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Report No. 20121204-000984

April 9, 2013

# Inspector General

United States  
Department of Defense



REPORT OF INVESTIGATION:  
DR. REGINA E. DUGAN  
FORMER SENIOR EXECUTIVE SERVICE  
FORMER DIRECTOR  
DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

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REPORT OF INVESTIGATION:  
DOCTOR REGINA E. DUGAN  
FORMER DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

I. INTRODUCTION AND SUMMARY

We initiated this investigation to address allegations that Doctor (Dr.) Dugan, while serving as the Director, Defense Advanced Research Projects Agency (DARPA), (b)(6), (b)(7)(C) used her Government position to endorse a product, service, or enterprise; and (b)(6), (b)(7)(C)

We substantiated the allegation that Dr. Dugan used her position to endorse a product, service, or enterprise. We did not substantiate the other allegations.

We found that prior to becoming the Director, DARPA, Dr. Dugan was the founder, President and Chief Executive Officer of RedXDefense, LLC (RedX). When she was with RedX, Dr. Dugan developed The Bookends©, a theory which suggested identifying bombs, bomb-makers, and bomb-making facilities was the best way to combat the use of improvised explosive devices (IEDs). RedX copyrighted a graphic representation of the theory, and used The Bookends© to inform its product development efforts, which DARPA financed in part through contract awards. RedX developed the XPAK, i-MODULE, and XPAK Spotlight, and marketed the product suite as an integrated, 3-step solution for detecting trace explosives in an area of interest and plotting the results to enable analysis. With RedX, Dr. Dugan developed a presentation entitled, "New Methods for Defeating IEDs." The presentation described her theory, introduced the RedX product suite, highlighted its advantages, and featured the results of field trials performed using RedX products. The slogan "Shoot the archer, not the arrow" helped audiences remember the briefing.

We also found that DARPA funded RedX to perform on a project which involved placing backpacks equipped with sensors and transmitters on explosives detection dogs. Also aimed at identifying bomb-making facilities, the effort was another method for implementing what The Bookends© theory suggested. RedX later partnered with Johns Hopkins and Auburn Universities on a follow-on DARPA effort, which was ongoing when Dr. Dugan became the Director, DARPA, in July 2009.

We found that as Director, DARPA, Dr. Dugan briefed various senior DoD officials regarding methods for defeating IEDs. In some briefings she used excerpts from the "New Methods" presentation she developed at RedX. In other presentations she endorsed the idea of using "instrumented" bomb-detection dogs in "novel canine approaches." The presentations contained RedX copyrighted material, proprietary markings, and the "Shoot the archer" slogan. On occasion, Dr. Dugan included the results of field trials conducted using RedX products. She omitted explicit references to the RedX product suite, with two inconspicuous exceptions, but nevertheless implied the products used to prove her theory were effective.

Finally, we found Dr. Dugan's communications as Director, DARPA created potential business opportunities for RedX, which was in a position to deliver an off-the-shelf solution to implement the theory Dr. Dugan promoted. We found no evidence that Dr. Dugan specifically requested her audiences consider RedX, that she explicitly discussed RedX products or capabilities with them, or that her communications resulted in new revenue for the company.

The Joint Ethics Regulation (JER) prohibited Dr. Dugan from using or permitting the use of her Government position to endorse a product, service, or enterprise. When acting in an official capacity, it was improper to state or imply such endorsements. The JER also directed employees to endeavor to avoid any actions that created the appearance of a violation of law or ethical standards.

We determined that Dr. Dugan violated the JER prohibition against endorsements, and that her actions were inconsistent with the JER's direction to avoid actions which created the appearance of a violation. In communications with senior DoD officials, she used RedX-proprietary and other materials originally developed for and used in RedX sales presentations. She advanced a theory integral to RedX product development, promoted a multi-step process the RedX product suite used to implement the theory, highlighted the results of field trials that used RedX products to demonstrate the efficacy of the theory and process, and featured a RedX sales slogan. She also endorsed the adoption of an effort to put sensors on dogs, an extension of a DARPA project on which RedX performed.

By letter dated November 5, 2012, we provided Dr. Dugan the opportunity to comment on a preliminary report of investigation. In her response, prepared by her attorney, dated December 5, 2012, Dr. Dugan disagreed with our conclusion that she used her position to endorse a product, service, or enterprise, and that her actions created the appearance of a violation. Dr. Dugan did not dispute the facts regarding who she briefed or the material she used in her presentations. She asserted she requested ethics advice from (b)(6), (b)(7)(C), followed it exactly, and never made an explicit endorsement. Dr. Dugan also asserted that to substantiate the allegation required that we prove both intent and that the audience believed she endorsed RedX. After carefully considering Dr. Dugan's response, we stand by our original conclusion.<sup>1</sup>

Dr. Dugan also stated our preliminary report and the transcript of her interview contain proprietary and national security information that should be removed. In the event this Office releases a copy of the final report outside DoD, we will redact it appropriately. Further, Dr. Dugan requested we remove additional information from the report she believed was irrelevant and "highly prejudicial" to her, RedX, and the former Deputy Director, DARPA. We considered Dr. Dugan's request, and retain the information as it is necessary to present a complete record of the facts upon which we based our investigative conclusion. OIG standards require investigative thoroughness and completeness.

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<sup>1</sup> While we have included what we believe is a reasonable synopsis of Dr. Dugan's response, we recognize that any attempt to summarize risks oversimplification and omission. Accordingly, we incorporated Dr. Dugan's comments where appropriate throughout this report and provided a copy of her full response to the cognizant management official together with this report.

This final report sets forth our findings and conclusions based on a preponderance of the evidence. Given that she left Government service, we make no recommendation regarding Dr. Dugan.

## II. BACKGROUND

The Secretary of Defense nominated Dr. Dugan to be the DARPA Director on July 2, 2009. She assumed the post on July 20, 2009, and resigned on March 28, 2012.

DoD Directive 5134.10, "Defense Advanced Research Projects Agency," establishes DARPA as an Agency of the DoD under the direction, authority, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) and the Assistant Secretary of Defense for Research and Engineering (ASD(R&E)). The directive states that DARPA serves as the central research and development organization of the DoD, with a primary responsibility to maintain U.S. technological superiority over potential adversaries. DARPA's Research, Development, Test, and Evaluation (RDT&E) budgets for fiscal years (FY) 2010, 2011, and 2012 were \$2.986B, \$3.103B, and \$2.985B, respectively. Among the responsibilities and functions the directive assigns to the Director, DARPA, are:

- Organize, direct, and manage DARPA and all assigned resources.
- Pursue imaginative and innovative research and development (R&D) projects.
- Provide guidance and assistance, as appropriate, to the DoD Components and other U.S. Government activities on matters pertaining to the projects assigned to DARPA.
- Recommend to the Secretary of Defense, through the ASD(R&E), the assignment of research projects to DARPA.
- Engage in assigned advanced research projects and determine technology investment priorities taking into consideration both military needs and commercial potential. Long-term strategies should promote the integration of the military and civilian industrial base.
- Conduct demonstration projects that embody technology appropriate for joint programs, programs in support of deployed forces, or selected programs of the Military Departments and, on request, assist the Military Departments in the prototyping programs.

Among the authorities delegated to the Director, DARPA, are:

- Place funded work orders with organizations of the Military Departments, other DoD Components, or other organizations of the Federal Government.
- Prosecute assigned advanced research projects by contract, grant, cooperative agreement, or any other authorized means.

- Enter into and administer grants, cooperative agreements, and other authorized transactions with any Agency, university, nonprofit organization, or other organization to carry out or support work required to execute any assigned advanced research project.
- Allocate funds made available to DARPA for assigned projects.
- Communicate directly with the DoD Components, other Executive Departments and Agencies, foreign research activities, and non-DoD R&D activities, as appropriate. Communicate with Combatant Commanders through the Chairman of the Joint Chiefs of Staff.

DARPA is organized into six “offices.” Five of the six offices use a combination of office-wide Broad Agency Announcements (BAAs) and narrower, program-specific BAAs as the primary method for soliciting proposals for innovative R&D projects.<sup>2</sup> The five offices are the Defense Sciences Office (DSO), Information Innovation Office (I2O), Microsystems Technology Office (MTO), Strategic Technology Office (STO), and the Tactical Technology Office (TTO). The Adaptive Execution Office (AEO), established during Dr. Dugan’s tenure, is primarily concerned with coordinating field trials of DARPA-developed technologies and the transition of such technologies to the Services and Combatant Commands (COCOMs).

The following are excerpts from Dr. Dugan’s biography:

Dr. Dugan first served the Nation as a DARPA program manager from 1996 to 2000. She directed a diverse \$100 million portfolio of programs including the “Dog’s Nose” program, which focused on the development of an advanced, field-portable system for detecting the explosive content of land mines...From 2001 to 2003, she served as a special advisor to the Vice Chief of Staff of the Army, completing a Quick Reaction Study on Countermine for [Operation] Enduring Freedom.

[After leaving DARPA], Dr. Dugan co-founded Dugan Ventures, a niche investment firm, where she served as President and CEO.<sup>3</sup> In 2005, Dugan Ventures founded RedXDefense, LLC, a privately held company devoted to innovative solutions for combating explosive threats, where she also served as President and CEO.

The biography concluded by listing numerous achievements and qualifications which establish Dr. Dugan’s bona fides as an expert and leader in technology development.

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<sup>2</sup> Part 35, Federal Acquisition Regulation (FAR) sets out procedures for the use of BAAs.

<sup>3</sup> The Dugan Ventures Web site lists Dr. Dugan as a founder and as President and Chief Executive Officer from 2005-2009.



DARPA: (b)(6), (b)(7)(C)

(b)(6), (b)(7)(C)

(b)(6), (b)(7)(C)

In a letter, dated March 24, 2011, the Chairman, Committee on Oversight and Government Reform (HOCR), House of Representatives, United States Congress, informed the Secretary of Defense of a Committee investigation into the appearance of impropriety related to a DARPA contract award to RedX and Dr. Dugan's financial interest in the company. The Committee requested DARPA provide documents relevant to its investigation.

An article entitled, "All in the Family: DARPA Chief Owed \$250,000 by DARPA Contractor," appeared at [www.wired.com](http://www.wired.com) on March 30, 2011. The article questioned the ethics of contract awards DARPA made to RedX after Dr. Dugan became the Director, and reported that RedX owed Dr. Dugan \$250K as of June 2010.<sup>4</sup> The Los Angeles Times published a similar article on April 3, 2011.<sup>5</sup>

### III. SCOPE

In a letter to the DoD IG, dated May 9, 2011, the Executive Director, Project on Government Oversight (POGO), expressed "concerns about the award and administration of contracts, grants, and other transactions, as well as about the effectiveness of avoiding or preventing conflicts-of-interest" at DARPA. The letter requested the Inspector General determine (1) whether Dr. Dugan failed to comply with the terms of a letter she issued in which she disqualified herself from participating in particular matters which involved RedX, and (2) the extent to which DARPA employees who dealt with RedX were aware of Dr. Dugan's connection to the company prior to the media reporting on the subject.<sup>6</sup>

On June 2, 2011, POGO forwarded a complaint which stated (b)(6), (b)(7)(C)

We initiated our investigation on August 11, 2011.

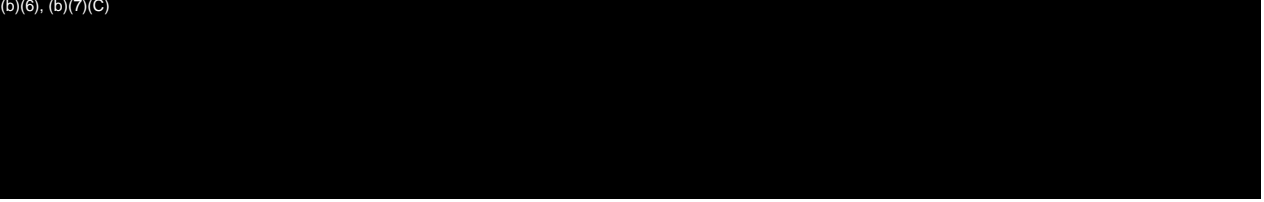
(b)(6), (b)(7)(C)

<sup>4</sup> <http://www.wired.com/dangerroom/2011/03/all-in-the-family-darpa-chief-owed-250000-by-darpa-contractor/>

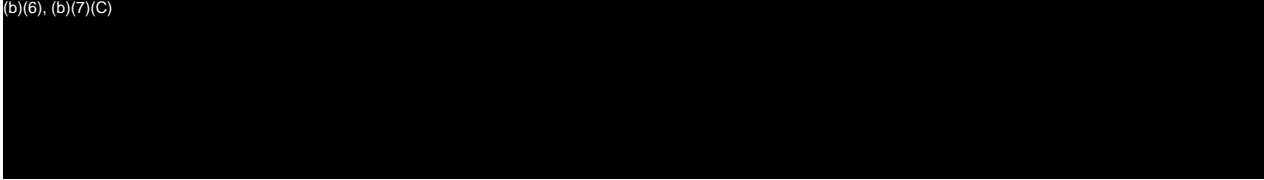
<sup>5</sup> <http://articles.latimes.com/2011/apr/03/nation/la-na-darpa-20110403>

<sup>6</sup> The letter also requested several actions which the Inspector General referred to the Deputy Inspector General for Auditing. We focused our investigation on specific actions Dr. Dugan took or failed to take.

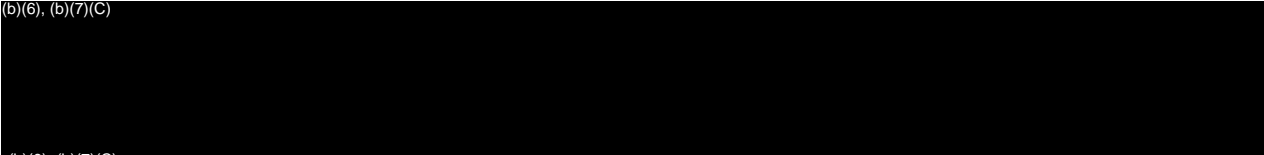
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(b)(6), (b)(7)(C)



(b)(6), (b)(7)(C)



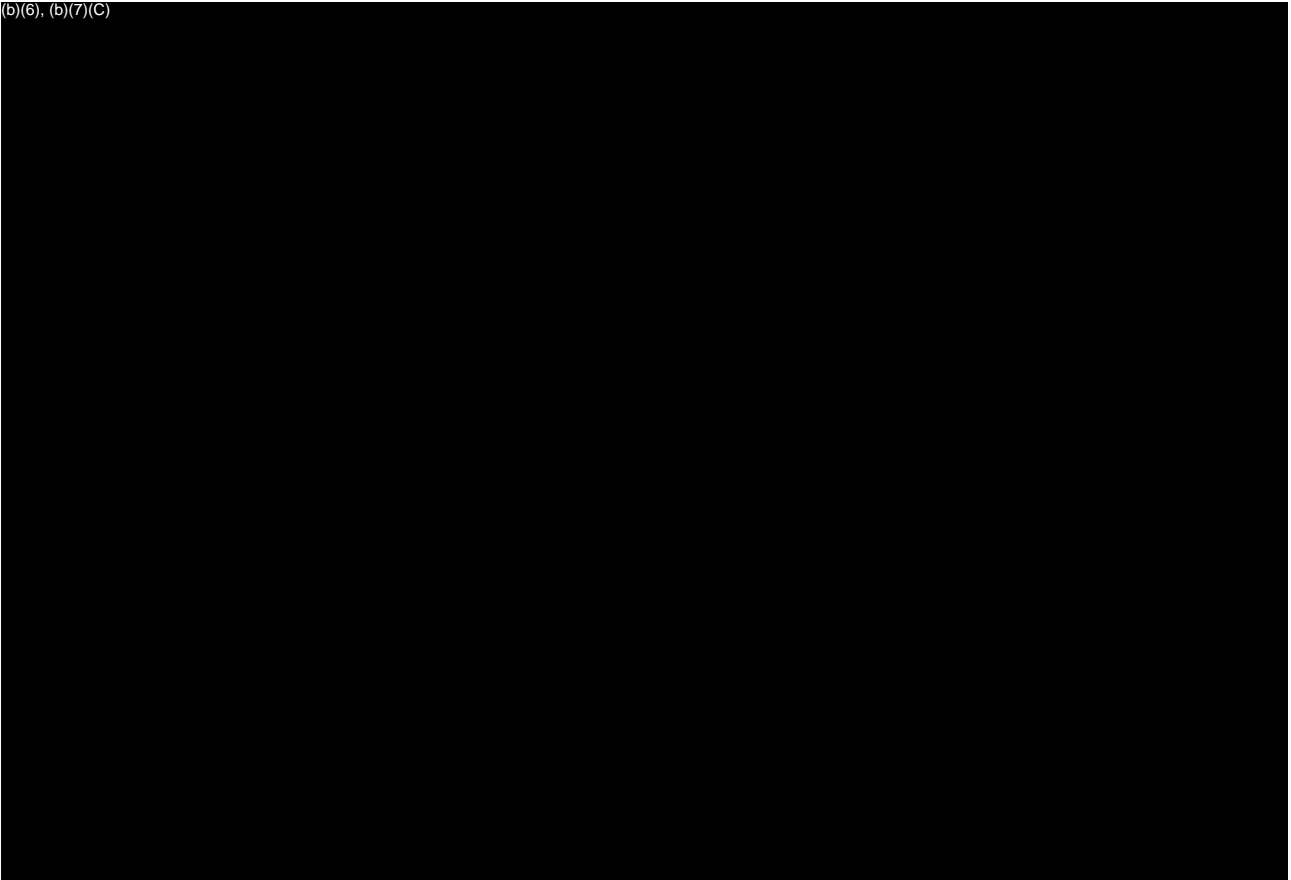
(b)(6), (b)(7)(C)

We determined the complaint was outside the scope of this investigation.

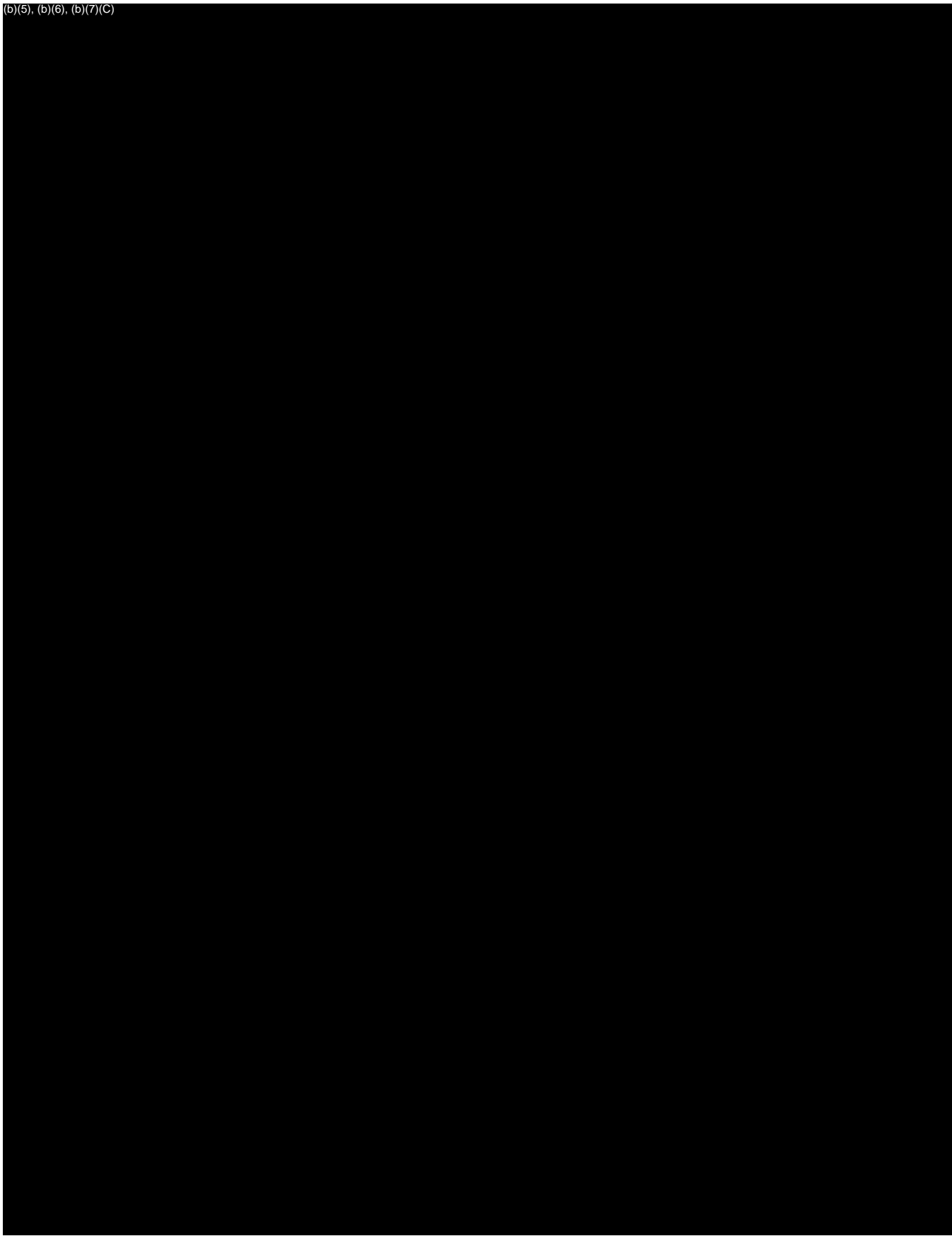
We interviewed Dr. Dugan and 33 other witnesses with knowledge of matters at issue. We reviewed standards that apply to the events in question as well as emails, contracts, pre-award contract documentation, and many other documents.

IV. FINDINGS AND ANALYSIS

(b)(6), (b)(7)(C)

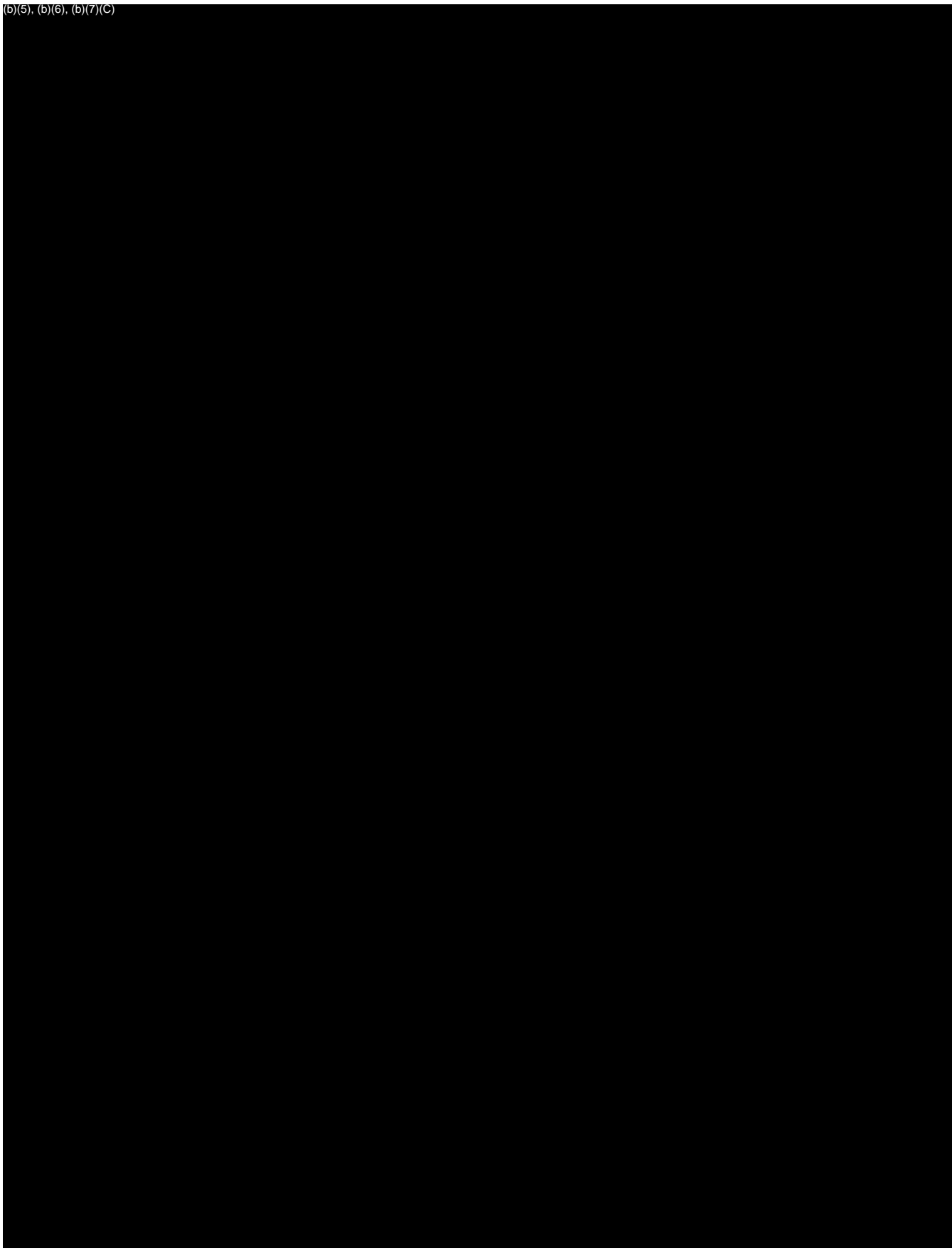


(b)(5), (b)(6), (b)(7)(C)

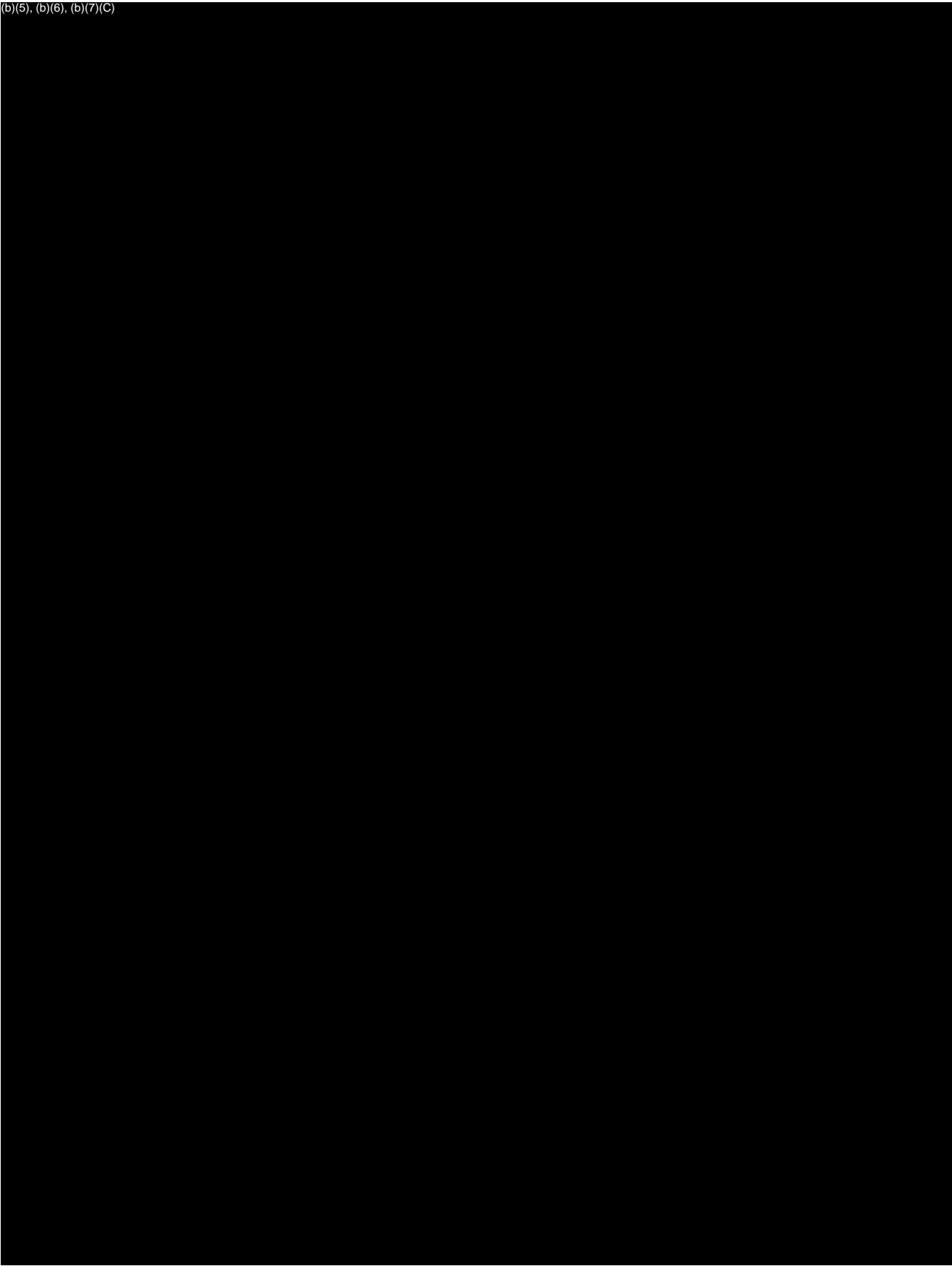




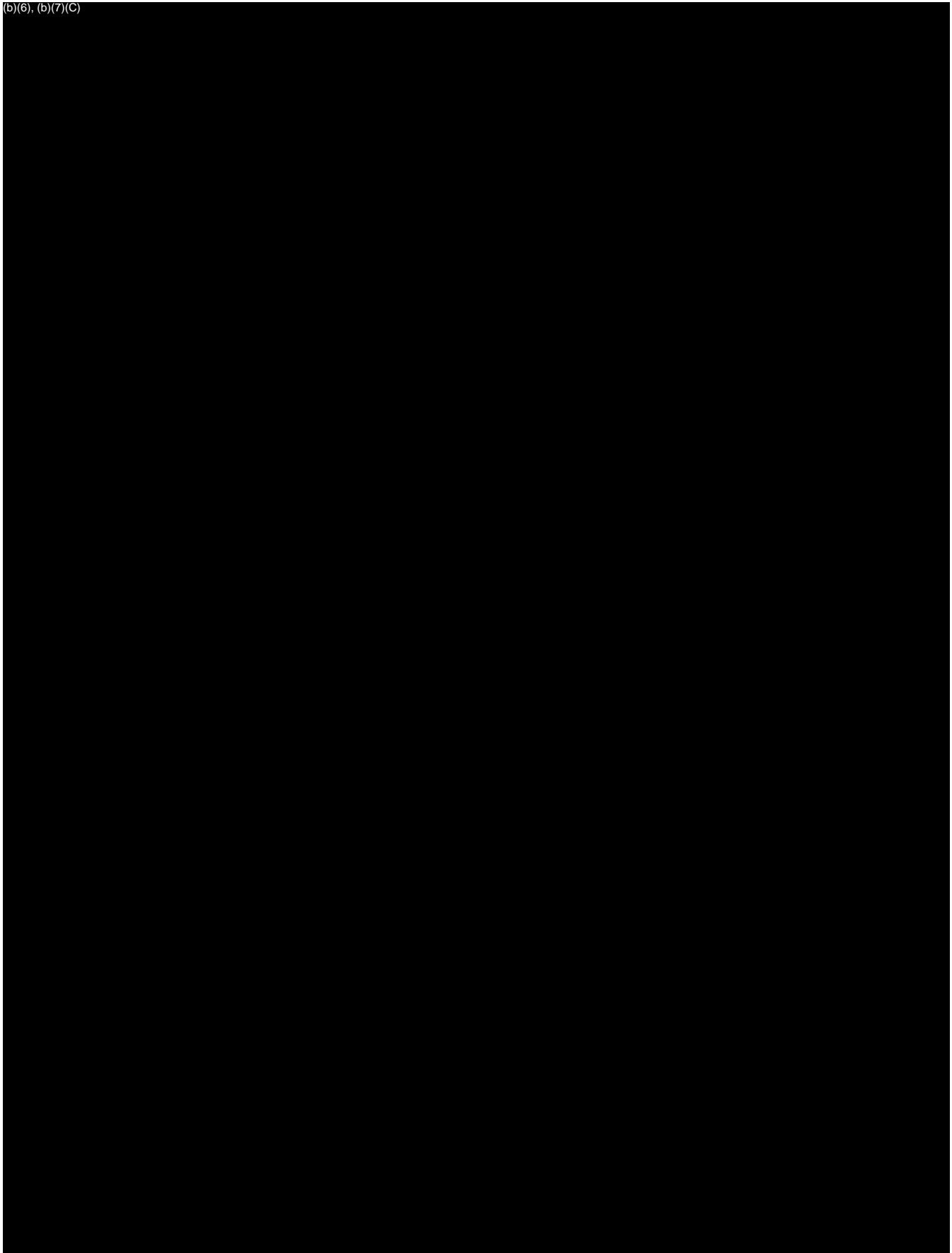
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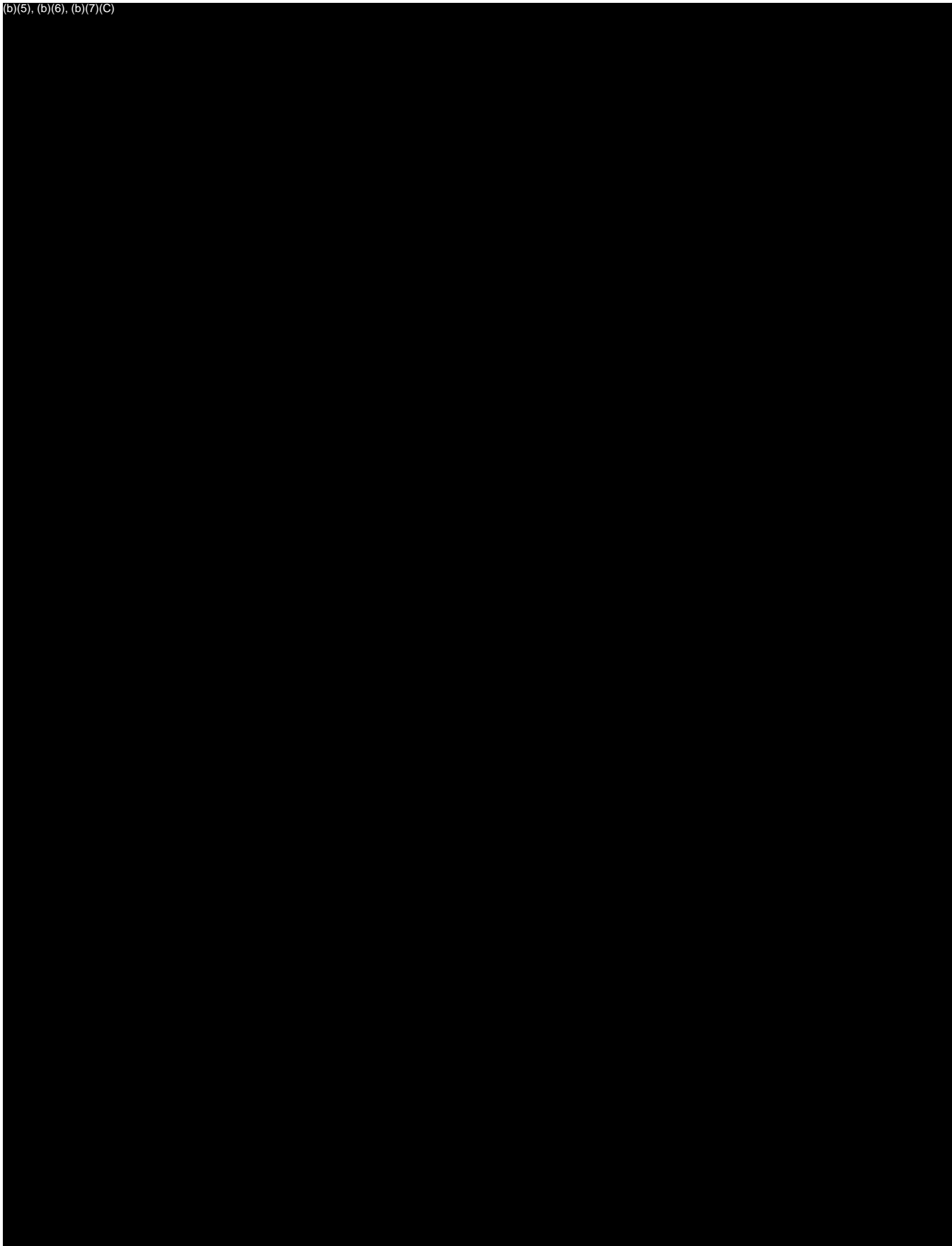
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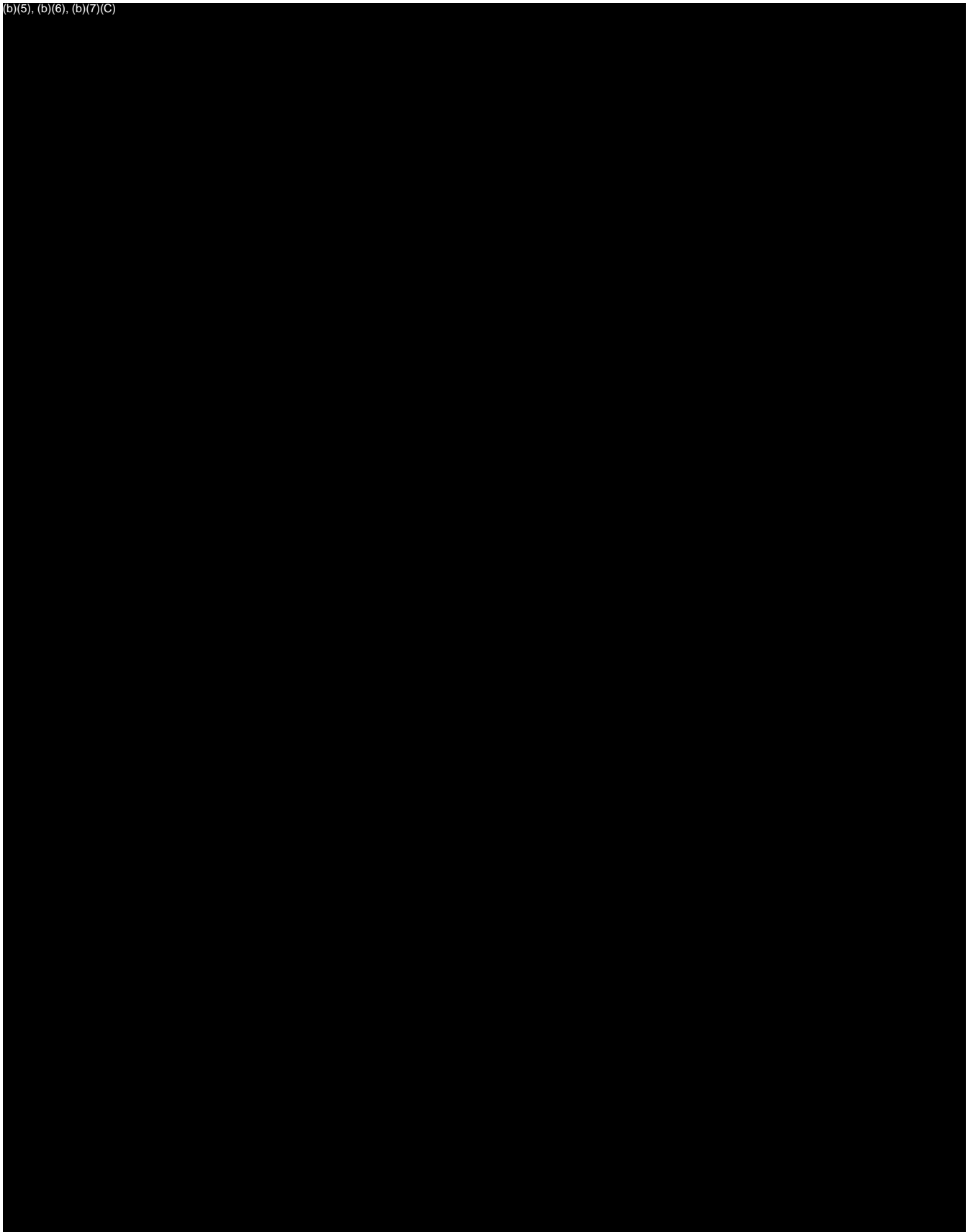
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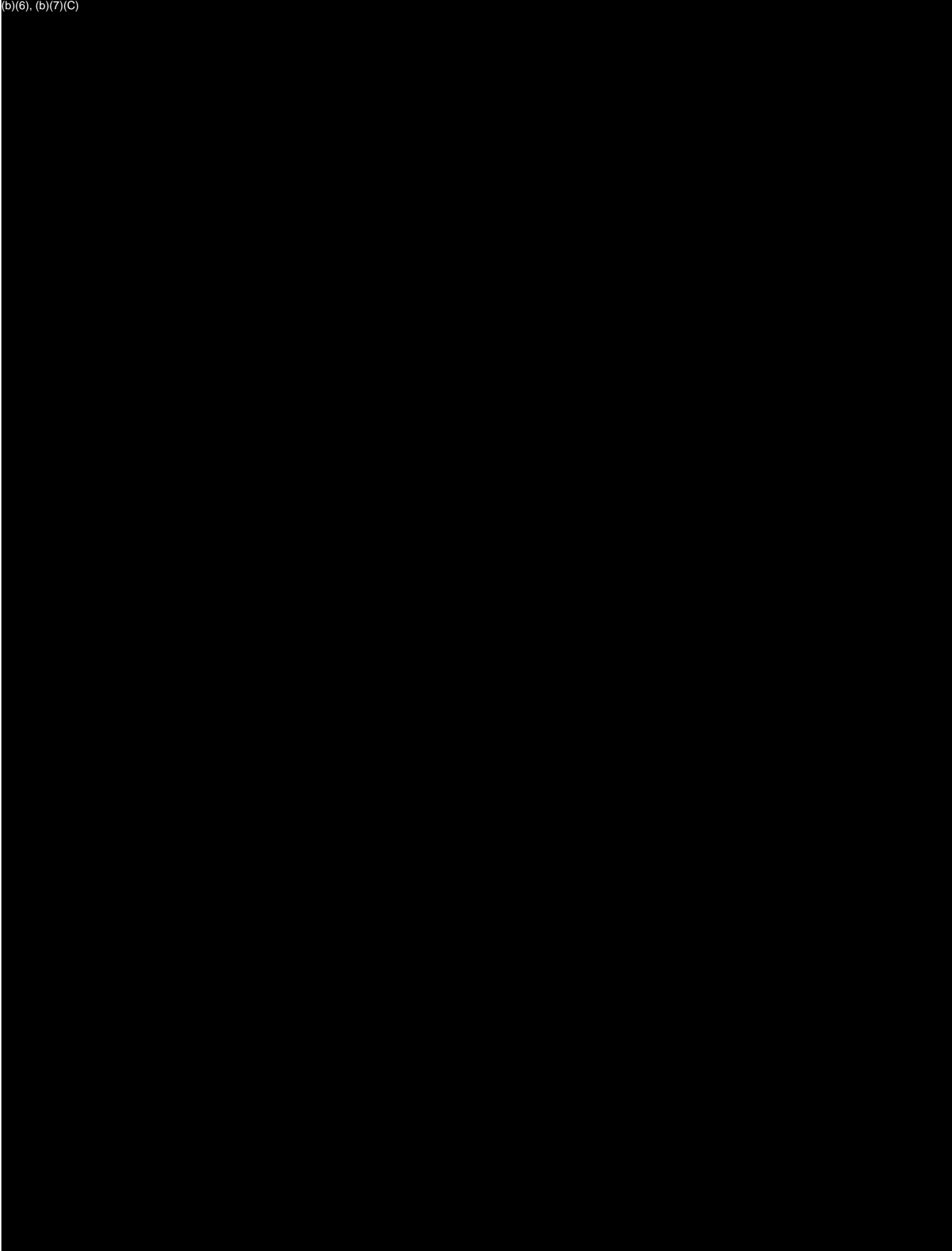
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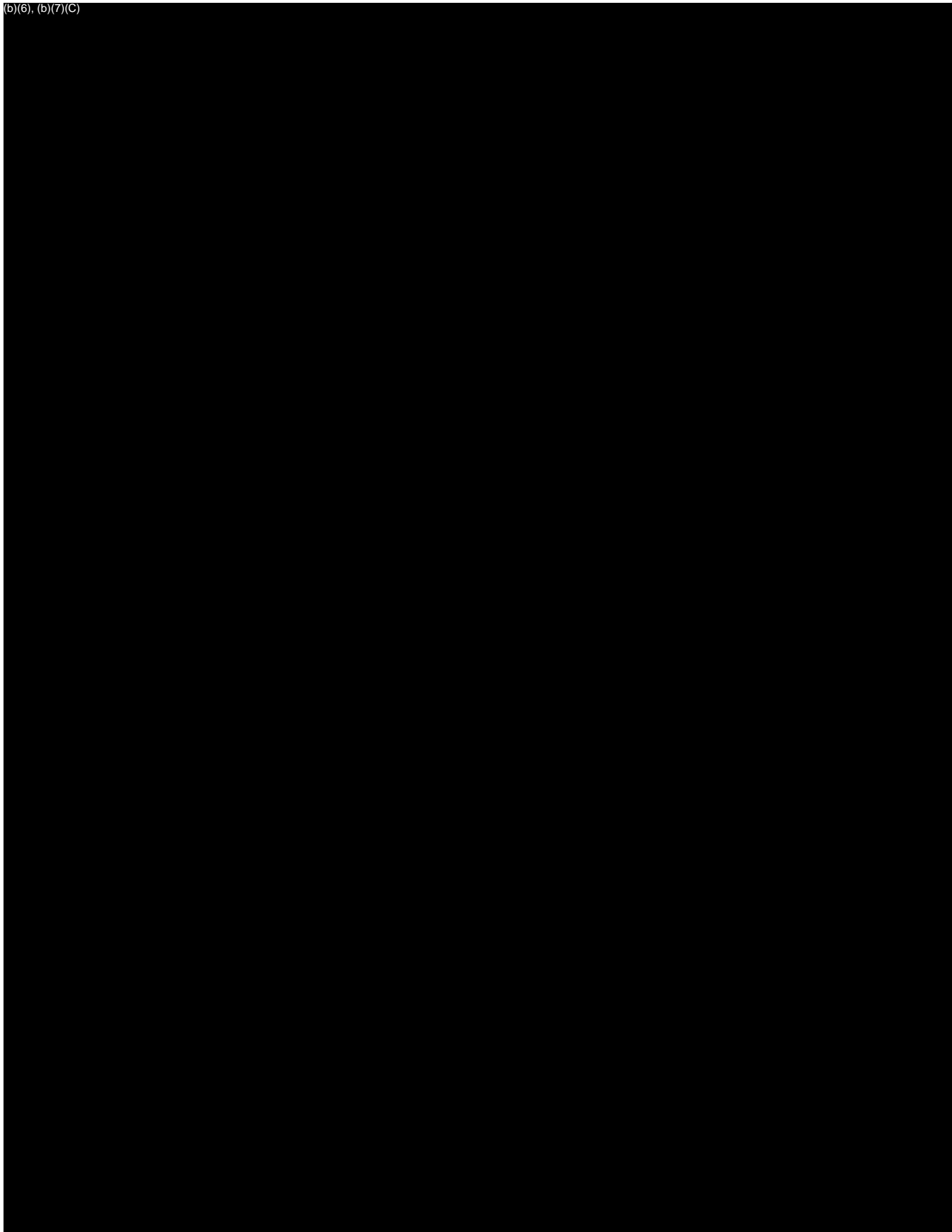
(b)(5), (b)(6), (b)(7)(C)



(b)(6), (b)(7)(C)

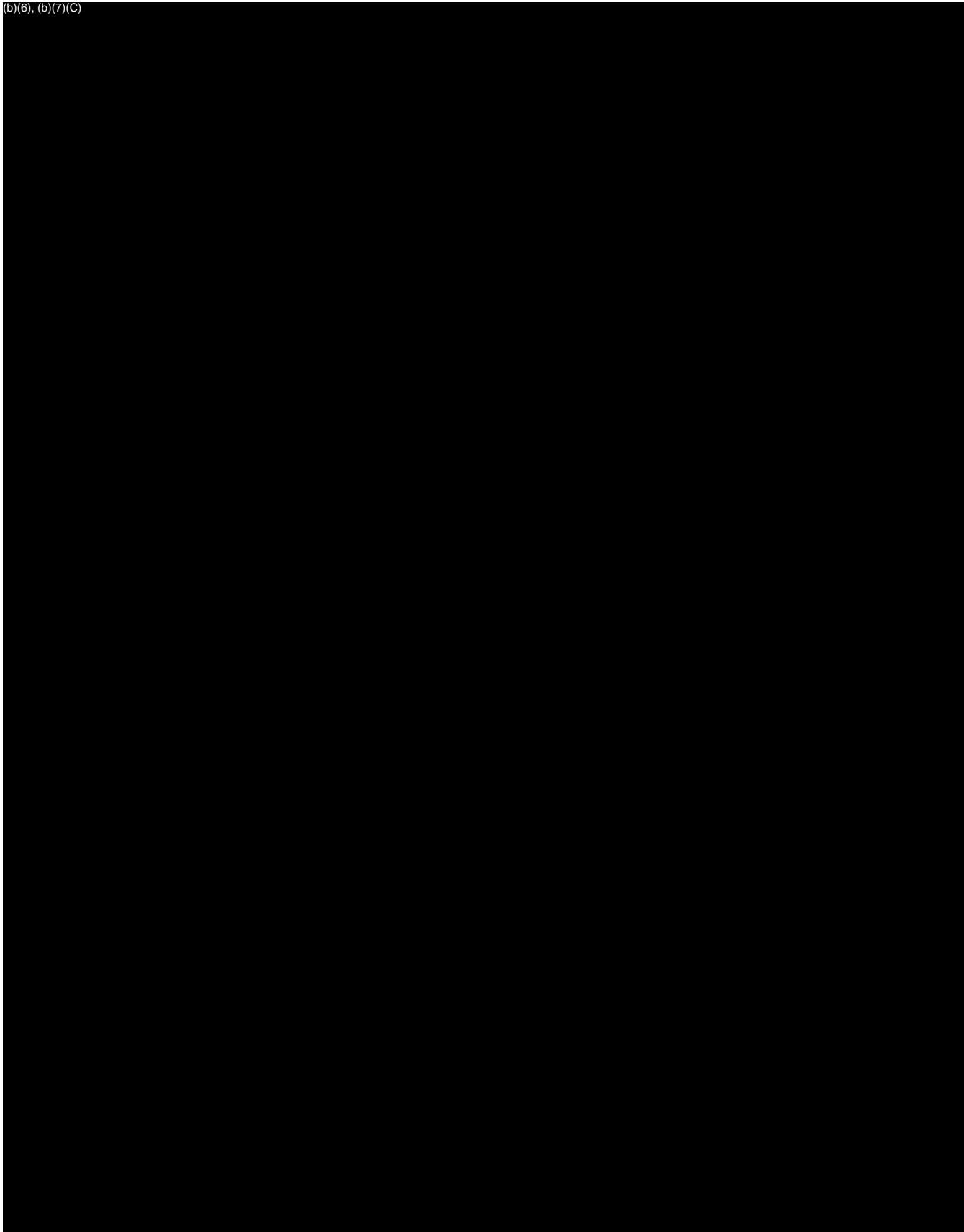


(b)(6), (b)(7)(C)

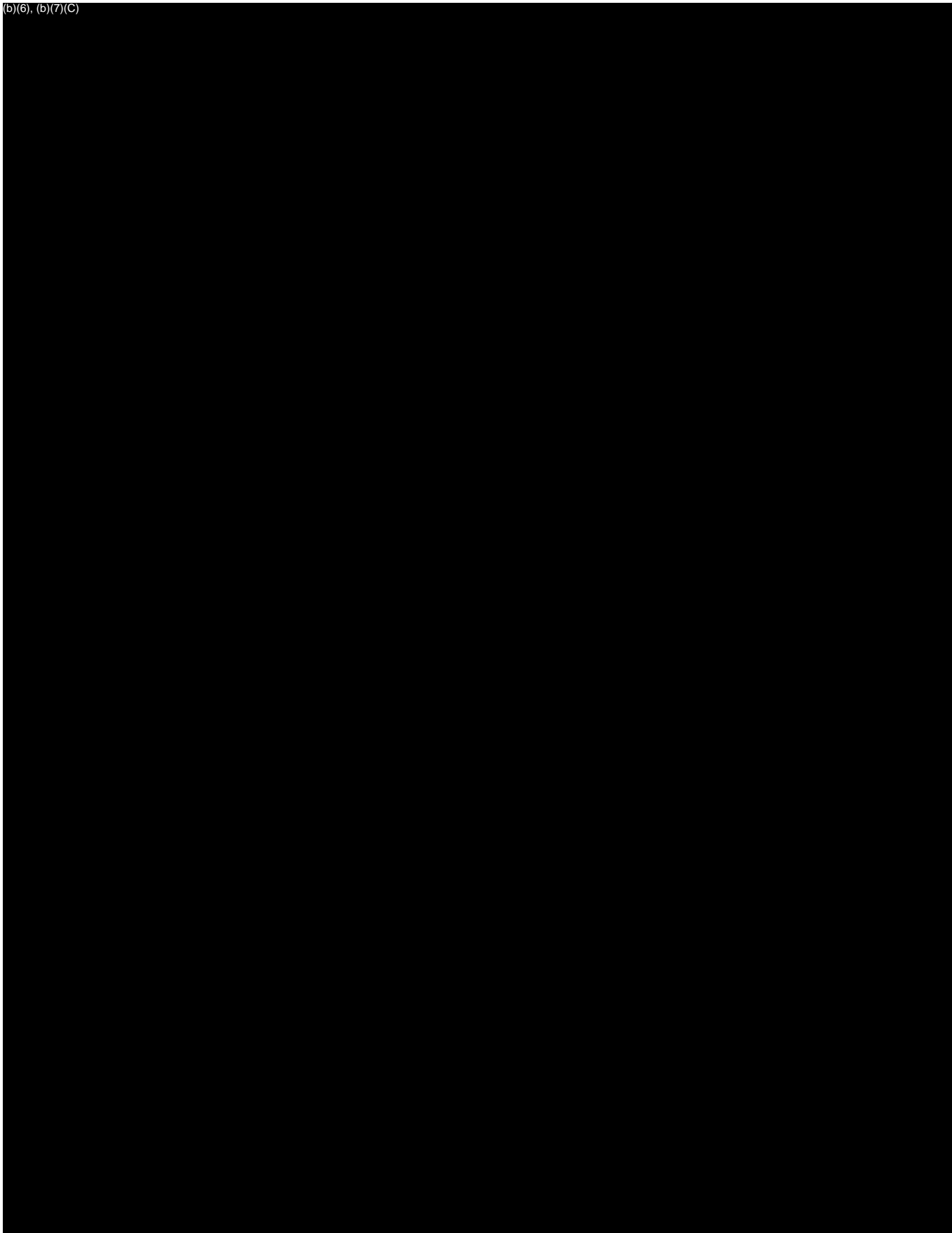




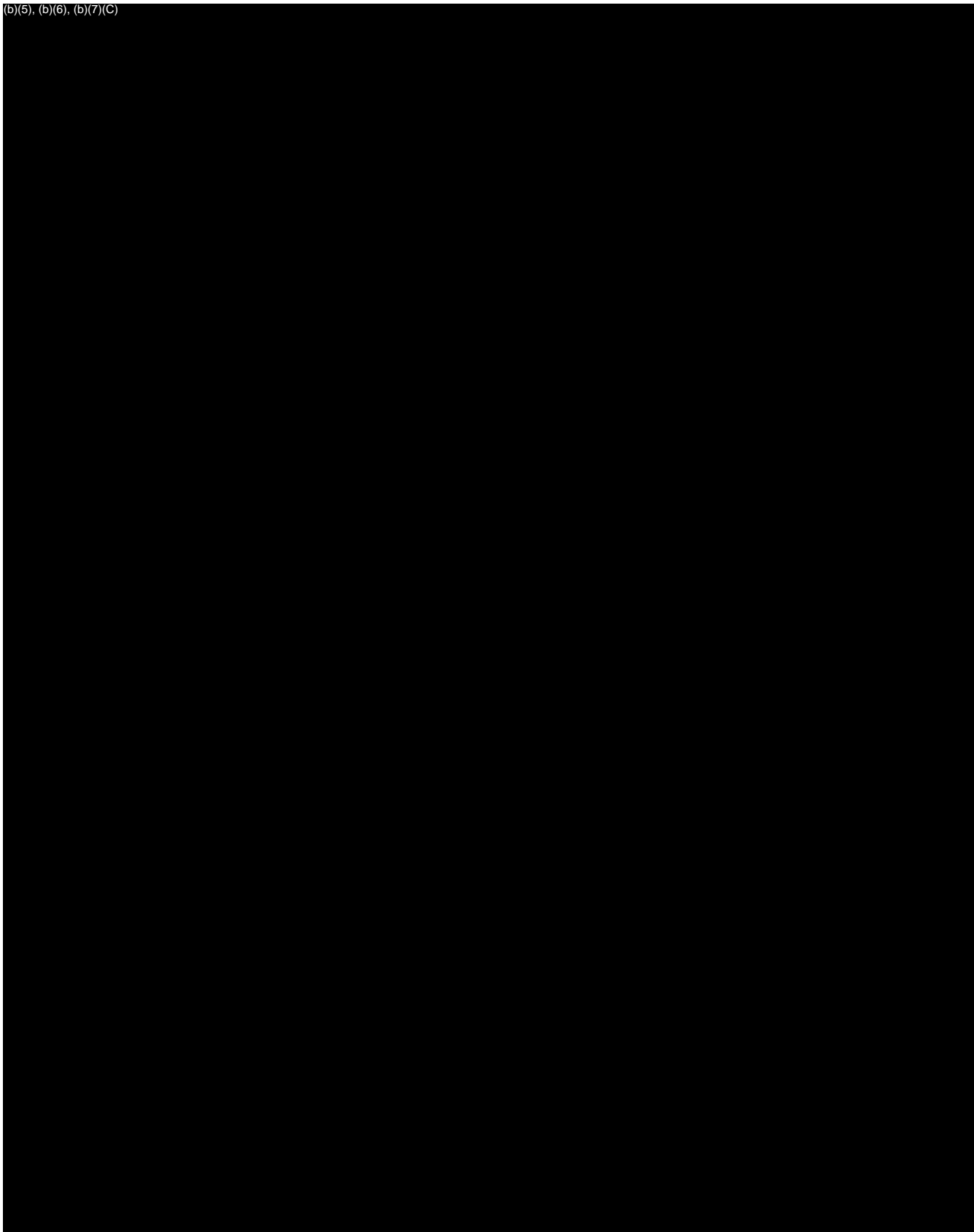
(b)(6), (b)(7)(C)



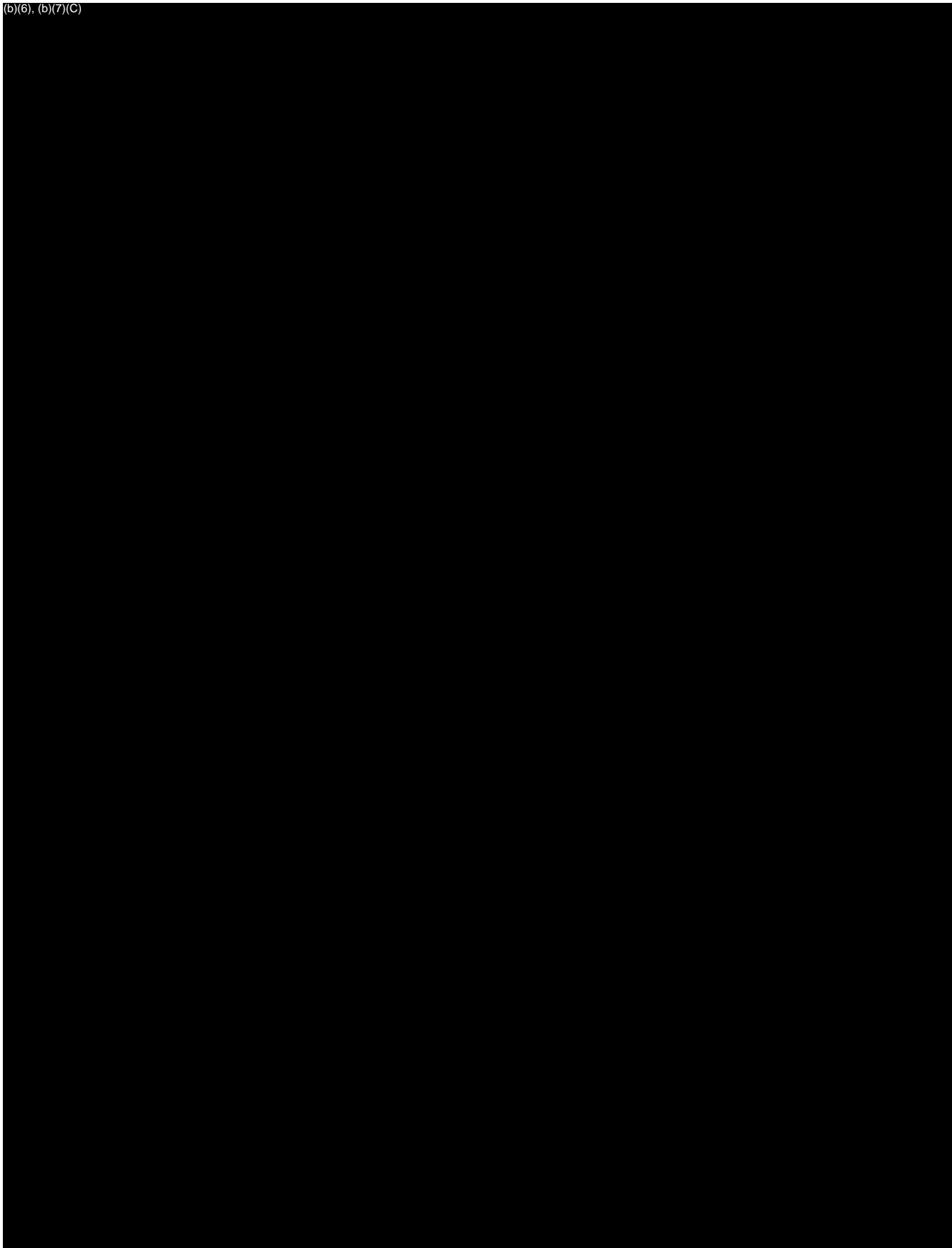
(b)(6), (b)(7)(C)



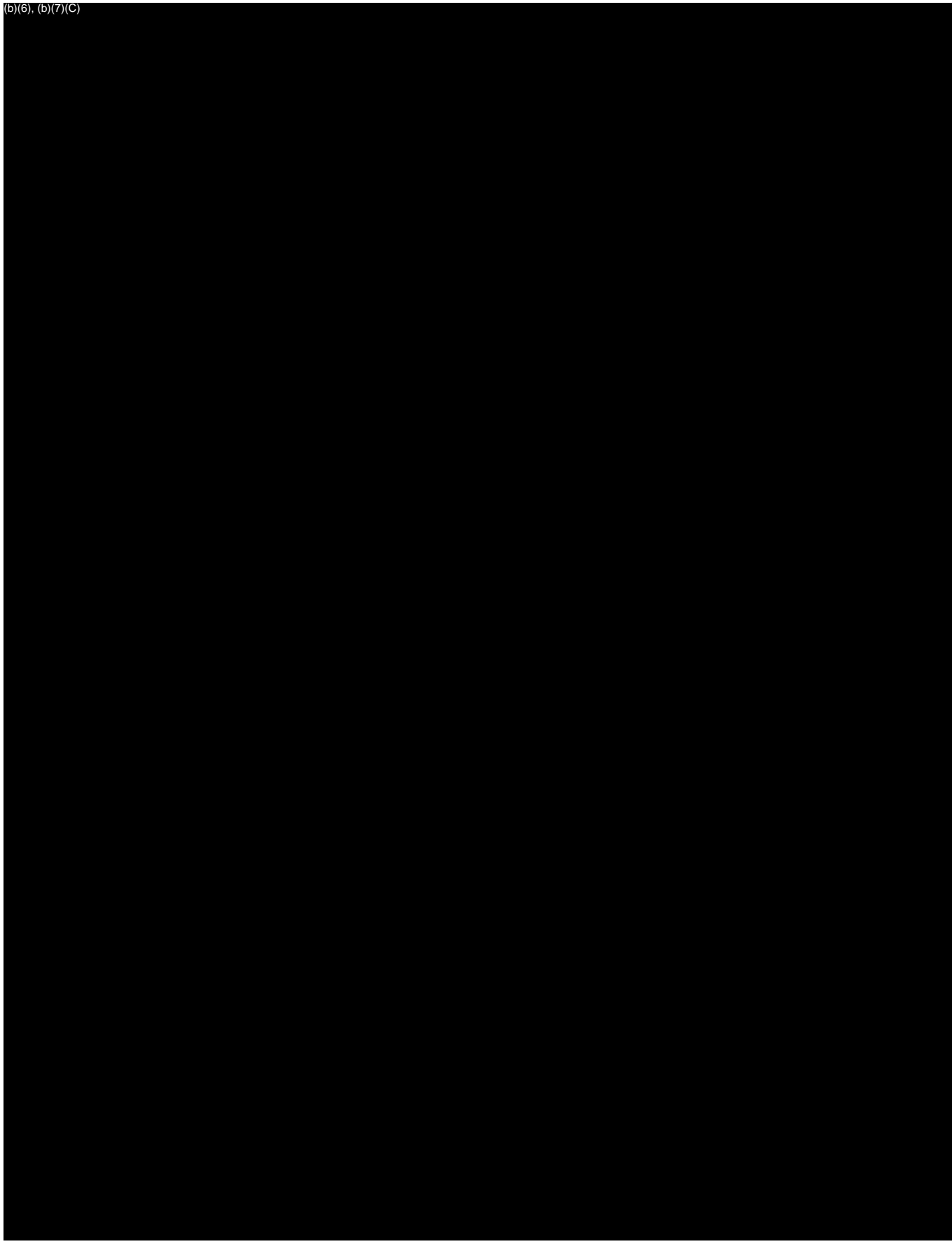
(b)(5), (b)(6), (b)(7)(C)



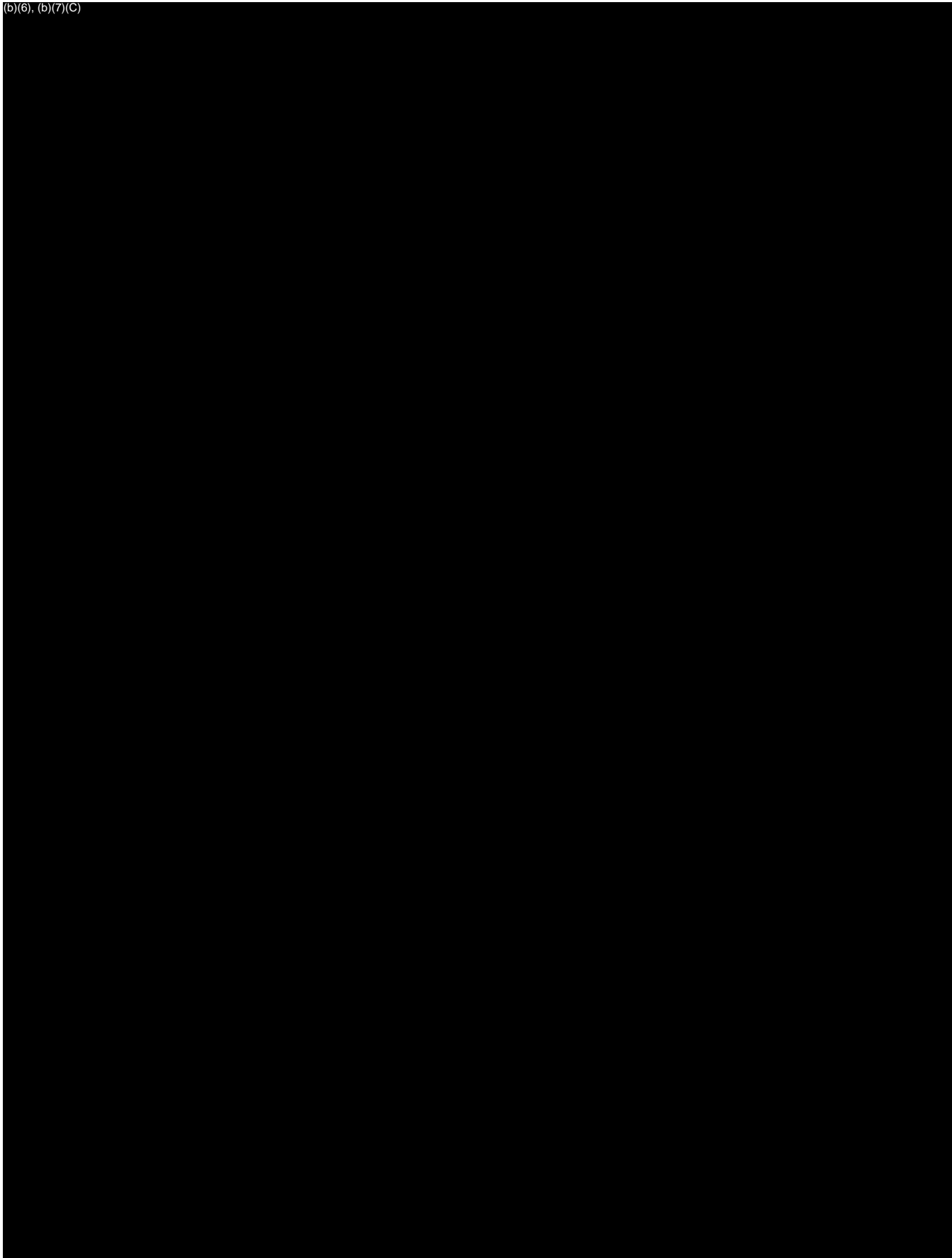
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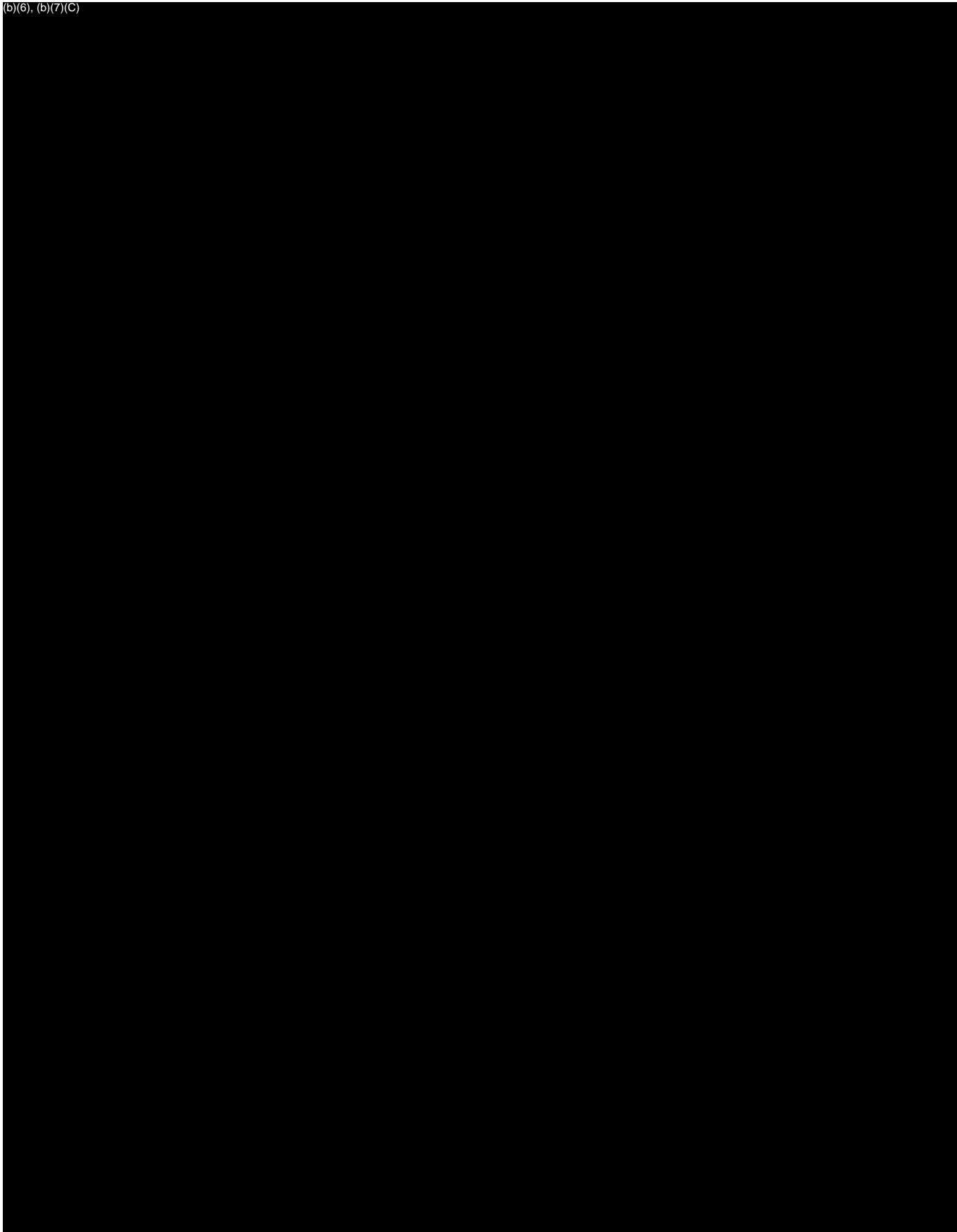
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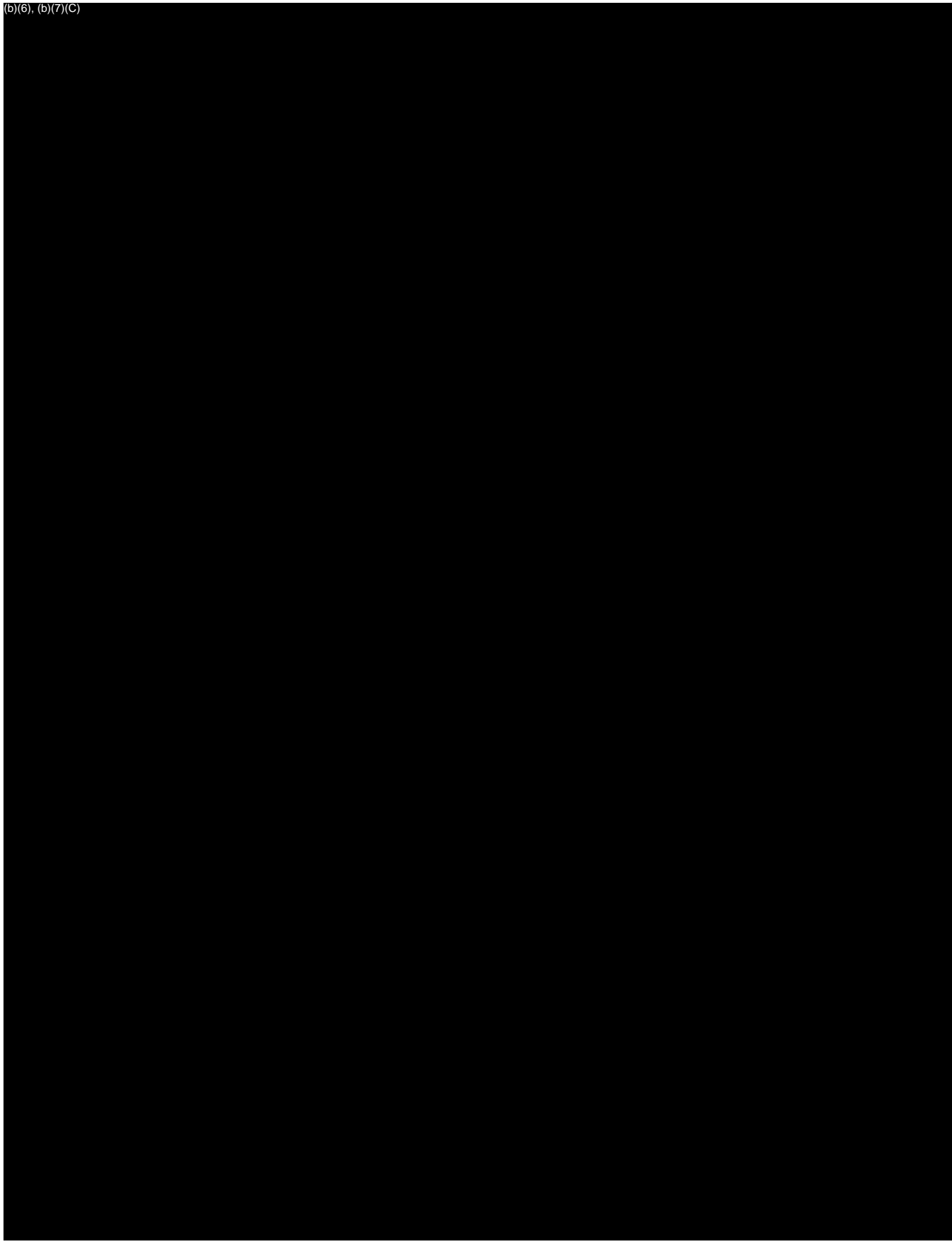


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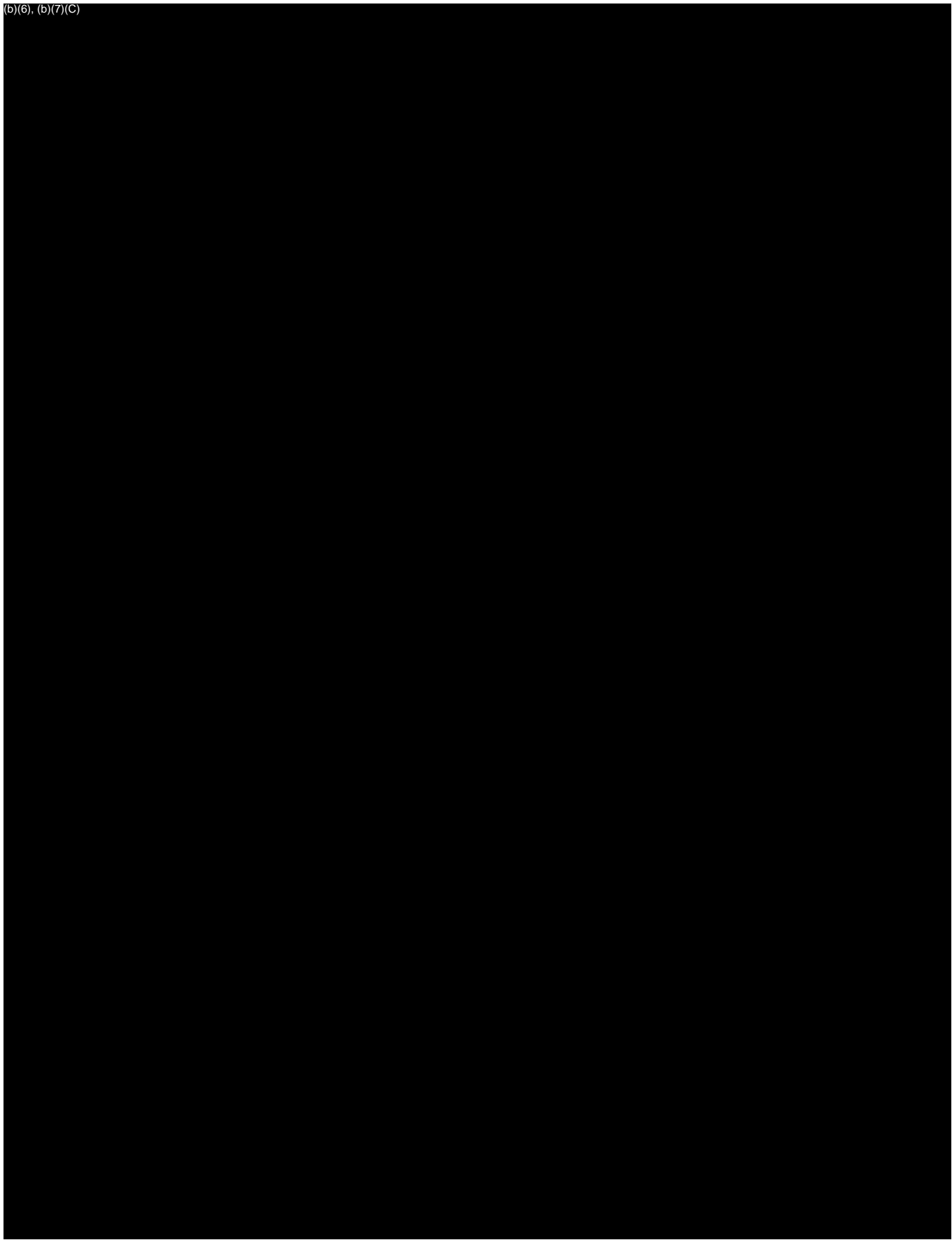




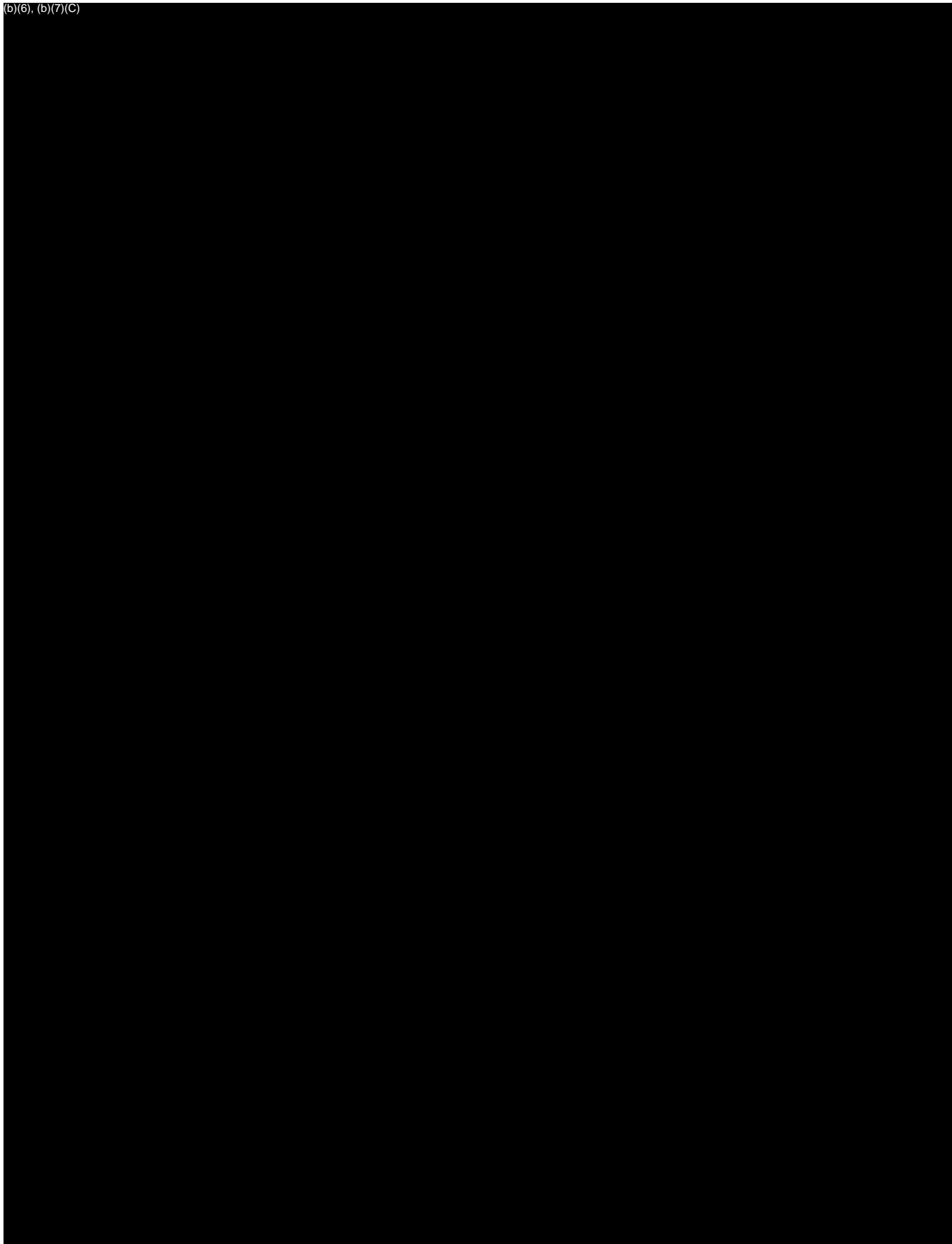
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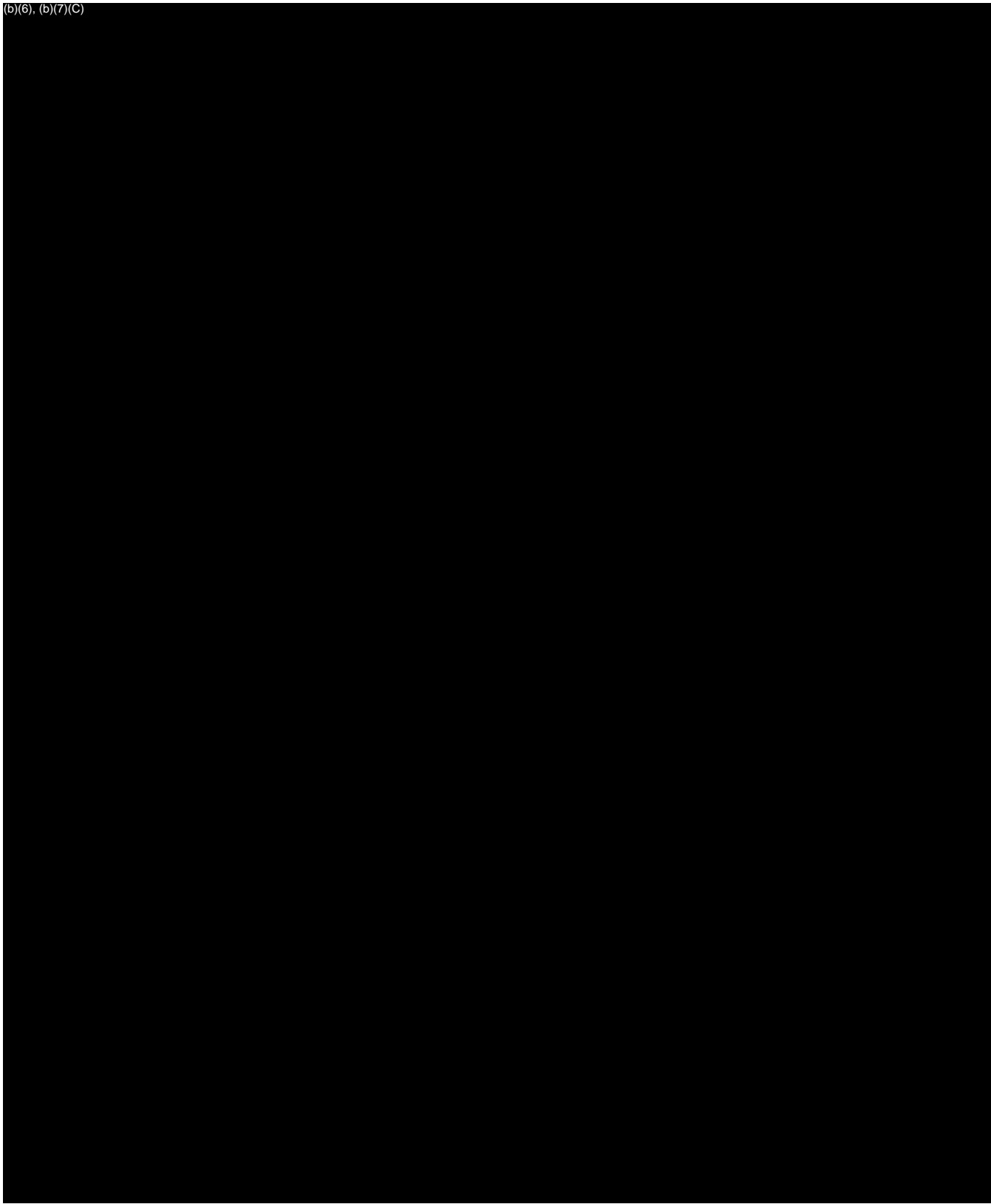
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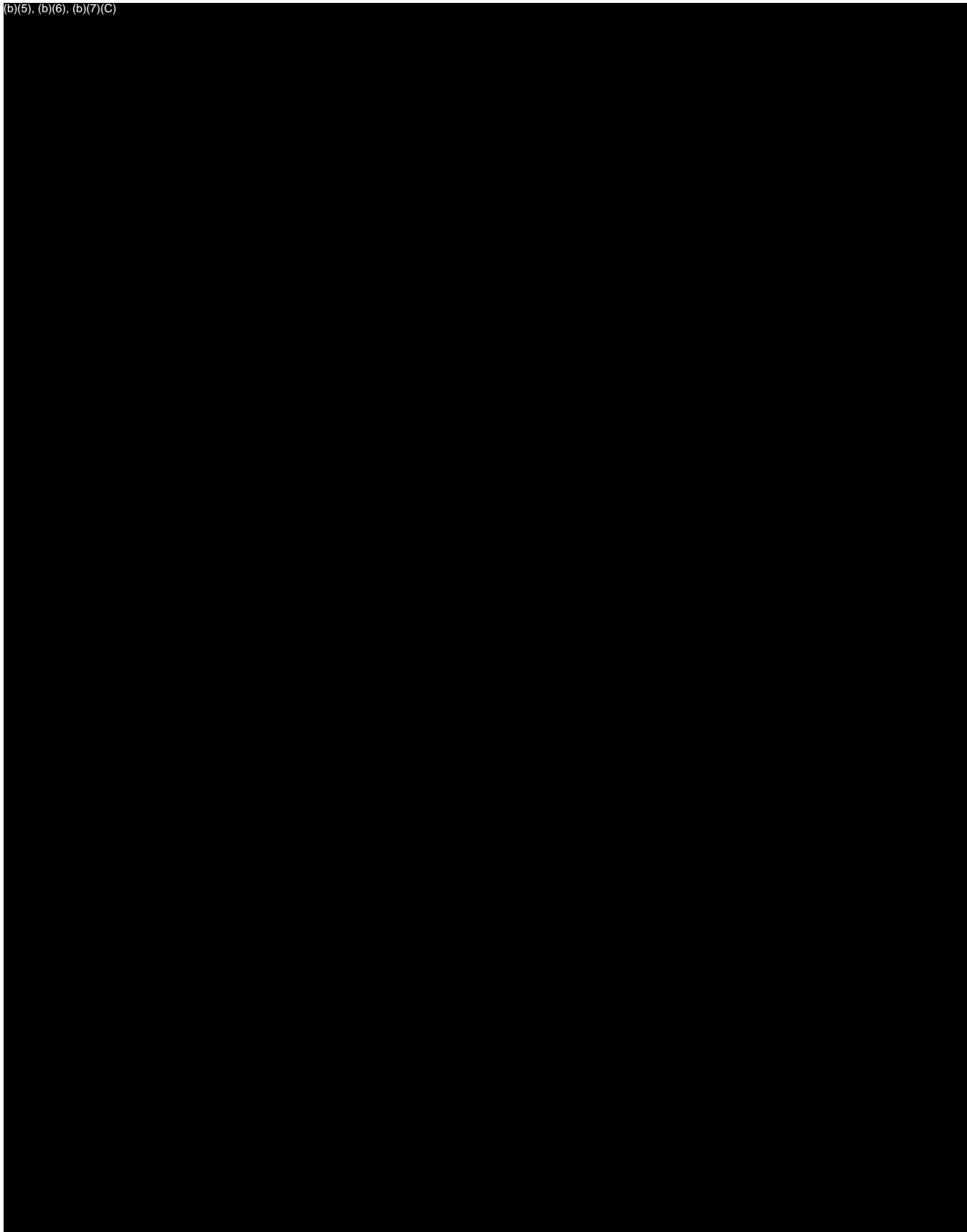
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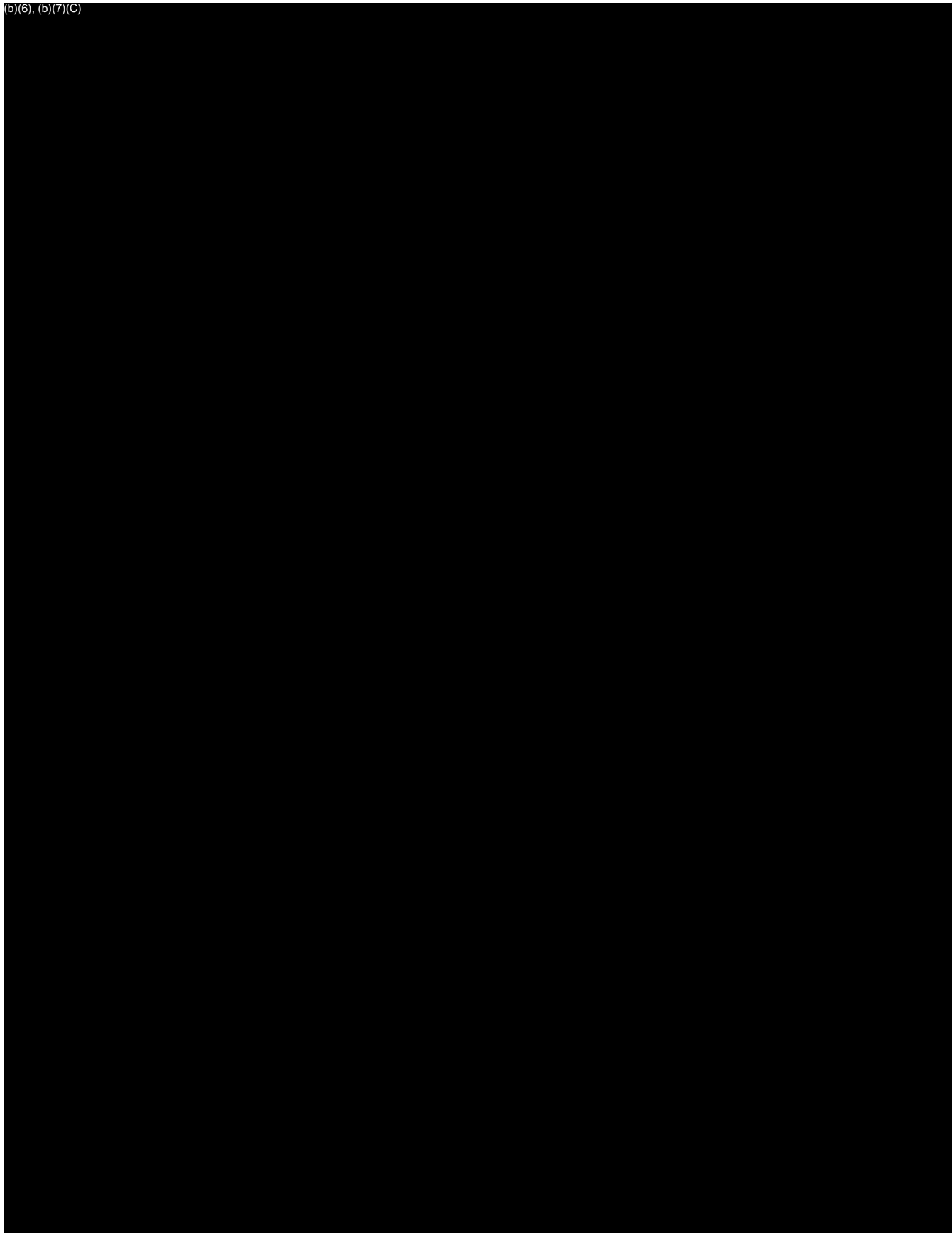
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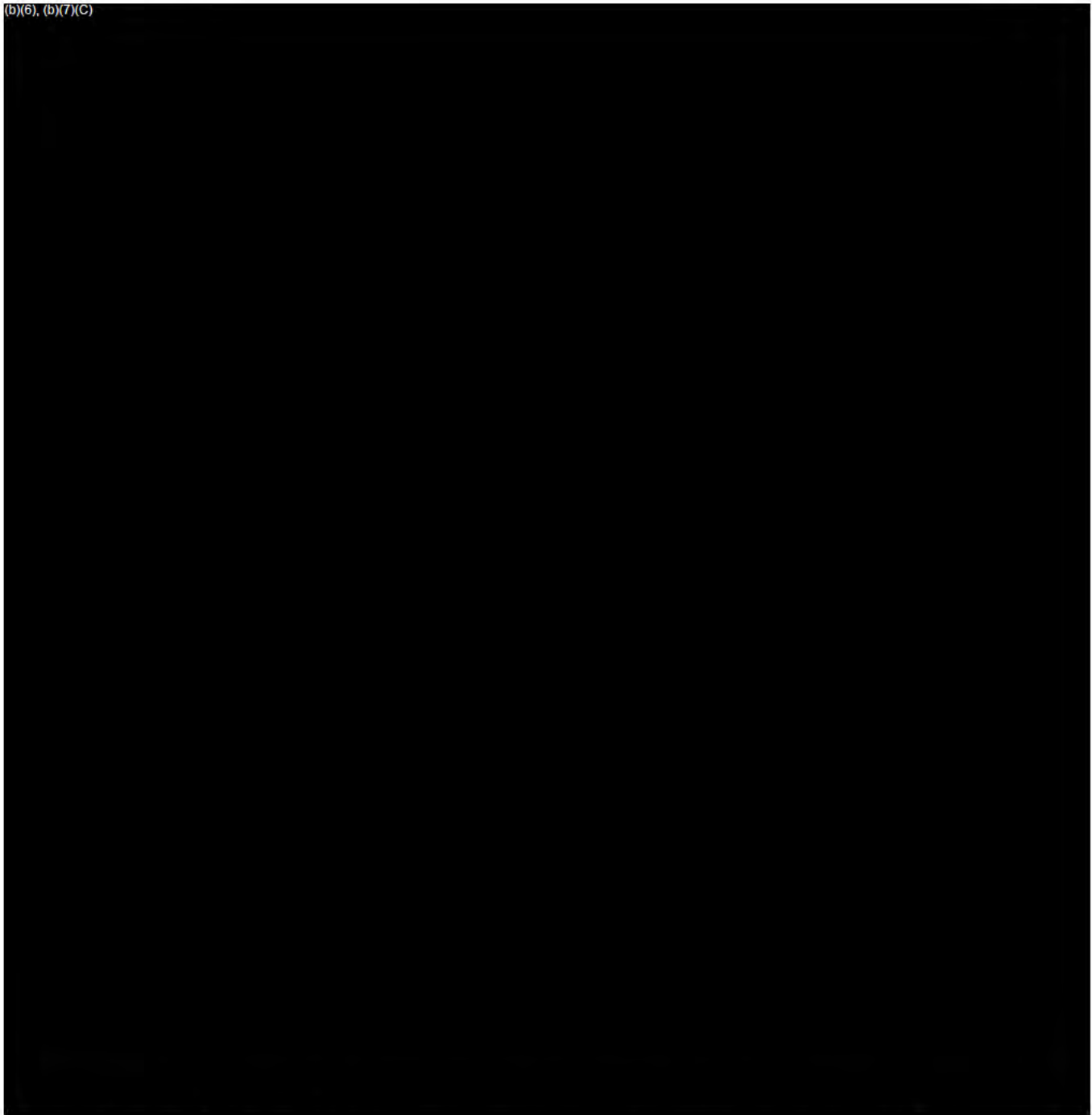
(b)(5), (b)(6), (b)(7)(C)



(b)(6), (b)(7)(C)



(b)(6), (b)(7)(C)



C. Did Dr. Dugan use her position to endorse a product, service, or enterprise?

Standards

We developed this allegation during our investigation of whether Dr. Dugan (b)(6), (b)(7)(C)  
(b)(6), (b)(7)(C)

The standards that apply to that allegation, as well as the additional JER provisions cited below, are relevant here, but we present the facts and analysis separately. This approach allowed us to focus first on the original matter referred to us, then the additional matter of the



propriety of Dr. Dugan's communications with DARPA employees and senior officials outside DARPA, which we discuss below. Full citations of the standards are in Appendix A.

**DoD 5500.7-R, "Joint Ethics Regulation," August 23, 1993, including changes 1-6 (March 23, 2006)**

The JER provides a single source of standards of ethical conduct and ethics guidance for DoD employees. Chapter 2 of the JER, "Standards of Ethical Conduct," incorporates Title 5, CFR, Part 2635, "Standards of Conduct for Employees of the Executive Branch," in its entirety.

Subpart A, "General Provisions," Section 2635.107, "Ethics Advice," states, in part, disciplinary action for violating Part 2635 or supplemental agency regulations will not be taken against an employee who has engaged in conduct in good faith reliance upon the advice of an agency ethics official, provided that the employee, in seeking such advice, has made full disclosure of all relevant circumstances.

Subpart G, "Misuse of Position," Section 2635.702, "Use of public office for private gain," states an employee shall not use his public office for his own private gain, for the endorsement of any product, service, or enterprise, or for the private gain of friends, relatives, or persons with whom the employee is affiliated in a nongovernmental capacity, including nonprofit organizations of which the employee is an officer or member, and persons with whom the employee has or seeks employment or business relations. The specific prohibitions set forth in the subsections apply to this general standard, but are not intended to be exclusive or to limit the application of the section.

Subsection 2635.702(c) states, in part, an employee shall not use or permit the use of his Government position or title or any authority associated with his public office to endorse any product, service, or enterprise, except (1) in furtherance of statutory authority to promote products, services, or enterprises; or (2) as a result of documentation of compliance with agency requirements or standards or as the result of recognition for achievement given under an agency program of recognition for accomplishment in support of the agency's mission.

Paragraph 3-209, "Endorsement," states, in part, endorsement of a non-Federal entity, event, product, service, or enterprise may neither be stated nor implied by DoD or DoD employees in their official capacities and titles, positions, or organization names may not be used to suggest official endorsement or preferential treatment of any non-Federal entity.

Facts

(b)(6), (b)(7)(C)

[REDACTED] we found briefing charts which contained RedX copyrighted material and references to briefings Dr. Dugan gave which appeared to feature this copyrighted material. We then looked for evidence of whether Dr. Dugan promoted RedX products or capabilities to Government decision makers outside DARPA, and examined whether such actions constituted

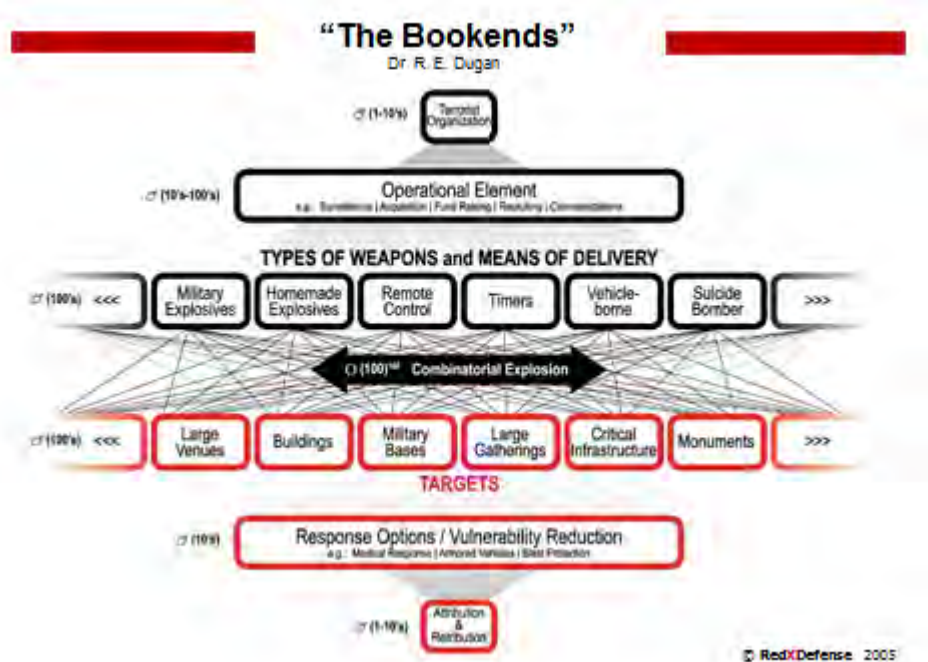
(b)(6), (b)(7)(C)

(b)(6), (b)(7)(C) , or created the appearance that Dr. Dugan violated a law or ethical standards.

We first provide a chronological presentation of events that occurred when Dr. Dugan was the President and CEO of RedX, because they provide context necessary to evaluate Dr. Dugan's actions as Director.

### *A theory for defeating IEDs*

Dr. Dugan developed what the RedX Web site described as "...a unique strategy, The Bookends©, which focuses product development on identifying bombers, bomb-makers, and bomb-making facilities." In The Bookends©, the "books" were the types of weapons and the means of delivering them, as well as the types of friendly targets. As the books increased in number, the number of possible combinations of weapons, delivery means, and targets increased exponentially. One "end" of the books was a terrorist organization responsible for acquiring or manufacturing weapons and delivery means. The theory was that attacking the terrorist organization at the bookend would be more effective than attempting to detect and defeat the weapons among the books, protecting targets, reducing vulnerabilities, and improving response options. The illustration below, which RedX copyrighted in 2005, depicts the theory.



Dr. Dugan confirmed she developed The Bookends© while she was at RedX as a theoretical concept to demonstrate that attempting to defeat IEDs at the side of the road would result in failure. The concept was to attack the network and prevent the enemy from ever employing IEDs. She asserted it was general theory and not specific to any product or strategy.

In a 2008 article we found on the RedX Web site, consulting company Frost and Sullivan noted that the XPAK product design resulted from The Bookends© strategy and that RedX continued to develop this concept of counter-terrorism.

*Contract to develop a prototype explosives detection device*

DARPA awarded contract number HR0011-05-9-0008 to RedX in September 2005 for \$1.289M. The goal of the contract was to develop a prototype for combating the explosives asymmetric threats employ. The work broke down to two primary tasks: “Palm Reader: Detection of Explosive Activity on Bombers and Bomb Makers,” and “Novel Explosives Detection Technology for Assured Urban Ops, Investigation/Design of Tag-Sized Prototype.” The contract required RedX to complete a prototype palm reader and provide the results of prototype field testing by August 2006.

*Establishment of JIEDDO*

DoD Directive 2000.19E, dated February 14, 2006, formally established the JIEDDO, and assigned it the mission to focus all DoD actions in support of the Combatant Commanders’ and their respective Joint Task Forces’ efforts to defeat IEDs as weapons of strategic influence. The Director, JIEDDO, is responsible for coordinating “with other DoD Components for ongoing mid-term research and development initiatives and long-term science and technology efforts.”

*New contract tasks and a new concept for the use of explosives detection dogs*

In September 2006, DARPA added a new task to contract HR0011-05-9-0008. In Phase I of a “Wide Area eXplosives (WAX) Team Effort,” RedX received \$700K to “design and develop a platform for advanced explosives detection methods.” The goal was to develop a deployable, independent, specially trained canine team capable of identifying bomb-making locations within a defined area of interest. Such a team could be used covertly and offensively as a means for identifying bomb-making facilities. RedX would develop and demonstrate a complete system capability, which included (1) platform participants that have been specially selected, trained, and tested to become the first WAX Team; (2) an electronics package for data collection, exfiltration, limited commands, safety; and (3) data analysis, user interface, and visualization software. Phase I would end in December 2006 with electronics and software design and component prototyping.

A May 2007 modification partially funded WAX Phase II for \$600K, which would conclude in December 2007 when RedX would provide documentation of a “stateside mission-style demonstration of mobile platform, electronics, software, and firmware in support of overall capability assessment.” A fourth modification added another \$600K for WAX Phase II in September 2007. The chart below illustrates the WAX project.

## Wide Area Canine Surveillance (WAX)

**Vision:**

- The merger of known canine abilities with novel application of C3ISR, technology, & integration.
  - Deployable, independent canine team, specialized training.
  - Fully integrated solution (mission planning, data collection platform, integration and visualization).
- Means for moving significantly "left of boom."
  - Designed to be deployed covertly and offensively as means for identifying bomb-making facilities.
  - First prototype detects explosives.
  - Extensible to other substances/targets of interest.
- Leverages and extends other activities/programs.

**Current status:**

- First phase of effort (concept experimentation) revealed no "show stoppers": Canines successfully trained, sensor transduction demonstrated, all hardware and software components prototyped.
- Promising performance suggests bomb-making factory detection probabilities > 90% with exceedingly small false alarm rate appears achievable.
- Next phase of advanced engineering required.
- Inherently adaptable & flexible to new signatures.

**Three mission stages:**

Step 1: Mission planning  
Step 2: Deployment & data collection  
Step 3: Data upload, analysis, and visualization

As previously described, DARPA modified contract HR0011-05-9-0008 in October 2007, and added \$309K for an "XPAK Follow On" task. RedX had completed a revised design for the XPAK and would release certain data necessary to support prototype production, develop testing protocols for side-by-side performance comparisons with existing methods of detection, develop a preliminary concept of operations, and deliver 5 prototype XPAK units to test partners. The total amount obligated for contract HR0011-05-9-0008, as modified, was \$3.498M. Dr. Dugan signed the base contract and all modifications as the RedX representative.

### *Presentation: New Methods for Defeating IEDs*

A May 9, 2008 announcement on the RedX Web site highlighted Dr. Dugan's planned May 14, 2008 presentation at the IED 2008 Symposium & Expo in Fayetteville, North Carolina. In "New Methods for Defeating IEDs," Dr. Dugan would



present The Bookends© theory, which illustrates what most commanders know intuitively and provides an organizing construct against which solutions may be tested. This construct describes the combinatorial explosion of possibilities when types of weapons and means of delivery are matched with potential targets, and suggests new strategies for combating the threat.

We obtained an undated Microsoft PowerPoint briefing, "New Methods for Defeating IEDs," from (b)(6), (b)(7)(C) email records. The full briefing is at Appendix B.<sup>18</sup> The first chart contained a RedX logo and identified "Regina E. Dugan, PhD, President and CEO" as the

<sup>18</sup> We will refer to this presentation as the "New Methods" briefing.






presenter or author. Also on the first chart was a picture of the XPAK, an image of a handprint which portrayed XPAK's detection of the presence of explosives, and two pictures which overlaid the results of field trials onto top-down views of city blocks.

**New Methods for Defeating IEDs:**  
*We will always lose if we fight the IED at the side of the road...*

**Regina E. Dugan, PhD**  
President & CEO

301.279.7970 (Office)  
(b)(6), (b)(7)(C) (Mobile)  
rdugan@redXdefense.com

RedXDefense, LLC  
7642 Standish Place, Rockville, MD 20850

The presentation also contained The Bookends©, described as a “new conceptual framework.” Another chart discussed The Bookends© and advised the audience to “Shoot the archer, not the arrow.”

### The framework challenges old notions...

- Most current and proposed methods for combating the IED involve systems that attempt to detect the weapon after emplacement or on its way to a target. Continuing interest in moving “left of boom” and stand off...
- The Bookends tells us that this is the least optimum time to deal with the threat.
  - The signature of an IED and the vulnerability of the enemy is never lower than after it has been deployed.
  - The technical demands on such systems are exceedingly high
    - Clutter creates unacceptably high false alarm rates and
    - The probability of detection must be near perfect.
- Even if we are successful, we do not change the fight...

*Shoot the archer, not the arrow...*

5

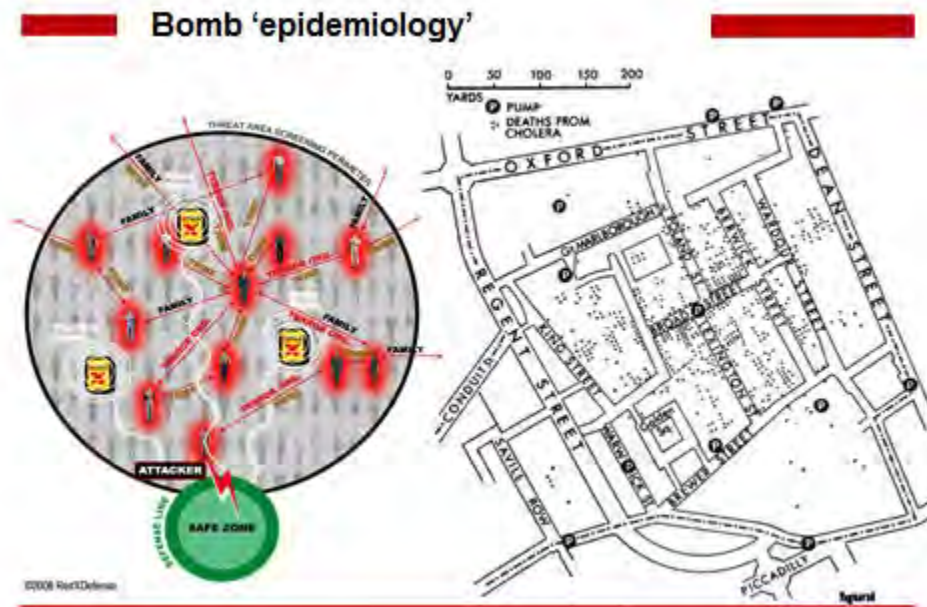
The framework suggested new solutions and emphasized data integration.

## And suggests new solutions...

- **Systems that can be used ...**
  - In wide-spread screening applications to detect the bombers, bomb makers, bomb factories
  - To detect explosives contamination on hands, clothes, objects, facilities
  - To raise the adversary's operational risk and force certain precautions
- **A fundamentally different design point, solutions must be:**
  - Robust, accurate
  - Easy to use, train, maintain
  - Affordable, fast
- **Designed for much more than finding individual IEDs, but rather bomb makers, their networks and facilities.**
- **Data integration is key.**

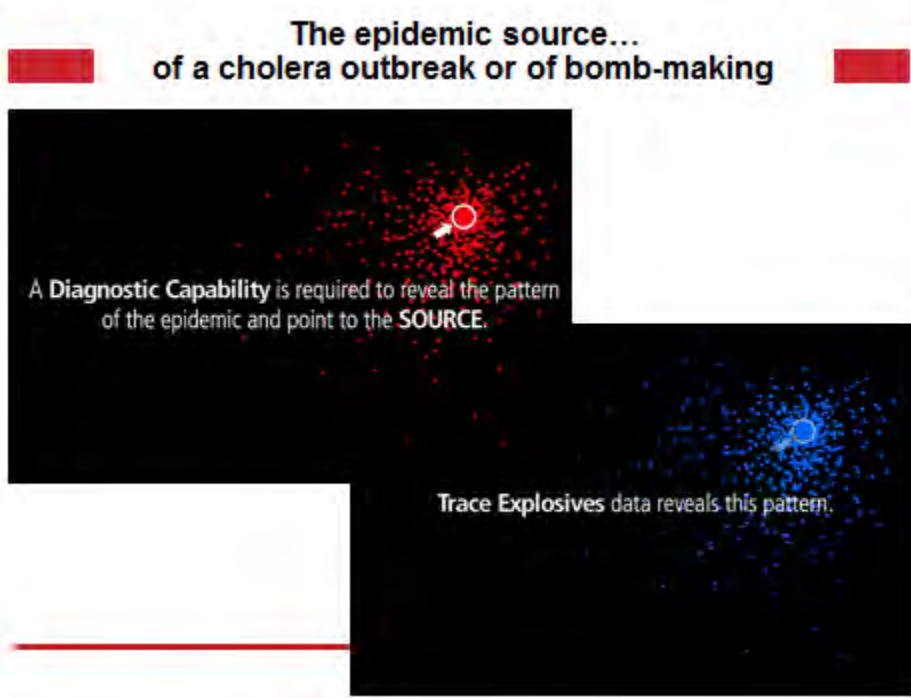
6

Another chart, entitled “Bomb ‘epidemiology,’” contained a RedX copyright symbol dated 2006 and used colored dots to depict the locations of deaths from a 19th century cholera outbreak in an area that covered several city blocks.



7

The next chart advanced the idea that collecting and plotting trace explosives data can reveal the source of bomb-making, much as a diagnostic capability revealed the pattern of the cholera epidemic and pointed to its source.



The next chart identified the suite of RedX products as a “complete solution for widespread screening, mapping, and analyzing,” using a 3-step process of sample collection, data transfer, and data processing.





The presentation continued by providing the results of “Operation Red Zone,” a May 2008 exercise. Charts indicated XPAK sample data superimposed on an area of interest.

### Operation Red Zone:

*Double-Blind Field Exercise to Find the Bomb Makers and Bomb-Making Facility*

22 May 2008

#### Bomb Makers, Red Team:

Dr. R. E. Dunan  
(b)(6), (b)(7)(C)

#### Blue Team:

(b)(6), (b)(7)(C)



Phone | (301) 279-7970  
Fax | (301) 279-7973  
Web | www.redXdefense.com

### Operation Red Zone Actual data, night op, 22 May 08





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Additional charts summarized the results of XPAK user testing conducted in October 2008 at Fort Irwin, California, this time depicting the integration of RedX's data transfer tool, the "i-MODULE." A data table displayed the results from an XPAK device that participated in an "external sweep."

**External sweep, results**

**Bomb Maker's House**

Area of Interest

Field demonstration to show XPAK's ability to identify residence of bomb maker.

Surfaces outside the houses such as door, trash cans, etc. were sampled.

Search teams **correctly** identified bomb maker's house.

with i-Module

Date	Thursday, January 15, 2009
Time	15:25:12
Operator	XPAK's Serial Num
GPS Location	38.11033, -77.15728833333333
Detection level	HIGH
Confidence level	
Notes	XPAK serial number is XPAK Serial #. Evidence tag ID is A000000123746.

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The briefing also touted the advantages of RedX's product suite as "new tools to support the shift" in "conceptual thinking."

---

## The result of a shift in conceptual thinking...

...a move from defense to offense and  
new tools to support the shift...

18

### **Red X** "Tipping point" advantages

- **Design for maximum 'up time' diagnostics in field**
  - No warm-up. No calibration. No hot sample clean out.
  - Reliable use even for 'dirty' field settings and 'dirty' samples.
  - Rugged, rugged, rugged.
- **Easy to use, train, and maintain**
- **Detection performance:**
  - Quick.
  - Good sensitivity/selectivity.
  - From single particle to entire hand print.
- **Affordable. Just over ½ the price of the next closest capability.**
- **But more... the data logging, visualization, and analysis necessary to identify source.**

*Shoot the archer, not the arrow...*





*WAX transitions to “Rover” and becomes part of a large DARPA program*

(b)(6), (b)(7)(C) DARPA’s (b)(6), (b)(7)(C) program, which began in late 2005 or early 2006. (b)(6), (b)(7)(C) described (b)(6), (b)(7)(C) as an extensive, high-dollar program, which contracted with multiple performers to develop novel technologies for detecting and defeating the manufacture of IEDs. (b)(6), (b)(7)(C) testified that Dr. Dugan approached (b)(6), (b)(7)(C) in 2008 regarding the XPAK and an “extension” of WAX, which was ending as a DARPA effort. (b)(6), (b)(7)(C) described WAX this way:

But basically it was a trained animal, trained canine, who would exhibit a specific behavior when it detected an explosive compound, the specific explosive compound that the dog was trained to. And what they had trained the dog right now to do was lie down, and that’s pretty typical. And what RedX had developed was a backpack that the dog would wear which had GPS tracking and wireless information exfiltration and a detector that would let you know when the dog was lying down, with the intent being that you could off-leash or even out of sight have the dog patrol for explosives. When they found an explosive you’d see that it lied down. You could send the dog a signal to have it get up and go look for more explosives. There’s a technical problem with that, but –

(b)(6), (b)(7)(C) testified in that form, WAX was “done technology” and not a good fit for (b)(6), (b)(7)(C). RedX then proposed working with (b)(6), (b)(7)(C) The DARPA Director who preceded Dr. Dugan approved the effort and (b)(6), (b)(7)(C) This effort under the (b)(6), (b)(7)(C) program became known as (b)(6), (b)(7)(C) The team (b)(6), (b)(7)(C)

*A new contract to improve XPAK capabilities*

As described earlier in this report, DARPA awarded (b)(6), (b)(7)(C) HR0011-09-C-0068 to RedX in February 2009, for a project titled “Optical Detection of Trace Inorganic Nitrates and Peroxide Explosives.” The objective of the \$410K effort was to develop fluorescent detection inks for the detection of inorganic nitrate and peroxide-based explosives for use in the XPAK.

As mentioned above, (b)(6), (b)(7)(C) and (b)(6), (b)(7)(C) testified that Dr. Dugan approached them in early 2009 with a proposal to expand the objectives of this contract into a full program, but ceased her involvement in these business development efforts when she became the Director on July 20, 2009. Other RedX employees successfully completed these efforts, as indicated by Dr. Gabriel’s decision to approve MAEWEST as a program and (b)(6), (b)(7)(C) selection, with Dr. Gabriel’s approval, of RedX as the performer on MAEWEST.

*Legal advice*<sup>19</sup>

Dr. Dugan testified she met with (b)(6), (b)(7)(C) (b)(6), (b)(7)(C), on September 10, 2009, to get advice on how to prepare for an upcoming meeting and respond to any questions about RedX. She told us that (b)(5), (b)(6), (b)(7)(C)

(b)(6), (b)(7)(C) maintained a file that documented communications with Dr. Dugan on various ethics issues. One record contained (b)(6), (b)(7)(C) written notes from the September 10, 2009 meeting Dr. Dugan mentioned:

Dr. Dugan and Dr. Gabriel were scheduled to meet a military general as part of their outreach. That general invited another general that Dr. Dugan knew would ask questions about RedX Defense technology for which they are the sole provider. (b)(5)


(b)(6), (b)(7)(C) contained no other record that Dr. Dugan solicited or received advice from (b)(6), (b)(7)(C) regarding discussion of RedX in briefings or meetings, and no record of advice solicited or received regarding the use of RedX material in official presentations. (b)(6), (b)(7)(C) confirmed (b)(6) met with Dr. Dugan and Dr. Gabriel the day before Dr. Dugan was scheduled to brief a senior military leader. (b)(5), (b)(6), (b)(7)(C)

*Briefing to the Director, JIEDDO*

Dr. Dugan testified that on September 11, 2009, she made a presentation at DARPA to Lieutenant General (LTG) Thomas Metz, U.S. Army, Retired, former Director, JIEDDO, and General (Gen) James Mattis, U.S. Marine Corps, former Commander, U.S. JFCOM.

Emails indicated Dr. Dugan used RedX material in the briefing. (b)(6), (b)(7)(C) emailed Dr. Gabriel on September 11, 2009, that "LtGen Metz would like a copy of the Red-X briefing that Dr. Dugan used today. I cleared the request with her and would appreciate if you could email me a copy and provide me a POC at RedX (Dr. Dugan's intent is to share the material then for us to get out of the middle in case there are follow on questions)." Dr. Gabriel responded on September 14, 2009, and referred (b)(6), (b)(7)(C) to DARPA: (b)(6), (b)(7)(C) (b)(6), (b)(7)(C). On September 14, 2009, DARPA: (b)(6), (b)(7)(C) emailed (b)(6), (b)(7)(C) the Microsoft PowerPoint presentation entitled, "New Methods for Defeating IEDs."





<sup>19</sup> From this point we chronologically introduce events which occurred after Dr. Dugan became the DARPA Director in July 2009.



**New Methods for Defeating IEDs:**  
*We will always lose if we fight the IED at the side of the road...*

Regina E. Dugan, PhD  
President & CEO

301 279 7970 (Office)  
(b)(6), (b)(7)(C) Mobile  
rdugan@redXdefense.com

RedXDefense, LLC  
7642 Standish Place, Rockville, MD 20850

The presentation contained the charts described in detail above and the full briefing is at Appendix B. Because the email transmission of the presentation came from RedX and took place after Dr. Dugan's meeting with LTG Metz, we questioned witnesses to determine if "New Methods for Defeating IEDs" was the briefing Dr. Dugan actually presented. Witnesses within the Director's office (b)(6), (b)(7)(C) could not confirm that it was. Dr. Dugan asserted she presented a conceptual framework for defeating IEDs and spoke in broad terms. She testified she did not present the "New Methods for Defeating IEDs" briefing in its entirety, did not use RedX product information, nor did she make any specific product recommendations to any audience. We reviewed the "New Methods for Defeating IEDs" charts with Dr. Dugan and she confirmed that in her presentation to LTG Metz and Gen Mattis, she used:

- The Bookends©
- Bomb 'epidemiology'©
- Shoot the archer, not the arrow
- The "Not just a widget...but a complete solution" chart, with product names and images removed

Dr. Dugan did not recall whether she used the "Operation Red Zone" charts, but testified that generally she "may have" used "field data" in her presentations. She also testified she told LTG Metz and Gen Mattis that "If you want to pursue anything with RedX, you need to do that separately."

LTG Metz testified that before Dr. Dugan became the DARPA Director, and before he became the Director, JIEDDO, Dr. and [DARPA: (b)(6), (b)(7)(C)] met with JIEDDO officials in an unsuccessful attempt to develop business with JIEDDO. LTG Metz testified The Bookends©, which Dr. Dugan presented at the September 2009 meeting, supported his belief that attacking the network was the best approach to the IED problem. He was so impressed with the concept that after the September 2009 meeting, he directed his staff to schedule a follow-up meeting with DARPA so his senior staff members could also see the briefing. LTG Metz further testified that he told his staff “I wanted to know more about what we [JIEDDO] had apparently turned down years before” as it pertained to RedX. We showed him Dr. Gabriel’s email request for the “RedX briefing that Dr. Dugan used today,” and he told us those were Dr. Gabriel’s words and he did not ask for a briefing by name.

LTG Metz explained that Dr. Dugan was clear regarding her disqualification from matters involving RedX, and referred him and Gen Mattis to Dr. Gabriel if they wanted more information. We reviewed the “New Methods” charts with LTG Metz and he told us Dr. Dugan did not present that briefing to him and Gen Mattis, or attempt to steer them toward any product solution. When we showed him the Operation Red Zone charts and asked about field trials, LTG Metz testified Dr. Dugan mentioned field trials in response to Gen Mattis’ pointed questions, but he did not recall that she presented Operation Red Zone during the meeting. LTG Metz recalled that [DARPA: (b)(6), (b)(7)(C)] presented the results of field trials when the two met on November 11, 2009, and that Dr. Dugan was not involved in that meeting.

Dr. Gabriel acknowledged he acted as a conduit between JIEDDO and RedX after the September 2009 meeting and explained it was not uncommon to share information with other Government agencies about performers on DARPA programs. He continued that to his knowledge, Dr. Dugan never used the “New Methods” presentation when she was the Director.

[DARPA: (b)(6), (b)(7)(C)] testified he had no information to indicate Dr. Dugan used the “New Methods” presentation in her meeting on September 11, 2009. When he received [DARPA: (b)(6), (b)(7)(C)] email, he forwarded “New Methods” because it was a standard briefing RedX used with potential customers.

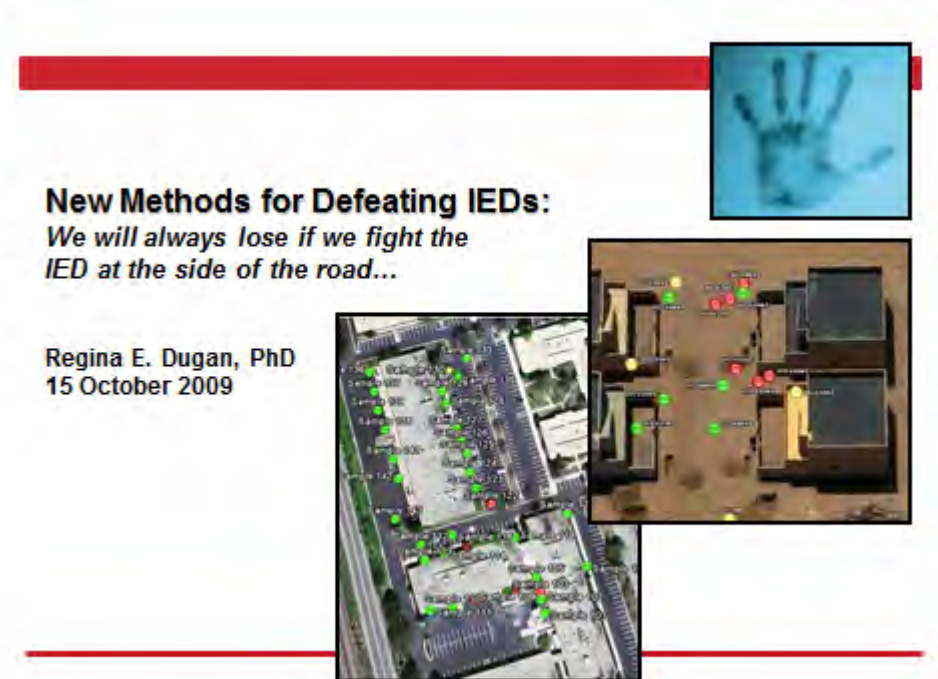
#### *Follow-up meeting with JIEDDO staff members*

In an email dated October 13, 2009, [DARPA: (b)(6), (b)(7)(C)] sent the “New Methods” presentation to Dr. Dugan and asked if she needed it for her October 15, 2009 meeting with JIEDDO officials. [DARPA: (b)(6), (b)(7)(C)] testified Dr. Dugan actually used only The Bookends©. Dr. Dugan testified that she did not recall the email, and that she did not present the briefing as [DARPA: (b)(6), (b)(7)(C)] forwarded it. She acknowledged the possibility she used it as a source document to assemble her presentation.

However, we obtained an email, dated March 11, 2010, Subject: Dr. Dugan’s Slides. With this email, [DARPA: (b)(6), (b)(7)(C)] [DARPA: (b)(6), (b)(7)(C)] forwarded the “New Methods for Defeating IEDs” presentation to a contractor supporting an unnamed Navy office. The name of the attached file was “Bookends 15 Oct 09 Final.ppt” and the first chart was The Bookends©. The second and succeeding charts were the



“New Methods” charts described in detail above, dated “15 October 2009” and edited to remove mention of RedX, with the exception of copyrighted material. For example, the introductory chart below identified Dr. Dugan as the presenter but removed her RedX title, the RedX logo, and the image of the XPAK. However, it retained the image of a handprint that portrayed XPAK’s detection of the presence of explosives, and the two pictures that overlaid the results of field trials onto top-down views of city blocks.



The briefing included The Bookends© and Bomb ‘epidemiology’© charts, with the RedX copyright symbols. The chart below, which highlighted a 3-step process, has blacked out names and images of XPAK (sample collection), i-MODULE (data transfer), and XPAK Spotlight (data processing). As in the 2008 version, it retained a description of what Spotlight provides but did not overtly associate the word Spotlight with XPAK or RedX.



**Not just about widgets... but widespread screening, mapping, analyzing...**

Step 1	Step 2	Step 3
<b>Sample Collection</b>	<b>Data Transfer</b>	<b>Data Processing</b>
More robust detector.	Automatic detection data logging and transfer.	Visualization and analysis.

**Spotlight provides:**

- Integration with other sources of data
- Integration with other operations
- Actionable intelligence

The Operation Red Zone charts did not contain RedX contact information on the first chart or the notation “XPAK data” above the sample results on the second chart, as in the 2008 version.

**Operation Red Zone:**  
*Double-Blind Field Exercise to Find the Bomb Makers and Bomb-Making Facility*

22 May 2008

**Bomb Makers, Red Team:**

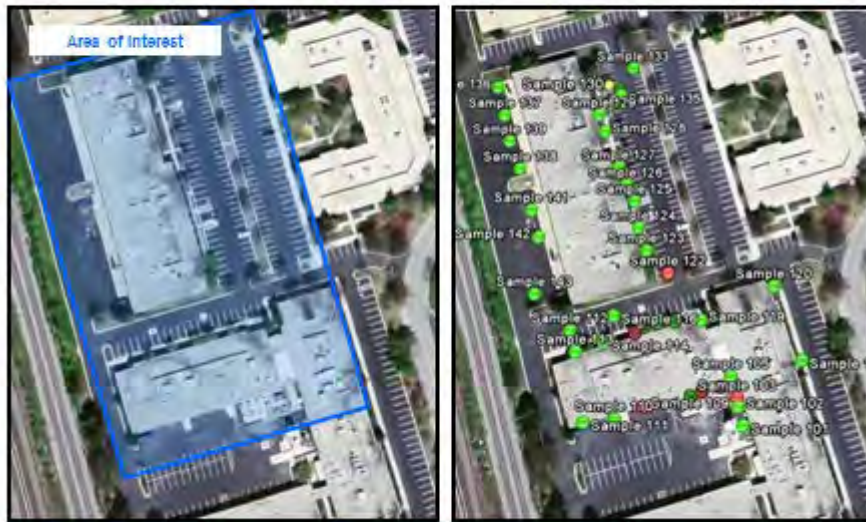
Dr. R. E. Dugan  
(b)(6), (b)(7)(C)

**Blue Team:**

(b)(6), (b)(7)(C)

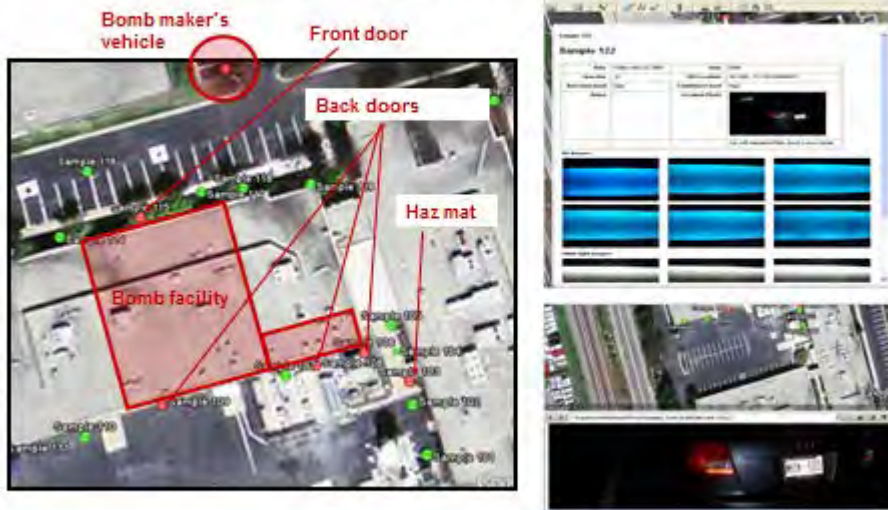


**Operation Red Zone**  
Actual data, night op, 22 May 08



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**Operation Red Zone, Ground Truth**  
Actual data, night op, 22 May 08



13

Unlike the 2008 version, the chart below, which introduced the results of field tests at Fort Irwin, did not contain the image of XPAK or identify Dr. Dugan as a RedX employee.



## Fort Irwin Field Tests:

*Blind, User-Conducted Field Tests to Identify Bomb-Making Facility for Search Teams*

31 October 2008

Regina E. Dugan, PhD

Ken Falke  
 President & CEO, A-T Solutions  
 (b)(6), (b)(7)(C)



The next chart, which depicted the integration of RedX's data transfer tool, the "i-MODULE," omitted any explicit reference to i-MODULE, but kept a table which indicated the results came from using an XPAK device to collect samples.

### External sweep, results

**Bomb Maker's House**

**Area of Interest**

Field demonstration to show ability to identify residence of bomb maker.

Surfaces outside the houses such as door, trash cans, etc. were sampled.

Search teams **correctly** identified bomb maker's house.

Date	Thursday, January 15, 2009
Time	15:25:12
Operator	XPAK Serial Num
GPS Location	39.11833,-77.15728833333333
Detection level	HIGH
Confidence level	
Notes	XPAK Serial number is XPAK Serial #. Evidence tag ID is A0000004.23748.





The chart below used updated language to describe the advantages of the RedX product suite but did not contain the RedX logo or an image of the XPAK as in the 2008 version. The



advice to “Shoot the archer, not the arrow...,” as seen in the 2008 version and on the RedX Web site, remained.

**“Tipping point” advantages**

- **Design for maximum ‘up time’ diagnostics in field settings with operational personnel:**
  - No complicated instrument procedures (No warm-up/calibration. No hot sample clean out.)
  - Reliable use even for ‘dirty’ field settings and with ‘dirty’ samples.
  - Rugged, rugged, rugged.
- **Easy to use, train, and maintain**
- **Detection performance sufficient to achieve mapping functions.**
- **Affordable... deployable in numbers...**
- **But also... the data logging, visualization, and analysis necessary to identify source.**

*Shoot the archer, not the arrow...*

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Finally, this October 15, 2009 “New Methods” presentation included a copy of the WAX chart we described above, whereas the 2008 version did not.

LTG Metz testified he did not personally follow up with RedX prior to his November 2009 departure from JIEDDO. His successor, MG Oates, testified that when he took over at JIEDDO, his focus was on attacking the network as the best approach to combating IEDs. MG Oates told us that based on LTG Metz’ recommendation, he met with [REDACTED] at the RedX facility shortly after assuming his position on December 30, 2009, and that [REDACTED] briefed him on the XPAK and Operation Red Zone.

MG Oates continued that he did not know about [REDACTED] relationship with Dr. Dugan until he later visited DARPA, met Dr. Dugan, and Dr. Dugan presented The Bookends©. When he asked her about the relationship, Dr. Dugan acknowledged the conflict of interest and explained the disqualification. We reviewed the “New Methods for Defeating IEDs” briefing with MG Oates, who remembered only The Bookends© and Bomb Epidemiology charts. MG Oates told us that LTG Metz, [REDACTED], and Dr. Dugan all gave him information, but the only chart he specifically recalled from his meeting with Dr. Dugan was The Bookends©.

*Partnership Formation: JIEDDO/DARPA Operational Trials (JDOT)*

Dr. Dugan testified she and MG Oates agreed to travel to Afghanistan together and the JDOT partnership sprang from that trip. A trip itinerary indicated Combined Joint Task Force

(CJTF) Paladin hosted MG Oates for a series of meetings in Afghanistan February 18-20, 2010.<sup>20</sup> A Microsoft Outlook calendar entry indicated Dr. Dugan briefed DARPA officials on the results of her trip on February 24, 2010. An accompanying PowerPoint presentation indicated Dr. Dugan went with MG Oates on the trip. The presentation identified (b)(6), (b)(7)(C) as DARPA's interface with DoD in Afghanistan, and stated DARPA would "contemplate a forward presence" there. It included The Bookends© and a "Punch list" of five items that contained Dr. Dugan's thoughts about what she observed. One of her entries stated:

BIG BREAKTHROUGH...Bookends suggests that fighting in the books is wrong...[The] Only thing that works there is humans/dogs...What if the key to boosting performance in the books is simply that we get more eyes on target? More noses? And what if we could optimize the training/selection of eyes/noses better?

MG Oates testified he invited Dr. Dugan on the Afghanistan trip because she wanted to incorporate DARPA technologies into current operations. It was Dr. Dugan's first visit to the theater, and although she did ask some questions, she did not conduct any briefings. Dr. Dugan testified the trip led to the establishment of JDOT and a DARPA presence in Afghanistan.

Dr. Gabriel testified Dr. Dugan formed JDOT within the AEO when she returned from her Afghanistan trip to improve "execution and connectivity to our customers." The Army and Marine Corps had decided that dogs were the best way to detect explosives, and "More Noses" became the name for an initiative aimed both at getting more dogs into theater and at "instrumenting them" with position location and tracking sensors. This was one of the areas RedX had worked on for DARPA, and he (Dr. Gabriel) had to learn it because Dr. Dugan could not become involved like she was with other JDOT initiatives.

*March 2010 Briefing for the Chief of Staff of the Army (CSA)*

An Outlook calendar entry indicated that on March 15, 2010, Dr. Dugan and other DARPA officials briefed the CSA at the Pentagon. An attached slide presentation indicated Dr. Dugan began the briefing with The Bookends© and Bomb Epidemiology, then switched to other areas not relevant to the investigation.

*April 2010 Briefing for the Vice Chairman of the Joint Chiefs of Staff (VCJCS)*

An Outlook calendar entry indicated Dr. Dugan met with the VCJCS on April 1, 2010. MG Oates testified he was the primary presenter at the VCJCS briefing. He told us Dr. Dugan used The Bookends© chart and that she and the VCJCS discussed attacking the network. He asserted that the topic of dogs centered on getting more explosives detection dogs to the theater, and that Dr. Dugan did not mention the idea of placing sensors on dogs. He further testified Dr. Dugan did not mention RedX products and capabilities or attempt to steer the conversation in that direction.

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<sup>20</sup> The official Web site of the U.S. Army described CJTF Paladin as the organization responsible for training military personnel on the effective use of counter-IED technology.



Dr. Dugan testified she and MG Oates discussed basic themes and not specific products at the meeting. We obtained a copy of the presentation from the Office of the VCJCS. The slide deck included The Bookends© and a chart entitled, “More eyes, better eyes, more noses....” It depicted a dog and its handler with the caption, “200 additional dogs, trained handlers to Afghanistan in 12 months. Leverage advanced simulation tools.” A third chart contained words and images associated with the WAX project on which RedX had performed. The words and images did not mention WAX but the chart noted the information was “Proprietary to RedXDefense, LLC.”

**DARPA** **Factories and supply chain (some examples)**

DARPA: (b)(3), 22 U.S.C. § 2778(e), Sec. 38 (e) of the Arms Export Control Act

DARPA: (b)(3), 22 U.S.C. § 2778(e), Sec. 38 (e) of the Arms Export Control Act

**Three mission stages:**  
 Step 1: Mission planning  
 Step 2: Deployment & data collection  
 Step 3: Data upload, analysis, and visualization

Proprietary to RedXDefense, LLC

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### *August 2010 Briefing for the Chairman of the Joint Chiefs of Staff (CJCS)*

An Outlook calendar entry indicated Dr. Dugan met with the CJCS at DARPA on August 24, 2010. An attached slide presentation indicated topics included a DARPA manufacturing initiative; intelligence, surveillance, and reconnaissance; and “DARPA support to current theater of operations.” This third portion of the briefing included The Bookends© and a chart titled “Observations, needs, strategy,” which discussed Dr. Dugan’s Afghanistan trip and referenced “More Eyes, Better Eyes, More Noses.” The next chart, “The power of shifting the focus” included elements of the Bomb ‘epidemiology’© chart. Another chart, “More noses: off-leash capable canines” followed.

**DARPA** Observations, needs, strategy.

**JIEDDO/DARPA Trip to Theater Feb 2010, observations of current situation & identified needs:**

- Counter Insurgency Operation
- IEDs are the current weapon of choice
- Fighting with Coalition Partners
- Must transition to Afghanis

**Make IEDs more difficult/dangerous to use. Change tech focus.**

- **Get Offensive.** Shift detection technology focus to systems that reveal network of bomb makers, bomb making factories, & supply chain. Correlate spatially & temporally to achieve standoff in time.
- Leverage the only detection successes for deployed IEDs: Humans and canines. Why? Only system with adaptability matched to adversary's. Get **More Eyes, Better Eyes, and More Noses.**
  - **More Eyes:** Use newest social networking best practices and existing telecommunications systems to create organic integrated system for ISR, situational awareness, data analysis... including a civilian populace reporting capability.
  - **Better Eyes:** Training focus to find 5-sigma operators, field expedient training apps for new equipment training, preparing ANSF for transition success. Rapid iteration: First code drops in 3 mos. Refinements on 3-mos intervals.
  - **More Noses:** Create a new canine corps of IED Detection Dogs (IDD) that will deliver 400 trained dogs and 600 trained operators in 12 months. Leverage advanced simulation to enable training. Explore novel canine approaches.
- **The potentially big win: NEXUS 7.** Analysis cell comprised of best in emergent methods for automated cross-source correlation and social network analysis, especially for degraded, sparse data. Sequestered team of the Nation's leading researchers in large scale computational techniques and social science. Uniquely accessed to multi-agency unfinished and real-time data sources. Output driven.

Briefing prepared for Admiral Mullen

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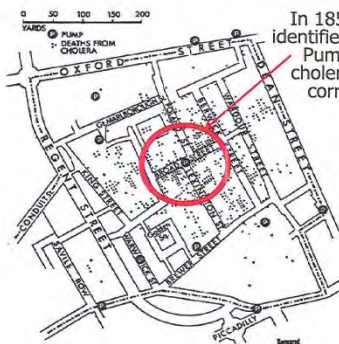
~~FOR OFFICIAL USE ONLY - Further dissemination only as directed by DARPA Public Release Center or higher DoD authority~~

**DARPA** The power of shifting the focus...

**Shift focus to detection systems integrated with information, exploitation.**

**Correlate spatially & temporally.**

**Create speed and adaptability in solutions.**



In 1854, John Snow identifies Broad Street Pump as source of cholera epidemic by correlating deaths spatially and temporally.



Briefing prepared for Admiral Mullen

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**DARPA** More noses: off-leash capable canines

**Operational Capability Enhancement:**

- Provide a sensor platform that is as highly adaptable as the threat.

**TF-JDOT Proposal:**

- Flood a limited AOR with dozens/hundreds of IED Detector Dogs (IDDs).

**Unique Qualities of Proposed IED Detection Dogs:**

- Off-leash to provide standoff detection for IEDs and caches.
- Highly conditioned (e.g. stamina, heat tolerance and environmental conditioning).
- Low maintenance:
  - Work in austere environment;
  - Field expedient kenneling;
  - No air conditioning.
- Minimal handler training required—not MOS specific.
  - 5 Weeks schoolhouse training.
  - 4 Weeks integration training at Mojave Viper.



Briefing prepared for Admiral Mullen

*Efforts to move JDOT's "More Noses" from concept to contract*

(b)(6), (b)(7)(C)

Part of his mission was to increase the likelihood that DARPA technologies would transition from research and development to acquisition programs. He told us that when Dr. Dugan returned from Afghanistan in February 2010, she directed AEO to establish a presence in Afghanistan for the purpose of demonstrating DARPA technologies and promoting their transition to operational use. (b)(6), (b)(7)(C)

(b)(6), (b)(7)(C)

testified that in April 2010,

...we started sort of crafting what the agency's response to Afghanistan was going to be and, you, she [Dr. Dugan] made it clear that some of the concepts were things that were developed by RedXDefense and she had an interest in RedXDefense and she needed to be set aside and not consulted in those topics. There were several DARPA programs identified for demonstration in Afghanistan, and the use of "non-technical off leash canines" to defeat IEDs was one of them.

(b)(6), (b)(7)(C)

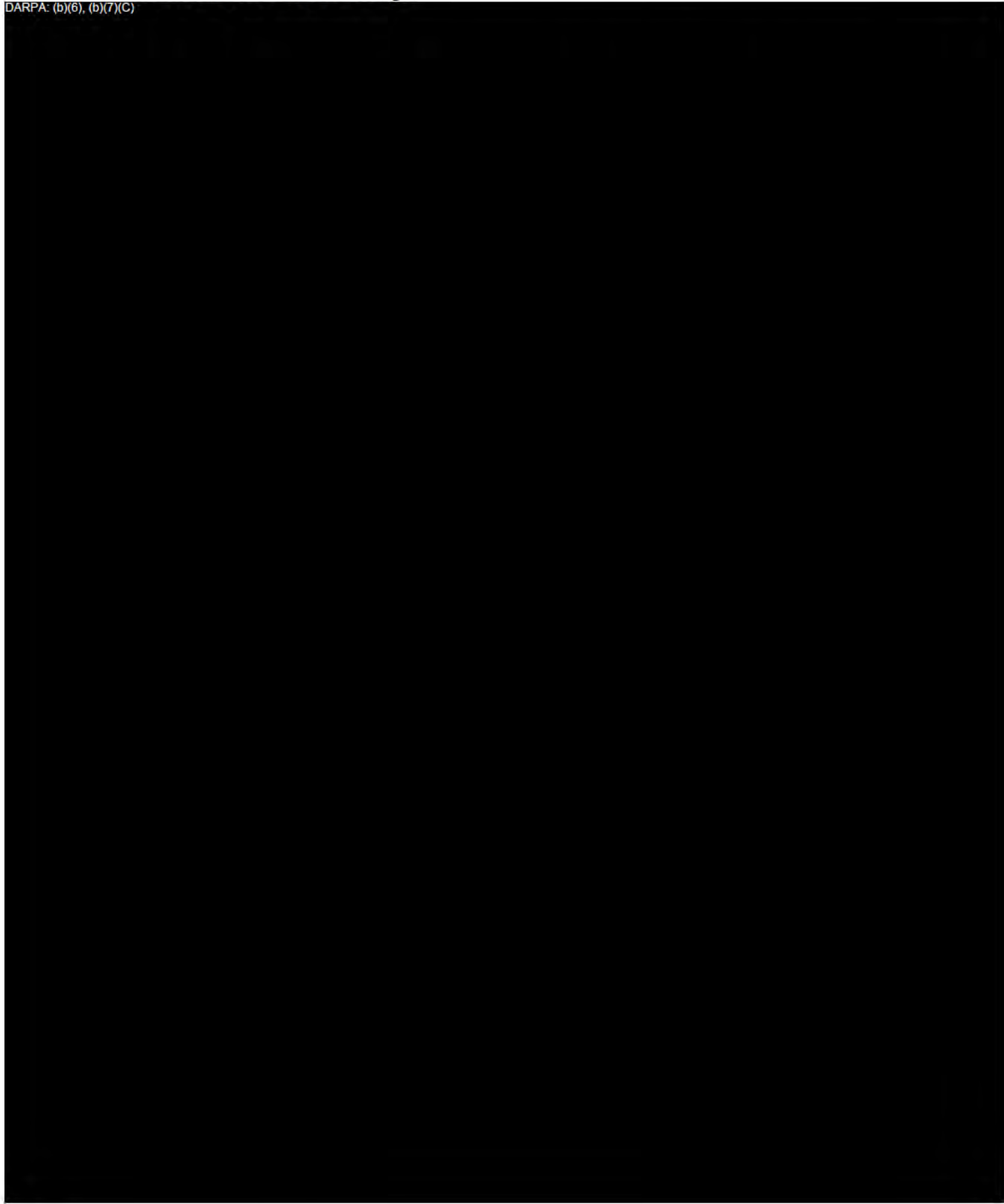
told us that increasing the use of canines against IEDs was one of seven thrusts DARPA identified to promote for Afghanistan.

You know, we had a saying, what the IED problem needs is more eyes and noses on it and again [the] more noses side of that was simply, you know, at the initial

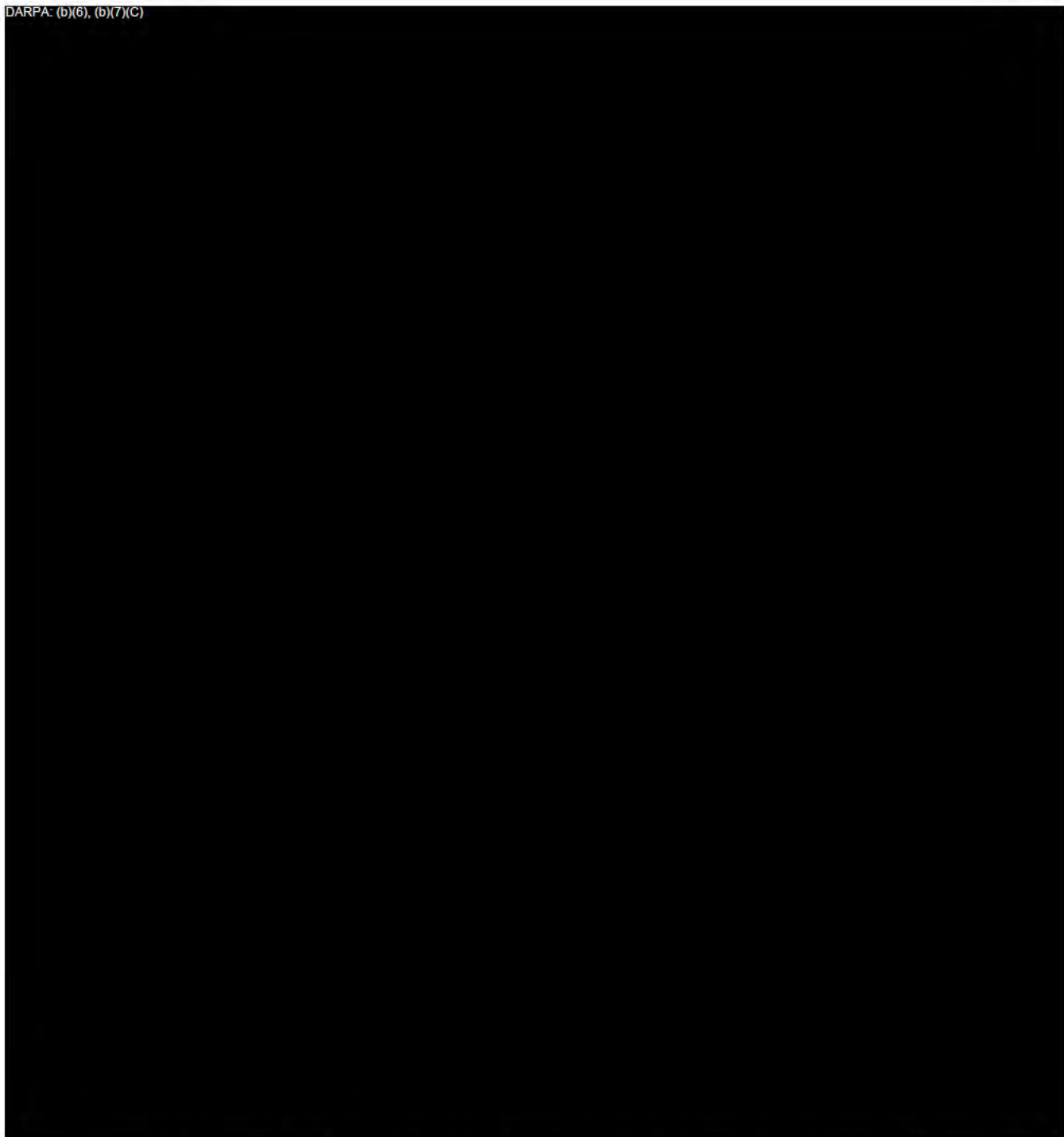


outset of things was about convincing JIEDDO and others to make the investment in the off leash ID detection dogs.

DARPA: (b)(6), (b)(7)(C)



DARPA: (b)(6), (b)(7)(C)



*September 2010 Briefing for the Joint Requirements Oversight Council (JROC)<sup>21</sup>*

An Outlook calendar entry indicated Dr. Dugan briefed the JROC on September 23, 2010. An attached slide presentation included The Bookends©, “The power of shifting the

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<sup>21</sup> An article on the Defense Acquisition University Web site states the JROC identifies and assesses the priority of joint military requirements, considers alternatives to acquisition programs, and assigns priorities among military programs. The CJCS delegates the functions of the JROC to the VCJCS.

focus,” as described above, and a chart entitled “Observations, needs, strategy,” which described “More Noses” this way:

Create a new canine corps of IED Detection Dogs (IDD) that will deliver 400 trained dogs and 600 trained operators in 12 months. Leverage advanced simulation technologies to enable training. Explore novel canine approaches.

A description of “More Noses” followed. It was similar to the description used in the August 2010 briefing for the CJCS, but contained more detail:

**DARPA** More Noses: Off-leash capable canines

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**Operational Capability Enhancement:**


- Provide a sensor platform that is as highly adaptable as the threat.

**TF-JDOT Proposal:**

- Flood a limited AOR with dozens/hundreds of IED Detector Dogs (IDDs).

**Unique Qualities of Proposed IED Detection Dogs:**

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- Low maintenance:
  - Work in austere environment;
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  - No air conditioning.
- Minimal handler training required—not MOS specific.
  - 5 Weeks schoolhouse training.
  - 4 Weeks integration training at Mojave Viper.



At the end of the attachment, behind a chart labeled “Discussion,” there was a copy of the “New Methods” briefing, dated October 15, 2009. The charts appeared to serve as backups.

*Additional Witness’ Observations of Dr. Dugan’s Briefings*

Witnesses testified that as they heard Dr. Dugan explain it, The Bookends© addressed “how do you attack the IED problem” versus detecting the IED at the side of the road. One witness explained that The Bookends© provided a framework for understanding the problem but did not imply a specific technical solution.

(b)(6), (b)(7)(C) testified that he did not attend any meetings where Dr. Dugan or other DARPA officials used charts that contained RedX material. (b)(6), (b)(7)(C) testified he believed The Bookends© was the only chart Dr. Dugan used which contained RedX information.

(b)(6), (b)(7)(C) testified Dr. Dugan did not use the “New Methods” presentation to brief any audience. (b)(6), (b)(7)(C) was the witness who retrieved the October 2009 version of the “New Methods” presentation from the Director’s Office archives. She remembered seeing the charts and testified that while Dr. Dugan may have used information from the briefing, she did not

think Dr. Dugan ever presented the briefing in its entirety. Dr. Gabriel's testimony on this question was similar to (b)(6), (b)(7)(C), and he added that if Dr. Dugan used charts from the "New Methods" briefing, references to RedX products were removed.

Finally, we asked witnesses whether they ever saw or heard Dr. Dugan depict or mention RedX products in her briefings or discuss RedX capabilities. No witness testified they observed this or heard that Dr. Dugan had done this. However, (b)(6), (b)(7)(C) remembered that an unidentified JIEDDO military staff member who had attended a meeting asked him, "Who is RedX? We saw them on these charts."

No witness testified that RedX received any contracts from DARPA or JIEDDO as a result of any of this activity. We queried the Federal Procurement Data System and the Defense Technical Information Center and found no evidence that RedX received a contract from DARPA, JIEDDO, or any other Federal entity because of any of this activity, and we note that no witness made such a claim.

### *RedX in 2012*

The RedX Web site identified the company as a supplier of solutions for combating explosive threats, particularly threats from IEDs. RedX's approach "combines a proprietary technology for trace detection of explosives with a unique Concept of Operations (ConOps) which enables offensive operations against terrorists and allows the warfighter to "go left of boom." The idea is to "shoot the archer, not the arrow." The technology "employs an optical approach to explosives sensing, using fluorescent detection technology originally developed by the University of California – San Diego and subsequently advanced by RedX...The proprietary fluorescent detection ink glows blue under UV [ultraviolet] light but appears dark in the presence of explosives."

RedX commercialized this technology into a "comprehensive suite of security solutions." The XPAK G2 is a portable trace explosives detection system. The XPAK-i combines the capabilities of the XPAK with the i-MODULE geolocation, referencing, and data logging tool and XPAK Spotlight software for data visualization and analysis. The system "provides the most streamlined system available today in support of nodal analysis that targets terrorist networks and facilities."

We asked Dr. Dugan and (b)(6), (b)(7)(C) whether RedX was the only company with a suite of products capable of attacking the bomb network as envisioned in The Bookends©. Dr. Dugan testified there were several private companies that had solutions for executing The Bookends© concept, but she did not provide examples when asked. (b)(6), (b)(7)(C) testified there were competitors in the marketplace which had "products just like this." He cited General Electric as a company which had similar technology.

*Testimony of Additional Ethics Officials*

We asked (b)(6), (b)(7)(C) and (b)(6), (b)(7)(C) whether one could consider briefings like those Dr. Dugan conducted to be particular matters, with a direct and predictable effect on a conflicting financial interest. (b)(6), (b)(7)(C) testified regarding particular matters:

[A] particular matter is a concrete action. It's usually, as defined by the Office of Government Ethics, a discrete matter involving specific parties, and it's usually not the development of a particular matter, but it's a contract, a grant, a specific piece of litigation, a specific rulemaking, a specific IG decision. It's not the formulation of broad policy.

(b)(6), (b)(7)(C) testified that information briefings do not generally create a direct and predictable effect on a financial interest, and that the presence of a corporate logo on a chart does not in itself indicate impropriety. (b)(6), (b)(7) said that if the briefing identified or suggested the use of a specific contractor, its purpose was to create a direct and predictable effect because the intent of the communication was to secure funding.

Discussion

We conclude Dr. Dugan used her position to endorse a product, service, or enterprise. We found Dr. Dugan, when President and CEO of RedX, developed The Bookends©, a theory which suggested identifying bombs, bomb-makers, and bomb-making facilities was the best way to combat IEDs. RedX copyrighted a graphic representation of the theory, and used it to inform its product development efforts, which DARPA financed in part through contracts awarded to RedX. RedX developed the XPAK, i-MODULE, and XPAK Spotlight, and marketed the product suite as an integrated, 3-step solution for combating IEDs. XPAK performed the data collection, i-MODULE the data transfer, and the XPAK Spotlight provided data visualization and analysis of sample results.

In 2007 DARPA funded RedX to perform on WAX, which involved using dogs in a 3-step process which began with mission planning. In the second step, the "instrumented" dogs, wearing backpacks equipped with sensors and transmitters, deployed and collected data. The third step was data upload, analysis, and visualization of the information received from the backpack devices. Also aimed at identifying bomb-making facilities, WAX was another method for implementing what The Bookends© theory suggested. This effort later continued as "Rover," under which RedX performed for DARPA on a team which included Johns Hopkins and Auburn Universities.

We also found that when Dr. Dugan was President and CEO, RedX developed the "New Methods" briefing as a sales presentation which employed proprietary, copyrighted RedX material. It featured the RedX-copyrighted graphic representations of The Bookends© theory and Bomb 'epidemiology,' to advance the notion that collecting and plotting trace explosives samples can reveal the source of bomb-making. "New Methods" also touted the XPAK, i-MODULE, and XPAK Spotlight used together as a "complete solution for widespread screening, mapping, and analyzing," and included a depiction of actual XPAK data collected and



plotted during field trials conducted in 2008. The presentation continued with a list of the RedX product suite's advantages, and a reminder to "Shoot the archer, not the arrow" to help potential customers understand and remember the presentation.

We found that Dr. Dugan became the Director, DARPA on July 20, 2009. She had a conflicting financial interest in RedX, and (b)(6), (b)(7)(C) and DARPA: (b)(6), (b)(7)(C). She disqualified herself from participation in particular matters with a direct and predictable effect on RedX, and named her Deputy Director as the official who would deal with such matters.

We also found that on September 10, 2009, Dr. Dugan told an agency (b)(6), (b)(7)(C) that she would meet on September 11, 2009, with LTG Metz and Gen Mattis, and asked (b)(6), (b)(7)(C) for advice about how to respond to questions about RedX. We found that Dr. Dugan did not disclose the specific content of the briefing she intended to give the following day, or at any time thereafter seek or receive legal advice regarding the propriety of presenting elements of the sales presentation entitled "New Methods," including Red-X proprietary information, or information related to the RedX projects WAX and Rover.

We found that Dr. Dugan then used RedX-proprietary and other elements of the sales presentation entitled "New Methods," including The Bookends©, Bomb 'epidemiology,' and "Shoot the archer, not the arrow" when she briefed LTG Metz and Gen Mattis on September 11, 2009. She also used a chart which promoted the three-step process of data collection, data transfer, and data processing. The chart did not contain any reference to or images of XPAK but did mention Spotlight and what it provides. We also found Dr. Dugan used the proprietary Bookends© graphic to brief the CSA, VCJCS, the CJCS, and the JROC, and added the proprietary Bomb 'epidemiology' graphic to her briefing for the CSA. She also used the charts which depicted the results of field trials; samples collected with XPAK, transmitted via i-MODULE, and plotted using Spotlight. These charts omitted explicit references to RedX and its products, with the exception of one data table that indicated in small type that the results came from an "XPAKi."

We found that when Dr. Dugan returned from Afghanistan in February 2010, she decided the IED problem there required "more noses." We also found that to Dr. Dugan and Dr. Gabriel, "more noses" was an extension of RedX work on WAX and Rover. On April 1, 2010, Dr. Dugan briefed the VCJCS using a chart that, while not mentioning WAX or Rover, nonetheless depicted the three-step process RedX developed for WAX, as well as plots of sample data superimposed on an area of interest and a computer-generated image of an instrumented dog. The chart bore the marking "Proprietary to RedXDefense, LLC."

We found that on August 24, 2010, Dr. Dugan advised the CJCS to use technology that will allow DoD to identify bomb-making facilities and shift to offensive, versus defensive, operations when combating IEDs. "More noses" formed a branch of the plan, with exploration of "novel canine approaches" such as using a dog as an off-leash "sensor platform." On September 23, 2010, she briefed the JROC, used the proprietary Bookends© graphic, and again described "More noses" as a novel canine approach that employed off-leash IED detection dogs.

We found Dr. Gabriel directed that RedX receive the opportunity to compete for the “more noses” work, but we found no evidence Dr. Dugan provided any explicit guidance or direction to Dr. Gabriel or other DARPA employees that DARPA should consider RedX.

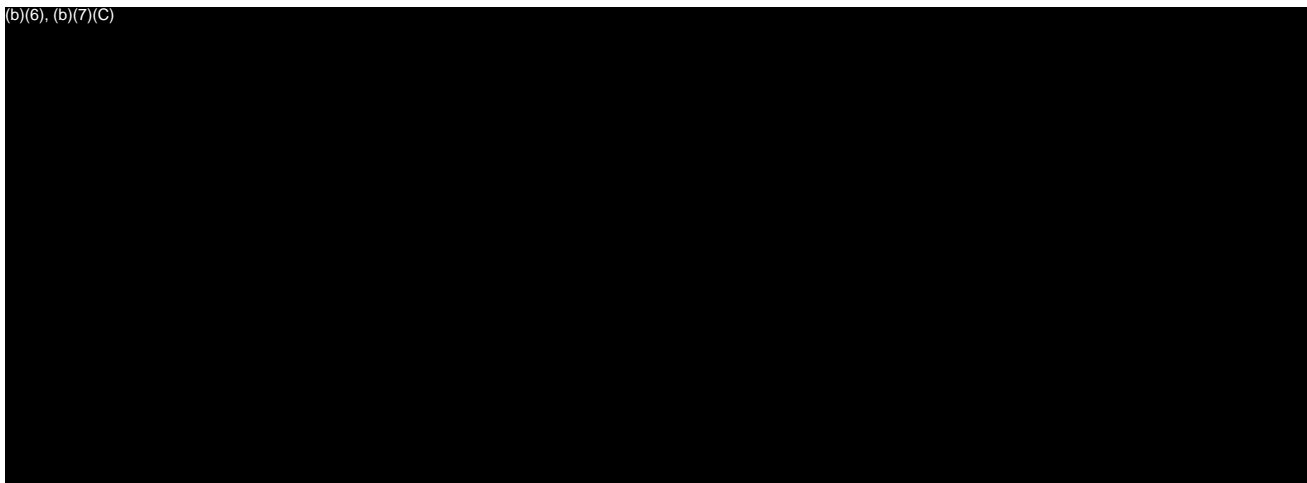
We recognize that in general, it is appropriate for the Director, DARPA to communicate directly with senior DoD officials responsible for various phases of the systems acquisition lifecycle, to inform them about DARPA-funded technologies, and to promote their merits to potential technology transition partners. We note that the JIEDDO officials we interviewed already subscribed to the notion that attacking the bomb-making network was a good idea even before they met with Dr. Dugan.

Nonetheless, we found that some of Dr. Dugan’s communications with DARPA employees and senior DoD officials external to DARPA created potential business opportunities for RedX. Having developed the XPAK product suite based on The Bookends©, RedX was in a position to quickly deliver an off-the-shelf solution. Further, by including the results of field trials in selected briefings to demonstrate the efficacy of The Bookends©, Dr. Dugan implied the products used to collect, transfer, and plot sample data were also effective. At a minimum, Dr. Dugan’s briefing to LTG Metz and Gen Mattis resulted in:


- The creation of a business lead for RedX;
- A follow-on meeting between LTG Metz and DARPA: (b)(6), (b)(7)(C);
- LTG Metz’ direction to JIEDDO to reexamine what RedX had presented to JIEDDO when Dr. Dugan was with RedX;
- LTG Metz’ referral of RedX information to MG Oates; and
- A meeting between MG Oates and DARPA: (b)(6), (b)(7)(C).

Further, since RedX had already participated in WAX and Rover, RedX was in a position to contribute to the “more noses” effort when Dr. Dugan decided “more noses” would be one of several priorities resulting from her trip to Afghanistan. Dr. Gabriel knew this and acted to involve RedX in the project. However, we found that none of these potential opportunities actually resulted in new revenue for RedX.

(b)(6), (b)(7)(C)



(b)(6), (b)(7)(C)

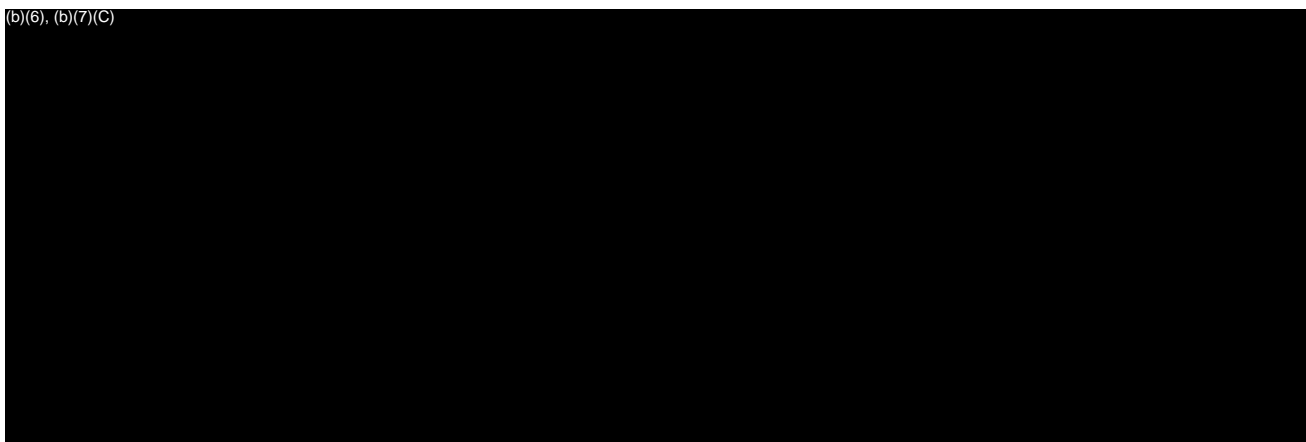


The JER further prohibited Dr. Dugan from using or permitting the use of her Government position to endorse a product, service, or enterprise. When acting in an official capacity, it was improper to state or imply such endorsements. The JER also directed employees to endeavor to avoid any actions that create the appearance of a violation of law or ethical standards. Finally, the JER protected Dr. Dugan from disciplinary actions for violations of these prohibitions if she acted in good faith reliance upon the advice of an agency (b)(6), (b)(7)(C) provided she, in seeking such advice, fully disclosed all relevant circumstances.

We determined that Dr. Dugan violated the JER prohibition against using her Government position for the stated or implied endorsement of a product, service, or enterprise. While she did not explicitly advocate for the sale of RedX products, she used RedX-proprietary marked materials, and other materials RedX originally developed and used in sales presentations. She advanced a theory that was integral to RedX product development, promoted a 3-step process the RedX product suite used to implement the theory, highlighted the results of field trials which employed RedX products to demonstrate the efficacy of the theory and process, used the Red-X slogan “Shoot the archer, not the arrow,” and in at least one instance failed to remove specific references to the RedX products XPAKi and Spotlight. She also endorsed the adoption of the “more noses” effort, an extension of a DARPA project on which RedX performed, and used RedX-proprietary material in her advocacy efforts.

We also determined Dr. Dugan could not rely on the advice she received from an agency (b)(6), (b)(7)(C) on September 10, 2009, because she did not fully disclose all the relevant circumstances. We further determined that Dr. Dugan’s actions were inconsistent with the JER’s direction to avoid actions which created the appearance of a violation of a law or ethical standards. However, we determined a reasonable person with knowledge of all the relevant facts would also find that through her actions Dr. Dugan created potential business opportunities for, and endorsed or implied the endorsement of RedX, and that these particular circumstances created the appearance of a violation.

(b)(6), (b)(7)(C)





*Response to preliminary report*

In her response to our preliminary report, Dr. Dugan disagreed with our conclusion that she used her position to endorse a product, service, or enterprise, and our determination that her actions created the appearance of a violation. She did not dispute that she conducted the briefings and used the material we presented. Dr. Dugan's primary arguments related to ethics advice, intent, audience interpretation, and stated versus implied endorsements.

Legal advice

The JER required Dr. Dugan to fully disclose all relevant facts and circumstances when she obtained ethics advice. Dr. Dugan stated she sought ethics advice, disclosed all relevant circumstances, and followed the advice she received. She also asserted (b)(6), (b)(7)(C) should have asked to review the charts she used in her presentations. Dr. Dugan could not recall if she showed some or all of her presentation materials to (b)(6), (b)(7)(C). She testified, "I don't remember. I think we probably had [discussed] elements of it..."

(b)(6), (b)(7)(C) recollection was specific. (b)(6), (b)(7) testified Dr. Dugan disclosed only that she was going to meet with a general officer and wanted to know how to respond to questions about RedX technology. (b)(6), (b)(7) said Dr. Dugan asked a "general, overarching question," did not disclose that she would use RedX copyrighted or other RedX sales material in any presentation, did not disclose the content of any slide deck or individual chart for any presentation, did not ask questions about what material was appropriate or inappropriate to include in any presentation, and did not disclose any facts or seek advice on this issue after the September 11, 2009 meeting with LTG Metz and Gen Mattis.

Given these facts, we found Dr. Dugan received only general advice based on the limited information she disclosed. Accordingly we stand by our determination that Dr. Dugan could not rely on the ethics advice she received from an agency (b)(6), (b)(7)(C) because she did not fully disclose all the relevant circumstances. To assert that it was (b)(6), (b)(7)(C) duty to elicit the information from Dr. Dugan inverts the JER requirement that the employee disclose all relevant facts and circumstances, and we disagree with Dr. Dugan on this point.

Dr. Dugan's intent and audience interpretation

Dr. Dugan contended the evidence did not establish she intended to make an endorsement and her audience did not perceive that she endorsed RedX. We respectfully disagree. The JER does not cite intent or viewer interpretation as the standard to substantiate a violation.

Dr. Dugan knew, or should have known, that using RedX sales materials that contained RedX slogans and proprietary, copyrighted concepts was at the very least an implied endorsement. The facts show that her presentations had the effect of an explicit endorsement given that (b)(6), (b)(7)(C) referred to her presentation as the "RedX briefing," and LTG Metz wanted to know the rationale for not hiring RedX.

Dr. Dugan emphasized her presentations to senior officials were in response to their requests and contained only general concepts. It does not matter who requested the meeting. Dr. Dugan implicitly endorsed RedX to DoD officials who were in a position to create business opportunities for RedX. To this point, (b)(6), (b)(7)(C) September 11, 2009 email did not ask for the “general concepts” or even “the Bookends©” briefing. Rather, (b)(6) asked for the “RedX briefing Dr. Dugan used today,” and indicated Dr. Dugan approved its transmission to LTG Metz. The request resulted in LTG Metz’ receipt of an unsanitized version of RedX’s 2008 “New Methods” sales presentation.

We also note that Dr. Dugan used the chart entitled, “Not just a widget...but a complete solution,” with product names and images removed, thereby stating a specific, material solution for implementing the general concept was available. She then showed the results of field testing. This was also more specific than general, because the test results she depicted did not come from using computer simulations used to predict possible results. They came from using real RedX hardware and software in a field environment, depicted actual results which indicated the concept was viable and the equipment, the “complete solution” used to to prove the concept, had “the ability to identify the residence of a bomb maker.”

The October 2009 version of the “New Methods” presentation which Dr. Dugan used in her followup meeting with JIEDDO officials contained the “Tipping Point” advantages chart, which moves beyond general concepts when it mentions product design, ease of use, system performance, and affordability, albeit without mentioning the name of the product. Dr. Dugan also chose to add the “WAX” chart to this presentation, and WAX was not a theory or concept in 2009. It was a DARPA project under which RedX “instrumented” dogs by placing position location and tracking sensors on them and training them to perform off leash. WAX transitioned to Rover, and in 2010 Dr. Dugan began referring in her briefings to “More Noses,” which included exploring “novel canine approaches” and using “off-leash capable canines.”

Dr. Dugan asserted in her response that she presented “More Noses” as a general idea around getting more explosives detection dogs into theater. While the “More Noses” concept did include increasing the number of dogs in theater, we contrast Dr. Dugan’s statement with Dr. Gabriel’s testimony that “More Noses” became an initiative aimed also at instrumenting dogs with position location and tracking sensors. Dr. Gabriel explained to us that he had to learn about this initiative because Dr. Dugan could not be involved due to RedX’s work in this area.

Further, Dr. Dugan noted other firms had trace explosives detectors on the market, but we note Dr. Dugan did not choose to present data collected with another firm’s detectors. She also stated the 3-step process for collecting samples and processing data that she described in her briefings was not unique to RedX, and the audience did not know the field data was collected using RedX products. We concur that the idea of gathering, transmitting, and plotting data is not unique to RedX. We also acknowledge it was possible the audience did not recognize Spotlight as a RedX product on the chart which described the 3-step process, or see the explicit reference to the XPAKi on the chart which displayed the field data. However, as the facts demonstrate, any reasonable audience member could infer from a briefing delivered by the founder and former CEO of RedX, which featured RedX proprietary markings, that the data presented was collected and processed using RedX products.

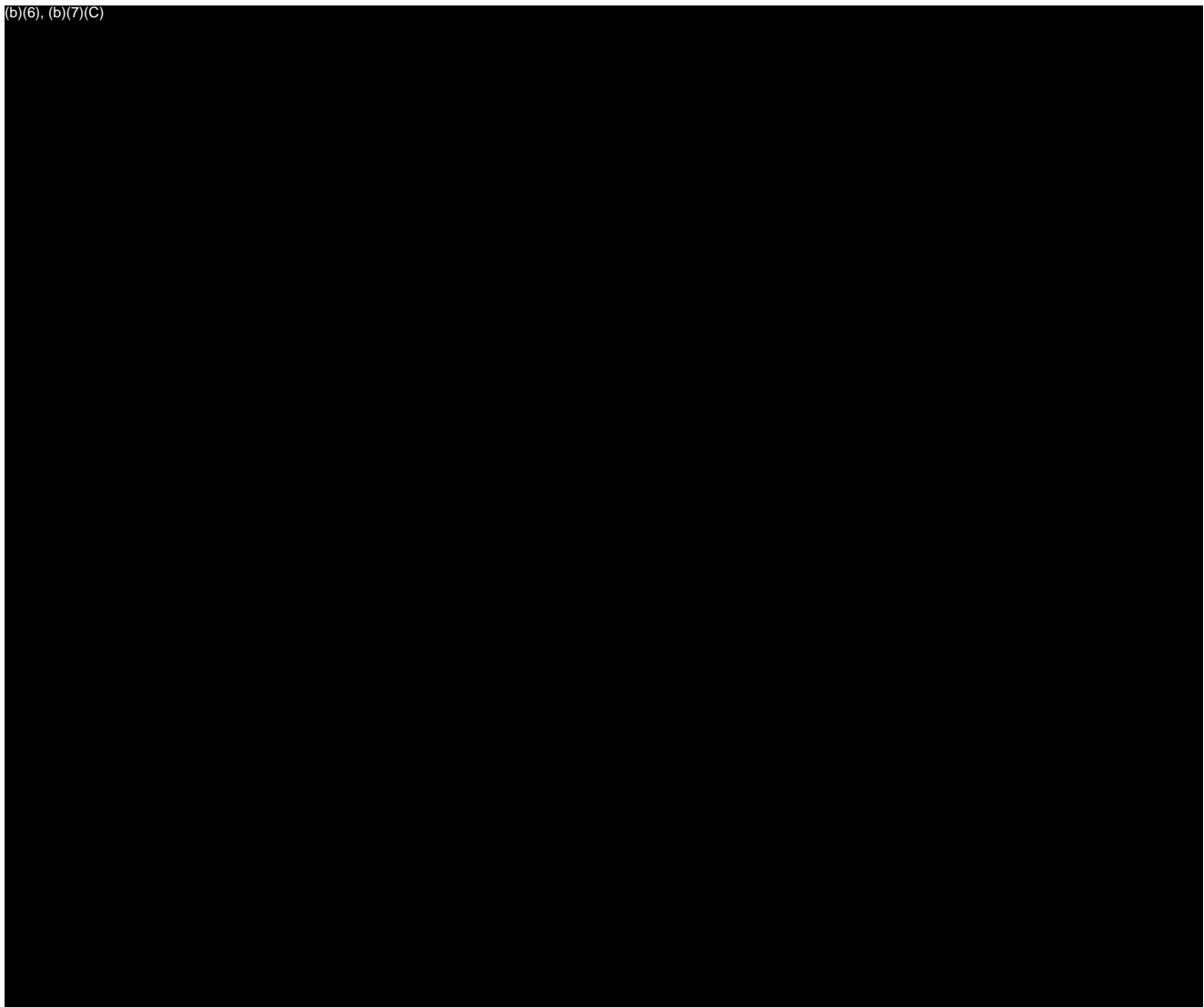
Finally, Dr. Dugan stated the phrase “Shoot the archer, not the arrow” is an “old military phrase” that describes an idea. We do not dispute this point, but RedX adopted the phrase as a slogan and used it in sales presentations. As Director, DARPA, Dr. Dugan continued to use it, without altering font, color, or presentation style from that used in RedX sales presentations. The phrase underscored Dr. Dugan’s advocacy for The Bookends© theory, upon which she had based product development efforts when she was the CEO of RedX.

*Stated versus implied endorsement*

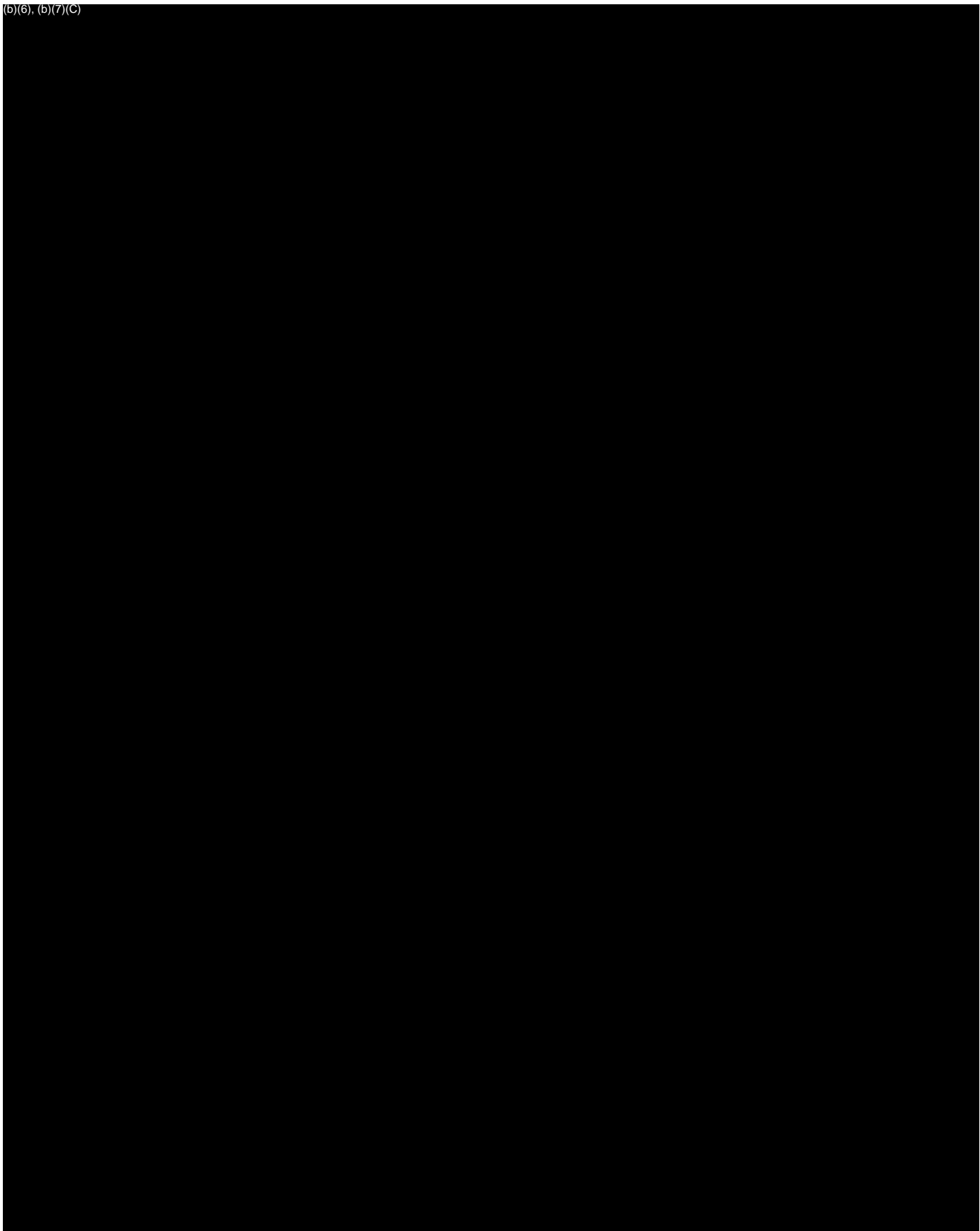
Dr. Dugan agreed with our determination that she did not explicitly endorse RedX. However, her communications clearly amounted to an implied endorsement.

After reconsidering all the evidence and Dr. Dugan’s response to our preliminary report, we stand by our conclusion that Dr. Dugan used her position to endorse a product, service, or enterprise, with the additional determination that through her actions Dr. Dugan created the appearance of a violation.

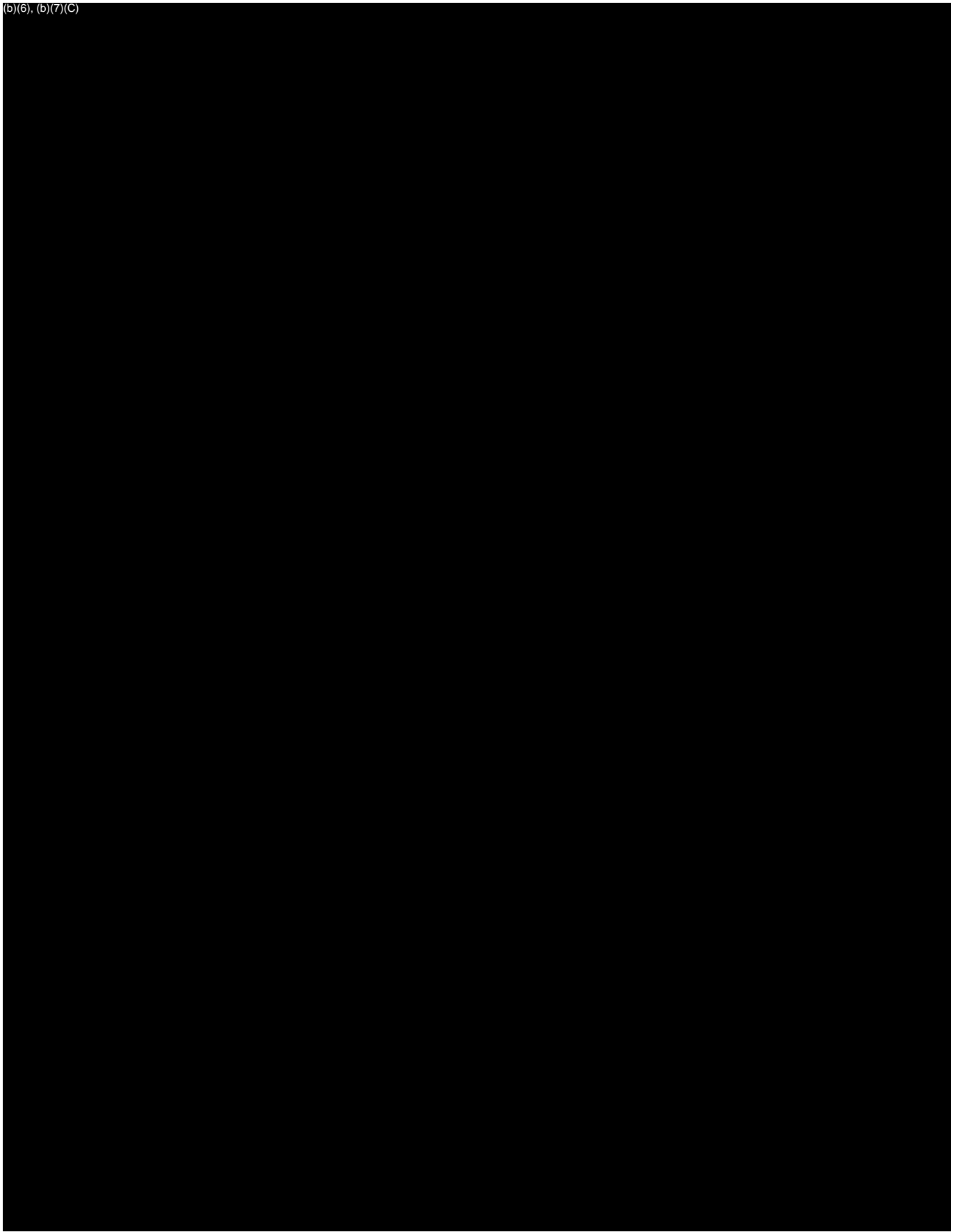
(b)(6), (b)(7)(C)



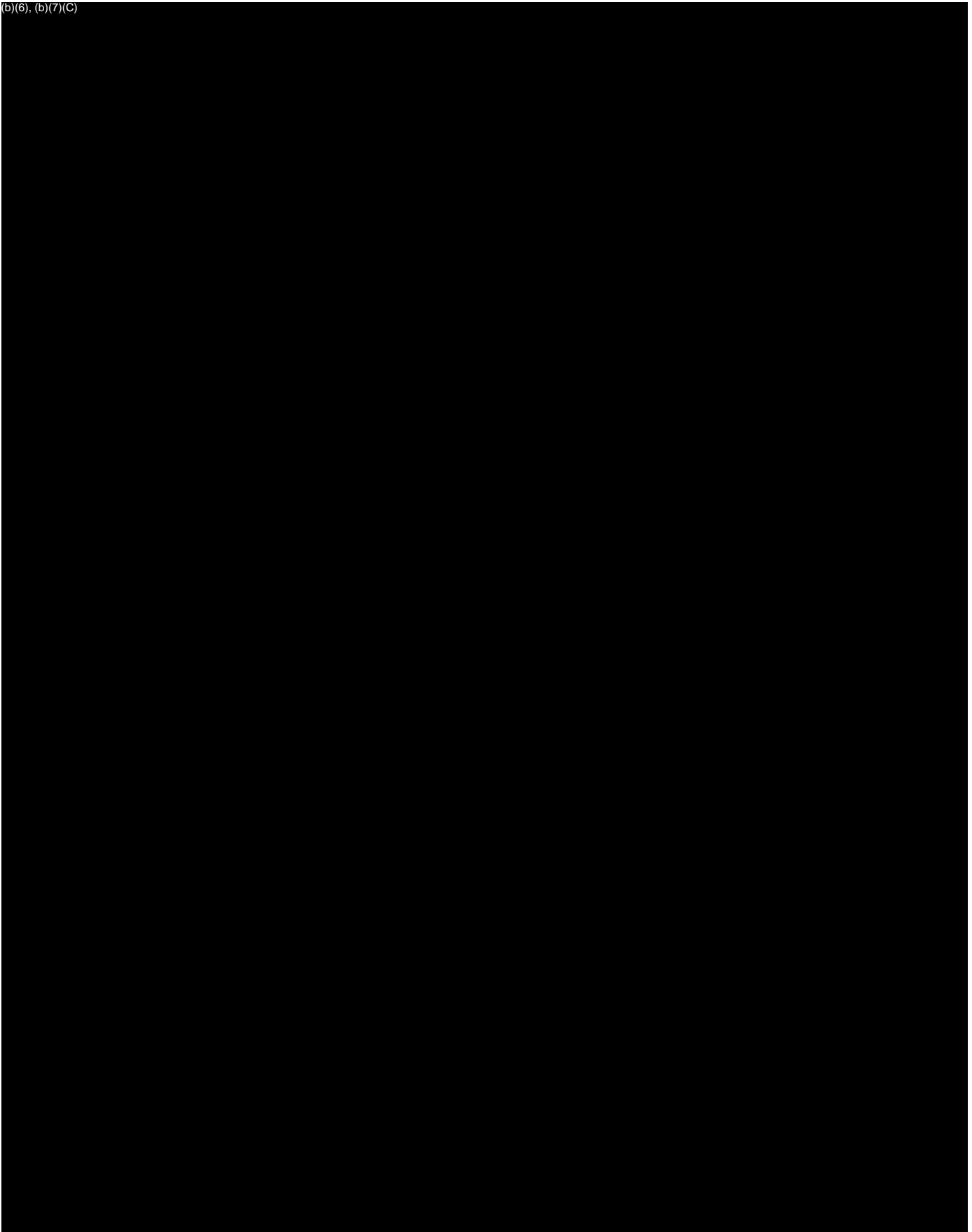
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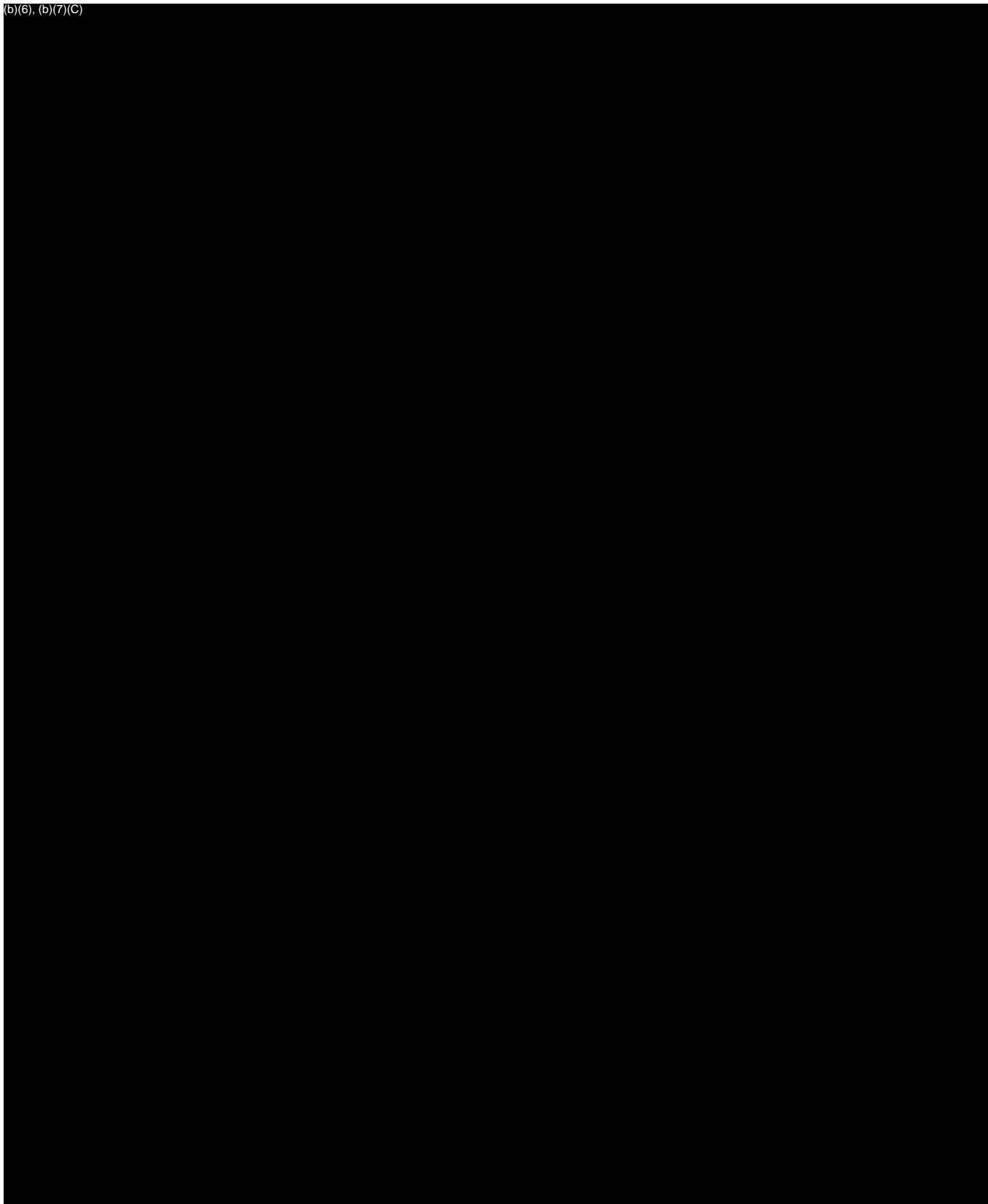
(b)(6), (b)(7)(C)



(b)(6), (b)(7)(C)



(b)(6), (b)(7)(C)



V. CONCLUSIONS

A. (b)(6), (b)(7)(C)

B. (b)(6), (b)(7)(C)

C. Dr. Dugan used her position to endorse a product, service, or enterprise.

D. (b)(6), (b)(7)(C)

VI. RECOMMENDATIONS

We make no recommendation in this matter.



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Report No. 201121204-000984



Inspector General  
Department of Defense

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