn
Sub-3.5-micrometer soot	55	1,480	Approx. 38-acre slash burn
PAHs	0.04	1.1	Approx. 7-acre slash burn or ~1,800 wood stoves

References

You can learn more about NOBE by reading the following reference:

Fingas, M.F., G. Halley, F. Ackerman, R. Nelson, M.C. Bissonnette, N. Laroche, Z. Wang, P. Lambert, K. Li, P. Jokuty, G. Sergy, W. Halley, J. Latour, R. Galarneau, B. Ryan, P.R. Campagna, R.D. Turpin, E.J. Tennyson, J. Mullin, L. Hannon, D. Aurand and R. Hiltabrand, "The Newfoundland Offshore Burn Experiment", in Proceedings of the 1995 International Oil Spill Conference, American Petroleum Institute, Washington, D.C., pp. 123-132, 1995.

You can learn more about Dr. Ferek's research from:

Ross, J. L., R. J. Ferek, and P. V. Hobbs. 1996. Particle and Gas Emission from an In Situ Burn of Crude Oil on the Ocean. Journal of the Air and Waste Management Association: 46 251-259.

Safety Provisions

Safety Considerations

Due to the intense heat, the resulting smoke plume usually rises several hundreds to several thousands of feet.

If...	Then...
The wind is blowing away from a populated area	A burn may be able to be conducted immediately adjacent to the area.
The wind is blowing toward a populated area	There must be reasonable assurances that people will not be exposed to excessive concentrations of pollutants.

The risk that in-situ burning may pose to the general public located downwind should be considered before any burning is initiated. In most cases, three miles from populated areas is considered to be a reasonably safe distance, in case the plume dips down to land.

Burning may be done under stable wind conditions, however, data on the inversion layer should be known. Optimal wind conditions are 5-10 knots preferably not exceeding 20 knots. Burning may be done with winds exceeding 20 knots, however the lofting effect will be reduced, and the smoke may hug the ground. This decision is acceptable if the plume is not expected over a population center.

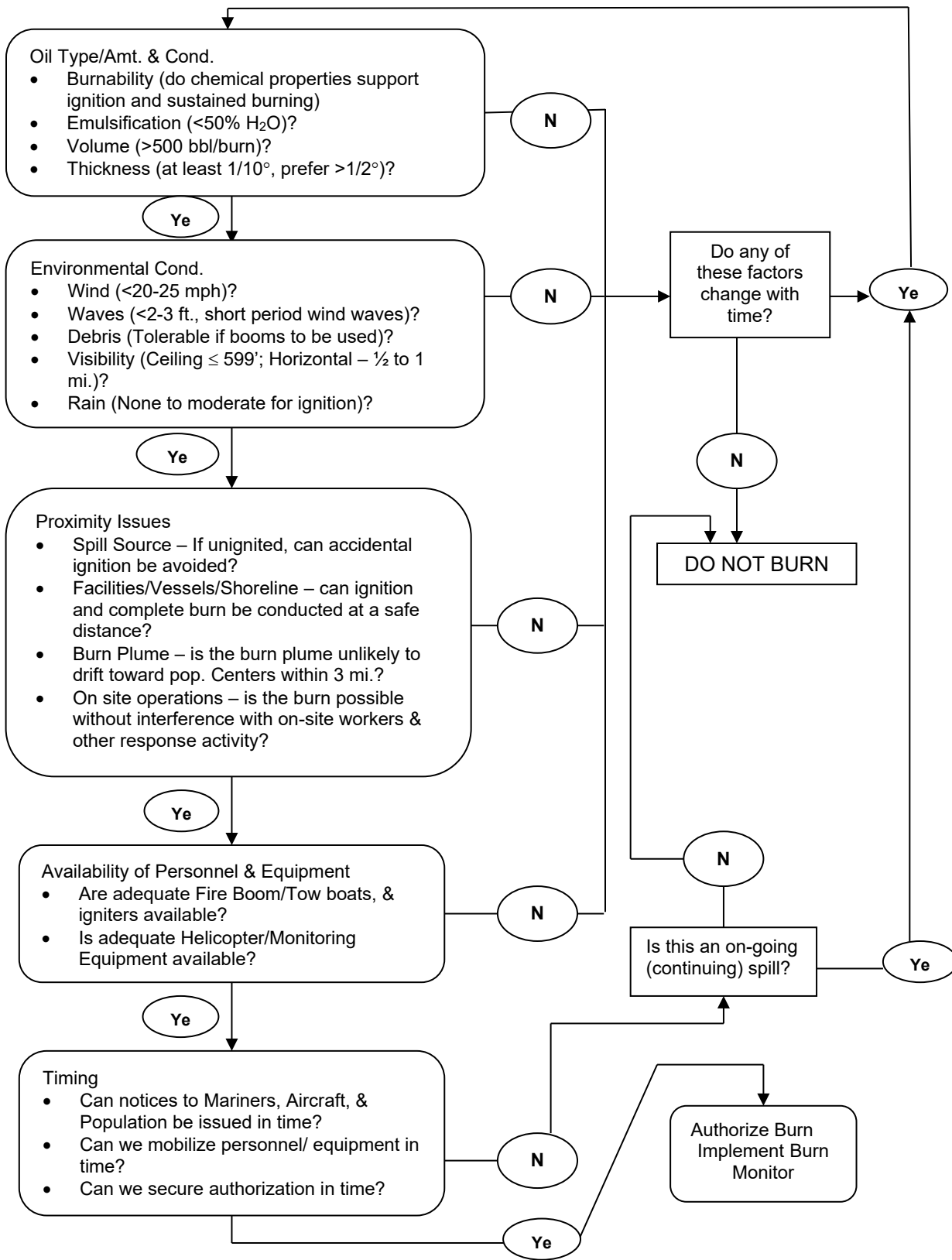
Proximity to property should be considered when evaluating the location of in-situ burning., Offshore installations such as wind turbine generation units and offshore substations should be at a safe distance from the area burning takes place. In addition, offshore installation may pose a navigation obstacle to vessels taking part in the operation that have restricted moveability.

The responsible party should implement a site safety work plan with a section specifically addressing in-situ burning. Personnel conducting the burn should be trained, provided with the necessary protective equipment, and monitored as needed.

Conditions For Use

In a spill, the responsible party would submit the application for the use of in-situ burning to the FOSC. In-situ burning should be used in conjunction with mechanical recovery, dispersants (where applicable), and possibly other chemical additives. In-situ burning is adapted as a means to augment, not replace, other oil spill response techniques to avert potential impacts to beaches, marshes, and inland sources.

Decision Processes



Approval Procedures and Forms

In-Situ Burn Checklist

The following checklist is provided as a summary of important information to be considered by the Federal On-Scene Coordinator (FOSC.) in reviewing any request to conduct in-situ burning.

1. SPILL DATA (To be completed by Responding Party and submitted to FOSC.)

A. Name of incident

B. Date and time of incident: Month/Day/Year ____ Time ____

C. Incident: Grounding ____ Transfer Operations ____ Collision ____
Blowout ____ Pipeline Rupture ____ Explosion ____ Other ____D. Did spill source ignite? Yes ____ No ____
Is source still burning? Yes ____ No ____

E. Spill Location: Latitude ____ Longitude ____

F. Distance (in miles) and direction to nearest
land: _____

G. Product (s) released:

H. Product(s) easily emulsified? Yes ____ No ____
Uncertain ____I. Product(s) already emulsified upon release? No ____
Light emulsion (0-20%) ____ Modern emulsion (21-50%)
Heavy emulsion (>51%) ____ Unknown ____J. Estimated volume(s) of product released: _____ gal/bbl
_____ gal/bbl

K. Estimated volume(s) of product that could still be released:

_____ gals ____ Bbl ____
_____ gals ____ Bbl ____L. Release status: Continuous ____ Estimated Rate ____
Intermittent ____ Estimated Rate ____
One time only (batch spill); flow now stopped ____M. Estimated area of spill:
Approx. Date/Time ____ Surface Area ____ So. Miles (Stat __ Nat. __)
Approx. Date/Time ____ Surface Area ____ So. Miles (Stat __ Nat. __)
Approx. Date/Time ____ Surface Area ____ So. Miles (Stat __ Nat. __)

2. WEATHER AND WATER CONDITIONS AT TIME & LOCATION OF SPILL (To be completed by responding party and submitted to FOSC)

- A. Temperature: Air _____ (deg. F) Water _____ (deg. F)
- B. Weather: Clear _____ Partly Cloudy _____ Heavy Overcast _____
 Rain _____ (heavy _____ moderate _____ light _____)
 Fog _____ (type & amount at spill source _____)
 (type & amount at burn site _____)
- C. Tidal Condition: Slack Tide _____ Flood _____ Ebb _____
- D. Dominant Surface Current (net drift):
 Speed _____ (knots)
 Direction (to) _____ (true compass heading)
- E. Wind Speed: _____ knots Wind Direction (from) _____
- F. Expected transition time between on-shore & off-shore breeze

- G. Sea State: Flat Calm _____ Light Wind-Chop _____
 Wind -Waves: < 1 ft _____ 1-3 ft _____ >3 ft _____
 Swell (est. height in ft) _____
- H. Water Depth (in feet): _____
- I. Other Consideration:
 General Visibility _____
 Rip Tides/Eddies _____
 Floating Debris _____
 Submerged Hazards _____

Notes: See Section II Part I for weather and water conditions forecast (to be completed by NOAA Scientific Support Coordinator)

See Section III Part II for predicted oil behavior (to be completed by NOAA SSC).

Responding party has option of also submitting information on predicted oil behavior to FOSC.

3. PROPOSED BURNING PLAN (To be completed by party responding to spill)

- A. Location of proposed burn with respect to spill source:

- B. Location of proposed burn with respect to nearest ignitable oil slick(s):

- C. Location of proposed burn with respect to nearest land:

- D. Location of proposed burn with respect to commercial fishing activity, vessel traffic lanes, drilling rigs and/or other marine activities/facilities:

- E. Risk of accidental (secondary) fires:

- F. Risk of reducing visibility at nearby airstrip(s) or airport(s):

- G. Distance to, location and type of nearest population center(s) (e.g., recreational site, town, city, etc.):

- H. Methods that will be used (prior to ignition) to notify residents in areas where smoke could conceivably drift into or over such areas:

- I. Type of igniter proposed for use:

- J. Helicopter(s) needed to deploy igniters? No ____ Yes ____
Name of company and type of helicopter to be used:

- FAA approval already granted to company for use of igniter:
Yes ____ No ____
- Awaiting FAA approval or verification of prior approval _____.
- K. Burning promoters or wicking agents proposed for use?
Yes ____ No ____
If yes, give type and amount: _____
- L. Describe proposed method of deployment for Igniter(s):

Burning Promoter(s):

Wicking Agent(s):

- M. Describe method for oil containment, if any:

- N. Proposed location of oil containment relative to spill source:



- O. Proposed burning strategy:
 _____ Immediate ignition at or near source
 _____ Ignition away from source after containment and movement to safe location
 _____ Ignition of uncontained slick(s) at a safe distance
 _____ Controlled burning in boom or natural collection site at/near shore
 _____ Possible need for multiple ignition attempts

P. Estimated amount of oil to be burned:

Q. Estimated duration of each burn: _____.
 Total possible burn period: _____.

R. Estimated smoke plume trajectory:

S. Method for collecting burned oil residue:

T. Proposed storage & disposal of burned oil residue:

4. WEATHER AND WATER CONDITION FORECAST FROM TIME OF SPILL (to be completed by NOAA SSC)

A. Wind Speed (knots):
 24-hour projection: _____
 48-hour projection: _____

B. Wind Direction (from):
 24-hour projection: _____
 48-hour projection: _____

C. Sea Conditions:
 24-hour projection:
 Flat Calm _____ Light Wind-Chop _____
 Wind-Waves: <1 ft _____ 1-3 ft _____ >3 ft _____
 Swell (est. height in ft.) _____

48-hour projection:
 Flat Calm _____ Light Wind-Chop _____
 Wind-Waves: <1 ft _____ 1-3 ft _____ >3 ft _____
 Swell (est. height in ft.) _____

D. Tidal Information:
 Date _____ High (time/height) _____ / _____
 Low (time/height) _____ / _____
 Date _____ High (time/height) _____ / _____
 Low (time/height) _____ / _____
 Date _____ High (time/height) _____ / _____
 Low (time/height) _____ / _____
 Date _____ High (time/height) _____ / _____
 Low (time/height) _____ / _____

E. Predicted Dominant Current (net drift):
 Speed (knots): _____ Direction (to): _____

5. PREDICTED OIL BEHAVIOR (To be completed by NOAA SSC)

- A. Unburned Oil Forecast:
Estimated trajectory (attach sketch if necessary):

- B. Expected area(s) and time(s) of land fall:
Location _____ Date/Time _____
Location _____ Date/Time _____
Location _____ Date/Time _____
Location _____ Date/Time _____
- C. Estimated percent naturally dispersed and evaporated:
Within first 12 hours: _____
Within first 24 hours: _____
Within first 48 hours: _____
6. RESOURCES AT RISK (to be completed by resource agencies)
- A. Habitats
Sheltered Tidal Flats _____
Coastal Marshes _____
Etc. _____
- B. Biological Resources -
Are marine mammals, turtles, or concentrations of birds noted in the burn area?
Yes _____ No _____
Endangered/Threatened Species _____
Non-Endangered/Threatened Species _____
- C. Historic and Archaeological Resources
- D. Commercial Harvest Areas
7. FEDERAL ON-SCENE COORDINATOR'S EVALUATION OF RESPONSE OPTIONS (To be completed by FOSC.)
- A. Is in-situ burning likely to result in the elimination of significant volumes of spilled oil?
Yes _____ No _____
- B. Will the use of in-situ burning interfere with (or in any way reduce the effectiveness of) mechanical recovery and/or dispersant application?
Yes _____ No _____
- If yes, do the potential benefits of burning outweigh the potential reductions in effectiveness of mechanical/dispersant use?
Yes _____ No _____
- C. Can in-situ burning be used safely, and with an anticipated overall reduction in environmental impact (compared with the decision not to burn)?
8. FEDERAL ON-SCENE COORDINATOR'S DECISION REGARDING IN-SITU BURNING (To be completed by FOSC.)
- A. _____ Do not conduct in-situ burn
- B. _____ In-situ burn may be conducted in limited or selected areas
- C. _____ In-situ burn may be conducted as requested

Note: If the FOSC approves of in-situ burning, local media and residents in areas within the potential smoke plume trajectory must be notified prior to initiating the burn.

Signature of FOSC: _____

Printed Name of FOSC.: _____

Time and Date of Decision: _____

Operational Checklist

In-Situ Burning

The following list is provided as a condensed checklist of critical conditions, concepts or pieces of equipment that will be considered by the responsible party, prior to the initiation of an in-situ burn in the Gulf of Mexico.

Approval and Notification Considerations:

- ___ Approval checklist completed and submitted to federal and state RRT and FOSC.
- ___ Any other burn plan or permit/approval requests completed and submitted to appropriate agencies.
- ___ All approvals received from federal, state, and local organizations.
- ___ U.S. Coast Guard notified regarding Notice To Mariners for proposed burn time and locations in which no unauthorized vessels would be allowed.
- ___ FAA notified regarding Notice To Aviators for proposed burn time and locations in which no unauthorized aircraft would be allowed.
- ___ Local public radio and television announcements of intent to burn, along with information on estimated times, duration of burn(s), potentially affected areas, possible health effects, and unauthorized zones for public use.
- ___ State or local emergency services groups on standby for any possible assistance in notifying or evacuating certain populations.

Oil and Environmental Conditions:

- ___ Oil Type & Condition - sufficiently combustible under existing weather conditions.
- ___ Visibility - suitable for vessels and aircraft in carrying out burn. Consideration given to number of daylight hours left to initiate burn.
- ___ Sufficient time available to mobilize response personnel, transport and deploy equipment, ignite and complete burn(s).
- ___ Timing and conditions appropriate for consideration of night-time burn(s). Possibility of night-time oil collection with burns initiated at daybreak.

- ___ Burning operations safe and practical in light of spill status (ignited versus non-ignited, proximity to shore, mobile or fixed structures, etc.).
- ___ Burning safe and practical in light of vessel traffic lanes.
- ___ Burning safe and practical in light of spill source stabilization efforts.
- ___ Burning safe and practical in light of any personnel evacuation efforts.
- ___ Burning compatible with mechanical clean-up operations.
- ___ Burning compatible with dispersant application techniques.
- ___ Burning compatible with shoreline protection and clean-up activities.

Personnel Requirements:

- ___ All personnel trained and qualified for burning operations.
- ___ All personnel briefed and familiar with burn plan.
- ___ Full response team(s) and supervisor(s) for vessels on location or en route.
- ___ Qualified Pilot and support personnel for aerial support functions on location or en route (e.g., reconnaissance, Heli-torch operations, etc.).
- ___ Backup Fire Control Team on location or en route.
- ___ Everyone has protective clothing, respirators, flotation devices, etc.

Vessel Requirements:

- ___ Two fire boom towing vessels available for each U-configuration.
- ___ One fire control vessel available for each burn region. More than one vessel possibly needed should individual burns be widely separated.
- ___ Backup support vessel(s) as needed for personnel transport, refueling operations, recovery and storage of burn residue, transport, deployment and recovery of fire boom, boom towing vessels, etc.

Aircraft Requirements:

- ___ Helicopter(s) as appropriate for number of burns anticipated, modes of ignition to be employed, and distances to be covered from staging area(s) to assigned region(s) of coverage.
- ___ Fixed-wing aircraft as appropriate to supplement helicopter operations involving oil reconnaissance missions, direction of vessels to collection sites, monitoring of smoke plume trajectories, etc.

Fire Boom and Igniter Requirements:

- ___ Inspected and ready-to-deploy fire containment boom (typically 500 ft. to 1,000 ft. per U-configuration), along with long tow lines (typically 500 ft. to 800 ft. per tow vessel), towing bridles, and anchoring systems as appropriate.

- ___ Backup fire containment boom (500 ft. to 1,000 ft. per U-configuration), along with additional lengths of boom for any modes of deployment (e.g., containment at spill source, deflection booming into designated nearshore burn sites, exclusion booming, etc.).
- ___ Inspected and ready-to-deploy Heli-torch(es) as needed for any aerial ignition activities (backup drums available for rapid turn-around).
- ___ Batch mixers for gelling large quantities of fuel mix for Heli-torch(es) if necessary (backup fuel supplied such as Jet-A, gasoline, or crude oil, and gelling mix).
- ___ Supply of hand-held igniters (at least 10 per vessel and helicopter) for potential use (backup supply of at least 200 igniters or a means of acquiring/constructing additional units on short notice).

Communications Requirements:

- ___ Dedicated radio links (and equipment) with specific frequencies for air-to-air and air-to-surface communications.
- ___ Dedicated radio links (and equipment) with specific frequencies for vessel -to-vessel and vessel-to-command communications.
- ___ Repeater stations as appropriate for distant or blocked communication paths.

Fire Safety Considerations:

- ___ Possible use of dedicated personnel/vessels with vapor emission monitoring equipment (explosimeter).
- ___ Backup fire fighting vessels (if necessary) for unique situations involving a burning spill source and/or unusual potential exposures of personnel/vessels to burning oil.
- ___ Small fire fighting packages (extinguishers, monitors, foam, etc.) aboard the boom towing boats for backup use in the event of an emergency on or near one of the response vessels.

APPENDIX K - TRAINING AND DRILLS

APPENDIX K: TRAINING AND DRILLS

Training IC, QI, Other SMT Members, and SORT

Spill Response Operating Team (SORT) members of MSRC who are responsible for operating response equipment are trained in hands-on classes at least annually. The training includes the deployment and operation of the response equipment. Trainers are also trained annually in order to properly supervise and direct the deployment of the equipment. SROT Training is conducted by MRSC. Three years of SROT training records are maintained by MSRC electronically and are made available to BSEE upon request.

Qualified Individual (QI) and Spill Management Team (SMT) training occurs yearly and includes, at a minimum, instruction on locations, use, deployment, and logistical requirements of the response equipment. In addition, the training includes spill reporting procedures, spill trajectory analysis, and other responsibilities specific to SMT position responsibilities. Including, in-situ burn and dispersant training follows the recommendations by the equipment manufacturer in regards to operation and maintenance of the equipment. Three years of QI and SMT training records are maintained by Witt O'Brien's in Houston, TX and are made available to BSEE upon request.

Annual Training Summary				
Name	Company/Position	Type	Date	Location
[REDACTED]	Qualified Individual, Incident Commander, Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	QI/SMT	1/25/2022	Houston, TX
[REDACTED]	Finance Section Chief	SMT	1/25/2022	Houston, TX
[REDACTED]	Qualified Individual, Incident Commander, Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	QI/SMT	1/25/2022	Houston, TX
[REDACTED]	Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	SMT	1/25/2022	Houston, TX
[REDACTED]	Safety Officer	SMT	1/25/2022	Houston, TX
[REDACTED]	Incident Commander, Safety Officer, Public Information Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	SMT	1/25/2022	Houston, TX
[REDACTED]	Qualified Individual, Incident Commander, Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	SMT	1/25/2022	Houston, TX
[REDACTED]	To Be Assigned	SMT	1/25/2022	Houston, TX
[REDACTED]	To Be Assigned	SMT	1/25/2022	Houston, TX

Annual Training Summary				
Name	Company/Position	Type	Date	Location
[REDACTED]	Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	QI/SMT	1/25/2022	Houston, TX
[REDACTED]	Qualified Individual, Incident Commander, Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	QI/SMT	1/25/2022	Houston, TX
[REDACTED]	Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	SMT	1/25/2022	Houston, TX
[REDACTED]	Public Information Officer	SMT	1/25/2022	Houston, TX
[REDACTED]	To Be Assigned	SMT	1/25/2022	Houston, TX
[REDACTED]	Safety Officer, Operations Section Chief, Planning Section Chief, Logistics Section Chief	SMT	1/25/2022	Houston, TX

Drills and Exercises

Local/Spill Management Team members, government agencies, contractors, and other resources must participate in response exercises required by Federal, state, or local regulations and as detailed in the "National Preparedness for Response Exercise Program (PREP) Guidelines." The Company will conduct announced and unannounced drills to maintain compliance, and each plan-holder must participate in at least one exercise annually. The following table lists the triennial exercise cycle for facilities (see PREP Guidelines for full details).

Triennial Cycle		
Total Number	Frequency	Exercise Type/Description
3	Annual	QI Notification Exercise (24-hr manned offshore facilities only)
6	Semi-Annual	Equipment Deployment Exercise (<i>Equipment staged offshore</i>)
3	Annual	Equipment Deployment Exercise (<i>Equipment staged onshore</i>)
3	Annual	Spill Management Team Tabletop Exercise

NOTE: All response plan components must be exercised at least once in the Cycle. At least one (1) SMT Tabletop Exercise in a triennial cycle must involve simulation of the Worst Case discharge Scenario.

Quarterly QI Notification Exercise

- **Scope:** Exercise and test communication between facility personnel on each offshore facility manned on a 24-hour basis and the QI(s) and/or designated alternate(s); information to be provided in the event of a spill must be simulated during this exercise.
- **Objective:** Voice contact must be made with a QI or designated alternate, as identified in the Plan.
- **General:** All personnel receiving notification shall respond to the notification and verify their receipt of the notification. Personnel who do not respond should be contacted to determine whether or not they received the notification.
- **Note:** The first exercise must take place within two week after initial operations of a 24-hr manned facility.

Semi-Annual/Annual Equipment Deployment Exercise (equipment staged offshore, OSRO or Company owned)

- **Review:** The Company should ensure that the OSRO(s) has completed the equipment deployment exercise requirements and has maintained the necessary documentation. The OSRO is not required to deploy equipment at the Facility. They may deploy equipment at any location so long as it occurs within a similar operating environment.
- **Scope:** Deploy and operate response equipment that is required to be staged offshore and identified in the response plan. Each type of this equipment is to be deployed annually. Each type need not be deployed at each exercise. Credit will be given for any government-initiated deployment exercises or exercises initiated by OSRO member companies. (See Note)
- **Objective:** Demonstrate ability of spill response personnel to deploy and operate equipment.

Evaluate deployment strategies under various spill scenarios:

- **General:** The Facility may take credit for actual equipment deployment to a spill or training sessions as long as the activities are properly documented.
- **Note:** The Company must inform the Chief, OSPD of the date of any exercise at least 30 days before the exercise. This will allow BSEE personnel the opportunity to witness any exercises.

Annual Equipment Deployment Exercise (equipment staged onshore, OSRO or Company owned)

- **Review:** The Facility should ensure that the OSRO(s) has completed the equipment deployment exercise requirements and has maintained the necessary documentation. The OSRO is not required to deploy equipment at the Facility. They may deploy equipment at any location so long as it occurs within a similar operating environment.
- **Scope:** Deploy and operate response equipment that is stored onshore and identified in the response plan. Each type of equipment must be exercised during each triennial period. It is not necessary to deploy each piece of equipment.
- **Objective:** Demonstrate ability of spill response personnel to deploy and operate equipment.

Evaluate deployment strategies under various spill scenarios.

- **Note:** The Company must inform the Chief, OSPD of the date of any exercise at least 30 days before the exercise. This will allow BSEE personnel the opportunity to witness any exercises.

Annual Spill Management Team Tabletop Exercise

- **Scope:** Exercise the Spill Management Team annually.
- **Objective:** Exercise the Spill Management team's organization, communication, and decision-making in managing a spill response to an unannounced scenario.

Exercise the Spill Management Team in a review of:

- Knowledge of response plan;
 - Proper notifications;
 - Communications system;
 - Ability to access an OSRO;
 - Coordination of OSRO containment and recovery activity;
 - Coordination of organization or agency personnel with responsibility for spill response;
 - Ability to effectively coordinate spill response activity with the National Response System infrastructure; and
 - Ability to access information in the Area Contingency Plan for location of sensitive areas, resources available within the area, unique conditions of area, etc.
- **General:** A minimum of one Response Team Tabletop Exercise in a triennial cycle will involve simulation of the Worst Case Discharge scenario. During exercises, you must simulate conditions in the area of operations, including seasonal weather variations, to the extent practicable. The exercises must cover a range of scenarios over the 3-year exercise period, simulating responses to large continuous spills, spills of short duration and limited volume, and your worst case discharge scenario.
- **Note:** The Company must inform the Chief, OSPD of the date of any exercise at least 30 days before the exercise. This will allow BSEE personnel the opportunity to witness any exercises.

Government Initiated Unannounced Exercise

- **Scope:** Frequency will be determined by the Regional Supervisor. A facility will not face an agency unannounced exercise more than once per year, unless the results of previous exercise warrant more frequency.

Exercise will require that the owner or operator respond to a spill scenario posed by the Regional Supervisor.

- **Objective:**
 - Conduct proper notifications to respond to unannounced scenario.
 - Demonstrate ability to mobilize adequate equipment to respond to scenario.
 - Demonstrate ability to conduct timely deployment of equipment.
 - Demonstrate ability to conduct proper deployment to respond to scenario.
- **General:** This exercise is only applicable to those facilities which are randomly chosen.

Exercise Documentation

- All exercises will be documented, and electronic records maintained by the HSE Project Manager at the Providence, RI office. OSRO equipment deployment records will also be maintained electronically by the OSRO at their corporate office documentation will specify:
 - The type of exercise;
 - Date and time of the exercise;
 - A description of the exercise;
 - The objectives met in the exercise;
 - The components of the response plan exercised; and
 - Lessons learned.

- Exercise documentation will be kept on file for a minimum of three (3) years and will be made available to BSEE upon request.

APPENDIX L - REFERENCES

APPENDIX L: REFERENCES

Area Contingency Plans (ACP):

1. Sector Long Island Sound COTP Zone Long Island Sound Area Contingency Plan Link:
<https://homeport.uscg.mil/my-homeport/contingency-plans/area-contingency-plan?cotpid=31>
2. Sector Southeastern New England COTP Zone Rhode Island and Southeastern Massachusetts Area Contingency Plan Link:
<https://homeport.uscg.mil/my-homeport/contingency-plans/area-contingency-plan?cotpid=44>

Local State Emergency Operations Plan

1. Connecticut:
<https://portal.ct.gov/DEMHS/Emergency-Management/Resources-For-Officials/Planning-For-All-Hazards/LEOP/Local-Emergency-Operations-Plan-Resources>
2. Massachusetts:
<https://www.mass.gov/doc/cemp-base-plan-2019/download#:~:text=Comprehensive%20Emergency%20Management%20Plan%20and%20provides%20a%20flexible,an%20emergency%20or%20disaster.%20It%20also%20identifies%20and>
3. Rhode Island:
<https://riema.ri.gov/planning-mitigation/resources-emergency-managers/comprehensive-emergency-management-plan-cemp>
4. New York
<http://www.dhSES.ny.gov/planning/serc/documents/Master-LEPC-Contacts.pdf>

NOAA Environmental Sensitivity Index (ESI) maps of the areas covered under this plan:

1. NOAA ESI Massachusetts and Rhode Island Link:
https://response.restoration.noaa.gov/esi_download#Massachusetts
2. NOAA ESI Connecticut and Long Island Sound Link:
https://response.restoration.noaa.gov/esi_download#Connecticut
3. NOAA ESI Long Island New York (South Shore) Link:
https://response.restoration.noaa.gov/esi_download#NewJersey

USCG Incident Management Handbook:

https://www.atlanticarea.uscg.mil/Portals/7/Ninth%20District/Documents/USCG_IMH_2014_COMDTPUB_P3120.17B.pdf?ver=2017-06-14-122531-930

APPENDIX M - PLAN REVISIONS

APPENDIX M: PLAN REVISIONS

This Plan will be reviewed at least every two (2) years and approved by the Project Program Director. If the resulting modification includes one of the criteria listed below, then the revised Plan shall be submitted to the BSEE Chief, Oil Spill Prevention Division (OSPD). If this review does not result in any of the modifications listed below, the BSEE Chief, OSPD, shall be notified in writing that there are no substantial changes.

OSRP revisions shall be submitted for approval within 15 days whenever:

- (1) A change occurs which significantly reduces your response capabilities;
- (2) A significant change occurs in the worst-case discharge scenario or in the type of oil being handled, stored, or transported at the facility;
- (3) There is a change in the name(s) or capabilities of the oil spill removal organizations cited in the OSRP; or
- (4) There is a significant change to the Area Contingency Plan(s).

Revision History

#	Date	Summary of Revision
A	2/28/2022	Updated entire plan to include detailed about response structure and specific measures for South Fork Wind project and future projects.
B	10/24/2022	OSRP Submitted to BSEE
C	2/23/2023	Added Revolution Wind project specific details to the Annex B WCD and Section 1, added SDS for Transformer oil – Nytro, updated footers to February 2023
D	5/24/2023	Added Sunrise Wind project specific details to Annex C, updated WCD to Regional plans WCD volume
E	6/07/2023	Added stochastic spill modeling to Annex C

APPENDIX N - CROSS REFERENCE

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U.S. Department of the Interior (DOI) Bureau of Ocean Energy Management (BOEM) Conditions of Construction and Operations Plan (COP) Approval Lease Number OCS-A 0417 January 18 2022 N-12

APPENDIX N: CROSS REFERENCE

U.S. BSEE 30 CFR 254 § Subpart B		
§ Subpart B	Brief Description	Location In Plan
254.20	This subpart describes the requirements for preparing OSRPs for facilities located on the OCS.	----
254.21	<i>How must I format my OSRP?</i>	----
(a)	You must divide your OSRP for OCS facilities into the sections specified in paragraph (b) of this section and explained in the other sections of this subpart. The OSRP must have an easily found marker identifying each section. You may use an alternate format if you include a cross reference table to identify the location of required sections. You may use alternate contents if you can demonstrate to the Chief, OSPD that they provide for equal or greater levels of preparedness.	App N Cross Reference
(b)	Your OSRP must include:	---
(b)(1)	Introduction and OSRP contents.	Sec 1.0, TOC, App M, N
(b)(2)	Emergency response action plan.	Sec 2, App A & O
(b)(3)	Appendices:	----
(b)(3)(i)	Equipment inventory	App F
(b)(3)(ii)	Contractual agreements.	App G
(b)(3)(iii)	Worst case discharge scenario.	App H
(b)(3)(iv)	Dispersant use plan.	App I
(b)(3)(v)	In situ burning plan.	App J
(b)(3)(vi)	Training and drills.	App K
254.22	<i>What information must I include in the "Introduction and OSRP contents" section? The "Introduction and OSRP contents" section must provide:</i>	----
(a)	Identification of the facility the OSRP covers, including its location and type;	Sec 1.0
(b)	A table of contents;	TOC
(c)	A record of changes made to the OSRP; and	App M
(d)	A cross-reference table, if needed, because you are using an alternate format for your OSRP.	App N
254.23	<i>What information must I include in the "Emergency response action plan" section? The "Emergency response action plan" section is the core of the OSRP. Put information in easy-to-use formats such as flow charts or tables where appropriate. This section must include:</i>	---
(a)	Designation, by name or position, of a trained qualified individual (QI) who has full authority to implement removal actions and ensure immediate notification of appropriate Federal officials and response personnel.	Sec 2.1
(b)	Designation, by name or position, of a trained spill management team available on a 24-hour basis. The team must include a trained spill-response coordinator and alternate(s) who have the responsibility and authority to direct and coordinate response operations on your behalf. You must describe the team's organizational structure as well as the responsibilities and authorities of each position on the spill management team.	Sec 2.2

U.S. BSEE 30 CFR 254

§ Subpart B

§ Subpart B	Brief Description	Location In Plan
(c)	Description of a spill-response operating team. Team members must be trained and available on a 24-hour basis to deploy and operate spill-response equipment. They must be able to respond within a reasonable minimum specified time. You must include the number and types of personnel available from each identified labor source.	Sec 2.3
(d)	A planned location for a spill-response operations center and provisions for primary and alternate communications systems available for use in coordinating and directing spill-response operations. You must provide telephone numbers for the response operations center. You also must provide any facsimile numbers and primary and secondary radio frequencies that will be used.	Sec 2.4
(e)	A listing of the types and characteristics of the oil handled, stored, or transported at the facility.	App A & O
254.26	<i>What information must I include in the "Worst case discharge scenario" appendix?</i> The discussion of your worst case discharge scenario must include all of the following elements:	---
(a)	The volume of your worst case discharge scenario determined using the criteria in § 254.47. Provide any assumptions made and the supporting calculations used to determine this volume.	App H
(b)	An appropriate trajectory analysis specific to the area in which the facility is located. The analysis must identify onshore and offshore areas that a discharge potentially could affect. The trajectory analysis chosen must reflect the maximum distance from the facility that oil could move in a time period that it reasonably could be expected to persist in the environment.	App H
(c)	A list of the resources of special economic or environmental importance that potentially could be impacted in the areas identified by your trajectory analysis. You also must state the strategies that you will use for their protection. At a minimum, this list must include those resources of special economic and environmental importance, if any, specified in the appropriate Area Contingency Plan(s).	App H
(d)	A discussion of your response to your worst case discharge scenario in adverse weather conditions. This discussion must include:	App H
(d)(1)	A description of the response equipment that you will use to contain and recover the discharge to the maximum extent practicable. This description must include the types, location(s) and owner, quantity, and capabilities of the equipment. You also must include the effective daily recovery capacities, where applicable. You must calculate the effective daily recovery capacities using the methods described in § 254.44. For operations at a drilling or production facility, your scenario must show how you will cope with the initial spill volume upon arrival at the scene and then support operations for a blowout lasting 30 days.	App H
(d)(2)	A description of the personnel, materials, and support vessels that would be necessary to ensure that the identified response equipment is deployed and operated promptly and effectively. Your description must include the location and owner of these resources as well as the quantities and types (if applicable);	Sec 2.3.1.2, App F

U.S. BSEE 30 CFR 254 § Subpart B		
§ Subpart B	Brief Description	Location In Plan
(d)(3)	A description of your oil storage, transfer, and disposal equipment. Your description must include the types, location and owner, quantity, and capacities of the equipment; and	App F
(d)(4)	An estimation of the individual times needed for:	---
(d)(4)(i)	Procurement of the identified containment, recovery, and storage equipment;	App H
(d)(4)(ii)	Procurement of equipment transportation vessel(s);	App H
(d)(4)(iii)	Procurement of personnel to load and operate the equipment;	App H
(d)(4)(iv)	Equipment loadout (transfer of equipment to transportation vessel(s));	App H
(d)(4)(v)	Travel to the deployment site (including any time required for travel from an equipment storage area); and	App H
(d)(4)(vi)	Equipment deployment.	App H
(e)	In preparing the discussion required by paragraph (d) of this section, you must:	---
(e)(1)	Ensure that the response equipment, materials, support vessels, and strategies listed are suitable, within the limits of current technology, for the range of environmental conditions anticipated at your facility; and	---
(e)(2)	Use standardized, defined terms to describe the range of environmental conditions anticipated and the capabilities of response equipment. Examples of acceptable terms include those defined in American Society for Testing of Materials (ASTM) publication F625-94, Standard Practice for Describing Environmental Conditions Relevant to Spill Control Systems for Use on Water, and ASTM F818-93, Standard Definitions Relating to Spill Response Barriers.	---
254.27	<i>What information must I include in the "Dispersant use plan" appendix? Your dispersant use plan must be consistent with the National Contingency Plan Product Schedule and other provisions of the National Contingency Plan and the appropriate Area Contingency Plan(s). The plan must include:</i>	---
(a)	An inventory and a location of the dispersants and other chemical or biological products which you might use on the oils handled, stored, or transported at the facility;	App I
(b)	A summary of toxicity data for these products;	App I
(c)	A description and a location of any application equipment required as well as an estimate of the time to commence application after approval is obtained;	App I
(d)	A discussion of the application procedures;	App I
(e)	A discussion of the conditions under which product use may be requested; and	App I
(f)	An outline of the procedures you must follow in obtaining approval for product use.	App I
254.28	<i>What information must I include in the "In situ burning plan" appendix? Your in situ burning plan must be consistent with any guidelines authorized by the National Contingency Plan and the appropriate Area Contingency Plan(s). Your in situ burning plan must include:</i>	---
(a)	A description of the in situ burn equipment including its availability, location, and owner;	App J

U.S. BSEE 30 CFR 254 § Subpart B		
§ Subpart B	Brief Description	Location In Plan
(b)	A discussion of your in situ burning procedures, including provisions for ignition of an oil spill;	App J
(c)	A discussion of environmental effects of an in situ burn;	App J
(d)	Your guidelines for well control and safety of personnel and property;	NA
(e)	A discussion of the circumstances in which in situ burning may be appropriate;	App J
(f)	Your guidelines for making the decision to ignite; and	App J
(g)	An outline of the procedures you must follow to obtain approval for an in situ burn.	App J
254.29	<i>What information must I include in the "Training and drills" appendix? Your "Training and drills" appendix must:</i>	---
(a)	Identify and include the dates of the training provided to members of the spill-response management team and the qualified individual. The types of training given to the members of the spill-response operating team also must be described. The training requirements for your spill management team and your spill-response operating team are specified in § 254.41. You must designate a location where you keep course completion certificates or attendance records for this training.	App K
(b)	Describe in detail your plans for satisfying the exercise requirements of § 254.42. You must designate a location where you keep the records of these exercises.	App K
254.30	<i>When must I revise my OSRP?</i>	---
(a)	You must review your OSRP at least every 2 years and submit all resulting modifications to the Chief, OSPD. If this review does not result in modifications, you must inform the Chief, OSPD, in writing that there are no changes.	App M
(b)	You must submit revisions to your OSRP for approval within 15 days whenever:	App M
(b)(1)	A change occurs which significantly reduces your response capabilities;	App M
(b)(2)	A significant change occurs in the worst case discharge scenario or in the type of oil being handled, stored, or transported at the facility;	App M
(b)(3)	There is a change in the name(s) or capabilities of the oil spill removal organizations cited in the OSRP; or	App M
(b)(4)	There is a significant change to the Area Contingency Plan(s).	App M
(c)	The Chief, OSPD, may require that you resubmit your OSRP if the OSRP has become outdated or if numerous revisions have made its use difficult.	App M
(d)	The Chief, OSPD, will periodically review the equipment inventories of OSRO's to ensure that sufficient spill removal equipment is available to meet the cumulative needs of the owners and operators who cite these organizations in their OSRPs.	App M
(e)	The Chief, OSPD, may require you to revise your OSRP if significant inadequacies are indicated by:	App M
(e)(1)	Periodic reviews (described in paragraph (d) of this section);	App M

U.S. BSEE 30 CFR 254 § Subpart B		
§ Subpart B	Brief Description	Location In Plan
(e)(2)	Information obtained during drills or actual spill responses; or	App M
(e)(3)	Other relevant information the Chief, OSPD, obtained.	App M

US BSEE 30 CFR 254 Subpart C		
§ Subpart C	Brief Description	Location In Plan
254.40	<i>Records.</i> You must make all records of services, personnel, and equipment provided by OSRO's or cooperatives available to any authorized BSEE representative upon request.	App F
254.41	<i>Training your response personnel.</i>	----
(a)	You must ensure that the members of your spill-response operating team who are responsible for operating response equipment attend hands-on training classes at least annually. This training must include the deployment and operation of the response equipment they will use. Those responsible for supervising the team must be trained annually in directing the deployment and use of the response equipment.	App K
(b)	You must ensure that the spill-response management team, including the spill-response coordinator and alternates, receives annual training. This training must include instruction on:	App K
(b)(1)	Locations, intended use, deployment strategies, and the operational and logistical requirements of response equipment;	App K
(b)(2)	Spill reporting procedures;	App K
(b)(3)	Oil-spill trajectory analysis and predicting spill movement; and	App K
(b)(4)	Any other responsibilities the spill management team may have.	App K
(c)	You must ensure that the qualified individual is sufficiently trained to perform his or her duties.	---
(d)	You must keep all training certificates and training attendance records at the location designated in your OSRP for at least 2 years. They must be made available to any authorized BSEE representative upon request.	App K
254.42	<i>Exercises for your response personnel and equipment.</i>	---
(a)	You must exercise your entire OSRP at least once every 3 years (triennial exercise). You may satisfy this requirement by conducting separate exercises for individual parts of the OSRP over the 3-year period; you do not have to exercise your entire OSRP at one time.	App K
(b)	In satisfying the triennial exercise requirement, you must, at a minimum, conduct:	---
(b)(1)	An annual spill management team tabletop exercise. The exercise must test the spill management team's organization, communication, and decision making in managing a response. You must not reveal the spill scenario to team members before the exercise starts.	App K
(b)(2)	An annual deployment exercise of response equipment identified in your OSRP that is staged at onshore locations. You must deploy and operate each type of equipment in each triennial period. However, it is not necessary to deploy and operate each individual piece of equipment.	App K

US BSEE 30 CFR 254 Subpart C		
§ Subpart C	Brief Description	Location In Plan
(b)(3)	An annual notification exercise for each facility that is manned on a 24- hour basis. The exercise must test the ability of facility personnel to communicate pertinent information in a timely manner to the qualified individual.	App K
(b)(4)	A semiannual deployment exercise of any response equipment which the BSEE Regional Supervisor requires an owner or operator to maintain at the facility or on dedicated vessels. You must deploy and operate each type of this equipment at least once each year. Each type need not be deployed and operated at each exercise.	App K
(c)	During your exercises, you must simulate conditions in the area of operations, including seasonal weather variations, to the extent practicable. The exercises must cover a range of scenarios over the 3-year exercise period, simulating responses to large continuous spills, spills of short duration and limited volume, and your worst case discharge scenario.	App K
(d)	BSEE will recognize and give credit for any documented exercise conducted that satisfies some part of the required triennial exercise. You will receive this credit whether the owner or operator, an OSRO, or a government regulatory agency initiates the exercise. BSEE will give you credit for an actual spill response if you evaluate the response and generate a proper record. Exercise documentation should include the following information:	App K
(d)(1)	Type of exercise;	App K
(d)(2)	Date and time of the exercise;	App K
(d)(3)	Description of the exercise;	App K
(d)(4)	Objectives met; and	App K
(d)(5)	Lessons learned.	App K
(e)	All records of spill-response exercises must be maintained for the complete 3-year exercise cycle. Records should be maintained at the facility or at a corporate location designated in the OSRP. Records showing that OSROs and oil spill removal cooperatives have deployed each type of equipment also must be maintained for the 3-year cycle.	App K
(f)	You must inform the Chief, OSPD of the date of any exercise required by paragraph (b)(1), (2), or (4) of this section at least 30 days before the exercise. This will allow BSEE personnel the opportunity to witness any exercises.	App K
(g)	The Regional Supervisor periodically will initiate unannounced drills to test the spill response preparedness of owners and operators.	App K
(h)	The Chief, OSPD may require changes in the frequency or location of the required exercises, equipment to be deployed and operated, or deployment procedures or strategies. The Chief, OSPD may evaluate the results of the exercises and advise the owner or operator of any needed changes in response equipment, procedures, or strategies.	---
(i)	Compliance with the National Preparedness for Response Exercise Program (PREP) Guidelines will satisfy the exercise requirements of this section. Copies of the PREP document may be obtained from the Chief, OSPD.	---

US BSEE 30 CFR 254 Subpart C		
§ Subpart C	Brief Description	Location In Plan
254.43	<i>Maintenance and periodic inspection of response equipment.</i>	---
(a)	You must ensure that the response equipment listed in your OSRP is inspected at least monthly and is maintained, as necessary, to ensure optimal performance.	App F
(b)	You must ensure that records of the inspections and the maintenance activities are kept for at least 2 years and are made available to any authorized BSEE representative upon request.	App F
254.44	<i>Calculating response equipment effective daily recovery capacities.</i>	---
(a)	You are required by § 254.26(d)(1) to calculate the effective daily recovery capacity of the response equipment identified in your OSRP that you would use to contain and recover your worst case discharge. You must calculate the effective daily recovery capacity of the equipment by multiplying the manufacturer's rated throughput capacity over a 24-hour period by 20 percent. This 20 percent efficiency factor takes into account the limitations of the recovery operations due to available daylight; sea state, temperature, viscosity, and emulsification of the oil being recovered. You must use this calculated rate to determine if you have sufficient recovery capacity to respond to your worst case discharge scenario.	App H
(b)	If you want to use a different efficiency factor for specific oil recovery devices, you must submit evidence to substantiate that efficiency factor. Adequate evidence includes verified performance data measured during actual spills or test data gathered according to the provisions of § 254.45(b) and (c).	NA
254.45	<i>Verifying the capabilities of your response equipment.</i>	---
(a)	The Regional Supervisor may require performance testing of any spill-response equipment listed in your OSRP to verify its capabilities if the equipment:	---
(a)(1)	Has been modified;	---
(a)(2)	Has been damaged and repaired; or	---
(a)(3)	Has a claimed effective daily recovery capacity that is inconsistent with data otherwise available to BSEE.	---
(b)	You must conduct any required performance testing of booms in accordance with BSEE-approved test criteria. You may use the document "Test Protocol for the Evaluation of Oil-Spill Containment Booms," available from BSEE, for guidance. Performance testing of skimmers also must be conducted in accordance with BSEE approved test criteria. You may use the document "Suggested Test Protocol for the Evaluation of Oil Spill Skimmers for the OCS," available from BSEE, for guidance.	---
(c)	You are responsible for any required testing of equipment performance and for the accuracy of the information submitted.	---
254.46	<i>Whom do I notify if an oil spill occurs?</i>	---
(a)	You must immediately notify the National Response Center (1-800-424-8802) if you observe:	Sec 3.2
(a)(1)	An oil spill from your facility;	Sec 3.2

US BSEE 30 CFR 254 Subpart C		
§ Subpart C	Brief Description	Location In Plan
(a)(2)	An oil spill from another offshore facility; or	Sec 3.2
(a)(3)	An offshore spill of unknown origin.	Sec 3.2
(b)	In the event of a spill of 1 barrel or more from your facility, you must orally notify the Regional Supervisor without delay. You also must report spills from your facility of unknown size but thought to be 1 barrel or more.	Sec 3.2
(b)(1)	If a spill from your facility not originally reported to the Regional Supervisor is subsequently found to be 1 barrel or more, you must then report it without delay.	---
(b)(2)	You must file a written follow up report for any spill from your facility of 1 barrel or more. The Chief, OSPD must receive this confirmation within 15 days after the spillage has been stopped. All reports must include the cause, location, volume, and remedial action taken. Reports of spills of more than 50 barrels must include information on the sea state, meteorological conditions, and the size and appearance of the slick. The Regional Supervisor may require additional information if it is determined that an analysis of the response is necessary.	Sec 3.2
(c)	If you observe a spill resulting from operations at another offshore facility, you must immediately notify the responsible party and the Regional Supervisor.	Sec 3.2
254.47	<i>Determining the volume of oil of your worst case discharge scenario.</i> You must calculate the volume of oil of your worst case discharge scenario as follows:	---
(a)	For an oil production platform facility, the size of your worst case discharge scenario is the sum of the following:	NA
(a)(1)	The maximum capacity of all oil storage tanks and flow lines on the facility. Flow line volume may be estimated; and	NA
(a)(2)	The volume of oil calculated to leak from a break in any pipelines connected to the facility considering shutdown time, the effect of hydrostatic pressure, gravity, frictional wall forces and other factors; and	NA
(a)(3)	The daily production volume from an uncontrolled blowout of the highest capacity well associated with the facility. In determining the daily discharge rate, you must consider reservoir characteristics, casing/production tubing sizes, and historical production and reservoir pressure data. Your scenario must discuss how to respond to this well flowing for 30 days as required by § 254.26(d)(1).	NA
(b)	For exploratory or development drilling operations, the size of your worst case discharge scenario is the daily volume possible from an uncontrolled blowout. In determining the daily discharge rate, you must consider any known reservoir characteristics. If reservoir characteristics are unknown, you must consider the characteristics of any analog reservoirs from the area and give an explanation for the selection of the reservoir(s) used. Your scenario must discuss how to respond to this well flowing for 30 days as required by § 254.26(d)(1).	NA
(c)	For a pipeline facility, the size of your worst case discharge scenario is the volume possible from a pipeline break. You must calculate this volume as follows:	NA
(c)(1)	Add the pipeline system leak detection time to the shutdown response time.	NA

US BSEE 30 CFR 254 Subpart C		
§ Subpart C	Brief Description	Location In Plan
(c)(2)	Multiply the time calculated in paragraph (c)(1) of this section by the highest measured oil flow rate over the preceding 12-month period. For new pipelines, you should use the predicted oil flow rate in the calculation.	NA
(c)(3)	Add to the volume calculated in paragraph (c)(2) of this section the total volume of oil that would leak from the pipeline after it is shut in. Calculate this volume by taking into account the effects of hydrostatic pressure, gravity, frictional wall forces, length of pipeline segment, tie-ins with other pipelines, and other factors.	NA
(d)	If your facility which stores, handles, transfers, processes, or transports oil does not fall into the categories listed in paragraph (a), (b), or (c) of this section, contact the Chief, OSPD for instructions on the calculation of the volume of your worst case discharge scenario.	App H

U.S. Department of the Interior (DOI) Bureau of Ocean Energy Management (BOEM)
 Conditions of Construction and Operations Plan (COP) Approval
 Lease Number OCS-A 0417
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2. Technical Conditions	Description	Location In Plan
2.4	<p><u>Oil Spill Response Plan</u> (Planning). Pursuant to 30 C.F.R. § 585.627(c), the Lessee must submit an Oil Spill Response Plan (OSRP) in compliance with 33 U.S.C. § 1321, including information identified in 30 C.F.R. part 254 that is applicable to the Lessee's activities. The Lessee must submit the OSRP directly to BSEE (at bseeosrdgomr@bsee.gov). Before the installation of any component of the Lessee's facilities that may handle or store oil on the OCS, BSEE must review and accept the Lessee's OSRP. The Lessee's OSRP must be consistent with the National Contingency Plan and appropriate Area Contingency Plan(s), as defined in 30 C.F.R. § 254.6. In order to continue operating, the Lessee must operate in accordance with the OSRP accepted by BSEE.</p> <p>The Lessee's OSRP must contain the following information:</p>	Entire Plan
2.4.1	<p><u>Facility Information</u>. The OSRP must describe the type and amounts of oil on the facilities covered under the Lessee's OSRP and design parameters intended to monitor for oil spills</p>	Annex A
2.4.1.1	<p>"Facility," for the purposes of the Lessee's OSRP, is a facility as defined in 30 C.F.R. § 585.112 that contains or stores oil. As used herein, "oil," as defined by Clean Water Act at 33 U.S.C. 1321(a), means oils of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. However, "oil" does not include animal fats, oils, and greases, and fish and marine mammal oils, or oils of vegetable origin, including oils from seeds, nuts, or kernels. Dielectric fluids, as an example, meets this definition of oil.</p>	---
2.4.2	<p>Copies of Safety Data Sheets. The OSRP must include copies of safety data sheets (SDS) for any oils present on any facility in quantities equal to or greater than 100 gallons.</p>	App O
2.4.3	<p>Worst-Case Discharge Volume. The OSRP must include the worst-case discharge (WCD) volume for each type of facility covered in the plan.</p>	App H
2.4.3.1	<p>"Worst-Case Discharge Volume" is the highest cumulative volume of oil and all other oil-based substances contained on a single facility, such as an offshore substation (OSS) or wind turbine generator (WTG).</p>	App H
2.4.3.2	<p>Calculating the Lessee's WCD volume(s):</p>	---
2.4.3.2.1	<p>For all facilities (e.g., WTGs or other support structures) other than OSS and transmission lines, the WCD volume is the highest total volume of oil and oil-based substances contained onboard or within the facility, including all cables containing oil that are connected to the facility, except for transmission lines.</p>	App H
2.4.3.2.2	<p>For an OSS, the WCD volume is the highest total volume of oil and oil-based substances contained within the facility, including all cables containing oil that are connected to the facility, except for transmission lines.</p>	App H
2.4.3.2.3	<p>For transmission lines that contain oil, the WCD volume is the maximum volume of oil and oil-based substances that can be contained within the transmission line with the highest oil storage capacity and any storage tanks that may supply oil to the cable.</p>	NA

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2. Technical Conditions	Description	Location In Plan
2.4.4	Response Organization. The OSRP must identify a trained Qualified Individual (QI), and an alternate, with full authority to implement removal actions and ensure immediate notification of appropriate Federal officials and response personnel. The OSRP must provide their 24-hour contact information, including phone numbers and email addresses. In the OSRP that covers the OSS, the Lessee must also designate trained members of the Lessee's Incident Management Team (IMT) and provide their 24-hour contact information, including phone numbers and email addresses. If a contract has been established with an IMT, evidence of such a contract must be provided in the Lessee's OSRP.	Sec 2.1
2.4.4.1	"Qualified Individual" (QI) means an English-speaking representative of the Lessee who is located in the United States, available on a 24- hour basis, and given full authority to obligate funds, carry out removal actions, and communicate with the appropriate Federal officials and the persons providing personnel and equipment in removal operations.	Sec 2.1
2.4.4.2	"Incident Management Team" (IMT) means the group of personnel identified within the Lessee's organizational structure who manage the overall response to an incident in accordance with the Lessee's OSRP. The IMT consists of the Incident Commander, Command and General Staff, and other personnel assigned to key Incident Command System positions designated in the Lessee's OSRP.	Sec 2.2
2.4.4.3	"Oil Spill Removal Organization" (OSRO) is an entity contracted by the Lessee to provide spill response equipment and/or manpower in the event of an oil spill.	Sec 2.3
2.4.4.4	"Spill Response Operating Team" (SROT) means the trained persons who respond to spills and deploy and operate oil spill response equipment.	-----
2.4.5.	Notification Procedures. The OSRP must describe the procedures for spill notification. Notification procedures must include the 24-hour contact information for:	-----
2.4.5.1	The QI and an alternate, including phone numbers and email addresses	Sec 2.1
2.4.5.2	IMT members, if applicable	Sec 2.2
2.4.5.3	Federal, state, and local regulatory agencies that must be notified when a spill occurs, including, but not limited to, the National Response Center	Sec 3.0
2.4.5.4	An OSRO and SROT that are available to respond	Sec 2.3
2.4.5.5	Other response organizations and subject matter experts that the Lessee will rely on for the Lessee's response	
2.4.6	Spill Mitigation Procedures. The OSRP must describe the different discharge scenarios that could occur from the Lessee's facilities and the mitigation procedures by which the offshore facility operator and any listed/contracted OSROs (if required) would respond to such discharges. The mitigation procedures must address responding to both smaller spills (with slow, low- volume leakage) and larger spills, to include the largest WCD covered under the Lessee's OSRP (refer to definition above).	App H
2.4.7	Trajectory Analysis. The OSRP that covers the OSS must include a stochastic spill trajectory analysis from the OSS. The trajectory analysis must:	App H

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2. Technical Conditions	Description	Location In Plan
2.4.7.1	Be based on the WCD volume from the OSS that contains the highest total volume of oil and oil-based substances. If the OSSs contain the same volume of oil and oil-based substances, base the trajectory analysis on the OSS that is closest to shore.	App H
2.4.7.2	Be conducted for the longest period that the discharged oil would reasonably be expected to persist on the water's surface, or 14 calendar days, whichever is shorter.	App H
2.4.7.3	Identify the probabilities for oiling on the water's surface and on shorelines, and minimum travel times for the transport of the oil over the duration of the model simulation. Oiling probabilities and minimum travel times must be calculated for exposure threshold concentrations reaching 10 grams per square meter. Stochastic analysis must incorporate a minimum of 100 different trajectory simulations using random start dates selected over a multi-year period.	App H
2.4.8	Resources at Risk. The OSRP must include a concise list of the sensitive resources that are located near the Lessee's offshore facility and could be oiled by a spill. In lieu of listing sensitive resources, the Lessee may identify the areas that could be oiled by a spill from the Lessee's facility and provide hyperlinks to corresponding Environmentally Sensitive Index Maps and/or Geographic Response Strategies for those areas from the appropriate Area Contingency Plans.	App H
2.4.9	Contractual Agreements. The OSRP must include a list (with contact information) of OSROs and SROTs that are available to respond to the WCD of oil from the Lessee's offshore facilities.	App G
2.4.9.1	If the Lessee's OSRP covers only WTGs, the Lessee may provide a Letter of Intent (LOI) in lieu of a contract from each OSRO and SROT in the Lessee's plan acknowledging that it has agreed to be listed in the Lessee's OSRP.	NA
2.4.9.2	In the OSRP that covers the OSS, the Lessee is required to ensure the availability of the OSRO and SROT resources necessary to respond through a contract or membership agreement. If a contract has been established with an OSRO and SROT, evidence of such contracts or membership agreements must be provided in the Lessee's plan. An LOI is not required from any OSRO or SROT that has been ensured to be available through a contract.	App G
2.4.9.3	The OSRP must also include a map(s) that shows equipment storage sites and staging location(s) for the oil spill response equipment that would be deployed by the facility operators or the OSRO(s) listed in the plan in the event of a discharge.	App F
2.4.10	Training. The OSRP must include a description of the annual training necessary to ensure that the QI, IMT, OSRO and SROT (as applicable) are sufficiently trained to perform their respective duties. The Lessee's OSRP must provide the most recent dates of applicable training(s). The Lessee must ensure that the Lessee's QI, IMT, OSRO, and SROT personnel receive annual training. The training must be sufficient for personnel to perform their duties. Training records must be maintained and retained for 3 years and must be provided to BSEE upon request.	App K

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2. Technical Conditions	Description	Location In Plan
2.4.11	<p>Response Plan Exercise. The OSRP must include a triennial exercise plan for review and concurrence by BSEE to ensure that the Lessee is able to respond quickly and effectively whenever oil is discharged from the Lessee's facilities. The Lessee must conduct an annual scenario-based notification exercise, an annual scenario-based IMT tabletop exercise, and, during the triennial exercise period, at least one functional exercise. If the Lessee's plan includes an OSRO and/or SROT contract, an annual deployment exercise of the Lessee's contracted response equipment is required. BSEE will advise on the options the Lessee has to satisfy these requirements and may require changes in the type, frequency, or location of the required exercises, exercise objectives, equipment to be deployed and operated, or deployment procedures or strategies. BSEE may evaluate the results of the exercises and advise the Lessee of any needed changes in response equipment, procedures, tactics, or strategies. BSEE may periodically initiate unannounced exercises to test the Lessee's spill preparedness and response capabilities. Exercise records must be maintained and retained for 3 years and must be provided to DOI upon request.</p>	App K
2.4.12	<p>Response Equipment. The OSRP that covers the OSS must include a list, or a hyperlink to a list, of the oil spill response equipment that is available to the Lessee through OSRO contracts; and identify the location of the equipment depots where the equipment is stored. The Lessee must ensure that the Lessee's contracted response equipment is maintained in proper operating condition; further ensure that all maintenance, modification, and repair records are kept for a minimum of 3 years; and provide these records to BSEE upon request. The Lessee or the Lessee's OSRO must provide BSEE with physical access to the Lessee's equipment storage depots and perform functional testing of the Lessee's response equipment upon BSEE's request. BSEE may require maintenance, modifications, or repairs to response equipment or require the Lessee to remove response equipment from the Lessee's plan if the equipment does not operate as intended.</p>	App F
2.4.13	<p>OSRP Maintenance. If the Lessee makes a significant change to its OSRP that would reduce the Lessee's ability to respond to a spill, a significant increase in the Lessee's WCD, removal of a contracted IMT, OSRO, or SROT from the Lessee's plan, or a significant change in the applicable area contingency plans, the Lessee must revise its OSRP to remedy these problems and provide notice to BSEE no more than 15 calendar days after said change for review and concurrence. The Lessee must review and update the entire OSRP as needed at intervals not to exceed once every 3 years, starting from the date the OSRP was initially accepted. The Lessee must send a written notification to BSEE upon completion of this review and submit any updates for concurrence. BSEE may require changes to the Lessee's OSRP if BSEE determines that the OSRP is outdated or contains significant inadequacies through review of the Lessee's OSRP, information obtained during exercises or actual spill responses, or other relevant information obtained by BSEE.</p>	App M

APPENDIX O - SAFETY DATA SHEETS

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APPENDIX O: SAFETY DATA SHEETS

DIESEL FUEL



SAFETY DATA SHEET

1. Identification

Product identifier	DIESEL FUELS
Other means of identification	
SDS number	102-GHS
Synonyms	Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel, R5 ULSD, B5 ULS D See section 16 for complete information.
Recommended use	Motor Fuel Refinery feedstock.
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufacturer/Supplier	Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000 210-345-4593
General Assistance	210-345-4593
E-Mail	CorpHSE@valero.com
Contact Person	Industrial Hygienist
Emergency Telephone	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2
OSHA defined hazards	Not classified.	
Label elements		



Signal word	Danger
Hazard statement	Flammable liquid and vapor. Harmful if inhaled. Causes skin irritation. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs (blood, thymus, liver) through prolonged or repeated exposure. May be fatal if swallowed and enters airways.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Do not breathe the mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area.

Response	If skin irritation occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If exposed or concerned: Get medical advice/attention. If swallowed: Immediately call a poison center/doctor. Take off contaminated clothing and wash before reuse. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.
Storage	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Fuels, diesel, no. 2	68476-34-6	85 - 100
Biodiesel - Fatty acid methyl esters	67762-38-3	0 - 10
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 5
n-Nonane	111-84-2	1 - 3
Octane (All isomers)	111-65-9	1 - 2
Hexane (Other isomers)	96-14-0	0 - 1
Naphthalene	91-20-3	0 - 1
n-Heptane	142-82-5	0 - 1
n-Hexane	110-54-3	0 - 1

4. First-aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.
General information	If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures

Suitable extinguishing media Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. Thermal decomposition or combustion may liberate toxic gases or fumes.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire-fighting equipment/instructions	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.

Methods and materials for containment and cleaning up Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

Use non-sparking tools and explosion-proof equipment.

Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste.

Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment.

Clean up in accordance with all applicable regulations.

Environmental precautions If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

7. Handling and storage

Precautions for safe handling Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Avoid breathing mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m ³ 10 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m ³ 500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m ³ 500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m ³ 500 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m ³	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
Naphthalene (CAS 91-20-3)	TWA	500 ppm	
	STEL	15 ppm	
n-Heptane (CAS 142-82-5)	TWA	10 ppm	
	STEL	500 ppm	
n-Hexane (CAS 110-54-3)	TWA	400 ppm	
	STEL	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	Ceiling	1800 mg/m ³
	TWA	510 ppm 350 mg/m ³ 100 ppm
Naphthalene (CAS 91-20-3)	STEL	75 mg/m ³ 15 ppm
	TWA	50 mg/m ³ 10 ppm
n-Heptane (CAS 142-82-5)	Ceiling	1800 mg/m ³ 440 ppm
	TWA	350 mg/m ³ 85 ppm
n-Hexane (CAS 110-54-3)	TWA	180 mg/m ³ 50 ppm
	TWA	1050 mg/m ³ 200 ppm
Octane (All isomers) (CAS 111-65-9)	Ceiling	1800 mg/m ³
	TWA	385 ppm 350 mg/m ³ 75 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
n-Hexane (CAS 110-54-3)	0.4 mg/l	2,5-Hexanedion, without hydrolysis	Urine	*
	0.4 mg/l	2,5-Hexanedion, without hydrolysis		*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

n-Hexane (CAS 110-54-3)

Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6)

Can be absorbed through the skin.

Naphthalene (CAS 91-20-3)

Can be absorbed through the skin.

n-Hexane (CAS 110-54-3)

Can be absorbed through the skin.

Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

Hand protection

Wear chemical-resistant, impervious gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Other

Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Liquid (may be dyed red).

Physical state

Liquid.

Form

Liquid.

Color

Clear. Straw.

Odor

Kerosene (strong).

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

-60.07 °F (-51.15 °C) Estimated

Initial boiling point and boiling range

325 - 700 °F (162.78 - 371.11 °C)

Flash point

> 100.0 °F (> 37.8 °C) Closed Cup

Evaporation rate

0.02

Flammability (solid, gas)

Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) 0.4 %

Flammability limit - upper (%) 8 %

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure < 1 mm Hg (20°C)

Vapor density 3 (Air = 1)

Relative density 0.82 - 0.87

Relative density temperature 60 °F (15.56 °C)

Solubility(ies)

Solubility (water) Not available.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature 494.96 °F (257.2 °C)

Decomposition temperature Not available.

Viscosity 2 - 4.5 mm²/s

10. Stability and reactivity

Reactivity Stable at normal conditions.

Chemical stability Stable under normal temperature conditions and recommended use.

Possibility of hazardous reactions Hazardous polymerization does not occur.

Conditions to avoid Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion May be fatal if swallowed and enters airways.

Inhalation Harmful if inhaled. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.

Skin contact Causes skin irritation.

Eye contact May cause eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.

Information on toxicological effects

Acute toxicity Harmful if inhaled. Harmful: may cause lung damage if swallowed. The toxicological properties of this material have not been fully investigated.

Components	Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)		
Acute Inhalation LC50	Rat	4.1 mg/l, 4 hours

Components	Species	Test Results
Naphthalene (CAS 91-20-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2 g/kg
<i>Oral</i>		
LD50	Rat	490 mg/kg
n-Heptane (CAS 142-82-5)		
Acute		
<i>Inhalation</i>		
LC50	Rat	103 mg/l, 4 Hours
n-Hexane (CAS 110-54-3)		
Acute		
<i>Oral</i>		
LD50	Rat	28710 mg/kg
n-Nonane (CAS 111-84-2)		
Acute		
<i>Inhalation</i>		
LC50	Rat	3200 mg/l, 4 Hours
Octane (All isomers) (CAS 111-65-9)		
Acute		
<i>Inhalation</i>		
LC50	Rat	118 mg/l, 4 Hours
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.	
Respiratory or skin sensitization		
Respiratory sensitization	Based on available data, the classification criteria are not met.	
Skin sensitization	Based on available data, the classification criteria are not met.	
Germ cell mutagenicity	Based on available data, the classification criteria are not met.	
Carcinogenicity	Suspected of causing cancer. International Agency for Research on Cancer (IARC): Whole diesel engine exhaust – IARC Group 1. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer. Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Fuels, diesel, no. 2 (CAS 68476-34-6)	3 Not classifiable as to carcinogenicity to humans.	
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.	
NTP Report on Carcinogens		
Naphthalene (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.	
Reproductive toxicity	Suspected of damaging fertility or the unborn child. Naphthalene interferes with embryo development in experimental animals at dose levels that cause maternal toxicity. In humans, excessive exposure to this agent may cause hemolytic anemia in the mother and fetus.	
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.	
Specific target organ toxicity - repeated exposure	May cause damage to the following organs through prolonged or repeated exposure: Blood. Liver. Thymus.	
Aspiration hazard	May be fatal if swallowed and enters airways.	
Chronic effects	Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication. Repeated exposure to naphthalene may cause cataracts, allergic skin rashes, destruction of red blood cells, and anemia, jaundice, kidney and liver damage. Danger of serious damage to health by prolonged exposure. Prolonged or repeated overexposure may cause central nervous system, kidney, liver, and lung damage.	

Further information

Symptoms may be delayed. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Toxicological properties of this material have not been fully investigated.

12. Ecological information

Ecotoxicity Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components	Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)		
Aquatic		
<i>Acute</i>		
Crustacea	EL50	Daphnia magna 68 mg/l, 48 hours
Fish	LL50	Oncorhynchus mykiss 65 mg/l, 96 hours
Naphthalene (CAS 91-20-3)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha) 0.95 - 1.62 mg/l, 96 hours
n-Heptane (CAS 142-82-5)		
Aquatic		
Fish	LC50	Western mosquitofish (Gambusia affinis) 4924 mg/l, 96 hours
n-Hexane (CAS 110-54-3)		
Aquatic		
Fish	LC50	Fathead minnow (Pimephales promelas) 2.101 - 2.981 mg/l, 96 hours

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Hexane (Other isomers) (CAS 96-14-0)	3.6
Octane (All isomers) (CAS 111-65-9)	5.18
n-Heptane (CAS 142-82-5)	4.66
n-Hexane (CAS 110-54-3)	3.9
n-Nonane (CAS 111-84-2)	5.46

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F

US RCRA Hazardous Waste U List: Reference

Naphthalene (CAS 91-20-3) U165

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information**DOT**

UN number	UN1202
UN proper shipping name	Diesel fuel
Transport hazard class(es)	
Class	Combustible Liquid
Subsidiary risk	-
Packing group	III

Environmental hazards

Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	144, B1, IB3, T2, TP1
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	242

IATA

UN number	UN1202
UN proper shipping name	Diesel fuel
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	Yes
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1202
UN proper shipping name	DIESEL FUEL
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	

Marine pollutant	Yes
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EmS	F-E, S-E
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Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
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Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.
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15. Regulatory information**US federal regulations****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

n-Nonane (CAS 111-84-2)	1.0 % One-Time Export Notification only.
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US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Hexane (Other isomers) (CAS 96-14-0)	LISTED
Naphthalene (CAS 91-20-3)	LISTED
n-Heptane (CAS 142-82-5)	LISTED
n-Hexane (CAS 110-54-3)	LISTED
n-Nonane (CAS 111-84-2)	LISTED
Octane (All isomers) (CAS 111-65-9)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes
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SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Naphthalene	91-20-3	0 - 1

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Naphthalene (CAS 91-20-3)

n-Hexane (CAS 110-54-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Hexane (Other isomers) (CAS 96-14-0)

Naphthalene (CAS 91-20-3)

n-Heptane (CAS 142-82-5)

n-Hexane (CAS 110-54-3)

n-Nonane (CAS 111-84-2)

Octane (All isomers) (CAS 111-65-9)

US. New Jersey Worker and Community Right-to-Know Act

Fuels, diesel, no. 2 (CAS 68476-34-6)

Naphthalene (CAS 91-20-3)

n-Heptane (CAS 142-82-5)

n-Hexane (CAS 110-54-3)

n-Nonane (CAS 111-84-2)

Octane (All isomers) (CAS 111-65-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Fuels, diesel, no. 2 (CAS 68476-34-6)

Hexane (Other isomers) (CAS 96-14-0)

Naphthalene (CAS 91-20-3)

n-Heptane (CAS 142-82-5)

n-Hexane (CAS 110-54-3)

n-Nonane (CAS 111-84-2)

Octane (All isomers) (CAS 111-65-9)

US. Rhode Island RTK

Naphthalene (CAS 91-20-3)

n-Hexane (CAS 110-54-3)

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Benzene (CAS 71-43-2)

Toluene (CAS 108-88-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

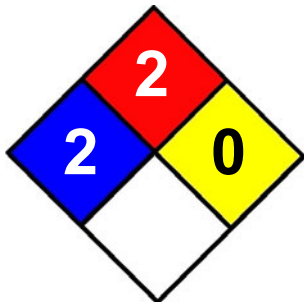
Issue date 13-May-2013

Revision date 23-May-2014

Version # 04

Further information HMIS® is a registered trade and service mark of the NPCA.

NFPA Ratings



Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use, the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

ESTER OIL

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1. Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifier

Material Name: MIDEL 7131.

EU REACH No.: 01-2120104110-86-0000.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product Use: Dielectric fluid.

Uses advised against: None.

1.3 Details of the supplier of the substance or mixture

Company: M&I Materials Ltd., Hibernia Way, Trafford Park, Manchester, M32 0ZD, UK.

Telephone: +44 (0)161 864 5411.

Emergency Telephone: +44 (0)161 864 5439.

Email: mideltech@mimaterials.com.

2. Hazards Identification

This product is not classified as hazardous and this document has been compiled for information purposes, in accordance regulation 1907/EC/2006, Annex II, as amended by Regulation (EU) No. 2015/830 and OSHA hazard communication guidelines.

2.1 Classification of the substance or mixture

Regulation (EC) No 1272/2008 (CLP): Not classified.

2.2 Label elements

Regulation (EC) No 1272/2008 (CLP): No symbol or signal word.

2.3 Other hazards

None.

3. Composition/Information on Ingredients

3 Substance

CAS No.: 68424-31-7.

Description: Fatty acids, C5-10 (linear and branched), mixed esters with pentaerythritol.

Composition:

Constituent	CAS Number	Contents
Fatty acid tetra esters	68424-31-7	>99.5%
Performance enhancing additives	Proprietary	<0.5%

All constituents are listed on the TSCA inventory. Additives used in this product are a trade secret, but do not lead to classification of the substance as hazardous.

4. First Aid Measures

4.1 Description of first aid measures

Inhalation: None envisaged due to the low vapour pressure of the substance.

Skin: Wash with soap and water. Obtain medical attention if irritation develops.

Eyes: Irrigate with copious amounts of water. Obtain medical attention if irritation develops.

Ingestion: Do not induce vomiting, obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

No adverse effects expected.

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4.3 Indication of any immediate medical attention and special treatment needed
No special treatment required.

5. Fire Fighting Measures

5.1 Extinguishing media

Carbon dioxide, dry powder, ABF foam or water fog. Do not use water jets.

5.2 Special hazards arising from the substance or mixture

None.

5.3 Advice for fire fighters

Self-contained breathing apparatus may be required.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Spilt product constitutes a slip hazard. Avoid contact with skin and eyes.

6.2 Environmental precautions

Do not contaminate any lakes, streams, ponds, groundwater or soil. Avoid flushing into drains. In the event of a large spillage contain product as thoroughly as possible and dispose of in accordance with local regulations.

6.3 Methods and material for containment and cleaning up

Soak up spilt material with absorbent granules for disposal.

7. Handling and Storage

7.1 Precautions for safe handling

Avoid eye and prolonged skin contact.

7.2 Conditions for safe storage, including any incompatibilities

No special precautions required.

7.3 Specific end use(s)

Exposure to air should be minimised. Opened containers should be properly resealed.

8. Exposure Controls/ Personal Protection

8.1 Control parameters

No relevant control parameters.

8.2 Exposure controls

Eye washes should be available for emergency use.

Respiratory protection: Not required for normal use.

Skin protection: Wear coveralls.

Hand protection: Wash hands after use. For prolonged or repeated skin contact gloves are recommended.

Eye protection: If splashes are likely to occur wear safety glasses.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance: Pale amber liquid.

Odour: Faintly sweet.

pH: Not applicable.

Freezing point: -56°C.

Initial boiling point and boiling range: >300°C.

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Flash point: 260°C (closed cup).
Flammability (solid, gas): Non-flammable.
Upper/lower flammability or explosive limits: Data not available.
Vapour pressure: <0.001Pa at 20°C.
Vapour density: Not applicable.
Relative density: 0.97 at 20°C.
Water solubility: <1mg/l.
Solubility: Not applicable.
Partition coefficient: log Pow: >10
Auto-ignition temperature: No auto-ignition expected.
Decomposition temperature: Data not available.
Viscosity: 29mm²/s at 40°C.
Explosive properties: Non-explosive.
Oxidising properties: Non-oxidising.

9.2 Other information

Not applicable.

10. Stability and Reactivity

10.1 Reactivity

Stable under normal conditions of use.

10.2 Chemical stability

Stable under normal conditions of use.

10.3 Possibility of hazardous reactions

Data not available.

10.4 Conditions to avoid

Temperatures >250°C.

10.5 Incompatible materials

Strong oxidising agents.

10.6 Hazardous decomposition products

None.

11. Toxicological Information

11.1 Information on toxicological effects

Likely routes of exposure: Skin and eyes are the most likely routes for exposure. Accidental ingestion may occur. Inhalation is not expected to be a relevant route of exposure.

Acute oral toxicity: Low toxicity: LD50 >2000mg/kg, OECD 401.

Acute dermal toxicity: Expected to be of low toxicity: LD50 >2000mg/kg, OECD 402.

Acute inhalation toxicity: Low volatility makes inhalation unlikely.

Skin corrosion/irritation: Not irritating, skin, OECD 404.

Eye corrosion/irritation: Not irritating, eye, OECD 405.

Respiratory or skin sensitisation: Not sensitising, skin, OECD 406.

Aspiration hazard: Not considered an aspiration hazard.

Carcinogenicity/mutagenicity: Not considered a mutagenic hazard or carcinogen.

This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.

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12. Ecological Information

When used and/or disposed of as indicated no adverse environmental effects are foreseen. Ecotoxicological effects based on knowledge of similar substances.

12.1 Toxicity

Salmo Gairdneri LC50 (96h), OECD 203: >1000mg/l.

Daphnia Magna EI50 (48h), OECD 202: >1000mg/l.

12.2 Persistence and degradability

Readily biodegradable.

12.3 Bioaccumulative potential

No potential for bioaccumulation.

12.4 Mobility in soil

Product has low mobility in soil.

12.5 Results of PBT and vPvB assessment

The product does not meet criteria for toxicity which requires further assessment. It is not considered PBT or vPvB.

12.6 Other adverse effects

No other adverse effects envisaged.

13. Disposal Considerations

13.1 Waste treatment methods

Product and packaging must be disposed of in accordance with local and national regulations. May be incinerated. Unused product may be returned for reclamation.

14. Transport Information

Not classified as hazardous under air (ICAO/IATA), sea (IMDG), road (ADR) or rail (RID) regulations.

14.1 UN number

Not relevant.

14.2 UN proper shipping name

Not relevant.

14.3 Transport hazard class

Not relevant.

14.4 Packing group

Not relevant.

14.5 Environmental hazards

Not relevant.

14.6 Special precautions for user

Not relevant.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Product is not subject to Authorisation under REACH.

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All constituent substances in this product are listed in the TSCA inventory.

15.2 Chemical safety assessment

A chemical safety assessment has been performed for this substance.

16. Other Information

Compiled according to regulation 1907/EC/2006, Annex II, as amended by Regulation (EU) No. 2015/830 and OSHA hazard communication guidelines.

16.1 Changes from last issue:

Sections 2 & 16: Update to regulations referenced.

The information provided in this Safety Data Sheet is correct to our best knowledge, information and belief at the date of its publication. It is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be construed as guaranteeing any specific property of the product.

GEAR OIL

Section 1. Identification

Product name Optigear Synthetic X 320
SDS no. 460264
Code 460264-FR01

Relevant identified uses of the substance or mixture and uses advised against

Product use Gear lubricant
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Supplier Castrol BP Petco
9th Floor – Times Square building
57-69F Dong Khoi Street
District 1, Ho Chi Minh City
Vietnam
Tel: 84-28-38219596 / 38219153
Fax: 84-28-38219603 / 38219152
EMERGENCY SPILL INFORMATION: Carechem: +65 3158 1074 (24/7)

Section 2. Hazards identification

Classification of the substance or mixture SKIN SENSITISATION - Category 1

GHS label elements

Hazard pictograms



Signal word Warning
Hazard statements H317 - May cause an allergic skin reaction.

Precautionary statements

Prevention P280 - Wear protective gloves.
P261 - Avoid breathing vapour.
P272 - Contaminated work clothing should not be allowed out of the workplace.

Response P362 + P364 - Take off contaminated clothing and wash it before reuse.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P333 + P313 - If skin irritation or rash occurs: Get medical attention.

Storage Not applicable.

Disposal P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Routes of entry Dermal contact. Eye contact. Inhalation.

Section 2. Hazards identification

Other hazards which do not result in classification Defatting to the skin.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Synthetic lubricant and additives.

Ingredient name	CAS number	%
2,5-bis(octylidithio)-1,3,4-thiadiazole	13539-13-4	≤0.3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. In the event of any complaints or symptoms, avoid further exposure. Get medical attention.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Get medical attention if adverse health effects persist or are severe.

Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
Unsuitable extinguishing media	Do not use water jet.

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Version 3.01	(Vietnam)	(ENGLISH)

Section 5. Firefighting measures

Specific hazards arising from the chemical

Swarf fires - Neat metal working oils may fume, thermally decompose or ignite if they come into contact with red hot swarf. To minimise the generation of red hot swarf ensure that a sufficient flow of oil is correctly directed to the cutting edge of the tool to flood it throughout cutting operations. As an additional precaution swarf should be regularly cleared from the immediate area to prevent the risk of fire. In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products

Combustion products may include the following:
carbon oxides (CO, CO₂) (carbon monoxide, carbon dioxide)

Special protective actions for fire-fighters

No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.

Special protective equipment for fire-fighters

Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.

For emergency responders

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilt product. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Concentrations of mist, fumes and vapours in enclosed spaces may result in the formation of explosive atmospheres. Excessive splashing, agitation or heating must be avoided. During metal working, solid particles from workpieces or tools will contaminate the fluid and may cause abrasions of the skin. Where such abrasions result in a penetration of the skin, first aid treatment should be applied as

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Section 7. Handling and storage

soon as reasonably possible. The presence of certain metals in the workpiece or tool, such as chromium, cobalt and nickel, can contaminate the metalworking fluid, as can bacteria, and as a result may induce allergic and other skin reactions, especially if personal hygiene is inadequate.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Not suitable

Prolonged exposure to elevated temperature

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.

Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.

The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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Section 8. Exposure controls/personal protection

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Skin protection

Use of protective clothing is good industrial practice.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

For protection against metal working fluids, respiratory protection that is classified as "resistant to oil" (class R) or oil proof (class P) should be selected where appropriate. Depending on the level of airborne contaminants, an air-purifying, half-mask respirator (with HEPA filter) including disposable (P- or R-series) (for oil mists less than 50mg/m³), or any powered, air-purifying respirator equipped with hood or helmet and HEPA filter (for oil mists less than 125 mg/m³).

Where organic vapours are a potential hazard during metalworking operations, a combination particulate and organic vapour filter may be necessary.

The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state

Liquid.

Colour

Yellow. [Light]

Odour

Mild

Odour threshold

Not available.

pH

Not applicable.

Melting point/freezing point

Not available.

Boiling point, initial boiling point, and boiling range

Not available.

Flash point

Open cup: >250°C (>482°F) [Cleveland]

Evaporation rate

Not available.

Flammability

Not available.

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Section 9. Physical and chemical properties

Lower and upper explosion limit/flammability limit Not available.

Vapour pressure

Ingredient name	Vapour Pressure at 20 °C			Vapour pressure at 50 °C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated	0	0	ASTM E 1194-87			
Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated	0	0	ASTM E 1194-87			
Benzenesulfonic acid, C14-44-branched and linear alkyl derivs., calcium salts, overbased	0	0	EU A.4			

Relative vapour density Not available.

Density <1000 kg/m³ (<1 g/cm³) at 15 °C

Relative density Not available.

Solubility insoluble in water.

Partition coefficient: n-octanol/water Not applicable.

Auto-ignition temperature

Ingredient name	°C	°F	Method
Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated	343 to 369	649.4 to 696.2	ASTM D 2159
Dec-1-ene, homopolymer, hydrogenated Dec-1-ene, oligomers, hydrogenated	343 to 369	649.4 to 696.2	ASTM D 2159

Decomposition temperature Not available.

Viscosity Kinematic: 320 mm²/s (320 cSt) at 40 °C
Kinematic: 41 mm²/s (41 cSt) at 100 °C

Particle characteristics

Median particle size Not applicable.

Section 10. Stability and reactivity

Reactivity No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.

Chemical stability The product is stable.

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.
Under normal conditions of storage and use, hazardous polymerisation will not occur.

Conditions to avoid Avoid excessive heat.

Incompatible materials Reactive or incompatible with the following materials: oxidising materials.

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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Section 11. Toxicological information

Information on toxicological effects

Aspiration hazard

Not available.

Information on likely routes of exposure

Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact

No known significant effects or critical hazards.

Inhalation

Vapour inhalation under ambient conditions is not normally a problem due to low vapour pressure.

Skin contact

Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.

Ingestion

No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact

No specific data.

Inhalation

No specific data.

Skin contact

Adverse symptoms may include the following:
irritation
redness
dryness
cracking

Ingestion

No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects

Not available.

Potential delayed effects

Not available.

Long term exposure

Potential immediate effects

Not available.

Potential delayed effects

Not available.

Potential chronic health effects

General

No known significant effects or critical hazards.

Carcinogenicity

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Developmental effects

No known significant effects or critical hazards.

Fertility effects

No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Environmental effects No known significant effects or critical hazards.

Persistence and degradability

Not expected to be rapidly degradable.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Mobility Liquid. insoluble in water.

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	IMDG	IATA
UN number	Not regulated.	Not regulated.
UN proper shipping name	-	-
Transport hazard class(es)	-	-
Packing group	-	-
Environmental hazards	No.	No.
Additional information	-	-

Special precautions for user Not available.

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Section 14. Transport information

Transport in bulk according to IMO instruments Not available.

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product No known specific national and/or regional regulations applicable to this product (including its ingredients).

Decree No. 113/2017/ND-CP - Chemicals to be declared Applicable

Toxic classification (TCVN 3164-79) Not classified as hazardous.

Chemical Weapon Convention List Schedules I, II & III Chemicals

International lists

Australia inventory (AIC)	All components are listed or exempted.
Canada inventory	At least one component is not listed in DSL but all such components are listed in NDSL.
China inventory (IECSC)	All components are listed or exempted.
REACH Status	The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.
Japan inventory (CSCL)	All components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	All components are listed or exempted.
United States inventory (TSCA 8b)	All components are active or exempted.

Section 16. Other information

History

Date of issue/ Date of revision	06 September 2022
Date of previous issue	6/30/2022
Prepared by	Product Stewardship
Key to abbreviations	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations Varies = may contain one or more of the following 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1

✔ Indicates information that has changed from previously issued version.

Notice to reader

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Section 16. Other information

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

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GLYCOL

Safety data sheet

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BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.

Date / Revised: 22.10.2018

Version: 4.1

Product: **GLYSANTIN® G30® pink**

(ID no. 30279144/SDS_GEN_EU/EN)

Date of print 04.03.2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

GLYSANTIN® G30® pink

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: engine coolant

1.3. Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Fuel and Lubricant Solutions

Telephone: +49 621 60-51555

E-mail address: product-safety-auto-refinery@basf.com

1.4. Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Acute Tox. 4 (oral)

STOT RE (Kidney) 2

H302, H373

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

Globally Harmonized System, EU (GHS)

Pictogram:

Signal Word:
Warning

Hazard Statement:

H302	Harmful if swallowed.
H373	May cause damage to organs (Kidney) through prolonged or repeated exposure.

Precautionary Statements (Prevention):

P260	Do not breathe dust/gas/mist/vapours.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P314	Get medical advice/attention if you feel unwell.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330	Rinse mouth.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.
------	---

According to Regulation (EC) No 1272/2008 [CLP]

Hazard determining component(s) for labelling: ethanediol

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Chemical nature

ethanediol

inhibitors

Hazardous ingredients (GHS)

according to Regulation (EC) No. 1272/2008

ethanediol

Content (W/W): > 90 %

CAS Number: 107-21-1

EC-Number: 203-473-3

REACH registration number: 01-2119456816-28

INDEX-Number: 603-027-00-1

Acute Tox. 4 (oral)

STOT RE (Kidney) 2

H302, H373

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

Immediately remove contaminated clothing. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position).

If inhaled:

If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

On skin contact:

Wash thoroughly with soap and water. Seek medical attention.

On contact with eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On ingestion:

Rinse mouth immediately and then drink plenty of water, seek medical attention. Administer 50 ml of pure ethanol in a drinkable concentration.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., (Further) symptoms and / or effects are not known so far

4.3. Indication of any immediate medical attention and special treatment needed

Treatment: Symptomatic treatment (decontamination, vital functions).

Antidote: Administer ethanol.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media:

water spray, dry powder, alcohol-resistant foam

5.2. Special hazards arising from the substance or mixture

harmful vapours

Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

5.3. Advice for fire-fighters

Special protective equipment:

Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

6.2. Environmental precautions

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

6.3. Methods and material for containment and cleaning up

For large amounts: Pump off product.

For residues: Pick up with suitable absorbent material. Dispose of absorbed material in accordance with regulations.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Shut containers immediately after taking product because product takes up the humidity of air.

Protection against fire and explosion:

No special precautions necessary.

Exposure estimate and reference to its source

Provide extract ventilation to points where emissions occur (LEV).

7.2. Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Containers should be stored tightly sealed in a dry place. Storage in galvanized containers is not recommended.

7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

107-21-1: ethanediol

Skin Designation (OEL (EU))

The substance can be absorbed through the skin.

STEL value 104 mg/m³ ; 40 ppm (OEL (EU))

indicative

TWA value 52 mg/m³ ; 20 ppm (OEL (EU))

indicative

PNEC

Data refer to the lead substance

Components with PNEC

107-21-1: ethanediol

freshwater: 10 mg/l

marine water: 1 mg/l

intermittent release: 10 mg/l

STP: 199.5 mg/l

BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.

Date / Revised: 22.10.2018

Version: 4.1

Product: **GLYSANTIN® G30® pink**

(ID no. 30279144/SDS_GEN_EU/EN)

Date of print 04.03.2019

sediment (freshwater): 37 mg/kg

soil: 1.53 mg/kg

sediment (marine water): 3.7 mg/kg

DNEL

Data refer to the lead substance

Components with DNEL

107-21-1: ethanediol

worker: Long-term exposure - local effects, Inhalation: 35 mg/m³

worker: Long-term exposure- systemic effects, dermal: 106 mg/kg

consumer: Long-term exposure - local effects, Inhalation: 7 mg/m³

consumer: Long-term exposure- systemic effects, dermal: 53 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:

Respiratory protection in case of vapour/aerosol release. Combination filter for gases/vapours of organic compounds and solid and liquid particles (f.e. EN 14387 Type A-P2)

Hand protection:

Chemical resistant protective gloves (EN 374)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):

nitrile rubber (NBR) - 0.4 mm coating thickness

Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

Do not inhale gases/vapours/aerosols. Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Form: liquid
Colour: pink
Odour: product specific

BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.

Date / Revised: 22.10.2018

Version: 4.1

Product: **GLYSANTIN® G30® pink**

(ID no. 30279144/SDS_GEN_EU/EN)

Date of print 04.03.2019

Odour threshold:	No applicable information available.	
pH value:	8.2 - 8.6	
solidification temperature:	< -18 °C	(DIN ISO 3016)
Boiling point:	> 160 °C	(ASTM D1120)
Flash point:	> 124 °C	(DIN EN 22719; ISO 2719)
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	
Flammability:	not flammable	
Lower explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Ignition temperature:	420 °C	(DIN 51794)
Vapour pressure:	0.2 mbar (20 °C) 13 mbar (50 °C)	
Density:	1.124 g/cm ³ (20 °C)	
Solubility (qualitative) solvent(s):	polar solvents soluble	
Partitioning coefficient n-octanol/water (log Kow):	Study scientifically not justified.	
Self ignition:	not self-igniting	
Thermal decomposition:	No decomposition if correctly stored and handled.	
Viscosity, kinematic:	20 - 30 mm ² /s (20 °C)	(DIN 51562)
Explosion hazard:	not explosive	
Fire promoting properties:	not fire-propagating	

9.2. Other information

Miscibility with water:
miscible in all proportions

Other Information:
If necessary, information on other physical and chemical parameters is indicated in this section.

SECTION 10: Stability and Reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

No hazardous reactions when stored and handled according to instructions.

10.4. Conditions to avoid

No conditions to avoid anticipated.

10.5. Incompatible materials

Substances to avoid:

strong oxidizing agents, alkali metal hydroxides

10.6. Hazardous decomposition products

Hazardous decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11: Toxicological Information**11.1. Information on toxicological effects**Acute toxicity

Assessment of acute toxicity:

Of moderate toxicity after single ingestion. Of low toxicity after short-term skin contact.

Experimental/calculated data:

LD (human) (oral): approx. 1,600 mg/kg

Irritation

Experimental/calculated data:

Skin corrosion/irritation rabbit: non-irritant

Serious eye damage/irritation rabbit: non-irritant

Respiratory/Skin sensitization

Assessment of sensitization:

Skin sensitizing effects were not observed in animal studies. Human data do not fully exclude a skin sensitizing potential.

Germ cell mutagenicity

Assessment of mutagenicity:

Based on the ingredients, there is no suspicion of a mutagenic effect.

Carcinogenicity

Assessment of carcinogenicity:

The whole of the information assessable provides no indication of a carcinogenic effect.

Reproductive toxicity

No data available.

Developmental toxicity

Information on: ethanediol

Assessment of teratogenicity:

Developmental toxicity was observed after oral ingestion of high doses in studies with rats and mice, but this effect was not seen in a study with rabbits. Mechanistic studies show that the rabbit is the relevant species for the classification for human health. As such, and since ethylene glycol is not a developmental toxicant in the rabbit, no classification is warranted.

Specific target organ toxicity (single exposure)

No data available.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Information on: ethanediol

Assessment of repeated dose toxicity:

The substance may cause damage to the kidney after repeated ingestion. The substance may cause damage to the kidney after repeated skin contact with high doses.

Aspiration hazard

No data available.

Other relevant toxicity information

The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

SECTION 12: Ecological Information

12.1. Toxicity

Toxicity to fish:

LC50 (96 h) > 100 mg/l, *Leuciscus idus*

Aquatic invertebrates:

EC50 (48 h) > 100 mg/l, Daphnia magna

Aquatic plants:

EC50 (72 h) > 100 mg/l, algae

Microorganisms/Effect on activated sludge:

Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations.

12.2. Persistence and degradability

Elimination information:

> 70 % DOC reduction (28 d) (OECD 301 A (new version)) Readily biodegradable.

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:

Accumulation in organisms is not to be expected.

12.4. Mobility in soil

Assessment transport between environmental compartments:

Adsorption in soil: No data available.

12.5. Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.

12.6. Other adverse effects

The product does not contain substances that are listed in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

12.7. Additional information

Adsorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

Other ecotoxicological advice:

The product has not been tested. The statement has been derived from the properties of the individual components.

Do not release untreated into natural waters.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Must be disposed of or incinerated in accordance with local regulations.

The waste codes are manufacturer's recommendations based on the designated use of the product. Other use and special waste disposal treatment on customer's location may require different waste-code assignments.

Waste key:

16 01 14⁺ antifreeze fluids containing hazardous substances

Contaminated packaging:

Uncontaminated packaging can be re-used.

Packs that cannot be cleaned should be disposed of in the same manner as the contents.

SECTION 14: Transport Information

Land transport

ADR

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

RID

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Inland waterway transport

ADN

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable

Environmental hazards: Not applicable
 Special precautions for user: None known

Transport in inland waterway vessel

Not evaluated

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

UN number: Not applicable
 UN proper shipping name: Not applicable
 Transport hazard class(es): Not applicable
 Packing group: Not applicable
 Environmental hazards: Not applicable
 Special precautions for user: None known

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

UN number: Not applicable
 UN proper shipping name: Not applicable
 Transport hazard class(es): Not applicable
 Packing group: Not applicable
 Environmental hazards: Not applicable
 Special precautions for user: None known

14.1. UN number

See corresponding entries for "UN number" for the respective regulations in the tables above.

14.2. UN proper shipping name

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

14.3. Transport hazard class(es)

See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

14.4. Packing group

 BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.

Date / Revised: 22.10.2018

Version: 4.1

Product: **GLYSANTIN® G30® pink**

(ID no. 30279144/SDS_GEN_EU/EN)

Date of print 04.03.2019

See corresponding entries for "Packing group" for the respective regulations in the tables above.

14.5. Environmental hazards

See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

14.6. Special precautions for user

See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Regulation:	Not evaluated
Shipment approved:	Not evaluated
Pollution name:	Not evaluated
Pollution category:	Not evaluated
Ship Type:	Not evaluated

SECTION 15: Regulatory Information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**Prohibitions, Restrictions and Authorizations

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 3

15.2. Chemical Safety Assessment

Assessment of safe use has been performed for the mixture and the result is documented in section 7 and 8 of the SDS

SECTION 16: Other InformationAssessment of the hazard classes according to UN GHS criteria (most recent version)

Acute Tox. 4 (oral)
STOT RE (Kidney) 2

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Acute Tox.	Acute toxicity
STOT RE	Specific target organ toxicity — repeated exposure
H302	Harmful if swallowed.
H373	May cause damage to organs (Kidney) through prolonged or repeated exposure.

BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.

Date / Revised: 22.10.2018

Version: 4.1

Product: **GLYSANTIN® G30® pink**

(ID no. 30279144/SDS_GEN_EU/EN)

Date of print 04.03.2019

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.

GREASE MOBILITH

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: MOBILITH SHC 007
Product Description: Synthetic Base Stocks and Additives
Product Code: 2015A0204010, 643569-00, 970042
Intended Use: Grease

COMPANY IDENTIFICATION

Supplier: EXXON MOBIL CORPORATION
22777 Springwoods Village Parkway
Spring, TX 77389 USA

24 Hour Health Emergency 609-737-4411
Transportation Emergency Phone 800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information 800-662-4525
MSDS Internet Address www.exxon.com, www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

Expected to be harmful to aquatic organisms.

NFPA Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0
HMIS Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Product Name: MOBILITH SHC 007
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SECTION 3	COMPOSITION / INFORMATION ON INGREDIENTS
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This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
1H-BENZOTRIAZOLE-1-METHANAMINE, N,N-BIS(2-ETHYLHEXYL)-METHYL-	94270-86-7	0.1 - < 0.25%	H315, H317, H400(M factor 1), H411
BENZENAMINE, N-PHENYL-, REACTION PRODUCTS WITH 2,4,4-TRIMETHYLPENTENE	68411-46-1	1 - < 5%	H316, H402
NAPHTHENIC ACIDS, ZINC SALTS	12001-85-3	0.1 - < 1%	H317, H319(2A), H401, H411
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	1 - < 2.5%	H315, H318, H401, H411

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4	FIRST AID MEASURES
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INHALATION

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5	FIRE FIGHTING MEASURES
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EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in

Product Name: MOBILITH SHC 007

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enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >204°C (400°F) [EST. FOR OIL, ASTM D-92 (COC)]

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Scrape up spilled material with shovels into a suitable container for recycle or disposal.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is not a static accumulator.

STORAGE

Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions.

Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

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ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Solid
Form: Semi-fluid
Color: Red
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.866
Flammability (Solid, Gas): N/A
Flash Point [Method]: >204°C (400°F) [EST. FOR OIL, ASTM D-92 (COC)]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: N/D
Decomposition Temperature: N/D
Vapor Density (Air = 1): N/D
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5 [Estimated]
Solubility in Water: Negligible
Viscosity: 460 cSt (460 mm²/sec) at 40 °C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A

NOTE: Most physical properties above are for the oil component in the material.

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
-------------------	----------------------------------

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components, this formulation, or similar formulations.

Contains:

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

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The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS

3 = IARC 1
4 = IARC 2A

5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land.
Expected to partition to sediment and wastewater solids.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

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LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
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OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AIIIC, IECSC, ISHL, KECI, TCSI, TSCA

Special Cases:

Inventory	Status
NDSL	Restrictions Apply

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE GHS HAZARD CLASSES: None.

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	1 - < 2.5%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
NAPHTHENIC ACIDS, ZINC SALTS	12001-85-3	15
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	19
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	13, 15, 17, 18, 19
ZINC NEODECANOATE	27253-29-8	15

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL

6 = TSCA 5a2

11 = CA P65 REPRO

16 = MN RTK

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2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

- H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
- H316: Causes mild skin irritation; Skin Corr/Irritation, Cat 3
- H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
- H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1
- H319(2A): Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2A
- H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
- H401: Toxic to aquatic life; Acute Env Tox, Cat 2
- H402: Harmful to aquatic life; Acute Env Tox, Cat 3
- H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

- Composition: Component Table information was modified.
- Section 15: National Chemical Inventory Listing information was modified.
- Section 16: HCode Key information was modified.

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GREASE OPTIPIT

SAFETY DATA SHEET**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Product name	Optipit
Product code	453841-DE03
SDS no.	453841
Historic SDS no.	66400
Product type	Grease

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses
General use of lubricants and greases in vehicles or machinery-Industrial General use of lubricants and greases in vehicles or machinery-Professional

Use of the substance/ mixture	Grease for industrial applications. For specific application advice see appropriate Technical Data Sheet or consult our company representative.
--	--

1.3 Details of the supplier of the safety data sheet

Supplier	BP Europa SE Geschäftsbereich Industrieschmierstoffe Erkelenzer Straße 20 D-41179 Mönchengladbach Germany Telefon: +49 (0)2161 909-30 Telefax: +49 (0)2161 909-392
E-mail address	MSDSadvice@bp.com

1.4 Emergency telephone number

EMERGENCY TELEPHONE NUMBER	Carechem: +44 (0) 1235 239 670 (24/7)
---------------------------------------	---------------------------------------

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture**

Product definition	Mixture
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Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Sens. 1, H317

See Section 16 for the full text of the H statements declared above.

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

2.2 Label elements**Hazard pictograms**

Signal word	Warning
Hazard statements	H317 - May cause an allergic skin reaction.

Precautionary statements

Prevention	P280 - Wear protective gloves. P261 - Avoid breathing vapour. P272 - Contaminated work clothing should not be allowed out of the workplace.
Response	P302 + P352 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. P333 + P313 - If skin irritation or rash occurs: Get medical attention.

Product name Optipit	Product code 453841-DE03	Page: 1/17
Version 8.01	Date of issue 4 November 2016	Format Germany (Germany)
	Language ENGLISH	

SECTION 2: Hazards identification

Storage	Not applicable.
Disposal	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients	Reaction product of ammonium molybdate and C12-C24-diethoxylated alkylamine (1:5-1:3) Isodecyl diphenyl phosphite
Supplemental label elements	Not applicable.
Special packaging requirements	
Containers to be fitted with child-resistant fastenings	Not applicable.
Tactile warning of danger	Not applicable.

2.3 Other hazards

Other hazards which do not result in classification	Defatting to the skin. Note: High Pressure Applications Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. See 'Notes to physician' under First-Aid Measures, Section 4 of this Safety Data Sheet. Experimental data on one or more of the components has been used to determine all or part of the hazard classification of this product.
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SECTION 3: Composition/information on ingredients

Substance/mixture Mixture

Highly refined mineral oil and additives. Thickening agent.

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Reaction product of ammonium molybdate and C12-C24-diethoxylated alkylamine (1:5-1:3)	REACH #: 01-0000016000-92 EC: 412-780-3 Index: 042-004-00-5	≤3	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411	[1]
Lithium hydroxide	EC: 215-183-4 CAS: 1310-65-2	≤0.3	Acute Tox. 3, H301 Skin Corr. 1A, H314 Eye Dam. 1, H318	[1]

See Section 16 for the full text of the H statements declared above.

Type

- [1] Substance classified with a health or environmental hazard
 - [2] Substance with a workplace exposure limit
 - [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
 - [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
 - [5] Substance of equivalent concern
- Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
Skin contact	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. In the event of any complaints or symptoms, avoid further exposure. Get medical attention.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms appear. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Get medical attention if symptoms occur.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Product name Optipit	Product code 453841-DE03	Page: 2/17
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		Language ENGLISH

SECTION 4: First aid measures

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

Treatment should in general be symptomatic and directed to relieving any effects. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
 Note: High Pressure Applications
 Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimise tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray.

Unsuitable extinguishing media

Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture

In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products

Combustion products may include the following:
 carbon oxides (CO, CO₂) (carbon monoxide, carbon dioxide)
 metal oxide/oxides
 nitrogen oxides (NO, NO₂ etc.)

5.3 Advice for firefighters

Special precautions for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Floors may be slippery; use care to avoid falling. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Contact emergency personnel.

For emergency responders

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

SECTION 6: Accidental release measures

Large spill

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilt product. If emergency personnel are unavailable, contain spilt material. Suction or scoop the spill into appropriate disposal or recycling vessels, then cover spill area with oil absorbent. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 1 for emergency contact information.
 See Section 5 for firefighting measures.
 See Section 8 for information on appropriate personal protective equipment.
 See Section 12 for environmental precautions.
 See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep away from heat and direct sunlight. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store and use only in equipment/containers designed for use with this product. Do not store in unlabelled containers.

Germany - Storage code

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7.3 Specific end use(s)

Recommendations

See section 1.2 and Exposure scenarios in annex, if applicable.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived No Effect Level

No DNELs/DMELs available.

Predicted No Effect Concentration

No PNECs available

8.2 Exposure controls

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SECTION 8: Exposure controls/personal protection

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. For protection against metal working fluids, respiratory protection that is classified as "resistant to oil" (class R) or oil proof (class P) should be selected where appropriate. Depending on the level of airborne contaminants, an air-purifying, half-mask respirator (with HEPA filter) including disposable (P- or R-series) (for oil mists less than 50mg/m³), or any powered, air-purifying respirator equipped with hood or helmet and HEPA filter (for oil mists less than 125 mg/m³). Where organic vapours are a potential hazard during metalworking operations, a combination particulate and organic vapour filter may be necessary. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

General Information:

Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. The correct choice of protective gloves depends upon the chemicals being handled, and the conditions of work and use. Most gloves provide protection for only a limited time before they must be discarded and replaced (even the best chemically resistant gloves will break down after repeated chemical exposures).

Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions.

Recommended: Nitrile gloves.

Breakthrough time:

Breakthrough time data are generated by glove manufacturers under laboratory test conditions and represent how long a glove can be expected to provide effective permeation resistance. It is important when following breakthrough time recommendations that actual workplace conditions are taken into account. Always consult with your glove supplier for up-to-date technical information on breakthrough times for the recommended glove type. Our recommendations on the selection of gloves are as follows:

Continuous contact:

Continuous contact:

Gloves with a minimum breakthrough time of 240 minutes, or >480 minutes if suitable gloves can be obtained.

If suitable gloves are not available to offer that level of protection, gloves with shorter breakthrough times may be acceptable as long as appropriate glove maintenance and replacement regimes are determined and adhered to.

Short-term / splash protection:

Recommended breakthrough times as above.

It is recognised that for short-term, transient exposures, gloves with shorter breakthrough times may commonly be used. Therefore, appropriate maintenance and replacement regimes must be determined and rigorously followed.

Glove Thickness:

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SECTION 8: Exposure controls/personal protection

For general applications, we recommend gloves with a thickness typically greater than 0.35 mm.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

Skin and body

Use of protective clothing is good industrial practice. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Refer to standards:

Respiratory protection: EN 529
 Gloves: EN 420, EN 374
 Eye protection: EN 166

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Grease
Colour	Clear Brown. [Dark]
Odour	Mild
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Closed cup: >150°C (>302°F) [Based on Lubricants - Base Oils]
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	<1000 kg/m ³ (<1 g/cm ³) at 20°C
Solubility(ies)	insoluble in water.
Partition coefficient: n-octanol/ water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

SECTION 9: Physical and chemical properties

Explosive properties Not available.
Oxidising properties Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.

10.2 Chemical stability The product is stable.

10.3 Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.
 Under normal conditions of storage and use, hazardous polymerisation will not occur.

10.4 Conditions to avoid Avoid all possible sources of ignition (spark or flame).

10.5 Incompatible materials Reactive or incompatible with the following materials: oxidising materials.

10.6 Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity estimates

Route	ATE value
Oral	69110.1 mg/kg

Information on likely routes of exposure Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Inhalation Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion No known significant effects or critical hazards.

Skin contact Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.

Eye contact No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion No specific data.

Skin contact Adverse symptoms may include the following:
 irritation
 redness
 dryness
 cracking

Eye contact No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Inhalation Inhalation of oil mist or vapours at elevated temperatures may cause respiratory irritation.

Ingestion Ingestion of large quantities may cause nausea and diarrhoea.

Skin contact Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

Eye contact Potential risk of transient stinging or redness if accidental eye contact occurs.

Potential chronic health effects

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

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SECTION 12: Ecological information

12.1 Toxicity

Environmental hazards Not classified as dangerous
 Product not classified for environmental effects. Based on data available for this or related materials.

12.2 Persistence and degradability

Expected to be biodegradable.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.
Mobility Non-volatile. Grease. insoluble in water.

12.5 Results of PBT and vPvB assessment

PBT Not applicable.
vPvB Not applicable.

12.6 Other adverse effects No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.
Hazardous waste Yes.

European waste catalogue (EWC)

Waste code	Waste designation
12 01 12*	spent waxes and fats

However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

Packaging

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

Waste code	European waste catalogue (EWC)
15 01 10*	packaging containing residues of or contaminated by hazardous substances

Special precautions This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never weld, solder or braze empty containers. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-

SECTION 14: Transport information

14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

14.6 Special precautions for user Not available.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles Not applicable.

Other regulations

REACH Status

The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.

United States inventory (TSCA 8b)

All components are listed or exempted.

Australia inventory (AICS)

All components are listed or exempted.

Canada inventory

At least one component is not listed in DSL but all such components are listed in NDSL.

China inventory (IECSC)

All components are listed or exempted.

Japan inventory (ENCS)

At least one component is not listed.

Korea inventory (KECI)

All components are listed or exempted.

Philippines inventory (PICCS)

At least one component is not listed.

Taiwan Chemical Substances Inventory (TCSI)

All components are listed or exempted.

National regulations

Hazard class for water

2 Appendix No. 4 (classified according VwVwS)

15.2 Chemical safety assessment

This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
 ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 CAS = Chemical Abstracts Service
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 CSA = Chemical Safety Assessment
 CSR = Chemical Safety Report

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SECTION 16: Other information

DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EINECS = European Inventory of Existing Commercial chemical Substances
 ES = Exposure Scenario
 EUH statement = CLP-specific Hazard statement
 EWC = European Waste Catalogue
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 OECD = Organisation for Economic Co-operation and Development
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
 RRN = REACH Registration Number
 SADT = Self-Accelerating Decomposition Temperature
 SVHC = Substances of Very High Concern
 STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
 STOT-SE = Specific Target Organ Toxicity - Single Exposure
 TWA = Time weighted average
 UN = United Nations
 UVCB = Complex hydrocarbon substance
 VOC = Volatile Organic Compound
 vPvB = Very Persistent and Very Bioaccumulative
 Varies = may contain one or more of the following 101316-69-2 / RRN 01-2119486948-13, 101316-70-5, 101316-71-6, 101316-72-7 / RRN 01-2119489969-06, 64741-88-4 / RRN 01-2119488706-23, 64741-89-5 / RRN 01-2119487067-30, 64741-95-3 / RRN 01-2119487081-40, 64741-96-4/ RRN 01-2119483621-38, 64741-97-5 / RRN 01-2119480374-36, 64742-01-4 / RRN 01-2119488707-21, 64742-44-5 / RRN 01-2119985177-24, 64742-45-6, 64742-52-5 / RRN 01-2119467170-45, 64742-53-6 / RRN 01-2119480375-34, 64742-54-7 / RRN 01-2119484627-25, 64742-55-8 / RRN 01-2119487077-29, 64742-56-9 / RRN 01-2119480132-48, 64742-57-0 / RRN 01-2119489287-22, 64742-58-1, 64742-62-7 / RRN 01-2119480472-38, 64742-63-8, 64742-64-9, 64742-65-0 / RRN 01-2119471299-27, 64742-70-7 / RRN 01-2119487080-42, 72623-85-9 / RRN 01-2119555262-43, 72623-86-0 / RRN 01-2119474878-16, 72623-87-1 / RRN 01-2119474889-13, 74869-22-0 / RRN 01-2119495601-36, 90669-74-2 / RRN 01-2119970171-43

Full text of abbreviated H statements

H301 Toxic if swallowed.
 H314 Causes severe skin burns and eye damage.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H411 Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 3, H301 ACUTE TOXICITY (oral) - Category 3
 Aquatic Chronic 2, H411 LONG-TERM AQUATIC HAZARD - Category 2
 Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
 Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
 Skin Corr. 1A, H314 SKIN CORROSION/IRRITATION - Category 1A
 Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2
 Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1

History

Date of issue/ Date of revision 04/11/2016.
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Prepared by Product Stewardship

 **Indicates information that has changed from previously issued version.**

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material,

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SECTION 16: Other information

from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mixture
Code	453841-DE03
Product name	Optipit

Section 1: Title

Short title of the exposure scenario	General use of lubricants and greases in vehicles or machinery - Industrial
List of use descriptors	<p>Identified use name: General use of lubricants and greases in vehicles or machinery-Industrial</p> <p>Process Category: PROC01, PROC02, PROC08b, PROC09</p> <p>Sector of end use: SU03</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC04, ERC07</p> <p>Specific Environmental Release Category: ATIEL-ATC SPERC 4.Biv1</p>

Processes and activities covered by the exposure scenario	Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.
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Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state: Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product: Covers use of substance/product up to 100 % (unless stated differently)

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently)

Other given operational conditions affecting workers exposure: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Avoid direct eye contact with product also via contamination on hands.

General exposures (closed systems):
No other specific measures identified.

Initial factory fill of equipment Use in contained systems:
No other specific measures identified.

Initial factory fill of equipment open systems:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid carrying out operation for more than 4 hours.

Operation of equipment containing engine oils and similar Use in contained systems:
No other specific measures identified.

Equipment cleaning and maintenance:
Drain down system prior to equipment break-in or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Equipment cleaning and maintenance Operation is carried out at elevated temperature (> 20°C above ambient temperature):
Drain down and flush system prior to equipment break-in or maintenance. Provide extract ventilation to emission points when contact with warm (>50°C) lubricant is likely. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Retain drain-downs in sealed storage pending disposal

Optipit

General use of lubricants and greases in vehicles or machinery - Industrial

or for subsequent recycle.

Storage:
Store substance within a closed system.

Section 2.2: Control of environmental exposure

Amounts used:

EU tonnage of risk determining substance per year: 2.63E+3 Tonnes/year

Frequency and duration of use:

Emission days 300

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

Other given operational conditions affecting environmental exposure:

Negligible wastewater emissions as process operates without water contact.

Release fraction to air (after typical onsite RMMs) 5.00E-05

Release fraction to soil from process (after typical onsite RMMs) 0

Release fraction to wastewater from process (after typical onsite RMMs and before sewage treatment plan) Not available.

Technical conditions and measures at process level (source) to prevent release:

Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Prevent discharge of undissolved substance to or recover from onsite wastewater.

User sites are assumed to be provided with oil/water separators and waste water to be discharged via a sewage treatment plant

Organisational measures to prevent/limit release from site:

Do not apply industrial sludge to natural soils.

Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant:

Estimated substance removal from wastewater via on-site sewage treatment 69.1

Assumed domestic sewage treatment plant flow rate (m³/d) 2.00E+3

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal as product: 7594049

Conditions and measures related to external treatment of waste for disposal:

External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste:

External recovery and recycling of waste should comply with applicable local and/or national regulations.

Section 3: Exposure estimation

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): Used ECETOC TRA model (May 2010 release).

Exposure estimation and reference to its source - Workers

Exposure assessment (human): The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see www.ATIEL.org/REACH_GES

Health

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	Mixture
Code	453841-DE03
Product name	Optipit

Section 1: Title

Short title of the exposure scenario	General use of lubricants and greases in vehicles or machinery - Professional
List of use descriptors	Identified use name: General use of lubricants and greases in vehicles or machinery-Professional Process Category: PROC01, PROC02, PROC08a, PROC08b, PROC20 Sector of end use: SU22 Subsequent service life relevant for that use: No. Environmental Release Category: ERC09a, ERC09b Specific Environmental Release Category: ESVOC SpERC 9.6b.v1

Processes and activities covered by the exposure scenario	Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.
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Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state: Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product: Covers use of substance/product up to 100 % (unless stated differently)

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently)

Other given operational conditions affecting workers exposure: Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product also via contamination on hands.

Operation of equipment containing engine oils and similar Use in contained systems:

No other specific measures identified.

Material transfers Non-dedicated facility:

Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training.

Equipment cleaning and maintenance Dedicated facility:

Drain down system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Storage:

Store substance within a closed system.

Section 2.2: Control of environmental exposure

Amounts used:

EU tonnage of risk determining substance per year: 5.39 Tonnes/year

Frequency and duration of use:

Emission days 365

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

Other given operational conditions affecting environmental exposure: Negligible wastewater emissions as process operates without water contact.

Release fraction to air (after typical onsite RMMs) 1.00E-04

Release fraction to soil from process (after typical onsite RMMs) 1E-03

Release fraction to wastewater from process (after typical onsite RMMs and before sewage treatment plan) Not available.

Technical conditions and measures at process level (source) to prevent release: Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil: Prevent discharge of undissolved substance to or recover from onsite wastewater.

Organisational measures to prevent/limit release from site: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant:

Estimated substance removal from wastewater via on-site sewage treatment 69.1

Assumed domestic sewage treatment plant flow rate (m³/d) 2.00E+3

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal as product: 19111

Conditions and measures related to external treatment of waste for disposal: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Section 3: Exposure estimation

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): Used ECETOC TRA model (May 2010 release).

Exposure estimation and reference to its source - Workers

Exposure assessment (human): The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see www.ATIEL.org/REACH_GES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Shell Rhodina Grease BBZ
Product code : 001B0909

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Automotive and industrial grease.
Uses advised against :
This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier : **Shell UK Oil Products Limited**
Shell Centre
London
SE1 7NA
United Kingdom
Telephone : (+44) 08007318888
Telefax :
Email Contact for Safety Data Sheet : If you have any enquiries about the content of this SDS please email lubricantSDS@shell.com

1.4 Emergency telephone number

: +44-(0) 151-350-4595

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms : No Hazard Symbol required

Signal word : No signal word

Hazard statements : PHYSICAL HAZARDS:
Not classified as a physical hazard

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according to CLP criteria.

HEALTH HAZARDS:

Not classified as a health hazard under CLP criteria.

ENVIRONMENTAL HAZARDS:

Not classified as environmental hazard according to CLP criteria.

Precautionary statements	:	Prevention:	No precautionary phrases.
		Response:	No precautionary phrases.
		Storage:	No precautionary phrases.
		Disposal:	No precautionary phrases.

2.3 Other hazards

This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Used grease may contain harmful impurities.

High-pressure injection under the skin may cause serious damage including local necrosis.

Not classified as flammable but will burn.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : A lubricating grease containing highly-refined mineral oils and additives.

The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Polyolefin	151006-58-5 417-050-8	Asp. Tox.1; H304 Acute Tox.4; H332	25 - 35

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

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- General advice : Not expected to be a health hazard when used under normal conditions.
- Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
- If inhaled : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
- In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
- When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.
- In case of eye contact : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
- If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
- Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Notes to doctor/physician:
Treat symptomatically.
- High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : Do not use water in a jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds.

5.3 Advice for firefighters

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : 6.1.1 For non emergency personnel:
Avoid contact with skin and eyes.
6.1.2 For emergency responders:
Avoid contact with skin and eyes.

6.2 Environmental precautions

Environmental precautions : Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

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6.4 Reference to other sections

For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.,
For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet.

SECTION 7: Handling and storage

General Precautions : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

7.1 Precautions for safe handling

Advice on safe handling : Avoid prolonged or repeated contact with skin.
Avoid inhaling vapour and/or mists.
When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

7.2 Conditions for safe storage, including any incompatibilities

Other data : Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closable containers.

Store at ambient temperature.

Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

The storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance may be obtained from the local environmental agency office.

Packaging material : Suitable material: For containers or container linings, use mild steel or high density polyethylene.
Unsuitable material: PVC.

Container Advice : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

7.3 Specific end use(s)

Specific use(s) : Not applicable.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Oil mist, mineral		TWA	5 mg/m ³	US. ACGIH Threshold Limit Values

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods
<http://www.cdc.gov/niosh/>

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods
<http://www.osha.gov/>

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances
<http://www.hse.gov.uk/>

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany
<http://www.dguv.de/inhalt/index.jsp>

L'Institut National de Recherche et de Sécurité, (INRS), France <http://www.inrs.fr/accueil>

8.2 Exposure controls

Engineering measures The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

Adequate ventilation to control airborne concentrations.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information:

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance.

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Retain drain downs in sealed storage pending disposal or subsequent recycle.

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.

Practice good housekeeping.

Personal protective equipment

The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Eye protection : If material is handled such that it could be splashed into eyes, protective eyewear is recommended.
Approved to EU Standard EN166.

Hand protection

Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.

Skin and body protection : Skin protection is not ordinarily required beyond standard work clothes.
It is good practice to wear chemical resistant gloves.

Respiratory protection : No respiratory protection is ordinarily required under normal

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conditions of use.

In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [Type A/Type P boiling point > 65°C (149°F)] meeting EN14387 and EN143.

Thermal hazards : Not applicable

Hygiene measures : Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication "COSHH Essentials".

Environmental exposure controls

General advice : Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water. Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : Semi-solid at room temperature.
Colour : light brown
Odour : Slight hydrocarbon
Odour Threshold : Data not available
pH : Not applicable
Drop point : 145 °C Method: IP 396

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Initial boiling point and boiling range	: Data not available
Flash point	: ≥ 200 °C Method: ASTM D92
Evaporation rate	: Data not available
Flammability (solid, gas)	: Data not available
Upper explosion limit	: Typical 10 %(V)
Lower explosion limit	: Typical 1 %(V)
Vapour pressure	: < 0.5 Pa (20 °C) estimated value(s)
Relative vapour density	: > 1 estimated value(s)
Relative density	: 0.900 (15 °C)
Density	: 900 kg/m ³ (15.0 °C) Method: Unspecified
Solubility(ies)	
Water solubility	: negligible
Solubility in other solvents	: Data not available
Partition coefficient: n-octanol/water	: Pow: > 6 (based on information on similar products)
Auto-ignition temperature	: > 320 °C
Viscosity	
Viscosity, dynamic	: Data not available
Viscosity, kinematic	: 13 mm ² /s (40.0 °C) Method: ASTM D445
	: 3 mm ² /s (100 °C) Method: ASTM D445
Explosive properties	: Not classified
Oxidizing properties	: Data not available

9.2 Other information

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Conductivity : This material is not expected to be a static accumulator.
Decomposition temperature : Data not available

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

10.2 Chemical stability

Stable.

No hazardous reaction is expected when handled and stored according to provisions

10.3 Possibility of hazardous reactions

Hazardous reactions : Reacts with strong oxidising agents.

10.4 Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

10.6 Hazardous decomposition products

Hazardous decomposition products : Hazardous decomposition products are not expected to form during normal storage.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Basis for assessment : Information given is based on data on the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Information on likely routes of exposure : Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.

Acute toxicity

Product:

Acute oral toxicity : LD50 rat: > 5,000 mg/kg
Remarks: Expected to be of low toxicity:

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Acute inhalation toxicity : Remarks: Not considered to be an inhalation hazard under normal conditions of use.

Acute dermal toxicity : LD50 Rabbit: > 5,000 mg/kg
Remarks: Expected to be of low toxicity:

Skin corrosion/irritation

Product:

Remarks: Expected to be slightly irritating., Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Serious eye damage/eye irritation

Product:

Remarks: Expected to be slightly irritating.

Respiratory or skin sensitisation

Product:

Remarks: For respiratory and skin sensitisation:, Not expected to be a sensitiser.

Germ cell mutagenicity

Product:

: Remarks: Not considered a mutagenic hazard.

Carcinogenicity

Product:

Remarks: Not expected to be carcinogenic.

Remarks: Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies., Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

Material	GHS/CLP Carcinogenicity Classification
Highly refined mineral oil	No carcinogenicity classification.

Reproductive toxicity

Product:

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:
Remarks: Not expected to impair fertility., Not expected to be a developmental toxicant.

STOT - single exposure

Product:

Remarks: Not expected to be a hazard.

STOT - repeated exposure

Product:

Remarks: Not expected to be a hazard.

Aspiration toxicity

Product:

Not considered an aspiration hazard.

Further information

Product:

Remarks: Used grease may contain harmful impurities that have accumulated during use. The concentration of such harmful impurities will depend on use and they may present risks to health and the environment on disposal., ALL used grease should be handled with caution and skin contact avoided as far as possible.

Remarks: High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

Remarks: Slightly irritating to respiratory system.

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

Summary on evaluation of the CMR properties

Germ cell mutagenicity- Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

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SECTION 12: Ecological information

12.1 Toxicity

Basis for assessment : Ecotoxicological data have not been determined specifically for this product.
Information given is based on a knowledge of the components and the ecotoxicology of similar products.
Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s). (LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Product:

Toxicity to fish (Acute toxicity) : Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l

Toxicity to crustacean (Acute toxicity) : Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l

Toxicity to algae/aquatic plants (Acute toxicity) : Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to crustacean (Chronic toxicity) : Remarks: Data not available

Toxicity to microorganisms (Acute toxicity) : Remarks: Data not available

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: Expected to be not readily biodegradable., Major constituents are expected to be inherently biodegradable, but contains components that may persist in the environment.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Contains components with the potential to bioaccumulate.

Partition coefficient: n-octanol/water : Pow: > 6Remarks: (based on information on similar products)

12.4 Mobility in soil

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Product:

Mobility : Remarks: Semi-solid under most environmental conditions., If it enters soil, it will adsorb to soil particles and will not be mobile.
Remarks: Floats on water.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

Product:

Additional ecological information : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities., Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.
Poorly soluble mixture., May cause physical fouling of aquatic organisms.
Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water courses

Contaminated packaging : Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.
Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Local legislation
Waste catalogue :

EU Waste Disposal Code (EWC):

Waste Code :

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Remarks : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Classification of waste is always the responsibility of the end user.

SECTION 14: Transport information

14.1 UN number

ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.2 Proper shipping name

ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.3 Transport hazard class

ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.4 Packing group

ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.5 Environmental hazards

ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good

14.6 Special precautions for user

Remarks : Special Precautions: Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution category : Not applicable
Ship type : Not applicable
Product name : Not applicable
Special precautions : Not applicable

Additional Information : MARPOL Annex 1 rules apply for bulk shipments by sea.

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - List of substances subject to authorisation (Annex XIV) : Product is not subject to Authorisation under REACH.

Volatile organic compounds : 0 %

Other regulations : Environmental Protection Act 1990 (as amended). Health and Safety at Work etc. Act 1974. Consumers Protection Act 1987. Pollution Prevention and Control Act 1999. Environment Act 1995. Factories Act 1961. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended). Personal Protective Equipment Regulations 2002. Personal Protective Equipment at Work Regulations 1992. Hazardous Waste (England and Wales) Regulations 2005(as amended). Control of Major Accident Hazards Regulations 1999 (as amended). Renewable Transport Fuel Obligations Order 2007 (as amended). Energy Act 2011. Environmental Permitting (England and Wales) Regulations 2010 (as amended). Waste (England and Wales) Regulations 2011 (as amended). Planning (Hazardous Substances) Act 1990 and associated regulations. The Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011.

The components of this product are reported in the following inventories:

EINECS : All components listed or polymer exempt.
TSCA : All components listed.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: Other information

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Full text of H-Statements

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H304 May be fatal if swallowed and enters airways.
H332 Harmful if inhaled.

Full text of other abbreviations

Acute Tox. Acute toxicity
Asp. Tox. Aspiration hazard

Abbreviations and Acronyms : The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ACGIH = American Conference of Governmental Industrial Hygienists
ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS = Australian Inventory of Chemical Substances
ASTM = American Society for Testing and Materials
BEL = Biological exposure limits
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
CAS = Chemical Abstracts Service
CEFIC = European Chemical Industry Council
CLP = Classification Packaging and Labelling
COC = Cleveland Open-Cup
DIN = Deutsches Institut für Normung
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
DSL = Canada Domestic Substance List
EC = European Commission
EC50 = Effective Concentration fifty
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals
ECHA = European Chemicals Agency
EINECS = The European Inventory of Existing Commercial Chemical Substances
EL50 = Effective Loading fifty
ENCS = Japanese Existing and New Chemical Substances Inventory
EWC = European Waste Code
GHS = Globally Harmonised System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IC50 = Inhibitory Concentration fifty
IL50 = Inhibitory Level fifty
IMDG = International Maritime Dangerous Goods
INV = Chinese Chemicals Inventory
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables
KECI = Korea Existing Chemicals Inventory
LC50 = Lethal Concentration fifty
LD50 = Lethal Dose fifty per cent.
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading
LL50 = Lethal Loading fifty
MARPOL = International Convention for the Prevention of

SAFETY DATA SHEET

Regulation 1907/2006/EC

Shell Rhodina Grease BBZ

Version 3.1

Revision Date 12.08.2015

Print Date 13.08.2015

Pollution From Ships
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level
OE_HPVS = Occupational Exposure - High Production Volume
PBT = Persistent, Bioaccumulative and Toxic
PICCS = Philippine Inventory of Chemicals and Chemical Substances
PNEC = Predicted No Effect Concentration
REACH = Registration Evaluation And Authorisation Of Chemicals
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail
SKIN_DES = Skin Designation
STEL = Short term exposure limit
TRA = Targeted Risk Assessment
TSCA = US Toxic Substances Control Act
TWA = Time-Weighted Average
vPvB = very Persistent and very Bioaccumulative

Further information

Other information : No Exposure Scenario annex is attached to this safety data sheet. It is a non-classified mixture containing hazardous substances as detailed in Section 3; relevant information from Exposure Scenarios for the hazardous substances contained have been integrated into the core sections 1-16 of this SDS.

A vertical bar (|) in the left margin indicates an amendment from the previous version.

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

HYDRAULIC OIL

Section 1. Identification

Product name Hyspin AWH-M 32
SDS # 456562
Historic SDS #: C25320
Code 456562-US31

Relevant identified uses of the substance or mixture and uses advised against

Product use Hydraulic fluid
 For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Supplier Castrol Industrial North America, Inc.
 150 W. Warrenville Road
 Naperville, IL 60563
 Product Information: +1-877-641-1600

BP Lubricants USA Inc.
 1500 Valley Road
 Wayne, NJ 07470
 Telephone: (973) 633-2200

EMERGENCY SPILL INFORMATION: 1 (800) 424-9300 CHEMTREC (USA)

Section 2. Hazards identification

OSHA/HCS status This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture Not classified.

GHS label elements

Signal word No signal word.

Hazard statements No known significant effects or critical hazards.

Precautionary statements

Prevention Not applicable.

Response Not applicable.

Storage Not applicable.

Disposal Not applicable.

Hazards not otherwise classified Defatting to the skin.
 Note: High Pressure Applications
 Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency.
 See 'Notes to physician' under First-Aid Measures, Section 4 of this Safety Data Sheet.

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Section 3. Composition/information on ingredients

Highly refined base oil (IP 346 DMSO extract < 3%). Proprietary performance additives.

Substance/mixture Mixture

Ingredient name	CAS number	%
Base oil - highly refined	Varies - See Key to abbreviations	≥75 - <90
Base oil - highly refined	Varies - See Key to abbreviations	≥5 - <10

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
Skin contact	Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	<p>Treatment should in general be symptomatic and directed to relieving any effects.</p> <p>Note: High Pressure Applications</p> <p>Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discolored and extremely painful with extensive subcutaneous necrosis.</p> <p>Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimize tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.</p>
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Specific treatments No specific treatment.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
Unsuitable extinguishing media	Do not use water jet.

Specific hazards arising from the chemical In a fire or if heated, a pressure increase will occur and the container may burst.

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Section 5. Fire-fighting measures

Hazardous combustion products	Combustion products may include the following: carbon dioxide carbon monoxide
Special protective actions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.
For emergency responders	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill	Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

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Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Base oil - highly refined	ACGIH TLV (United States). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction OSHA PEL (United States). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 6/1993
Base oil - highly refined	ACGIH TLV (United States). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction OSHA PEL (United States). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 6/1993

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.

The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

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Section 8. Exposure controls/personal protection

Body protection

Use of protective clothing is good industrial practice. Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Section 9. Physical and chemical properties

Appearance

Physical state	Liquid.
Color	Brown.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point	Not available.
Boiling point	Not available.
Flash point	Closed cup: >190°C (>374°F) [Pensky-Martens.]
Pour point	-39 °C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable. Based on - Physical state
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Density	<1000 kg/m ³ (<1 g/cm ³) at 15°C
Solubility	insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Kinematic: 32 mm ² /s (32 cSt) at 40°C Kinematic: 6.3 mm ² /s (6.3 cSt) at 100°C

Section 10. Stability and reactivity

Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.

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Section 10. Stability and reactivity

Conditions to avoid	Avoid all possible sources of ignition (spark or flame).
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Aspiration hazard

Name	Result
Base oil - highly refined	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Inhalation	Vapor inhalation under ambient conditions is not normally a problem due to low vapor pressure.
Ingestion	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Inhalation	No specific data.
Ingestion	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects

General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

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Section 11. Toxicological information

Section 12. Ecological information

Toxicity

No testing has been performed by the manufacturer.

Persistence and degradability

Expected to be biodegradable.

Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Mobility Spillages may penetrate the soil causing ground water contamination.

Other adverse effects

No known significant effects or critical hazards.

Other ecological information

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

Special precautions for user Not available.

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Section 14. Transport information

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

Section 15. Regulatory information

U.S. Federal regulations

United States inventory (TSCA 8b) All components are listed or exempted.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification Not applicable.

SARA 313

Form R - Reporting requirements

This product does not contain any hazardous ingredients at or above regulated thresholds.

Supplier notification

This product does not contain any hazardous ingredients at or above regulated thresholds.

State regulations

Massachusetts

None of the components are listed.

New Jersey

The following components are listed: MINERAL OIL (UNTREATED and MILDLY TREATED)

Pennsylvania

None of the components are listed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.
Ethyl acrylate; arsenic

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Toluene

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.
Benzene; Cadmium (Non-pyrophoric); lead

Other regulations

Australia inventory (AICS)

All components are listed or exempted.

Canada inventory

All components are listed or exempted.

China inventory (IECSC)

All components are listed or exempted.

Japan inventory (ENCS)

All components are listed or exempted.

Korea inventory (KECI)

All components are listed or exempted.

Philippines inventory (PICCS)

All components are listed or exempted.

Taiwan inventory (CSNN)

Not determined.

REACH Status

For the REACH status of this product please consult your company contact, as identified in Section 1.

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Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	1
Physical hazards	0
Personal protection	X

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.)



History

Date of issue/Date of revision 12/14/2015.

Date of previous issue 11/12/2014.

Prepared by Product Stewardship

Key to abbreviations

ACGIH = American Conference of Industrial Hygienists
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS Number = Chemical Abstracts Service Registry Number
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
OEL = Occupational Exposure Limit
SDS = Safety Data Sheet
STEL = Short term exposure limit
TWA = Time weighted average
UN = United Nations
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.
Varies = may contain one or more of the following 101316-69-2, 101316-70-5, 101316-71-6, 101316-72-7, 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64741-97-5, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-64-9, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1, 74869-22-0, 90669-74-2

Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell

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Section 16. Other information

employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

TRANSFORMER OIL – NYTRO 10 XN

NYTRO® 10 XN



SAFETY DATA SHEET

Date of printing	2022-10-14
Date of issue/ Date of revision	2022-10-14
Date of previous issue	2021-05-27
Version	7

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	NYTRO® 10 XN
UFI	RE0-K03W-V00D-F585
Product description	Insulating oil
Product type	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	
<input checked="" type="checkbox"/> Use in functional fluids - Industrial <input type="checkbox"/> Use in functional fluids - Professional	
Uses advised against	Reason
<input checked="" type="checkbox"/> This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.	-

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer	Head office: Nynas AB P.O. Box 10700 SE-121 29 Stockholm SWEDEN +46 8 602 12 00 (Office hours 8 am - 4.30 pm (CET)) www.nynas.com
e-mail address of person responsible for this SDS	ProductHSE@nynas.com

1.4 Emergency telephone number

Telephone number	+44 (0) 1235 239 670
Hours of operation	24 hour service
<u>National advisory body/Poison Centre</u>	
Telephone number 020 - 99 60 00 (Kemiakuten, 24h service)	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition	Mixture
<u>Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]</u>	
Asp. Tox. 1, H304	
Aquatic Chronic 3, H412	

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.
 See Section 16 for the full text of the H statements declared above.
 See Section 11 for more detailed information on health effects and symptoms.

NYTRO® 10 XN

SECTION 2: Hazards identification

Hazard pictograms



Signal word

Danger

Hazard statements

H304 - May be fatal if swallowed and enters airways.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273 - Avoid release to the environment.

Response

P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.

Storage

Not applicable.

Disposal

P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients

Distillate (petroleum), hydrotreated light naphthenic
2,6-di-tert-butyl-p-cresol

Supplemental label elements

Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification

Prolonged or repeated contact may dry skin and cause irritation.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Distillate (petroleum), hydrotreated light naphthenic	REACH #: 01-2119480375-34 EC: 265-156-6 CAS: 64742-53-6	≥97	Asp. Tox. 1, H304	-	[1] [2]
2,6-di-tert-butyl-p-cresol	REACH #: 01-2119555270-46 EC: 204-881-4 CAS: 128-37-0	≤0,3	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 See Section 16 for the full text of the H statements declared above.	M [Acute] = 1 M [Chronic] = 1	[1]

Regulation (EC) No. 1272/2008 [CLP] Annex VI Nota L applies to the base oil(s) in this product. Nota L - The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3 % DMSO extract as measured by IP 346.

NYTRO® 10 XN

SECTION 3: Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

- 1] Substance classified with a health or environmental hazard
- 2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist.
Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If casualty is unconscious and: If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention if adverse health effects persist or are severe. Maintain an open airway.
Skin contact	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Handle with care and dispose of in a safe manner. Seek medical attention if skin irritation, swelling or redness develops and persists.
Ingestion	<p>Accidental high pressure injection through the skin requires immediate medical attention. Do not wait for symptoms to develop.</p> <p>Always assume that aspiration has occurred. Do not induce vomiting. Can enter lungs and cause damage. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Seek professional medical attention or send the casualty to a hospital. Do not wait for symptoms to develop.</p> <p>Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>
Protection of first-aiders	<p>No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.</p> <p>Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply. Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces.</p>

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact	Slight irritant
Inhalation	Inhalation of oil mist or vapours at elevated temperatures may cause respiratory irritation.
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Ingestion	Adverse symptoms may include the following: Nausea or vomiting. diarrhoea

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Due to low viscosity there is a risk of aspiration if the product enters the lungs. Treat symptomatically.
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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media Do not use direct water jets on the burning product; they could cause splattering and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture In a fire or if heated, a pressure increase will occur and the container may burst. This substance will float and can be reignited on surface water. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, H₂S, SO_x (sulfur oxides) or sulfuric acid and unidentified organic and inorganic compounds.

5.3 Advice for firefighters

Special precautions for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid breathing vapour or mist. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. Stop leak if safe to do so. Avoid direct contact with the product. Stay upwind/keep distance from source. In case of large spillages, alert occupants in downwind areas.

Eliminate all ignition sources if safe to do so. Spillages of limited amounts of product, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which will presumably limit the exposure to dangerous concentrations.

Note : recommended measures are based on the most likely spillage scenarios for this material; however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken.

For emergency responders Small spillages: normal antistatic working clothes are usually adequate.

Large spillages: full body suit of chemically resistant and thermal resistant material should be used. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons. Note : gloves made of PVA are not water-resistant, and are not suitable for emergency use. Safety helmet, antistatic non-skid safety shoes or boots. Goggles and /or face shield, if splashes or contact with eyes is possible or anticipated.

Respiratory protection : A half or full-face respirator with filter(s) for organic vapours (and when applicable for H₂S) a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only

SECTION 6: Accidental release measures

- 6.2 Environmental precautions
- Water polluting material. May be harmful to the environment if released in large quantities. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Prevent product from entering sewers, rivers or other bodies of water. If necessary dike the product with dry earth, sand or similar non-combustible materials. In case of soil contamination, remove contaminated soil and treat in accordance with local regulations.
- In case of small spillages in closed waters (i.e. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents.
- If possible, large spillages in open waters should be contained with floating barriers or other mechanical means. If this is not possible, control the spreading of the spillage, and collect the product by skimming or other suitable mechanical means. The use of dispersants should be advised by an expert, and, if required, approved by local authorities.
- 6.3 Methods and material for containment and cleaning up
- Small spill
- Stop leak if without risk. Absorb spilled product with suitable non-combustible materials.
- Large spill
- Large spillages may be cautiously covered with foam, if available, to limit vapour cloud formation. Do not use water jet. When inside buildings or confined spaces, ensure adequate ventilation. Transfer collected product and other contaminated materials to suitable containers for recovery or safe disposal. Approach the release from upwind. Contaminated absorbent material may pose the same hazard as the spilt product.
- 6.4 Reference to other sections
- See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

- General information
- Obtain special instructions before use. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Use and store only outdoors or in a well-ventilated area. Hazard of slipping on spilt product. Avoid release to the environment.
- 7.1 Precautions for safe handling
- Protective measures
- Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use.
- Prevent the risk of slipping. Take precautionary measures against static discharge. Avoid splash filling of bulk volumes when handling hot liquid product. Empty containers retain product residue and can be hazardous.
- Avoid release to the environment.
- Nota : See Section 8 for information on appropriate personal protective equipment. See section 13 for waste disposal information.
- Advice on general occupational hygiene
- Ensure that proper housekeeping measures are in place. Contaminated materials should not be allowed to accumulate in the workplaces and should never be kept inside the pockets. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash hands thoroughly after handling. Change contaminated clothes at the end of working shift. See also Section 8 for additional information on hygiene measures.

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SECTION 7: Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

Storage area layout, tank design, equipment and operating procedures must comply with the relevant regional, national or local legislation. Storage installations should be designed with adequate bunds in case of leaks or spills. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations.

Store separately from oxidising agents.

Recommended materials for containers, or container linings use mild steel, stainless steel. Not suitable : Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

Keep only in the original container or in a suitable container for this kind of product. Keep container tightly closed and sealed until ready for use. Do not store in unlabelled containers. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Empty containers may contain harmful, flammable/combustible or explosive residue or vapours. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards. Store locked up. Protect from sunlight.

7.3 Specific end use(s)

Recommendations Not available.

Industrial sector specific solutions Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
<input checked="" type="checkbox"/> Distillate (petroleum), hydrotreated light naphthenic Oil mist	<p>Work environment authority Regulation 2018:1 (Sweden, 9/2021). [old used mineral oil] Absorbed through skin.</p> <p>Work environment authority Regulation 2018:1 (Sweden, 9/2021). [oil mist, incl. oil fumes] TWA: 1 mg/m³ 8 hours. Form: mist and fume STEL: 3 mg/m³ 15 minutes. Form: mist and fume [Air contaminant]</p> <p>Work environment authority Regulation 2018:1 (Sweden, 9/2021). [oil mist, incl. oil fumes] TWA: 1 mg/m³ 8 hours. Form: mist and fume STEL: 3 mg/m³ 15 minutes. Form: mist and fume Work environment authority Regulation 2018:1 (Sweden, 9/2021). [old used mineral oil] Absorbed through skin.</p>

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

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SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Exposure	Value	Population	Effects
Distillate (petroleum), hydrotreated light naphthenic 2,6-di-tert-butyl-p-cresol	DNEL	Long term Inhalation	5,58 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	5,8 mg/m ³	Workers	Systemic
	DMEL	Long term Dermal	8,3 mg/kg bw/day	Workers	Systemic

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
2,6-di-tert-butyl-p-cresol	Soil	1,04 mg/kg wwt	Equilibrium Partitioning Assessment Factors
	Sewage Treatment Plant	100 mg/l	
	Sediment	1,29 mg/kg wwt	Equilibrium Partitioning Assessment Factors
	Secondary Poisoning	16,7 mg/kg	
	Marine water	0,4 µg/l	
Fresh water	4 µg/l	Assessment Factors	

PNEC Summary

Hydrocarbon Block Method (Petrorisk)

8.2 Exposure controls

Appropriate engineering controls

Mechanical ventilation and local exhaust will reduce exposure via the air. Use oil resistant material in construction of handling equipment. Store under recommended conditions and if heated, temperature control equipment should be used to avoid overheating.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location. Wash contaminated clothing before reuse.

Eye/face protection

Recommended: Safety glasses with side shields.

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 4 - 8 hours (breakthrough time): nitrile rubber

Body protection

Wear protective clothing if there is a risk of skin contact. Change contaminated clothes at the end of working shift.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Physical state	Liquid.
Colour	Light yellow
Odour	Odourless/Light petroleum.

NYTRO® 10 XN**SECTION 9: Physical and chemical properties**

Initial boiling point and boiling range	≥240°C (>464°F) [ASTM D 2887]
Flammability	Not available.
Lower and upper explosion limit	Not available.
Flash point	Closed cup: >140°C (>284°F) [Pensky-Martens]
Auto-ignition temperature	>200°C (>392°F)
Decomposition temperature	>280°C
pH	Not applicable.
Viscosity	Kinematic (40°C): 7,6 mm ² /s (7,6 cSt)
Solubility in water	Insoluble in water.
Partition coefficient: n-octanol/water	Not applicable.
Vapour pressure (Calculated)	<0,01 kPa (<0,075006 mm Hg)
Density	0,88 g/cm ³ [15°C]
Relative vapour density	Not available.
DMSO extractable compounds for base oil substance(s) according to IP346	< 3%

SECTION 10: Stability and reactivity

10.1 Reactivity	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	Keep away from extreme heat and oxidizing agents. Take precautionary measures against static discharge.
10.5 Incompatible materials	Oxidising agent.
10.6 Hazardous decomposition products	Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, H ₂ S, SO _x (sulfur oxides) or sulfuric acid and unidentified organic and inorganic compounds.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
Distillate (petroleum), hydrotreated light naphthenic	LC50 Inhalation Dusts and mists	Rat	>5,53 mg/l	4 hours	EMBSI 1988 (similar material)
	LD50 Dermal	Rabbit	>5000 mg/kg	-	API 1982 (similar material)
	LD50 Oral	Rat	>5000 mg/kg	-	API 1982(similar material)
2,6-di-tert-butyl-p-cresol	LD50 Dermal	Rat	>5000 mg/kg	-	Supplier's information
	LD50 Oral	Rat	>5000 mg/kg	-	Supplier's information

Conclusion/Summary

Based on available data, the classification criteria are not met.

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SECTION 11: Toxicological information

N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Observation	Remarks
Distillate (petroleum), hydrotreated light naphthenic 2,6-di-tert-butyl-p-cresol	Eyes - Non-irritating to the eyes.	Rabbit	0 to 0,11	24 to 72 hours	API 1982(similar material)
	Skin - Non-irritant to skin.	Rabbit	0 to 1	24 to 72 hours	API 1982(similar material)
	Eyes - Cornea opacity	Rabbit	0	-	Supplier's information
	Eyes - Oedema of the conjunctivae	Rabbit	0,1	-	Supplier's information
	Eyes - Iris lesion	Rabbit	0	-	Supplier's information
	Eyes - Redness of the conjunctivae	Rabbit	0,5	-	Supplier's information

Skin Based on available data, the classification criteria are not met.

Eyes Based on available data, the classification criteria are not met.

Respiratory Based on available data, the classification criteria are not met.

Sensitisation

Product/ingredient name	Route of exposure	Species	Result	Remarks
Distillate (petroleum), hydrotreated light naphthenic 2,6-di-tert-butyl-p-cresol	skin	Guinea pig	Not sensitizing	API 1982(similar material)
	skin	Human	Not sensitizing	Supplier's information

Skin Based on available data, the classification criteria are not met.

Respiratory Based on available data, the classification criteria are not met.

Mutagenicity

Product/ingredient name	Test	Experiment	Result	Remarks
2,6-di-tert-butyl-p-cresol	OECD 471 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	Supplier's information
	476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative	Supplier's information
	473 In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Negative	Supplier's information
		Subject: Mammalian-Animal		

Conclusion/Summary Based on available data, the classification criteria are not met.

Carcinogenicity

Conclusion/Summary

The base oil(s) in this product is based on an severely hydrotreated distillate. Based on available data, the classification criteria are not met.

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SECTION 11: Toxicological information

Conclusion/Summary Based on available data, the classification criteria are not met.

Teratogenicity

Conclusion/Summary Based on available data, the classification criteria are not met.

Aspiration hazard

Product/ingredient name	Result
Mytro 10 XN Distillate (petroleum), hydrotreated light naphthenic	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Distillate (petroleum), hydrotreated light naphthenic 2,6-di-tert-butyl-p-cresol	Sub-chronic LOAEL Oral	Rat	125 mg/kg	-
	Sub-chronic NOAEL Dermal	Rat	>2000 mg/kg	-
	Sub-acute NOEL Inhalation Dusts and mists	Rat	220 mg/m ³	6 hours; 5 days per week
	Sub-acute NOAEL Oral	Rat	25 mg/kg	28 days; 7 days per week

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Aspiration hazard

Aspiration means the entry of a liquid substance directly into the trachea and lower respiratory tract.

Aspiration of hydrocarbon substances can result in severe acute effects such as chemical pneumonitis, varying degree of pulmonary injury or death.

This property relates to the potential for low viscosity material to spread quickly into the deep lung and cause severe pulmonary tissue damage.

Classification of a hydrocarbon substance for aspiration hazard is made on the basis of reliable human evidence or on the basis of physical properties.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Distillate (petroleum), hydrotreated light naphthenic 2,6-di-tert-butyl-p-cresol	Acute EL50 >10000 mg/l	Daphnia	48 hours
	Acute LL50 >100 mg/l	Fish	96 hours
	Acute NOEL >100 mg/l	Algae	72 hours
	Chronic NOEL 10 mg/l Fresh water	Daphnia	21 days
	Acute EC50 0,61 mg/l	Daphnia - Magna	48 hours
	Acute IC50 >0,4 mg/l	Algae - Desmodesmus Subspicatus	72 hours
	Acute LC50 >0,57 mg/l Chronic NOEC 0,316 mg/l	Fish - Danio-erio Daphnia - Magna	96 hours 21 days

Conclusion/Summary Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2,6-di-tert-butyl-p-cresol	OECD 301C 301C Ready Biodegradability - Modified MITI Test (I)	4,5 % - 28 days	-	-

NYTRO® 10 XN**SECTION 12: Ecological information**

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Distillate (petroleum), hydrotreated light naphthenic 2,6-di-tert-butyl-p-cresol	- -	- -	Inherent Not readily

Conclusion/Summary Inherently biodegradable.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Distillate (petroleum), hydrotreated light naphthenic 2,6-di-tert-butyl-p-cresol	2 to 6 5,1	<500 -	low high

Conclusion/Summary The product has a potential to bioaccumulate.

12.4 Mobility in soil

Mobility High mobility in soil predicted, based on log Kow > 3.0.

12.5 Results of PBT and vPvB assessment

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

Insoluble in water. Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal Where possible (e.g. in the absence of relevant contamination), recycling of used substance is feasible and recommended. This substance can be burned or incinerated, subject to national/local authorizations, relevant contamination limits, safety regulations and air quality legislation. Contaminated or waste substance (not directly recyclable): Disposal can be carried out directly, or by delivery to qualified waste handlers. National legislation may identify a specific organization, and/or prescribe composition limits and methods for recovery or disposal.

Hazardous waste Yes.

European waste catalogue (EWC)

Waste code	Waste designation
13 03 07*	mineral-based non-chlorinated insulating and heat transmission oils

Packaging

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

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SECTION 14: Transport information

International transport regulations

	ADR/RID	ADN	IMO/IMDG Classification	ICAO/IATA Classification
14.1 UN number or ID number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments

MARPOL Annex 1 - Oils

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air

Not listed

Industrial emissions (integrated pollution prevention and control) - Water

Not listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

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SECTION 15: Regulatory information

This product is not controlled under the Seveso Directive.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

National inventory

Australia	All components are listed or exempted.
Canada	All components are listed or exempted.
China	All components are listed or exempted.
Eurasian Economic Union	Russian Federation inventory: All components are listed or exempted.
Japan	Japan inventory (CSCL): All components are listed or exempted. Japan inventory (ISHL): All components are listed or exempted.
New Zealand	All components are listed or exempted.
Philippines	All components are listed or exempted.
Republic of Korea	All components are listed or exempted.
Taiwan	All components are listed or exempted.
Thailand	All components are listed or exempted.
Turkey	All components are listed or exempted.
United States	All components are active or exempted.
Viet Nam	All components are listed or exempted.

15.2 Chemical safety assessment Complete.

SECTION 16: Other information

Revision comments Not available.

☑ Indicates information that has changed from previously issued version.

Abbreviations and acronyms	ATE = Acute Toxicity Estimate CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement N/A = Not available PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number SGG = Segregation Group vPvB = Very Persistent and Very Bioaccumulative
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Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Asp. Tox. 1, H304	Expert judgment
Aquatic Chronic 3, H412	Expert judgment

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SECTION 16: Other information

Full text of abbreviated H statements	H304	May be fatal if swallowed and enters airways.
	H400	Very toxic to aquatic life.
	H410	Very toxic to aquatic life with long lasting effects.
	H412	Harmful to aquatic life with long lasting effects.
Full text of classifications [CLP/GHS]	Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
	Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
	Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
	Asp. Tox. 1	ASPIRATION HAZARD - Category 1
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Section 1 - Title

Short title of the exposure scenario	Use in functional fluids - Professional
List of use descriptors	Identified use name: Use in functional fluids - Professional Process Category: PROC01, PROC02, PROC08a, PROC20 Subsequent service life relevant for that use: No. Environmental Release Category: ERC09a
Environmental contributing scenarios	Widespread use of functional fluid (indoor) - ERC09a
Health Contributing scenarios	Drum/batch transfers - PROC08a Operation of equipment containing engine oils and similar - PROC20 Equipment cleaning and maintenance - PROC08a Storage - PROC01, PROC02 General exposures (closed systems) - PROC01, PROC02
Processes and activities covered by the exposure scenario	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 - Exposure controls

2.1 Control of environmental exposure

Amounts used	Annual site tonnage (tonnes/year) 0.005 Maximum daily site tonnage (kg/day) 0.014
Frequency and duration of use	Continuous release Emission days (days per year) 365
Other conditions affecting environmental exposure	Release fraction to air from wide dispersive use (regional only) 0.0005 Release fraction to wastewater from wide dispersive use 0.0005 Release fraction to soil from wide dispersive use (regional only) 0.001
<u>Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil</u>	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 81.2%
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
<u>Conditions and measures related to sewage treatment plant</u>	Estimated substance removal from wastewater via domestic sewage treatment (%): 94.8 Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.8 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day) 0.42 Assumed on-site sewage treatment plant flow (m^3/d) 2000

2.2 Control of worker exposure

General measures applicable to all activities

Concentration of substance in mixture or article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Covers daily exposures up to 8 hours

Section 2 - Exposure controls

Other conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented. Assumes use at not more than 20°C above ambient temperature. There are no routine anticipated exposures by ingestion related to any supported uses of the substance. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific risk.

Risk management measures (RMM)

Drum/batch transfers Non-dedicated facility - PROC 8a
Use drum pumps.

General exposures (closed systems) - PROC 1, PROC 2
Sample via a closed loop or other system to avoid exposure.

Operation of equipment containing engine oils and similar Closed system - PROC 20
Handle substance within a closed system.

Operation of equipment containing engine oils and similar Closed system Elevated temperature - PROC 20
Assumes process temperature up to 80.0 °C.

Equipment cleaning and maintenance - PROC 8a
Drain down and flush system prior to equipment break-in or maintenance.

Storage - PROC 1, PROC 2
Store substance within a closed system.

Section 3 - Exposure estimation and reference to its source

3.1 Environment

Exposure assessment (environment):

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

3.2 Workers

Exposure assessment (human):

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Qualitative approach used to conclude safe use.

Exposure estimation and reference to its source

A DNEL (derived no effect levels) cannot be derived. There are no routine anticipated exposures by ingestion related to any supported uses of the substance. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific risk.

Nytro Lyra X

SAFETY DATA SHEET

Date of printing	2022-10-17
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Date of previous issue	2021-05-31
Version	7

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	NYTRO® LYRA X
UFI	7A0-T0TN-A003-A5CH
Product description	Insulating oil
Product type	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	
<input checked="" type="checkbox"/>	Use in functional fluids - Industrial
<input type="checkbox"/>	Use in functional fluids - Professional
Uses advised against	Reason
<input checked="" type="checkbox"/>	This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer	Head office: Nynas AB P.O. Box 10700 SE-121 29 Stockholm SWEDEN +46 8 602 12 00 (Office hours 8 am - 4.30 pm (CET)) www.nynas.com
e-mail address of person responsible for this SDS	ProductHSE@nynas.com

1.4 Emergency telephone number

Telephone number	+44 (0) 1235 239 670
Hours of operation	24 hour service
<u>National advisory body/Poison Centre</u>	
Telephone number 020 - 99 60 00 (Kemiakuten, 24h service)	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition	Mixture
<u>Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]</u>	
Asp. Tox. 1, H304	
Aquatic Chronic 3, H412	

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.
See Section 16 for the full text of the H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

SECTION 2: Hazards identification

Hazard pictograms



Signal word

Danger

Hazard statements

H304 - May be fatal if swallowed and enters airways.
 H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273 - Avoid release to the environment.

Response

P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.

Storage

Not applicable.

Disposal

P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients

Distillate (petroleum), hydrotreated light naphthenic
 Distillate (petroleum), hydrotreated light paraffinic
 Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
 2,6-di-tert-butyl-p-cresol

Supplemental label elements

Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification

Prolonged or repeated contact may dry skin and cause irritation.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Distillate (petroleum), hydrotreated light naphthenic	REACH #: 01-2119480375-34 EC: 265-156-6 CAS: 64742-53-6	≥50	Asp. Tox. 1, H304	-	[1] [2]
Distillate (petroleum), hydrotreated light paraffinic	REACH #: 01-2119487077-29 EC: 265-158-7 CAS: 64742-55-8	≤50	Asp. Tox. 1, H304	-	[1] [2]
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	REACH #: 01-2119474889-13 EC: 276-738-4 CAS: 72623-87-1	≤50	Asp. Tox. 1, H304	-	[1] [2]
Lubricating oils (petroleum), C15-30, hydrotreated	REACH #: 01-2119474878-16	≤3	Asp. Tox. 1, H304	-	[1] [2]

SECTION 3: Composition/information on ingredients

neutral oil-based	EC: 276-737-9 CAS: 72623-86-0				
2,6-di-tert-butyl-p-cresol	REACH #: 01-2119555270-46 EC: 204-881-4 CAS: 128-37-0	<0,4	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 See Section 16 for the full text of the H statements declared above.	M [Acute] = 1 M [Chronic] = 1	[1]

Regulation (EC) No. 1272/2008 [CLP] Annex VI Nota L applies to the base oil(s) in this product. Nota L - The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3 % DMSO extract as measured by IP 346.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist.
Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If casualty is unconscious and: If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention if adverse health effects persist or are severe. Maintain an open airway.
Skin contact	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Handle with care and dispose of in a safe manner. Seek medical attention if skin irritation, swelling or redness develops and persists. Accidental high pressure injection through the skin requires immediate medical attention. Do not wait for symptoms to develop.
Ingestion	Always assume that aspiration has occurred. Do not induce vomiting. Can enter lungs and cause damage. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Seek professional medical attention or send the casualty to a hospital. Do not wait for symptoms to develop. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply. Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact	Slight irritant
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SECTION 4: First aid measures

Inhalation	Inhalation of oil mist or vapours at elevated temperatures may cause respiratory irritation.
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Ingestion	Adverse symptoms may include the following: Nausea or vomiting. diarrhoea

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Due to low viscosity there is a risk of aspiration if the product enters the lungs. Treat symptomatically.
Specific treatments	Always assume that aspiration has occurred.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing media	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	Do not use direct water jets on the burning product; they could cause splattering and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	In a fire or if heated, a pressure increase will occur and the container may burst. This substance will float and can be reignited on surface water. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products	Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, H ₂ S, SO _x (sulfur oxides) or sulfuric acid and unidentified organic and inorganic compounds.

5.3 Advice for firefighters

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel	Avoid breathing vapour or mist. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. Stop leak if safe to do so. Avoid direct contact with the product. Stay upwind/keep distance from source. In case of large spillages, alert occupants in downwind areas.
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Eliminate all ignition sources if safe to do so. Spillages of limited amounts of product, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which will presumably limit the exposure to dangerous concentrations.

Note : recommended measures are based on the most likely spillage scenarios for this material; however, local conditions (wind, air temperature, wave/current direction

SECTION 6: Accidental release measures

	and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken.
For emergency responders	Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and thermal resistant material should be used. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons. Note : gloves made of PVA are not water-resistant, and are not suitable for emergency use. Safety helmet, antistatic non-skid safety shoes or boots. Goggles and /or face shield, if splashes or contact with eyes is possible or anticipated. Respiratory protection : A half or full-face respirator with filter(s) for organic vapours (and when applicable for H2S) a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.
6.2 Environmental precautions	Water polluting material. May be harmful to the environment if released in large quantities. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Prevent product from entering sewers, rivers or other bodies of water. If necessary dike the product with dry earth, sand or similar non-combustible materials. In case of soil contamination, remove contaminated soil and treat in accordance with local regulations. In case of small spillages in closed waters (i.e. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents. If possible, large spillages in open waters should be contained with floating barriers or other mechanical means. If this is not possible, control the spreading of the spillage, and collect the product by skimming or other suitable mechanical means. The use of dispersants should be advised by an expert, and, if required, approved by local authorities.
6.3 Methods and material for containment and cleaning up	
Small spill	Stop leak if without risk. Absorb spilled product with suitable non-combustible materials.
Large spill	Large spillages may be cautiously covered with foam, if available, to limit vapour cloud formation. Do not use water jet. When inside buildings or confined spaces, ensure adequate ventilation. Transfer collected product and other contaminated materials to suitable containers for recovery or safe disposal. Approach the release from upwind. Contaminated absorbent material may pose the same hazard as the spill product.
6.4 Reference to other sections	See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

General information	Obtain special instructions before use. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Use and store only outdoors or in a well-ventilated area. Hazard of slipping on spilt product. Avoid release to the environment.
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7.1 Precautions for safe handling

SECTION 6: Accidental release measures

	and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken.
For emergency responders	Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and thermal resistant material should be used. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons. Note : gloves made of PVA are not water-resistant, and are not suitable for emergency use. Safety helmet, antistatic non-skid safety shoes or boots. Goggles and /or face shield, if splashes or contact with eyes is possible or anticipated. Respiratory protection : A half or full-face respirator with filter(s) for organic vapours (and when applicable for H2S) a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.
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7.1 Precautions for safe handling

SECTION 8: Exposure controls/personal protection

paraffinic	9/2021). [old used mineral oil] Absorbed through skin. Work environment authority Regulation 2018:1 (Sweden, 9/2021). [oil mist, incl. oil fumes] TWA: 1 mg/m ³ 8 hours. Form: mist and fume STEL: 3 mg/m ³ 15 minutes. Form: mist and fume
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	Work environment authority Regulation 2018:1 (Sweden, 9/2021). [old used mineral oil] Absorbed through skin. Work environment authority Regulation 2018:1 (Sweden, 9/2021). [oil mist, incl. oil fumes] TWA: 1 mg/m ³ 8 hours. Form: mist and fume STEL: 3 mg/m ³ 15 minutes. Form: mist and fume
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	Work environment authority Regulation 2018:1 (Sweden, 9/2021). [old used mineral oil] Absorbed through skin. Work environment authority Regulation 2018:1 (Sweden, 9/2021). [oil mist, incl. oil fumes] TWA: 1 mg/m ³ 8 hours. Form: mist and fume STEL: 3 mg/m ³ 15 minutes. Form: mist and fume
Oil mist	[Air contaminant] Work environment authority Regulation 2018:1 (Sweden, 9/2021). [oil mist, incl. oil fumes] TWA: 1 mg/m ³ 8 hours. Form: mist and fume STEL: 3 mg/m ³ 15 minutes. Form: mist and fume Work environment authority Regulation 2018:1 (Sweden, 9/2021). [old used mineral oil] Absorbed through skin.

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Distillate (petroleum), hydrotreated light naphthenic	DNEL	Long term Inhalation	5,58 mg/m ³	Workers	Local
Distillate (petroleum), hydrotreated light paraffinic	DNEL	Long term Inhalation	5,58 mg/m ³	Workers	Local
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	DNEL	Long term Inhalation	5,58 mg/m ³	Workers	Local
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	DNEL	Long term Inhalation	5,58 mg/m ³	Workers	Local
2,6-di-tert-butyl-p-cresol	DNEL	Long term Inhalation	5,8 mg/m ³	Workers	Systemic
	DMEL	Long term Dermal	8,3 mg/kg bw/day	Workers	Systemic

PNECs

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Compartment Detail	Value	Method Detail
2,6-di-tert-butyl-p-cresol	Soil	1,04 mg/kg ww	Equilibrium Partitioning Assessment Factors
	Sewage Treatment Plant	100 mg/l	
	Sediment	1,29 mg/kg ww	Equilibrium Partitioning Assessment Factors
	Secondary Poisoning	16,7 mg/kg	
	Marine water	0,4 µg/l	
Fresh water	4 µg/l	Assessment Factors	

PNEC Summary

Hydrocarbon Block Method (Petronisk)

8.2 Exposure controls

Appropriate engineering controls

Mechanical ventilation and local exhaust will reduce exposure via the air. Use oil resistant material in construction of handling equipment. Store under recommended conditions and if heated, temperature control equipment should be used to avoid overheating.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location. Wash contaminated clothing before reuse.

Eye/face protection

Recommended: safety glasses with side-shields

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 4 - 8 hours (breakthrough time): nitrile rubber

Body protection

Wear protective clothing if there is a risk of skin contact. Change contaminated clothes at the end of working shift.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Physical state	Liquid.
Colour	Light yellow
Odour	Odourless/Light petroleum.
Melting point/freezing point	-48°C
Initial boiling point and boiling range	230°C (>446°F) [ASTM D 2867]
Flammability	Not available.
Lower and upper explosion limit	Not available.
Flash point	Closed cup: >140°C (>284°F) [Pensky-Martens]
Auto-ignition temperature	>200°C (>392°F)
Decomposition temperature	>280°C

SECTION 9: Physical and chemical properties

pH	Not applicable.
Viscosity	Kinematic (40°C): 9,3 mm ² /s (9,3 cSt)
Solubility in water	Insoluble in water.
Partition coefficient: n-octanol/ water	Not applicable.
Vapour pressure (Calculated)	<0,01 kPa (<0,075006 mm Hg)
Density	0,87 g/cm ³ [15°C]
Relative vapour density	Not available.
DMSO extractable compounds for base oil substance(s) according to IP346	< 3%

SECTION 10: Stability and reactivity

10.1 Reactivity	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	Keep away from extreme heat and oxidizing agents. Take precautionary measures against static discharge.
10.5 Incompatible materials	Oxidising agent.
10.6 Hazardous decomposition products	Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, H ₂ S, SO _x (sulfur oxides) or sulfuric acid and unidentified organic and inorganic compounds.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
Distillate (petroleum), hydrotreated light naphthenic	LC50 Inhalation Dusts and mists	Rat	>5,53 mg/l	4 hours	EMBSI 1988 (similar material)
	LD50 Dermal	Rabbit	>5000 mg/kg	-	API 1982 (similar material)
	LD50 Oral	Rat	>5000 mg/kg	-	API 1982(similar material)
Distillate (petroleum), hydrotreated light paraffinic	LC50 Inhalation Dusts and mists	Rat	>5,53 mg/l	4 hours	EMBSI 1988 (similar material)
	LD50 Dermal	Rabbit	>5000 mg/kg	-	API 1982 (similar material)
	LD50 Oral	Rat	>5000 mg/kg	-	API 1982(similar material)
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil- based	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5,53 mg/l	4 hours	EMBSI 1988 (similar material)
	LD50 Dermal	Rabbit	>5000 mg/kg	-	API 1982 (similar material)
	LD50 Oral	Rat	>5000 mg/kg	-	API 1982 (similar material)
Lubricating oils	LC50 Inhalation Dusts and	Rat - Male,	>5,53 mg/l	4 hours	EMBSI 1988

SECTION 11: Toxicological information

(petroleum), C15-30, hydrotreated neutral oil-based	mists	Female			(similar material)
	LD50 Dermal	Rabbit	>5000 mg/kg	-	API 1982 (similar material)
	LD50 Oral	Rat	>5000 mg/kg	-	API 1982(similar material)
2,6-di-tert-butyl-p-cresol	LD50 Dermal	Rat	>5000 mg/kg	-	Supplier's information
	LD50 Oral	Rat	>5000 mg/kg	-	Supplier's information

Conclusion/Summary Based on available data, the classification criteria are not met.

Acute toxicity estimates

N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Observation	Remarks
Distillate (petroleum), hydrotreated light naphthenic	Eyes - Non-irritating to the eyes.	Rabbit	0 to 0,11	24 to 72 hours	API 1982(similar material)
	Skin - Non-irritant to skin.	Rabbit	0 to 1	24 to 72 hours	API 1982(similar material)
Distillate (petroleum), hydrotreated light paraffinic	Eyes - Non-irritating to the eyes.	Rabbit	0 to 0,11	24 to 72 hours	API 1982(similar material)
	Skin - Non-irritant to skin.	Rabbit	0 to 1	24 to 72 hours	API 1982(similar material)
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	Eyes - Non-irritating to the eyes.	Rabbit	0 to 0,11	24 to 72 hours	API 1982(similar material)
	Skin - Non-irritant to skin.	Rabbit	0 to 1	24 to 72 hours	API 1982 (similar material)
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	Eyes - Non-irritating to the eyes.	Rabbit	0 to 0,11	24 to 72 hours	API 1982(similar material)
	Skin - Non-irritant to skin.	Rabbit	0 to 1	24 to 72 hours	API 1982 (similar material)
2,6-di-tert-butyl-p-cresol	Eyes - Comea opacity	Rabbit	0	-	Supplier's information
	Eyes - Oedema of the conjunctivae	Rabbit	0,1	-	Supplier's information
	Eyes - Iris lesion	Rabbit	0	-	Supplier's information
	Eyes - Redness of the conjunctivae	Rabbit	0,5	-	Supplier's information

Skin Based on available data, the classification criteria are not met.

Eyes Based on available data, the classification criteria are not met.

Respiratory Based on available data, the classification criteria are not met.

Sensitisation

SECTION 11: Toxicological information

Product/ingredient name	Route of exposure	Species	Result	Remarks
Distillate (petroleum), hydrotreated light naphthenic	skin	Guinea pig	Not sensitizing	API 1982(similar material)
Distillate (petroleum), hydrotreated light paraffinic	skin	Guinea pig	Not sensitizing	API 1982(similar material)
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	skin	Guinea pig	Not sensitizing	API 1982(similar material)
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	skin	Guinea pig	Not sensitizing	UBTL 1984j,k,l (similar material)
2,6-di-tert-butyl-p-cresol	skin	Human	Not sensitizing	Supplier's information

Skin Based on available data, the classification criteria are not met.

Respiratory Based on available data, the classification criteria are not met.

Mutagenicity

Product/ingredient name	Test	Experiment	Result	Remarks
2,6-di-tert-butyl-p-cresol	OECD 471 471 Bacterial Reverse Mutation Test	Experiment: In vitro	Negative	Supplier's information
	476 In vitro Mammalian Cell Gene Mutation Test	Subject: Bacteria Experiment: In vitro	Negative	Supplier's information
	473 In vitro Mammalian Chromosomal Aberration Test	Subject: Mammalian-Animal Experiment: In vitro	Negative	Supplier's information
		Subject: Mammalian-Animal		

Conclusion/Summary Based on available data, the classification criteria are not met.

Carcinogenicity

Conclusion/Summary The base oil(s) in this product is based on an severely hydrotreated distillate. Based on available data, the classification criteria are not met.

Reproductive toxicity

Conclusion/Summary Based on available data, the classification criteria are not met.

Teratogenicity

Conclusion/Summary Based on available data, the classification criteria are not met.

Aspiration hazard

Product/ingredient name	Result
Distillate (petroleum), hydrotreated light naphthenic	ASPIRATION HAZARD - Category 1
Distillate (petroleum), hydrotreated light paraffinic	ASPIRATION HAZARD - Category 1
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	ASPIRATION HAZARD - Category 1
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	ASPIRATION HAZARD - Category 1

SECTION 11: Toxicological information

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Distillate (petroleum), hydrotreated light naphthenic	Sub-chronic LOAEL Oral	Rat	125 mg/kg	-
	Sub-chronic NOAEL Dermal	Rat	>2000 mg/kg	-
	Sub-acute NOEL Inhalation Dusts and mists	Rat	220 mg/m ³	6 hours; 5 days per week
Distillate (petroleum), hydrotreated light paraffinic	Sub-chronic LOAEL Oral	Rat	125 mg/kg	-
	Sub-chronic NOAEL Dermal	Rat	>2000 mg/kg	-
	Sub-acute NOEL Inhalation Dusts and mists	Rat	220 mg/m ³	6 hours; 5 days per week
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	Sub-chronic LOAEL Oral	Rat	125 mg/kg	-
	Sub-chronic NOAEL Dermal	Rat	>2000 mg/kg	-
	Sub-acute NOEL Inhalation Dusts and mists	Rat	220 mg/m ³	6 hours; 5 days per week
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	Sub-chronic LOAEL Oral	Rabbit	125 mg/kg	-
	Sub-chronic NOAEL Dermal	Rat	>2000 mg/kg	-
	Sub-chronic NOEL Inhalation Dusts and mists	Rat	220 mg/m ³	6 hours; 5 days per week
2,6-di-tert-butyl-p-cresol	Sub-acute NOAEL Oral	Rat	25 mg/kg	28 days; 7 days per week

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Aspiration hazard

Aspiration means the entry of a liquid substance directly into the trachea and lower respiratory tract.

Aspiration of hydrocarbon substances can result in severe acute effects such as chemical pneumonitis, varying degree of pulmonary injury or death.

This property relates to the potential for low viscosity material to spread quickly into the deep lung and cause severe pulmonary tissue damage.

Classification of a hydrocarbon substance for aspiration hazard is made on the basis of reliable human evidence or on the basis of physical properties.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Distillate (petroleum), hydrotreated light naphthenic	Acute EL50 >10000 mg/l	Daphnia	48 hours
	Acute LL50 >100 mg/l	Fish	96 hours
	Acute NOEL >100 mg/l	Algae	72 hours
Distillate (petroleum), hydrotreated light paraffinic	Chronic NOEL 10 mg/l Fresh water	Daphnia	21 days
	Acute EL50 >10000 mg/l	Daphnia	48 hours
	Acute LL50 >100 mg/l	Fish	96 hours
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	Acute NOEL >100 mg/l	Algae	72 hours
	Chronic NOEL 10 mg/l Fresh water	Daphnia	21 days
	Acute LL50 >10000 mg/l	Aquatic invertebrates.	96 hours
Lubricating oils (petroleum), C15-30,	Acute LL50 >100 mg/l	Fish - Pimephales promelas	96 hours
	Acute NOEL >100 mg/l	Algae	72 hours
	Chronic NOEL 10 mg/l	Daphnia	21 days
Lubricating oils (petroleum), C15-30,	Acute EL50 >10000 mg/l	Daphnia	48 hours

SECTION 12: Ecological information

hydrotreated neutral oil-based	Acute LL50 >100 mg/l Acute NOEL >100 mg/l Chronic NOEL 10 mg/l Fresh water	Fish Algae Daphnia	96 hours 72 hours 21 days
2,6-di-tert-butyl-p-cresol	Acute EC50 0,61 mg/l Acute IC50 >0,4 mg/l Acute LC50 >0,57 mg/l Chronic NOEC 0,316 mg/l	Daphnia - Magna Algae - Desmodesmus Subspicatus Fish - Danio-rerio Daphnia - Magna	48 hours 72 hours 96 hours 21 days
Conclusion/Summary	Harmful to aquatic life with long lasting effects.		

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2,6-di-tert-butyl-p-cresol	OECD 301C 301C Ready Biodegradability - Modified MITI Test (I)	4,5 % - 28 days	-	-
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability	
Distillate (petroleum), hydrotreated light naphthenic	-	-	Inherent	
Distillate (petroleum), hydrotreated light paraffinic	-	-	Inherent	
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	-	-	Inherent	
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	-	-	Readily	
2,6-di-tert-butyl-p-cresol	-	-	Not readily	

Conclusion/Summary Inherently biodegradable.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Distillate (petroleum), hydrotreated light naphthenic	2 to 6	<500	low
Distillate (petroleum), hydrotreated light paraffinic	2 to 6	<500	low
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	2 to 6	<500	low
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	2 to 6	<500	low
2,6-di-tert-butyl-p-cresol	5,1	-	high

Conclusion/Summary The product has a potential to bioaccumulate.

12.4 Mobility in soil

Mobility High mobility in soil predicted, based on log Kow > 3.0.

12.5 Results of PBT and vPvB assessment

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

SECTION 12: Ecological information

12.7 Other adverse effects

Insoluble in water. Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal Where possible (e.g. in the absence of relevant contamination), recycling of used substance is feasible and recommended. This substance can be burned or incinerated, subject to national/local authorizations, relevant contamination limits, safety regulations and air quality legislation. Contaminated or waste substance (not directly recyclable): Disposal can be carried out directly, or by delivery to qualified waste handlers. National legislation may identify a specific organization, and/or prescribe composition limits and methods for recovery or disposal.

Hazardous waste Yes.

European waste catalogue (EWC)

Waste code	Waste designation
13 03 07*	mineral-based non-chlorinated insulating and heat transmission oils

Packaging

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

International transport regulations

	ADR/RID	ADN	IMO/IMDG Classification	ICAO/IATA Classification
14.1 UN number or ID number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments

 IARPOL Annex 1 - Oils

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles Not applicable.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air Not listed

Industrial emissions (integrated pollution prevention and control) - Water Not listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

National inventory

Australia	All components are listed or exempted.
Canada	All components are listed or exempted.
China	All components are listed or exempted.
Eurasian Economic Union	Russian Federation inventory: All components are listed or exempted.
Japan	Japan inventory (CSCL): All components are listed or exempted. Japan inventory (ISHL): All components are listed or exempted.
New Zealand	All components are listed or exempted.
Philippines	All components are listed or exempted.
Republic of Korea	All components are listed or exempted.

SECTION 15: Regulatory information

Taiwan	All components are listed or exempted.
Thailand	All components are listed or exempted.
Turkey	All components are listed or exempted.
United States	All components are active or exempted.
Viet Nam	All components are listed or exempted.

15.2 Chemical safety assessment Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

Revision comments Not available.

Indicates information that has changed from previously issued version.

Abbreviations and acronyms ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 N/A = Not available
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 SGG = Segregation Group
 vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Asp. Tox. 1, H304	Calculation method
Aquatic Chronic 3, H412	Calculation method

Sweden

Full text of abbreviated H statements H304 May be fatal if swallowed and enters airways.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.
 H412 Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS] Aquatic Acute 1 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
 Aquatic Chronic 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
 Aquatic Chronic 3 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
 Asp. Tox. 1 ASPIRATION HAZARD - Category 1

Date of printing 2022-10-17

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Version 7

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

The information provided herein does not in any way constitute a product warranty, product specification, agreement on quality or similar.

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Section 1 - Title

Short title of the exposure scenario	Use in functional fluids - Industrial
List of use descriptors	Identified use name: Use in functional fluids - Industrial Process Category: PROC01, PROC02, PROC08b, PROC09 Subsequent service life relevant for that use: No. Environmental Release Category: ERC07
Environmental contributing scenarios	Use of functional fluid at industrial site - ERC07
Health Contributing scenarios	General exposures (closed systems) - PROC02 Bulk transfers - PROC01, PROC02 Storage - PROC01, PROC02 Drum/batch transfers - PROC08b Filling of articles/equipment - PROC09 Remanufacture of reject articles - PROC09
Processes and activities covered by the exposure scenario	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 - Exposure controls

2.1 Control of environmental exposure

Amounts used	Annual site tonnage (tonnes/year) 10 Maximum daily site tonnage (kg/day) 5
Frequency and duration of use	Continuous release Emission days (days per year) 20
Other conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM) 0.0001 Release fraction to wastewater from process (initial release prior to RMM) 1.0E-6 Release fraction to soil from process (initial release prior to RMM) 0.001 If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. Suitable technique(s) to limit releases to soil: Floors should be impervious, resistant to liquids and easy to clean.
<u>Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil</u>	
Risk management measures - Air	Treat air emissions. >= 70%
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 70.0 %.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
<u>Conditions and measures related to sewage treatment plant</u>	Estimated substance removal from wastewater via domestic sewage treatment (%): 94.8 Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.8 Maximum allowable site tonnage (M_{site}) based on release following total wastewater treatment removal (kg/day) 3500 Assumed on-site sewage treatment plant flow (m ³ /d) 2000

2.2 Control of worker exposure

General measures applicable to all activities

Concentration of substance in mixture or article	Covers percentage substance in the product up to 100%
Frequency and duration of use	Covers daily exposures up to 8 hours

Section 2 - Exposure controls

Other conditions affecting workers exposure

Assumes a good basic standard of occupational hygiene is implemented. Assumes use at not more than 20°C above ambient temperature. There are no routine anticipated exposures by ingestion related to any supported uses of the substance. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific risk.

Risk management measures (RMM)

Bulk transfers - PROC 1, PROC2, Filling of equipment from drums or containers - PROC 9
Handle substance within a closed system.

General exposures Closed system - PROC 2
Sample via a closed loop or other system to avoid exposure.

Remanufacture of reject articles - PROC 9
Drain or remove substance from equipment prior to break-in or maintenance.

Storage - PROC 1, PROC 2
Store substance within a closed system.

Section 3 - Exposure estimation and reference to its source

3.1 Environment

Exposure assessment (environment):

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrisk model.

3.2 Workers

Exposure assessment (human):

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Qualitative approach used to conclude safe use.

Exposure estimation and reference to its source

A DNEL (derived no effect levels) cannot be derived. There are no routine anticipated exposures by ingestion related to any supported uses of the substance. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific risk.

Section 1 - Title

Short title of the exposure scenario	Use in functional fluids - Professional
List of use descriptors	Identified use name: Use in functional fluids - Professional Process Category: PROC01, PROC02, PROC08a, PROC20 Subsequent service life relevant for that use: No. Environmental Release Category: ERC09a
Environmental contributing scenarios	Widespread use of functional fluid (indoor) - ERC09a
Health Contributing scenarios	Drum/batch transfers - PROC08a Operation of equipment containing engine oils and similar - PROC20 Equipment cleaning and maintenance - PROC08a Storage - PROC01, PROC02 General exposures (closed systems) - PROC01, PROC02
Processes and activities covered by the exposure scenario	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 - Exposure controls

2.1 Control of environmental exposure

Amounts used	Annual site tonnage (tonnes/year) 0.005 Maximum daily site tonnage (kg/day) 0.014
Frequency and duration of use	Continuous release Emission days (days per year) 365
Other conditions affecting environmental exposure	Release fraction to air from wide dispersive use (regional only) 0.0005 Release fraction to wastewater from wide dispersive use 0.0005 Release fraction to soil from wide dispersive use (regional only) 0.001
<u>Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil</u>	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 81.2%
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
<u>Conditions and measures related to sewage treatment plant</u>	Estimated substance removal from wastewater via domestic sewage treatment (%): 94.8 Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.8 Maximum allowable site tonnage (M_{site}) based on release following total wastewater treatment removal (kg/day) 0.42 Assumed on-site sewage treatment plant flow (m ³ /d) 2000

2.2 Control of worker exposure

General measures applicable to all activities

Concentration of substance in mixture or article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Covers daily exposures up to 8 hours

Section 2 - Exposure controls

Other conditions affecting workers exposure	Assumes a good basic standard of occupational hygiene is implemented Assumes use at not more than 20°C above ambient temperature. There are no routine anticipated exposures by ingestion related to any supported uses of the substance. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific risk.
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Risk management measures (RMM)

Drum/batch transfers Non-dedicated facility - PROC 8a
Use drum pumps.

General exposures (closed systems) - PROC 1, PROC 2
Sample via a closed loop or other system to avoid exposure.

Operation of equipment containing engine oils and similar Closed system - PROC 20
Handle substance within a closed system.

Operation of equipment containing engine oils and similar Closed system Elevated temperature - PROC 20
Assumes process temperature up to 80.0 °C.

Equipment cleaning and maintenance - PROC 8a
Drain down and flush system prior to equipment break-in or maintenance.

Storage - PROC 1, PROC 2
Store substance within a closed system.

Section 3 - Exposure estimation and reference to its source

3.1 Environment

Exposure assessment (environment):	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.
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3.2 Workers

Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Qualitative approach used to conclude safe use.
Exposure estimation and reference to its source	A DNEL (derived no effect levels) cannot be derived. There are no routine anticipated exposures by ingestion related to any supported uses of the substance. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific risk.

CAT DEO-ULS SYN 5W-40

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: CAT DEO-ULS SYN 5W-40
Product Description: Synthetic Base Stocks and Additives
Product Code: 20202040B0E0, 452599-00, 97BE13
Intended Use: Engine oil

COMPANY IDENTIFICATION

Supplier: EXXON MOBIL CORPORATION
3225 GALLOWS RD.
FAIRFAX, VA. 22037 USA

24 Hour Health Emergency: 609-737-4411
Transportation Emergency Phone: 800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information: 800-662-4525
MSDS Internet Address: <http://www.exxon.com>, <http://www.mobil.com>

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1900.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0
HMIS Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert

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advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
1-DECENE, HOMOPOLYMER HYDROGENATED	68037-01-4	10 - < 20%	H304
ETHYLOYLATED LONG CHAIN ALCOHOLS	68551-12-2	0.1 - < 1%	H318, H400(M factor 1)
ZINC ALKYL DITHIOPHOSPHATE	113706-15-3	1 - < 2.5%	H303, H315, H318, H401, H411

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

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Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Sulfur oxides, Oxides of carbon, Incomplete combustion products, Smoke, Fume, Aldehydes

FLAMMABILITY PROPERTIES

Flash Point [Method]: >215°C (419°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6

ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7

HANDLING AND STORAGE

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HANDLING

Avoid contact with used product. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard		NOTE	Source
1-DECENE, HOMOPOLYMER HYDROGENATED	Aerosols (thoracic fraction)	TWA	5 mg/m ³	N/A	ExxonMobil

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to

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be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid

Color: Amber

Odor: Characteristic

Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15.6 °C): 0.853

Flammability (Solid, Gas): N/A

Flash Point [Method]: >215°C (419°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

Boiling Point / Range: > 316°C (600°F)

Decomposition Temperature: N/D

Vapor Density (Air = 1): > 2 at 101 kPa

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Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 98.3 cSt (98.3 mm²/sec) at 40 °C | 14.5 cSt (14.5 mm²/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -39°C (-38°F)

SECTION 10	STABILITY AND REACTIVITY
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REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
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INFORMATION ON TOXICOLOGICAL EFFECTS

<u>Hazard Class</u>	<u>Conclusion / Remarks</u>
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.

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Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Diesel engine oils: Not carcinogenic in animals tests. Used and unused diesel engine oils did not produce any carcinogenic effects in chronic mouse skin painting studies.

Oils that are used in gasoline engines may become hazardous and display the following properties: Carcinogenic in animal tests. Caused mutations in vitro. Possible allergen and photoallergen. Contains polycyclic aromatic compounds (PAC) from combustion products of gasoline and/or thermal degradation products.

Contains:

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

SECTION 12

ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

SECTION 13	DISPOSAL CONSIDERATIONS
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Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.**

SECTION 14	TRANSPORT INFORMATION
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LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

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AIR (IATA): Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
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OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, KECI, PICCS, TSCA

Special Cases:

Inventory	Status
ENCS	Restrictions Apply
IECSC	Restrictions Apply

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
ZINC ALKYL DITHIOPHOSPHATE	113706-15-3	1 - < 2.5%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
PHENOL, 4,4-METHYLENEBIS(2,6-BIS(1,1-DIMETHYLETHYL)-	118-82-1	5
ZINC ALKYL DITHIOPHOSPHATE	113706-15-3	13, 15, 17, 19

--REGULATORY LISTS SEARCHED--

- | | | | |
|---------------|------------------|-------------------|-------------|
| 1 = ACGIH ALL | 6 = TSCA 5a2 | 11 = CA P65 REPRO | 16 = MN RTK |
| 2 = ACGIH A1 | 7 = TSCA 5e | 12 = CA RTK | 17 = NJ RTK |
| 3 = ACGIH A2 | 8 = TSCA 6 | 13 = IL RTK | 18 = PA RTK |
| 4 = OSHA Z | 9 = TSCA 12b | 14 = LA RTK | 19 = RI RTK |
| 5 = TSCA 4 | 10 = CA P65 CARC | 15 = MI 293 | |

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

H303: May be harmful if swallowed; Acute Tox Oral, Cat 5

H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1

H315: Causes skin irritation; Skin Corr/Irritation, Cat 2

H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1

H400: Very toxic to aquatic life; Acute Env Tox, Cat 1

H401: Toxic to aquatic life; Acute Env Tox, Cat 2

H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Updates made in accordance with implementation of GHS requirements.

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