

BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO

IN THE MATTER OF THE APPLICATION OF
BLACK RAVEN ENERGY, INC. FOR AN ORDER
ESTABLISHING THE HOUGH D-SAND UNIT Cause No. _____
STATE UNIT FOR ENHANCED RECOVERY Docket No. _____
FROM THE D-SAND FORMATION FOR
CERTAIN DESCRIBED LANDS IN THE ADENA
FIELD, MORGAN COUNTY, COLORADO

APPLICATION

Black Raven Energy, Inc. (Operator No. 10203) ("Applicant"), by and through its undersigned attorneys, respectfully submits this Application to the Oil and Gas Conservation Commission of the State of Colorado (the "Commission") for an order establishing the Hough D-Sand Unit ("Unit") for the purpose of drilling and producing of wells from the D-Sand Formation covering certain described lands in the Adena Field, Morgan County, Colorado and in support of its Application states and alleges as follows:

1. Applicant is a corporation duly authorized to conduct business in the State of Colorado.

2. Applicant owns 100% of the leasehold interests in the following described lands and the acreage encompassed therein:

Township 1 North, Range 57 West
Section 7: NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$

320.00 acres, more or less, Morgan County, Colorado
("Unit Area")

3. On January 19, 1954, the Commission approved Order No. 26-1, which, among other things, 1) established 40-acre drilling and spacing units for the production of oil, and 160-acre drilling and spacing units for the production of gas, both from the D Sand and J Sand Formations, 2) permitted one well in each unit, and 3) prescribed locations for the permitted well in each unit. The Unit Area is subject to Order No. 26-1 for the D Sand Formation.

4. Applicant requests that the Commission approve a state unit for enhanced recovery from the D Sand Formation for the Unit Area pursuant to § 34-60-118 C.R.S. and the Commission's 400 Series Rules.

5. Applicant intends to use the existing Hough #157-7-H1 horizontal well (API No. 05-087-08168) as an underground injection well in order to enhance recovery from other existing D Sand Formation wells within the Unit and increase production from such wells. Existing wells producing from the D Sand Formation within the Unit Area are as follows:

API No.	Well Name	Location	Status
05-087-05357	Hough, R.M. A-3	NE¼SW¼, Sec 7-T1N-R57W	SI
05-087-05377	Hough, R.M. B-4	SW¼NE¼, Sec 7-T1N-R57W	PR
05-087-05378	Hough, R.M. A-2	SE¼NW¼, Sec 7-T1N-R57W	PR
05-087-05391	Hough B-6	NE¼NE¼, Sec 7-T1N-R57W	PR
05-087-05396	Hough, R M B-2	NE¼NW¼, Sec 7-T1N-R57W	PR
05-087-08168	Hough #157-7-H1	NE¼NE¼, Sec 7-T1N-R57W	SI

6. Establishment and operation of the Application as a Unit will prevent waste and are reasonably necessary to increase the ultimate recovery of oil, gas, and associated hydrocarbons from the Unit. Further, the value of the estimated additional recovery of oil, gas, or associated hydrocarbons exceeds the estimated additional cost incident to conducting such operations.

7. There are various fee surface owners of the surface of the Unit Area. There are is no federal or state surface ownership within the Unit Area. The use of the surface of the Unit shall continue to be governed by any existing surface use agreements or surface use provisions of oil and gas leases applicable to the Unit Area. Applicant does not plan on additional surface facilities.

8. Applicant is the sole working interest owner within the Unit and thus has not entered into a Unit Operating Agreement with other working interest owners. Applicant has entered into a Unit Agreement with surface and mineral owners within the Unit Area. The Unit Agreement sets forth terms that are just and reasonable, and meets the requirements of C.R.S. § 34-60-118.

9. The Applicant will be named the operator of the Unit.

10. The Unit Agreement has been approved by the owners of at least eighty percent (80%) of the production or proceeds thereof that will be credited to interests which are free of cost, such as royalties, overriding royalties, and production payments, pursuant to C.R.S. § 34-60-118(5). A copy of the Unit Agreement is attached to this Application as Exhibit A.

11. In order to promote efficient drainage within the D Sand Formation in the Unit Area, the Commission should establish the Hough D-Sand Unit. Unit operations will more efficiently produce hydrocarbons from the mineral interests in the Unit Area.

12. Pursuant to Commission Rule 401, a plat showing the Unit Area boundaries and wells upon the Unit Area is attached as Exhibit B.

13. The names and addresses of the interested parties in this Application according to the information and belief of the Applicant are set forth in Exhibit C hereto. Copies of this Application were sent to such parties, but due to the voluminous nature of the exhibits, the copies of the Application did not include the exhibits. However, such parties were notified that copies of the exhibits will be sent upon request.

14. Due to Applicant's plan to inject fluids in the Unit Area for enhanced recovery operations, this Application is required to set forth certain additional

information pursuant to Rule 401.b.(4). Such additional information is attached hereto as Exhibit D.

15. Applicant requests that relief granted under this Application should be effective on oral order by the Commission, and Applicant hereby agrees to being bound by said oral order.

16. The granting of this Application is in accord with the Oil and Gas Conservation Act, found at §34-60-101, et seq., C.R.S., and the Commission Rules.

WHEREFORE, Applicant respectfully requests that this matter be set for hearing, that notice be given as required by law and that upon such hearing this Commission enter its order:

A. Establishing the Hough D-Sand Unit for production from the D Sand Formation pursuant to § 34-60-118 and the Commission's 400-Series Rules.

B. Authorizing operations for the Hough D-Sand Unit pursuant to the Unit Agreement.

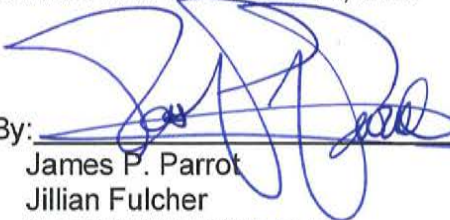
C. Providing that relief granted under this Application be effective on oral order by the Commission, relying on the Applicant's desire to be bound by said oral order.

D. For such other findings and orders as the Commission may deem proper or advisable.

Dated this 16 day of July, 2015.

Respectfully submitted,

BLACK RAVEN ENERGY, INC.

By: 

James P. Parrot
Jillian Fulcher
Beatty & Wozniak, P.C.
Attorneys for Applicant
216 16th Street, Suite 1100
Denver, Colorado 80202
(303) 407-4499

Applicant's Address:
165 S Union Blvd., Suite 410
Lakewood , CO 80228

VERIFICATION

STATE OF COLORADO)
) ss.
COUNTY OF JEFFERSON)

David Kunovic, Executive Vice President of Exploration for EnerJex Resources, Inc., on behalf of Black Raven Energy, Inc., its wholly-owned subsidiary, upon oath deposes and says that he has read the foregoing Application and that the statements contained therein are true to the best of his knowledge, information and belief.

BLACK RAVEN ENERGY, INC.

By: EnerJex Resources, Inc.


By: David Kunovic
Executive Vice President

Subscribed and sworn to before me this 16th day of July, 2015, by David Kunovic, Executive Vice President of Exploration for EnerJex Resources, Inc., on behalf of Black Raven Energy, Inc., its wholly-owned subsidiary

Witness my hand and official seal.

My commission expires: 10-04-17

TERESA L. PETERSON
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19894002026
MY COMMISSION EXPIRES OCT.4, 2017


Notary Public

**EXHIBIT A
UNIT AGREEMENT**

**UNIT AGREEMENT
HOUGH "D" SAND UNIT
MORGAN COUNTY, CO**

THIS AGREEMENT, entered into as of the 11th day of May, 2015, by the parties who have signed the original of this instrument, a counterpart thereof, or other instrument agreeing to become a party hereto,

WITNESSETH:

WHEREAS, in the interested of the public welfare and to promote the conservation and increase the ultimate recovery of Unitized Substances from the Adena Field, in Morgan County, Colorado, and to protect the rights of the owners of interests therein, it is deemed necessary and desirable to enter into this agreement to unitize the Oil and Gas Rights and to the Unitized Formation in order to conduct Unit Operations as herein provided, being a program contemplated and authorized by Article 60 of Title 34 of the Colorado Revised Statutes, as amended.

NOW, THEREFORE, in consideration of the premises and of the mutual agreements herein contained, it is agreed as follows:

**ARTICLE 1
DEFINITIONS**

As used in this agreement:

1.1 Unit Area is the land described by Tracts in Exhibit A and shown on Exhibit B as to which this agreement becomes effective or to which it may be extended as herein provided.

1.2 Unitized Formation is the subsurface portion of the Unit Area described as the "D" Sand formation of the Dakota Series in the Adena Field, Morgan County, Colorado.

1.3 Unitized Substances are all oil, gas, gaseous substances, sulfur contained in gas, condensate, distillate, and all associated and constituent liquid or liquefiable hydrocarbons other than Outside Substances within or produced from the Unitized Formation.

1.4 Working Interest is an interest in Unitized Substances by virtue of a lease, operating agreement, fee title, or otherwise, including a carried interest, the owner of which is chargeable with and obligated to pay or bear, either in cash or out of production or otherwise, all or a portion of the Unit Expense.

1.5 Royalty Interest is a right to or interest in any portion of the Unitized Substances or proceeds thereof other than a Working Interest.

1.6 Royalty Owner is a party hereto who owns a Royalty Interest.

1.7 Working Interest Owner is a party hereto who owns a Working Interest.

1.8 Tract is the land described as such and given a Tract number in Exhibit A.

1.9 Unit Operating Agreement is the agreement entered into by and between the Unit Operator and the Working Interest Owners, providing for payment of the cost of conducting Unit Operations and the manner of accounting therefor. Inasmuch as Black Raven Energy, Inc., is the sole and only Working Interest Owner, there is no Unit Operating Agreement, and references herein to such an agreement are superfluous until such time as there is more than one Working Interest Owner.

1.10 Unit Operator is the sole Working Interest Owner, Black Raven Energy, Inc. A successor Unit Operator may be designated by Black Raven Energy, Inc., or as provided under the Unit Operating Agreement.

1.11 Tract Participation is the percentage shown on Exhibit A for allocating Unitized Substances to a Tract.

1.12 Unit Participation of a Working Interest Owner is the sum of the percentages obtained by multiplying the Working Interest of such Working Interest Owner in each Tract by the Tract Participation of such Tract.

1.13 Outside Substances are substances from any source other than the Unitized Formation and which are injected into the Unitized Formation.

1.14 Oil and Gas Rights are the rights to explore, develop, and operate lands within the Unit Area for the production of Unitized Substances, or to share in the production so obtained or the proceeds thereof.

1.15 Unit Operations are all operations conducted by Working Interest Owners or Unit Operator pursuant to this agreement and the Unit Operating Agreement.

1.16 Unit Equipment is all personal property, lease and well equipment, plants, and other facilities and equipment taken over or otherwise acquired for use in Unit Operations.

1.17 Unit Expense is all cost, expense, or indebtedness incurred by Working Interest Owners or Unit Operator pursuant to this agreement and the Unit Operating Agreement for or on account of Unit Operations.

1.18 Effective Date is the time and date this agreement becomes effective as provided in Section 16.1.

1.19 Unless the context otherwise clearly indicates, words used in the singular include the plural, the plural include the singular, and the neuter gender include the masculine and the feminine.

ARTICLE 2 EXHIBITS

2.1 Exhibits. The following exhibits, which are attached hereto, are incorporated herein by reference:

2.1.1. Exhibit A is a schedule that describes each Tract in the Unit Area and shows its Tract Participation.

2.1.2. Exhibit B is a map that shows the boundary lines of the Unit Area and the Tracts therein.

2.2 Reference to Exhibits. When reference is made to an exhibit, it is to the exhibit as originally attached or, if revised, to the latest revision.

2.3 Exhibits Considered Correct. Exhibits A and B shall be considered to be correct until revised as herein provided.

2.4 Correcting Errors. The shapes and descriptions of the respective Tracts have been established by using the best information available. If it subsequently appears that any Tract, because of diverse royalty or working interest ownership on the Effective Date, should have been divided into more than one Tract, or than any mechanical miscalculation or clerical error has been made, Unit Operator, with the approval of Working Interest Owners, shall correct the mistake by revising the exhibits to conform to the facts. The revision shall not include any re-evaluation of engineering or geological interpretations used in determining Tract Participation. Each such revision of an exhibit made prior to thirty (30) days after the Effective Date shall be effective as of the Effective Date. Each such revision thereafter made shall be effective at 7:00 a.m. on the first day of the calendar month next following the filing for record of the revised exhibit or on such other date as may be determined by Working Interest Owners and set forth in the revised exhibit.

2.5 Filing Revised Exhibits. If an exhibit is revised, Unit Operator shall execute an appropriate instrument with the revised exhibit attached and file the revised exhibit for record in the County in which this agreement is filed.

ARTICLE 3
CREATION AND EFFECT OF UNIT

3.1 Oil and Gas Rights Unitized. All Oil and Gas Rights of Royalty Owners in and to the lands described in Exhibit A, and all Oil and Gas Rights of Working Interest included in a single lease executed by all Royalty Owners, as lessors, in favor of all Working Interest Owners, as lessees, and as if the lease contained all of the provisions of this agreement.

3.2 Personal Property Excepted. All lease and well equipment, materials, and other facilities heretofore or hereafter placed by any of the Working Interest Owners on the lands covered hereby shall be deemed to be and shall remain personal property belonging to and may be removed by Working Interest Owners. The rights and interests therein as among Working Interest Owners are set forth in the Unit Operating Agreement.

3.3 Amendment of Leases and Other Agreements. The provisions of the various leases, agreements, division and transfer orders, or other instruments pertaining to the respective Tracts or the production therefrom are amended to the extent necessary to make them conform to the provisions of this agreement, but otherwise shall remain in effect.

3.4 Continuation of Leases and Term Interests. Production from any part of the Unitized Formation, except for the purpose of determining payments to Royalty Owners, or other Unit Operations shall be considered as production from or operations upon each Tract, and such production or operations shall continue in effect each lease or term mineral or royalty interest as to all lands and formations covered thereby just as if such operations were conducted on and as if a well were producing from each Tract.

3.5 Titles Unaffected by Unitization. Nothing herein shall be construed to result in the transfer of title to Oil and Gas Rights by any party hereto to any other party or to Unit Operator.

3.6 Injection Rights. Royalty Owners hereby grant Working Interest Owners the right to inject into the Unitized Formation any substances in whatever amounts Working Interest Owners deem expedient for Unit Operations, together with the right to drill, use, and maintain injection wells on the Unit Area, and to use for injection purposes any non-producing or abandoned wells or dry holes, and any producing wells completed in the Unitized Formation.

3.7 Development Obligation. Nothing herein shall relieve Working Interest Owners from any obligation to develop reasonably as a whole the lands and leases committed hereto.

ARTICLE 4 PLAN OF OPERATIONS

4.1 Unit Operator. As of the Effective Date hereof, there is only one Working Interest Owner, Black Raven Energy, Inc., and Black Raven Energy, Inc., is hereby designated as the initial Unit Operator. Unit Operator shall have the exclusive right to conduct Unit Operations, which shall conform to the provisions of this agreement. References herein to a Unit Operating Agreement are intended to refer to such an agreement only if and when there is more than one Working Interest Owner and such an agreement is made between or among such Working Interest Owners.

4.2 Method of Operation. To the end that the quantity of Unitized Substances ultimately recoverable may be increased and waste prevented, Working Interest Owners shall, with diligence and in accordance with good engineering and production practices, engage in waterflooding operations in the Unitized Formation, or such other pressure maintenance, repressuring, secondary recovery, and tertiary recovery operations as may be deemed by them to be necessary or proper to achieve that end.

4.3 Chance of Method of Operation. Nothing herein shall prevent Working Interest Owners from discontinuing or changing in whole or in part any method of operation which, in their opinion, is no longer in accord with good engineering or production practices. Other methods of operation may be conducted or changes may be made by Working Interest Owners from time to time if determined by them to be feasible, necessary, or desirable to increase the ultimate recovery of Unitized Substances. Changes in the method of operation shall be subject to approval, if necessary, of Oil and Gas Conservation Commission of the State of Colorado.

ARTICLE 5 TRACT PARTICIPATION

5.1 Tract Participation. The Tract Participation of each Tract is shown in Exhibit A. The formula used to determine Tract Participation also is shown in Exhibit A.

5.2 Relative Tract Participations. If the Unit Area is enlarged or reduced, the revised Tract Participations of the Tracts remaining in the Unit Area and which were within the Unit Area prior to the enlargement or reduction shall remain in the same ratio one to another.

ARTICLE 6 ALLOCATION OF UNITIZED SUBSTANCES

6.1 Allocation of Tracts. All Unitized Substances produced and saved, except any part thereof used, lost or consumed in Unit Operations, shall be allocated to the several Tracts

in accordance with the respective Tract Participations effective during the period that the Unitized Substances were produced. The amount of Unitized Substances allocated to each Tract, regardless of whether the amount is more or less than the actual production of Unitized Substances from the well or wells, if any, on such Tract, shall be deemed for all purposes to have been produced from such Tracts.

6.2 Distribution Within Tracts. The Unitized Substances allocated to each Tract shall be distributed among, or accounted for to, the parties entitled to share in the production from such Tract in the same manner, in the same proportions, and upon the same conditions as they would have participated and shared in the production from such Tract, or in the proceeds thereof, had this agreement not been entered into, and with the same legal effect. If any Oil and Gas Rights in a Tract hereafter become divided and owned in severalty as to different parts of the Tract, the owners of the divided interests, in the absence of an agreement providing for a different division, shall share in the Unitized Substances allocated to the Tract or in the proceeds thereof, in proportion to the surface acreage of their respective parts of the Tracts.

6.3 Royalty on Outside Substances. If any Outside Substance is injected into the Unitized Formation, One Hundred percent (100%) of any like substance contained in Unitized Substances subsequently produced and sold, or used for other than Unit Operations, shall be deemed to be the Outside Substance so injected until the total value thereof equals the total volume of the Outside Substance so injected. No payment shall be due or payable to Royalty Owners on Outside Substances.

ARTICLE 7 PRODUCTION AS OF THE EFFECTIVE DATE

7.1 Oil in Lease Tanks. Unit Operator shall gauge or otherwise determine the amount of merchantable oil produced from the Unitized Formation that is in lease tanks as of 7:00 a.m. on the Effective Date. Oil in treating vessels, separation equipment, and tanks below pipeline connections shall not be considered to be merchantable. Any merchantable oil so gauged by Unit Operator shall remain the property of the parties entitled thereto as if this agreement had not been entered into.

ARTICLE 8 USE OR LOSS OF UNITIZED SUBSTANCES

8.1 Use of Unitized Substances. Working Interest Owners may use or consume Unitized Substances for Unit Operations, including but not limited to the injection thereof into the Unitized Formation.

8.2 Royalty Payments. No royalty, overriding royalty, production, or other payments shall be payable on account of Unitized Substances used, lost, or consumed in Unit Operations.

**ARTICLE 9
TRACTS IN UNIT**

9.1 Unit Tracts. On and after the Effective Date and until the enlargement or reduction thereof, the Unit Area shall be composed of the Tracts listed in Exhibit A.

**ARTICLE 10
EASEMENTS OR USE OF SURFACE**

10.1 Grant of Easements. The parties hereto, to the extent of their rights and interests, hereby grant to Working Interest Owners the right to use as much of the surface of the land within the Unit Area as may be reasonably necessary for Unit Operations and the removal of Unitized Substances from the Unit Area.

10.2 Surface Damages. Working Interest Owners shall pay the owner for damages to growing crops, timber, fences, improvements, and structures on the Unit Area that result from Unit Operations.

**ARTICLE 11
ENLARGEMENTS OF UNIT AREA**

11.1 Enlargements of Unit Area. The Unit Area may be enlarged from time to time to include acreage reasonably provided to be productive upon such terms as may be determined by Working Interest Owners and approved by the Colorado Oil and Gas Conservation Commission in accordance with Article 60 of Title 34 of the Colorado Revised Statutes, as amended, including, but not limited to, the following:

11.1.1 The participation to be allocated to the acreage shall be fair and reasonable, considering all available information.

11.1.2 There shall be no retroactive allocation or adjustment of Unit Expense or of interests in the Unitized Substances produced, or proceeds thereof; however, this limitation shall not prevent an adjustment of investment by reason of the enlargement.

11.2 Determination of Tract Participation. Unit Operator, subject to Section 5.2, shall determine the Tract Participation of each Tract within the Unit Area as enlarged, and shall revise Exhibits A and B accordingly.

11.3 Effective Date. The effective date of any enlargement of the Unit Area shall be 7:00 a.m. on the first day of the calendar month following compliance with conditions for enlargement as specified by Working Interest Owners and approved by the Colorado Oil and Gas Conservation Commission, and the filing for record of revised Exhibits A and B in the County in which this agreement is recorded.

ARTICLE 12
TRANSFER OF TITLE - PARTITION

12.1 Transfer of Title. Any conveyance of all or any part of any interest owned by any party hereto with respect to any Tract shall be made expressly subject to this agreement. No change of title shall be binding upon Unit Operator, or upon any party hereto other than the party so transferring, until 7:00 a.m. on the first day of the calendar month next succeeding the date of receipt by Unit Operator of a photocopy, or a certified copy, of the recorded instrument evidencing such change in ownership.

12.2 Waiver of Rights to Partition. Each party hereto agrees that, during the existence of this agreement, it will not resort to any action to partition the Unitized Formation or the Unit Equipment, and to that extent waives the benefits of all laws authorizing such partition.

ARTICLE 13
RELATIONSHIP OF PARTIES

13.1 No Partnership. The duties, obligations, and liabilities of the parties hereto are intended to be several and not joint or collective. This agreement is not intended to create, and shall not be construed to create, an association or trust, or to impose a partnership duty, obligation, or liability with regard to any one or more of the parties hereto. Each party hereto shall be individually responsible for its own obligations as herein provided.

13.2 No Joint Refining or Marketing. This agreement is not intended to provide, and shall not be construed to provide, directly or indirectly, for any joint refining or marketing of Unitized Substances.

13.3 Royalty Owners Free of Costs. This agreement is not intended to impose, and shall not be construed to impose, upon any Royalty Owner any obligation to pay Unit Expense unless such Royalty Owner is otherwise so obligated.

13.4 Information to Royalty Owners. Each Royalty Owner shall be entitled to all information in possession of Unit Operator to which such Royalty Owner is entitled by an existing agreement with any Working Interest Owner.

ARTICLE 14
LAWS AND REGULATIONS

14.1 Laws and Regulations. This agreement shall be subject to the conservation laws of the State of Colorado; to the valid rules, regulations, and orders of the Oil and Gas Conservation Commission of the State of Colorado; and to all other applicable federal, state, and municipal laws, rules, regulations, and orders.

ARTICLE 15 FORCE MAJEURE

15.1 Force Majeure. All obligations imposed by this agreement on each party, except for the payment of money, shall be suspended while compliance is prevented, in whole or in part, by a labor dispute, fire, war, civil disturbance, act of God; by federal, state, or municipal laws; by any rule, regulation, or order of a governmental agency; by inability to secure materials; or by any other cause or causes, whether similar or dissimilar; beyond reasonable control of the party. No party shall be required against its will to adjust or settle any labor dispute. Neither this agreement nor any lease or other instrument subject hereto shall be terminated by reason of suspension of Unit Operations due to any one or more of the causes set forth in this Article.

ARTICLE 16 EFFECTIVE DATE

16.1 Effective Date. This agreement shall become binding upon each party as of the date such party signs the instrument by which it becomes a party hereto, and shall become effective at the time and date as determined by Working Interest Owners and as set forth in a certificate filed for record by Unit Operator in Morgan County, Colorado. The certificate shall not be filed until after this agreement has been approved by the Oil and Gas Conservation Commission of the State of Colorado. If said certificate is not filed before December 31, 2015, this agreement shall ipso facto terminate on that date.

ARTICLE 17 TERM

17.1 Term. The term of this agreement shall be for the time that Unitized Substances are produced in paying quantities or other Unit Operations are conducted without a cessation of more than one hundred & eighty (1800) consecutive days, unless sooner terminated by Working Interest Owners in the manner herein provided.

17.2 Termination by Working Interest Owners. This agreement may be terminated by Working Interest Owners owning a combined Unit Participation of ninety percent (90%) or more whenever such Working Interest Owners determined that Unit Operations are no longer profitable or feasible.

17.3 Effective of Termination. Upon termination of this agreement, the further development and operation of the Unitized Formation as a unit shall be abandoned, and Unit Operations shall cease. Each oil and gas lease and other agreement covering lands within the Unit Area shall remain in force for sixty (60) days after the date on which this agreement terminates, and for such further period as is provided by the lease or other agreement.

17.4 Salvaging Equipment Upon Termination. If not otherwise granted by the leases or other instruments affecting each Tract, Royalty Owners hereby grant Working Interest Owners a period of six (6) months after the date of termination of this agreement within which to salvage and remove Unit Equipment.

17.5 Certificate of Termination. Upon termination of this agreement, Unit Operator shall file for record in the County in which the land affected is located a certificate that this agreement has terminated, stating its termination date.

ARTICLE 18 EXECUTION

18.1 Original, Counterpart, or Other Instrument. An owner of Oil and Gas Rights may become a party to this agreement by signing the original of this instrument, a counterpart thereof, or other instrument ratifying this agreement. The signing of any such instrument shall have the same effect as if all parties had signed the same instrument.

18.2 Joinder in Dual Capacity. Execution as herein provided by any party as either a Working Interest Owner or a Royalty Owner shall commit all interests owned or controlled by such party.

ARTICLE 19 GENERAL

19.1 Amendments Affecting Working Interest Owners. Amendments hereto relating wholly to Working Interest Owners may be made if signed by all Working Interest Owners.

19.2 Action by Working Interest Owners. Except as otherwise provided in this agreement, any action or approval required by Working Interest Owners hereunder shall be in accordance with the provisions of the Unit Operating Agreement.

19.3 Lien and Security Interest of Unit Operator. Unit Operator shall have a lien upon and a security interest in the interests of Working Interest Owners in the Unit Area as provided in the Unit Operating Agreement.

ARTICLE 20
SUCCESSORS AND ASSIGNS


20.1 Successors and Assigns. This agreement shall extend to, be binding upon, and inure to the benefit of the parties hereto and their respective heirs, devisees, legal representatives, successors, and assigns, and shall constitute a covenant running with the lands, leases, and interests covered hereby

IN WITNESS WHEREOF, the parties hereto have executed this agreement on the dates opposite their respective signatures.

UNIT OPERATOR AND WORKING INTEREST OWNER

Date Signed: 5/11/2015

By: _____


David L Kunovic
Executive VP Exploration

INTEREST OWNERS ROYALTY

Date Signed: _____

By: _____

R. M. Hough, Jr.

ACKNOWLEDGMENT

STATE OF _____ §

§

COUNTY OF _____ §

BEFORE ME, the undersigned, personally appeared R. M. Hough, Jr., to me known to be the identical person(s) described in and who executed the within and foregoing instrument of writing and acknowledged to me that he/she duly executed the same as his/her free and voluntary act and deed for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this _____ day of _____, 2015.

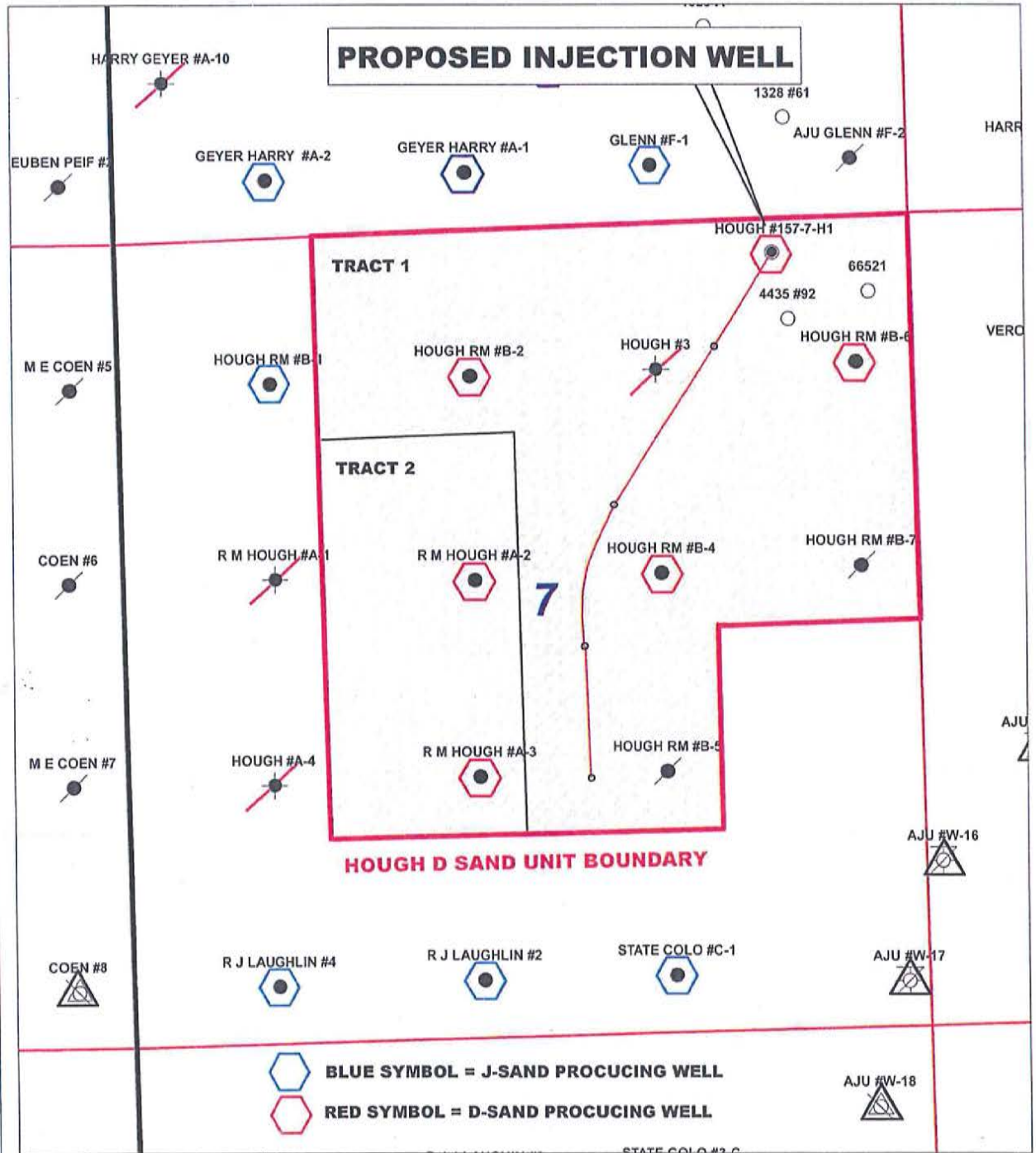
Notary Public

My Commission Expires: _____

EXHIBIT A
HOUGH D-SAND UNIT
Unit Area and Tract Participation

Interest Owner Name	Type of Interest	Leased Mineral Interest	Lease Royalty	TRACT 1 T1N-R57W, Sec. 7: NENW, NE, NWSE				TRACT 2 T1N-R57W, Sec 7: SENW, NESW				320 Acres
				240 acres				80 acres				
				Revenue (Decimal) Interest	Tract (Decimal) Participation Factor	Tract 1 (Decimal) Total	Revenue (Decimal) Interest	Tract (Decimal) Participation Factor	Tract 2 (Decimal) Total	TRACT UNIT (Decimal) TOTAL		
Cinda R. Chapman Revocable Trust c/o Cinda R. Chapman	RI	25.0000000%	0.12500000	0.03125000	0.66666666	0.02083333	0.03125000	0.33333333	0.01041667	0.03125000		
Douglas D. Hough	RI	25.0000000%	0.12500000	0.03125000	0.66666666	0.02083333	0.03125000	0.33333333	0.01041667	0.03125000		
R. M. Hough, Jr.	RI	25.0000000%	0.12500000	0.03125000	0.66666666	0.02083333	0.03125000	0.33333333	0.01041667	0.03125000		
Robert J. Laughlin, Jr.	RI	12.5000000%	0.12500000	0.01562500	0.66666666	0.01041667	0.01562500	0.33333333	0.00520833	0.01562500		
Shirlee Marie Roberts and David B. Roberts, trustees of The David and Shirlee Roberts Family Trust	RI	12.5000000%	0.12500000	0.01562500	0.66666666	0.01041667	0.01562500	0.33333333	0.00520833	0.01562500		
Rex Monahan Family Trust Melissa Jankovsky and Rob Jankovsky, Successor Co-Trustees	ORRI			0.02250000	0.66666666	0.01500000	0.02250000	0.33333333	0.00750000	0.02250000		
Estate of Doris L. Monahan Susan Monahan, Personal Representative	ORRI			0.02250000	0.66666666	0.01500000	0.02250000	0.33333333	0.00750000	0.02250000		
BBE Holdings, LLC	ORRI			0.00050000	0.66666666	0.00033333	0.00050000	0.33333333	0.00016667	0.00050000		
Black Raven Energy, Inc.	ORRI			0.03000000	0.66666666	0.02000000	0.03000000	0.33333333	0.01000000	0.03000000		
BNG Living Trust Leon R. Bailey, Trustee	ORRI			0.00025000	0.66666666	0.00016667	0.00025000	0.33333333	0.00008333	0.00025000		
Julie L. Weber	ORRI			0.00050000	0.66666666	0.00033333	0.00050000	0.33333333	0.00016667	0.00050000		
Van Z. Spence and Susan K. Spence, JT	ORRI			0.00125000	0.66666666	0.00083333	0.00125000	0.33333333	0.00041667	0.00125000		
Adena, LLC	WI			0.79750000	0.66666667	0.53166667	0.79750000	0.33333333	0.26583333	0.79750000		
				100.0000000%		0.87500000	1.00000000		0.33333333	1.00000000		

EXHIBIT B to UNIT AGREEMENT
HOUGH D-SAND UNIT



TOWNSHIP 1 NORTH - RANGE 57 WEST

 BLACK RAVEN ENERGY INC.	ADENA FIELD
	HOUGH D-SAND UNIT
	MORGAN COUNTY, COLORADO
	UNIT TRACT PLAT

EXHIBIT B
PLAT OF UNIT AREA

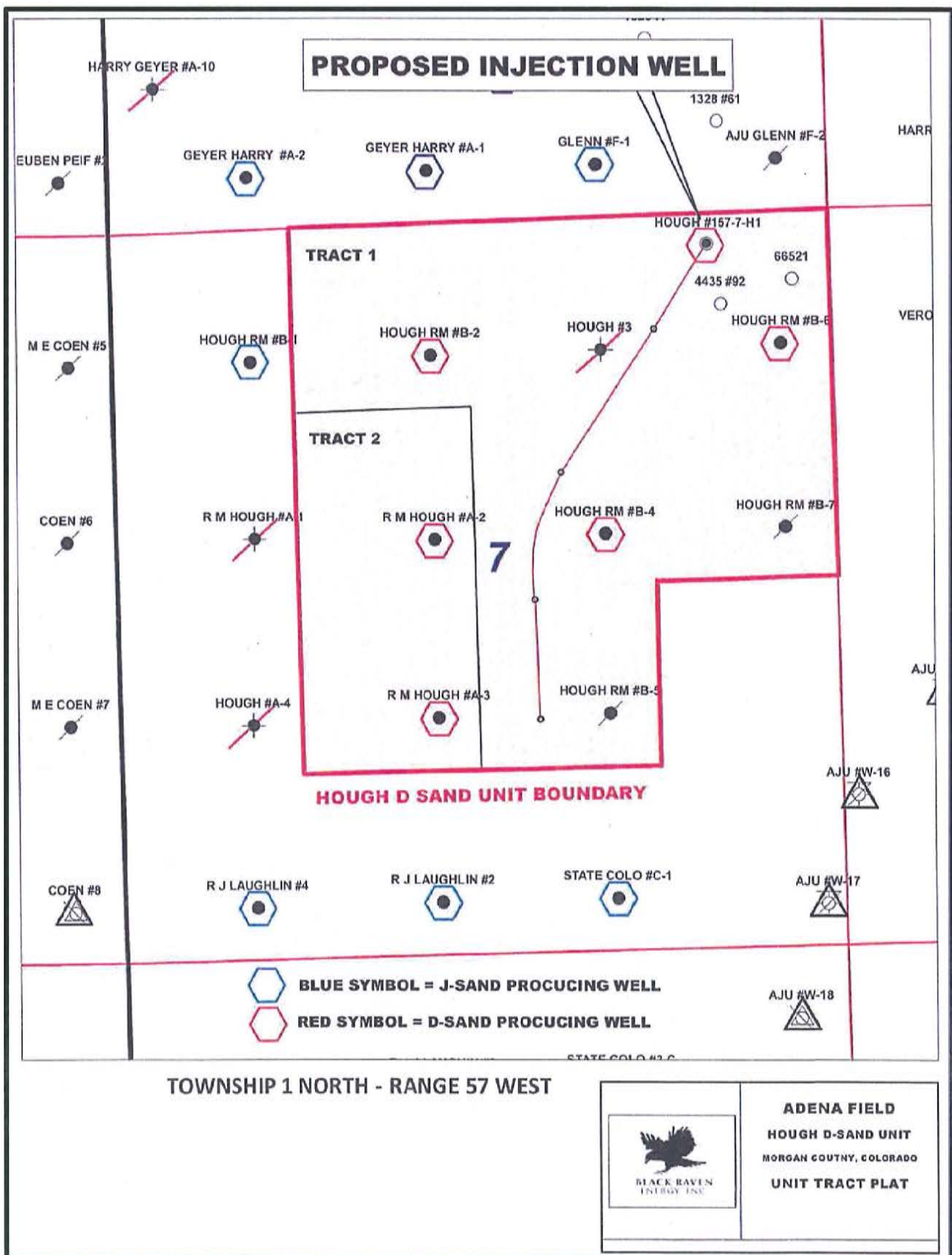


EXHIBIT C
INTERESTED PARTIES

Adena, LLC
165 S. Union Blvd, Suite 410
Denver, CO 80202

Aldean M. Patterson, deceased
Address Unknown

Alfons Lampe
Address Unknown

Aloys Lampe
4452 Freren
Kreis Lingen EMS
Heckenstr 252
Bersenbruck
Germany

Amine Rafaat El Hajje
P.O. Box 464
Tripoli-Lebanon
ZX

Arthur Lloyd Sobolewski
Address Unknown

Barbara A. Persels
#6 Connie Ln
Bella Vista, AR 72715-5610

Barbara J. Tuke Kane, deceased
Address Unknown

BBE Holdings LLC
1512 Larimer Street, Suite 550
Denver, CO 80217-3306

Becky Sue Haley
920 Meng Dr.
Fort Morgan, CO 80701

Becky Sue Haley
1455 Raven Circle, Unit G
Estes Park, CO 80517

Bernadine Lampe
Bernardene Johnson Foote
Address Unknown

Betty J. Andersen Family Trust
Petrea M. Seklemian, Trustee
2327 87th Ct. NW
Gig Harbor, WA 98332-7552

Betty J. Larrick
617 Lincoln Street
Fort Morgan, CO 80701

Betty J. Larrick, TIC
617 Lincoln Street
Fort Morgan, CO 80701

Beverly A. Duvall
204 Darlington Ln.
Johnstown, CO 80534

Black Raven Energy, Inc.
165 S. Union Blvd, Suite 410
Lakewood, CO 80228

BNG Living Trust
Leon R. Bailey, Trustee
3545 So. Elkhart St.
Aurora, CO 80014

Brian L. Grennan
16077 County Road 19
Fort Morgan, CO 80701

Candra A. Scott
297 Kansas St., Suite B
San Francisco, CA 94103

Carl F. Tuke, Jr.
5957 SE Morning Dove Way
Hobe Sound, FL 33455

Charlotte J. Gaut
3800 Treyburn Drive, Apt A-112
Williamsburg, VA 23185

Cinda R. Chapman Revocable Trust
c/o Cinda R. Chapman
200 North Jones Road
Independence, MO 64056

Cindra Jamae Zugel
834 2nd St.
Mukilteo, WA 98275-1602

ConocoPhillips Company
P.O. Box 22295
Network Place
Chicago, IL 60673-1222

Cynthia Sheakley
7800 Indian Hill Rd
Cincinnati, OH 45243

D. C. Clifford, Jr.
37 Pyrenees Way
Hot Springs Village, AR 71909

Darcy C. McEvoy
1310 Old Fairhaven Parkway #103
Bellingham, WA 98225

Darrell J. Geyer
20291 North Road
Eckert, CO 81418

Divisees of William D. Asher, deceased
Address Unknown

Donald Arthur Wiens
3011 Whippoorwill Ln
Enid, OK 73703

Douglas D. Hough
P.O. Box 1009
Giddings, TX 78942

Earl W. Timpe
319 W. 6th Ave.
Fort Morgan, CO 80701

Eleanor Heitker Donovan
3933 Sandtrap Cir.
Mason, OH 45040

Elise C. Meyer
4559 Basum Sussum
Uber Bersenbruck
Germany

Emma L. Jerman
Address Unknown

Erma Sobolewski, trustee of the Erma
Soboleski Trust Agreement dated
November 4, 1992
Address Unknown

Estate of Doris L. Monahan
Susan Monahan, Personal
Representative
P.O. Box 1231
Sterling, CO 80751

Family Tree Corporation
P.O. Box 260498
Lakewood, CO 80226

Frank W. Wineger Marital Trust
Wells Fargo Bank NA, Trustee
P.O. Box 41779
Austin, TX 78704

Franz Lampe
4576 Berge KRS
Bersenbruck
Germany

Franziska Lampe
Address Unknown

Georg Janning
503 North Bz Koln
Kappellenstr 24
Germany

George Hushmann, Jr.
4551 Koeckel

George J. Heitker
11169 Oak St.
Cincinnati, OH 45241-2654

George Lampe
Address Unknown

George W. Breniman (Alice)
301 E. Chestnut
Windsor, CO 80550-5464

George Wollerman
Aslage
4554 Ankum
West Germany

Gerhard Lampe
4525 Melle Riemsloh
Ratsherrenstr NR 40
West Germany
Germany

Glenn Ranch & Cattle Company, RLLLP
6432 County Road 19
Fort Morgan, CO 80701

Hazel Barns
Address Unknown

Hildegard Lingemann
49624 Bannen
Oldenburg
Federal Republic of W Germany
Germany

Hiltrud Lampe
5657 Haan Pheinland
Schillerstr 29
Germany

iMinerals, LLC
P.O. Box 14230
Odessa, TX 79768

Jack P. Duvall
9765 S. Chanteclair Ct.
Highlands Ranch, CO 80126

Jacqueline Y. Carlson, deceased
1720 60th Avenue Unit 209
Greeley, CO 80634

James B. McNay and Nancy L. McNay
208 Delmar St.
Sterling, CO 80751

James F. Messenger
2009 Vineyard Dr.
Windsor, CO 80550

James F. Rogers
29 West Hillside Place
Trophy Club, TX 76262

James R. Benson Estate
1203 Old Pond Dr.
Marion, OH 43302

James W. Rowland
dba Saint Vrain Energy
5472 S. Ventura Ct.
Centennial, CO 80015-2629

Jane Ann Breneman
707 20th St.
Golden, CO 80401

Jane M. Quinette Tr. Dtd 9-25-01
Jane M. Quinette, Trustee
1685 S. Colorado Blvd., #339
Denver, CO 80222

Jean Q. Smith Marital Trust Dtd 7/1/2012
Jack H. Smith, David Q. Smith, Janice
Elizabeth Lamar, Co-Trustees
1165 Linda Vista Drive, Suite 110
San Marcos, CA 92078

Jeffrey L. Hardy, Successor Trustee of
the John N. Hardy, Jr. 1990 Revocable
Trust and the Patsy L. Hardy 1990
Revocable Trust
117 Seminary Drive
Menlo Park, CA 94025

Joan Brockert
P.O. Box 5234
Pine Mountain Club, CA 93222

Johana Kuhlmann
Carl Schade STR 4
4570 Quakerbruck
Federal Republic of W Germany
Germany

Josef Bockmann
Michelstiege 5
4554 Ankum
Federal Republic of W Germany
Germany

Joseph A. Young, deceased
3304 Woodsvie Dr.
St Charles, MO 63303

Joseph D Tuke, deceased
Address Unknown

Joseph T. Asher, Jr. and Letha A. Kelly,
JTWROS
302 Crabapple Ct. NW
Powder Springs, GA 30127

Julie L. Weber
2301 S. Humboldt St.
Denver, CO 80210

Karl Lampe
4576 Berge KPS
Bersenbruck
Germany

Kenneth D. Breneman, Jr.
11427 County Road 20
Fort Morgan, CO 80701

Lafon Royalties, LLC
Neal Lafon
1475 N. Ward Cir.
Franktown, CO 80116

Larry Joe Jerman
3501 Clark Lane Lot 91
Columbia, MO 65202

Linda Barnes Mideke
P.O. Box 20263
Oklahoma City, OK 73156

Louis James Tuke
1721 Beacon St., Apt 5
Cincinnati, OH 45230

Mildred Mueller
Address Unknown

R. M. Jerman
Address Unknown

Lydia Galassini
16383 Road 18 5
Ft Morgan, CO 80701

Mollie E. Timpe
19498 Marigold Dr.
Sterling, CO 80751

R. S. B. Company
C/O Robert S. Brown, Partner
3120 S. Monaco Cir.
Denver, CO 80222

Margaret C. Timpe
328 Aurora St.
Fort Morgan, CO 80701

Mona Lee Helberg
327 Asbury Circle
Enid, OK 73702

Renildis Beien
5657 Haan I
Rheinland
Oberfelder STR 2
Germany

Margaret E. Atkinson
39281 County Rd 38
Fleming, CO 80728

Morgan County, CO
c/o Michelle Covelli
PO Box 189
Fort Morgan, CO 80701-0596

Rex Monahan Family Trust
Melissa Jankovsky and Rob Jankovsky,
Successor Co-Trustees
P.O. Box 1231
Sterling, CO 80751

Maria Bernadine Bego Ghina
4571 Winkum
Quakenbruck
Federal Republic of W Germany
Germany

Myra S. Huffhines, for life, with remainder
to Johnson Heirs, William D. Asher,
Trustee
1116 Westwood
Plano, TX 75075

Rex Monahan Family Trust, dated June
16, 1979, as Restated and Amended on
March 1, 2005
Melissa Jankovsky and Rob Jankovsky,
Successor Trustees
P.O. Box 1231
Sterling, CO 80751

Maria Heuer
Bahnhofsgaststatte
D 4576 Bippen
Bankonto
Kreissparkasse Bippen
Germany

Nancy T. Wearer
2512 W. 107th Place
Westminster, CO 80234

Maria Johanna Bohmann
459 Cloppenburg
Sternbusch
Federal Republic of W Germany
Germany

Nanette A. Edgley
Address Unknown

Richard E. Tibbetts
902 E. 6th Ave.
Fort Morgan, CO 80701

Marian F. Timpe
460 E. 80th Ave.
Denver, CO 80229

Naomi R. Jerman
Box #1386
Mills, WY 82644-1386

Robert B. Whittington
13 Earl St.
Hampton, VA 23669

Marshall A. Asher, deceased
Address Unknown

Nell Fowler
Address Unknown

Robert E. Jerman, Trustee of the Robert
E. Jerman Trust dated 9/24/2002
42492 Audrain Rd 524
Vandalia, MO 63382

Martha M. Tuke
c/o Carl F. Tuke
8275 Kroger Farm Lane
Cincinnati, OH 45243

Pamela J. Jordan
120 Tsataga Ct.
Brevard, NC 28712

Robert E. Tuke, deceased
Ohio Division of UNCL Funds
70 S. High St., 20th Floor
Columbus, OH 43215-6108

Mary Pat Tuke Gates
9504 Springmont Place
Louisville, KY 40241

Paula Billenkamp
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4559 Ankum Germany
Federal Republic of W Germany
Germany

Robert J. Laughlin, Jr.
P.O. Box 388
San Miguel, CA 93451

Mechtild M Lampe Bonnet
4010 Hilden

Peter Herrn Duchmann
2900 Oldenburg Von Schrench

Robert L. Obermeyer
224 E. 8th Street, Apt 605
Cincinnati, OH 45202

Michael Ray Tibbetts, PR for the Estate
of Donald W. Tibbetts
627 East Bijou Ave.
Ft Morgan, CO 80701

R. M. Hough, Jr.
700 Colfax St.
Fort Morgan, CO 80701

Roberta K. Loretta
P.O. Box 28
Conifer, CO 80433

Ronald L. Heaton and Joyce Heaton
41608 Hwy K
Vandalia, MO 63382

Rosemary A. Stephens
4 Hightrails Ct.
Maumelle, AR 72113

Shirlee Marie Roberts and David B.
Roberts, trustees of The David and
Shirlee Roberts Family Trust
105 Bridgewater Dr.
Reno, NV 89509

St. Marys Cathedral #10108908
203 East 10th St.
Austin, TX 78701

State Board of Land Commissioners
State of Colorado
1127 Sherman St., Suite 300
Denver, CO 80203-2206

Stonium, LLC
c/o Dennis D. Stone, Manager
P.O. Box 721386
Norman, OK 73070

Sylvia & Howard Dennis Trust
Family Share
565 Lafayette St.
Denver, CO 80218

Tamara K. Nelson
1085 S. Patton Ct.
Denver, CO 80219

Therese Lampe
Address Unknown

Thomas A. Cone
546 Tusculum Ave.
Cincinnati, OH 45226-1774

Van Z. Spence and Susan K. Spence, JT
982 E. Karval Place
Superior, CO 80027

Veronica M. Gretch
16237 County Road 19
Fort Morgan, CO 80701

Willamae B. Scott
1495 Corina Dr. SE
Salem, OR 97302

William L. Mueller Family Trust
Myrtle T. Mueller, Trustee
2490 Fountain Place, Unit 6F
Lakeside Park, KY 41017-1654

Kent Kuster
Oil & Gas Consultant Coordinator
Colorado Department of
Public Health & Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Tom Schreiner, Energy Liaison
Colorado Parks and Wildlife
Northeast Region Office
6060 Broadway
Denver, CO 80216

John Crosthwait
Morgan County Planning and Zoning
231 Ensign St.
Fort Morgan, CO 80701

EXHIBIT D
FLUID INJECTION INFORMATION REQUIRED BY
RULE 401.b.(4)

1. *Name, description, thickness and depth of the following formations: those from which wells are producing or having produced; those which will receive any fluids to be injected; those capable of limiting the movement of any fluids to be injected;*

The wells in the proposed unit are producing from the Lower Cretaceous Dakota Group D-Sand at a depth of approximately 5,500 ft. The average thickness of the producing interval is approximately 7 ft. The injection zone will be the D-Sand. The D-sand is overlain by the impermeable Graneros Shale which is approximately 135 ft. thick in the area. The Graneros shale will limit the movement of injection water upward. The D-Sand is underlain by the impermeable Huntsman Shale which is approximately 40 ft. thick in the area. The Huntsman shale will limit the movement of injection water downward.

2. *The name and the depth to the bottom of all underground sources of drinking water which may be affected by the proposed activity or operation;*

The shallow un-named underground source for drinking water in the area is found at depths of approximately 60 - 70 ft. The base of this aquifer is approximately 80 - 90 ft. deep.

3. *A resistivity log, run from the bottom of the surface casing to total depth of the injection well or wells, or a resistivity log of any well within one (1) mile together with a log from that well that can be correlated with a similar log of the injection well. If the injection well is to be drilled, a description of the typical stratigraphic level of the injection formation and any other available logging or testing data;*

A resistivity log of one of the D-sand producing wells in the proposed unit area is attached to this Exhibit D as **Addendum D-1**. Additionally, a type section of the D-Sand and J-Sand interval is attached to this Exhibit D as **Addendum D-2**, which shows the D-sand producing zone / proposed injection zone.

4. *A description of the casing of the injection well or wells or the proposed casing program, including a schematic drawing of the surface and subsurface construction details of the system and a full description of cement jobs already in place or proposed;*

The Hough 157-7-H1 (proposed injection well) was drilled in December 2012 and has nearly new casing as follows;

Conductor:	16" – 42 lb. set at 0-60 ft. – 50 sacks cement
Surface:	9 5/8" – 36 lb. set at 400 ft. – 225 sacks cement
1st String	7" – 23 lb. set at 5908 ft. (md) – 160 sacks cement
1st liner	4.5" – 11.6 lb. set at 817 ft. (md) – not cemented

An injection packer will be set at approximately 5600 ft. (md) in the 7" casing and the injection fluid will be allowed to follow the horizontal well bore to be injected

throughout the length of the wellbore into the D-sand. There is approximately 3,080 ft. of horizontal well bore through the D-Sand interval.

5. *A statement specifying the type of fluid to be injected, chemical analysis of the fluid to be injected, the source of the fluid, the estimated amounts to be injected daily, the anticipated injection pressures, water analysis of receiving formation, any available data on the compatibility of the fluid with the receiving formations and known or calculated fracture gradient (maximum authorized surface injection pressure will be set by the Director);*

The injection source water will come from the J-sand Unit which is operated by Black Raven. The J-sand Unit is currently producing approximately 13,000 barrels of water per day, most of which is being re-injected into the J-Sand. A small portion of J-Sand Produced water is currently being injected in to an active D-Sand Water Flood Unit in the southern portion of the J-Sand Unit area. This active D-Sand Waterflood unit is also operated by Black Raven.

Black Raven proposes to inject approximately 500 to 1,500 barrels of J-Sand Unit water per day into the Hough 157-7-H1. Injection pressures are anticipated to be low (probably injection on vacuum) but will not exceed 500 psi at the surface (if pumping is required).

The J-Sand injection water chemistry is compatible with the D-sand formation fluid per empirical data from the active D-Sand Water Flood in the southern portion of the field. Chemical analysis of both injection fluid and D-Sand produced water are attached to this Exhibit D as **Addendum D-3**. The average TDS for J-Sand water that will be injected is 8007 ppm. The average TDS of D-Sand produced water is 16,690 ppm. The "fresher" J-Sand injection water is considered to be beneficial to the proposed D-Sand water flood.

6. *A description of any proposed stimulation program;*

There is no proposed stimulation program.

7. *The name and address of the operator or operators of the project and those persons notified by the applicant.*

Black Raven Energy, Inc.
165 S. Union Blvd., Suite 410
Lakewood CO, 80228

The parties notified by the Applicant are attached to the Application as Exhibit C. Copies of this Application were sent to such parties, but due to the voluminous nature of the exhibits, the copies of the Application did not include the exhibits. However, such parties were notified that copies of the exhibits will be sent upon request.

Addendum D-1
Resistivity Log of D-sand Producing Well



00945917

SCHLUMBERGER

Electrical Log

4/
COUNTY MORGAN
FIELD or ADENA
LOCATION SEC. 7-IN-57W
WELL HOUGH # 3
COMPANY PURE OIL CO.

COMPANY PURE OIL CO.

WELL HOUGH # 3

087-05357

FIELD ADENA

LOCATION SEC. 7-IN-57W

SE NE SW

COUNTY MORGAN

STATE COLORADO

Location of Well

RECEIVED
MAR 24 1954

OIL & GAS
CONSERVATION (M.L.) MISSION

572-5

Elevation: D.F.: 4498

K.B.:

or G.L.: 4490

FILING No.

RUN No.	ONE				
Date	3-17-54				
First Reading	5619				
Last Reading	103				
Feet Measured	5516				
Csg. Schlum.	103				
Csg. Driller	104				
Depth Reached	5619				
Bottom Driller	5619				
Depth Datum	R.D.B.				
Mud Nat.	GEL				
" Density	9.6				
" Viscosity	143				
" Resist.	2.4 @ 63F	@ °F	@ °F	@ °F	@ °F
" Res. BHT	1.2 @ 136F	@ °F	@ °F	@ °F	@ °F
" pH	8 @ °F	@ °F	@ °F	@ °F	@ °F
" Wtr. Loss	3.8 30 min.	CC 30 min.	CC 30 min.	CC 30 min.	CC 30 min.
Max. Temp. °F	136				
Bit Size	7 7/8" to TD				
Spcgs.—AM	16"				
AM	64"				
AO	18" 8"				
Opr. Rig Time	2 HRS.				
Truck No.	1705 FORT MORGAN				
Recorded By	KIMBALL				
Witness By	PERKINS				

FOLD HERE

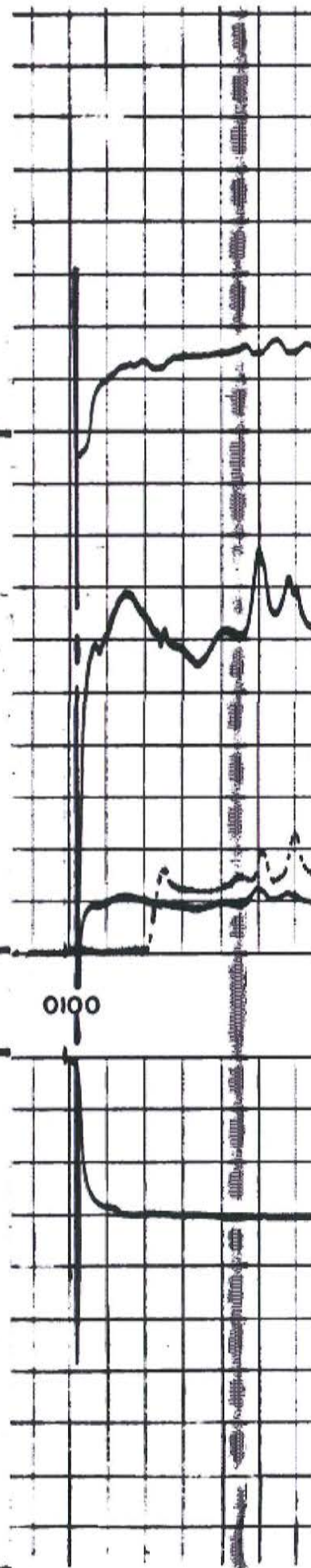
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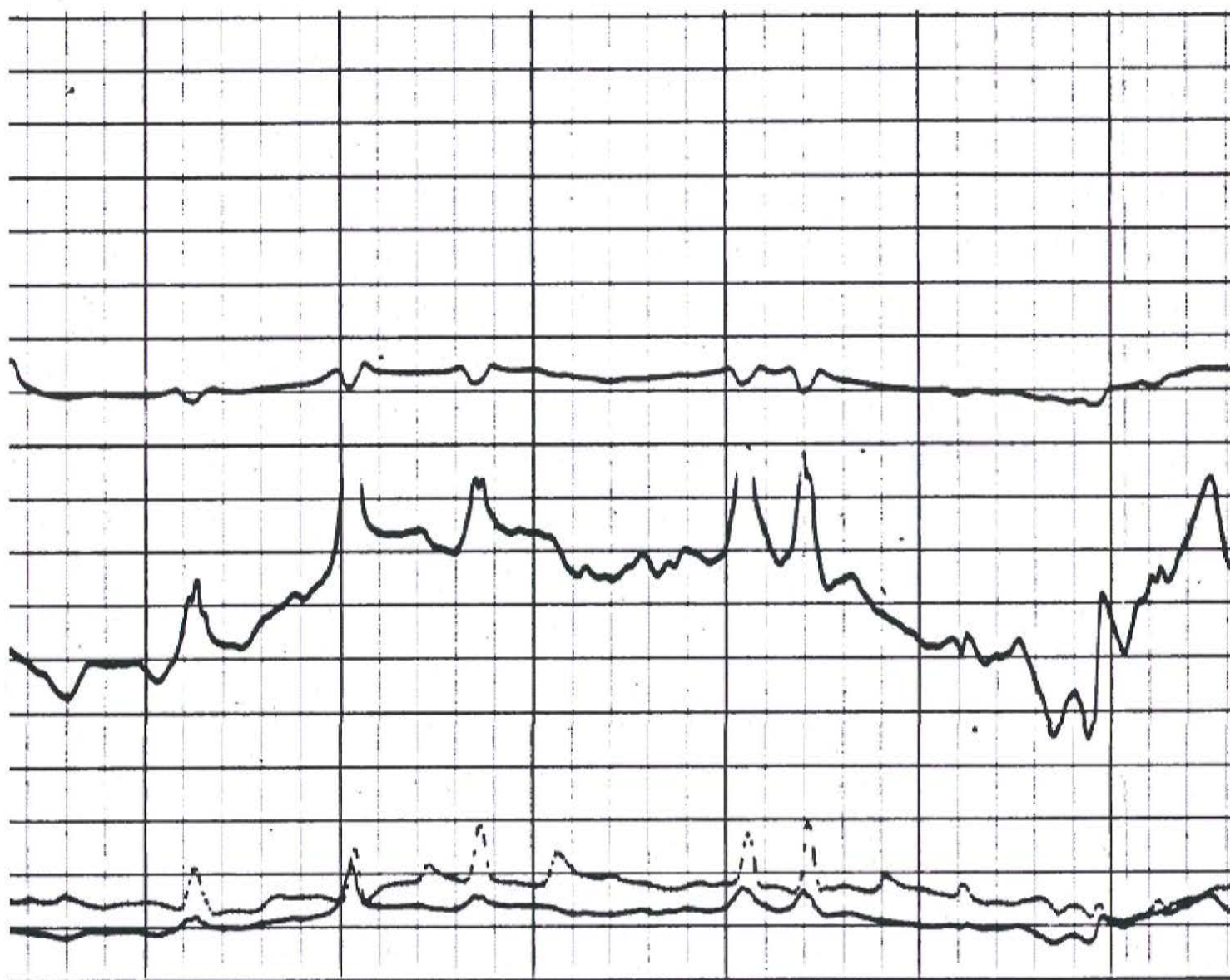
REMARKS

REMARKS _____ MUV DATA LE FROM MUV ELL.

SPONTANEOUS-POTENTIAL millivolts	DEPTHS	RESISTIVITY -ohms. m ² /m	RESISTIVITY -ohms. m ² /m
$- \left \frac{20}{\frac{20}{20}} \right +$		NORMAL	LONG NORMAL
		50 0	50 0
		500 0	500 0
		5000 0	5000 0
		LATERAL	
		50	
		500	
		5000	
		AMPLIFIED NORMAL	
		10	

CSG
103

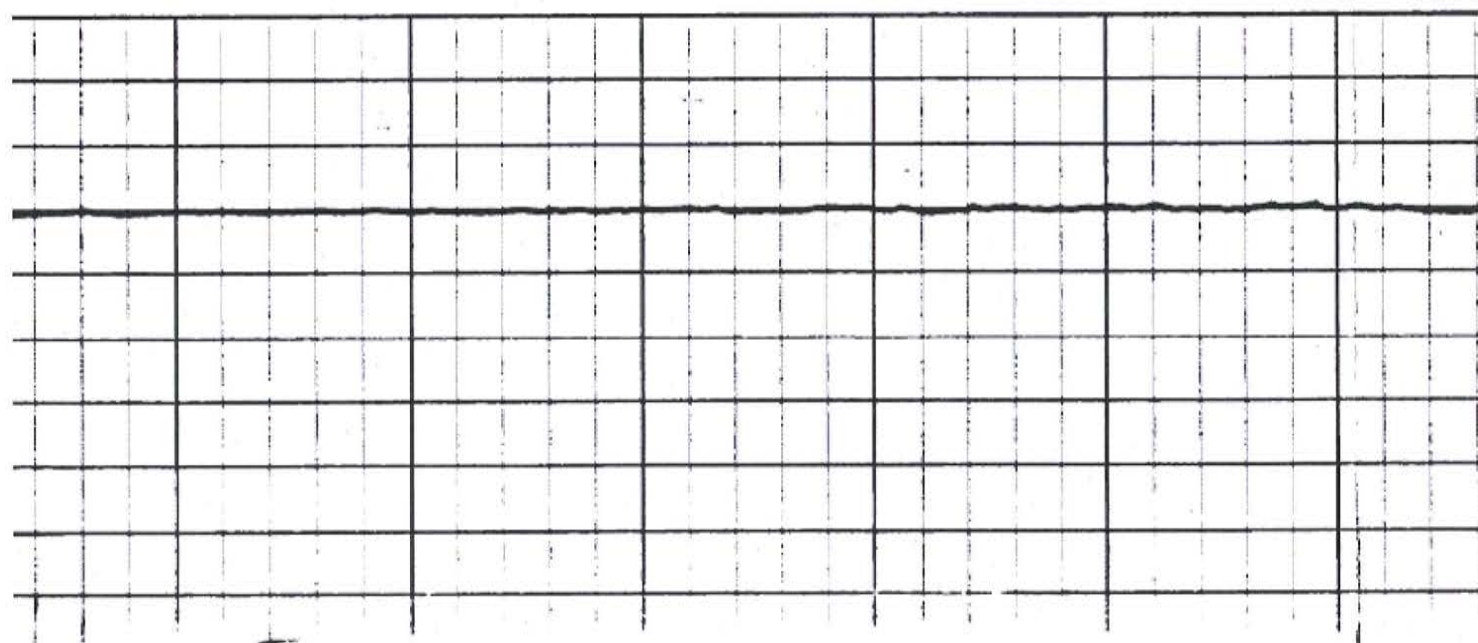


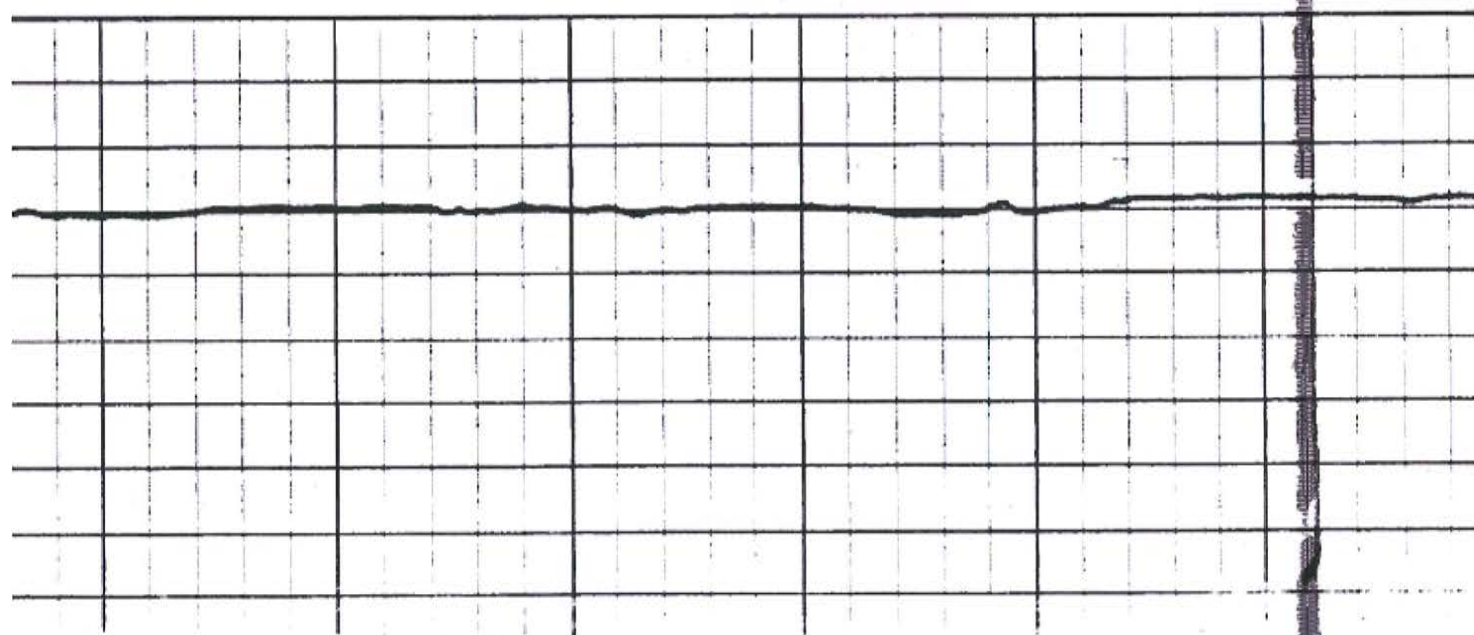
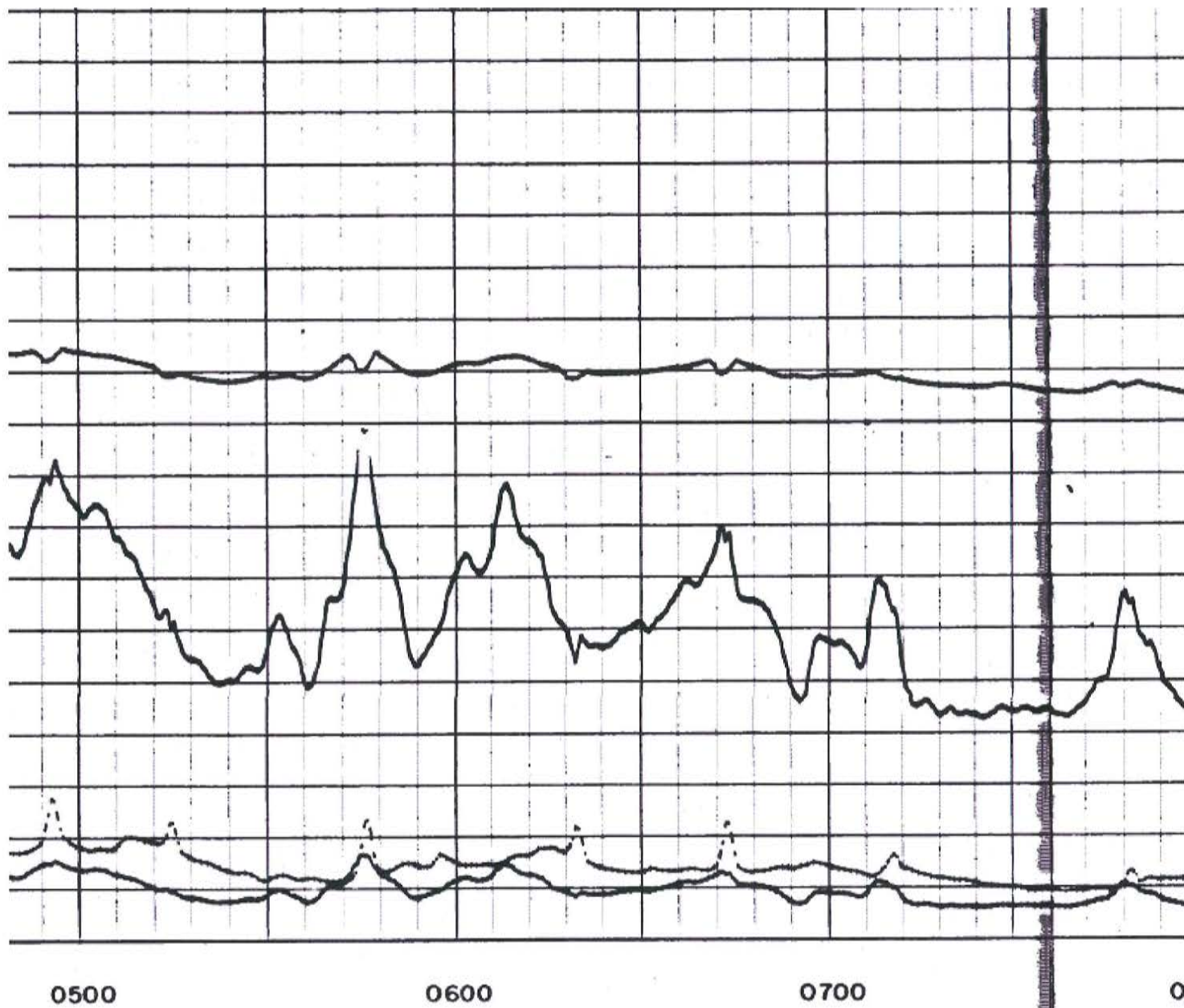


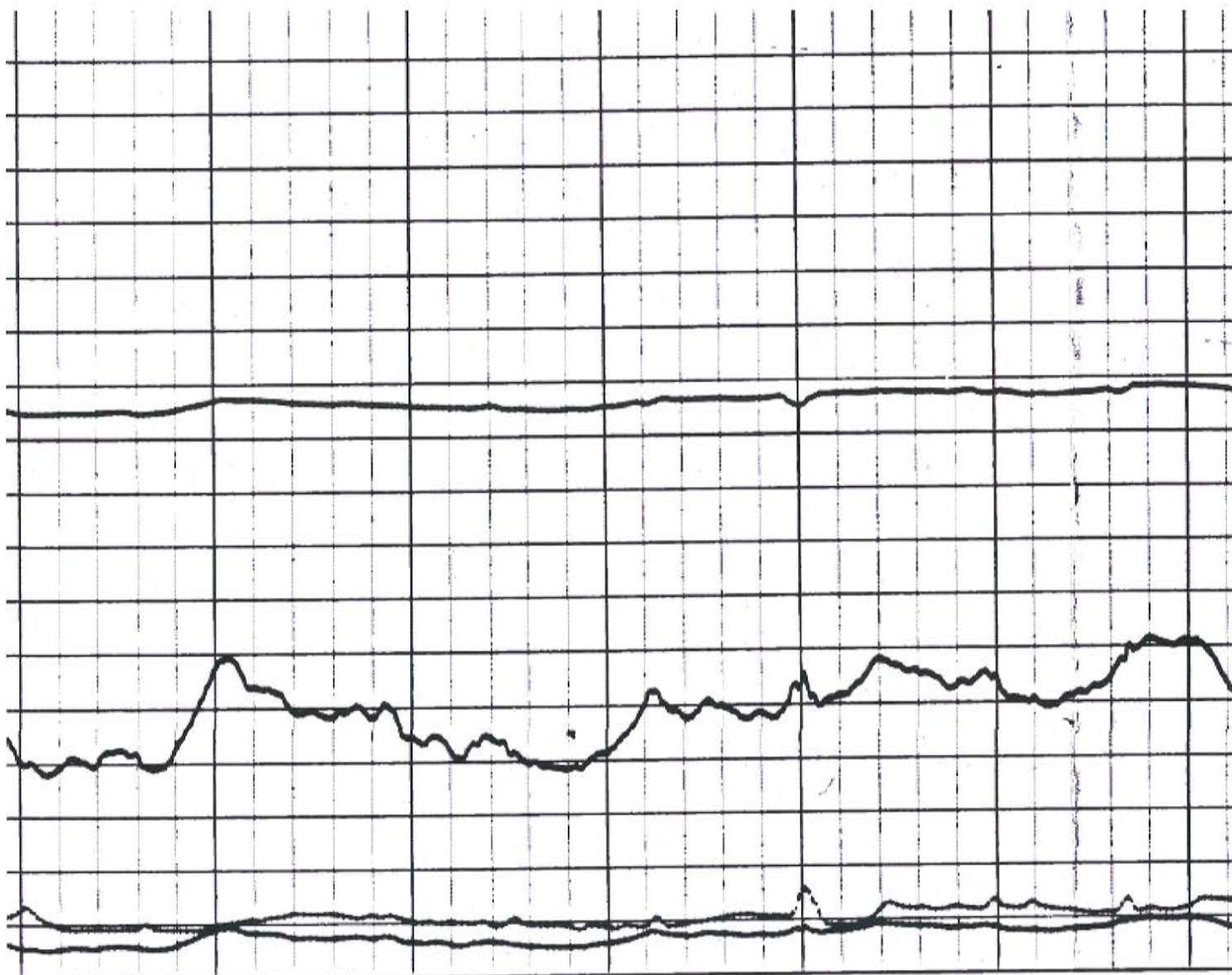
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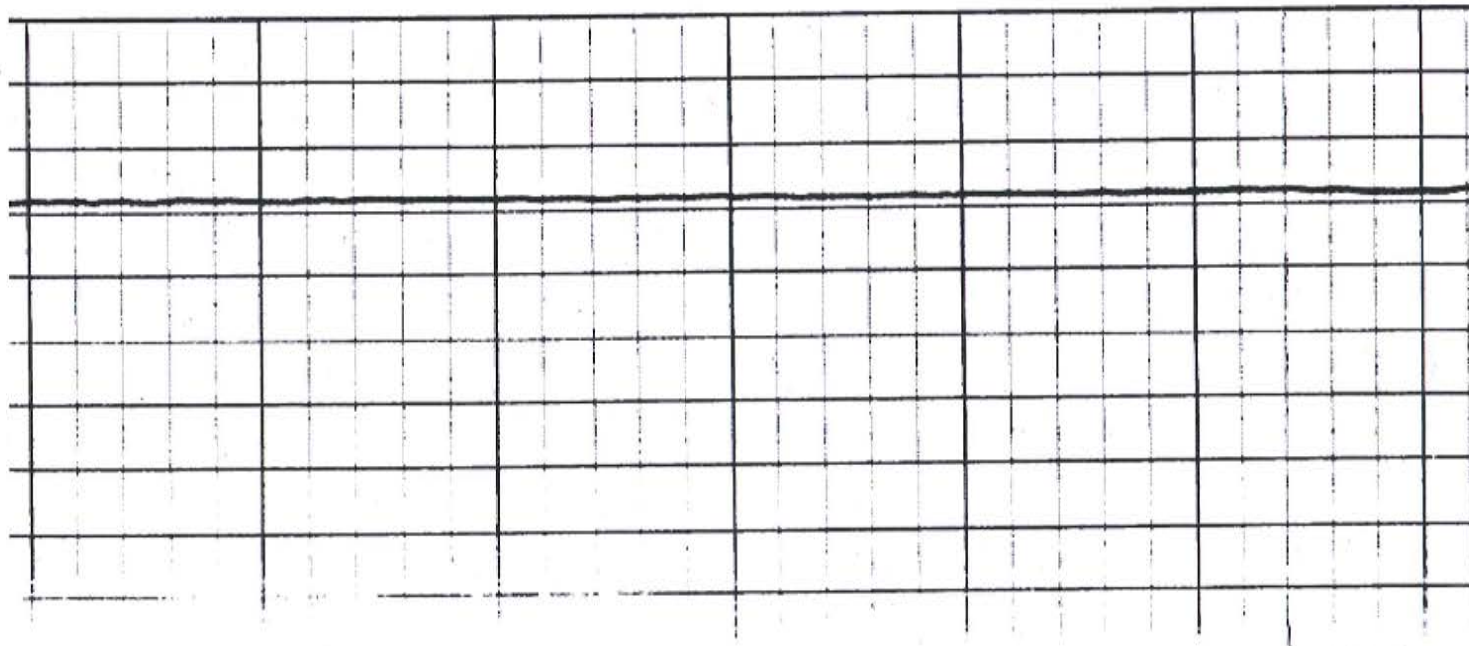
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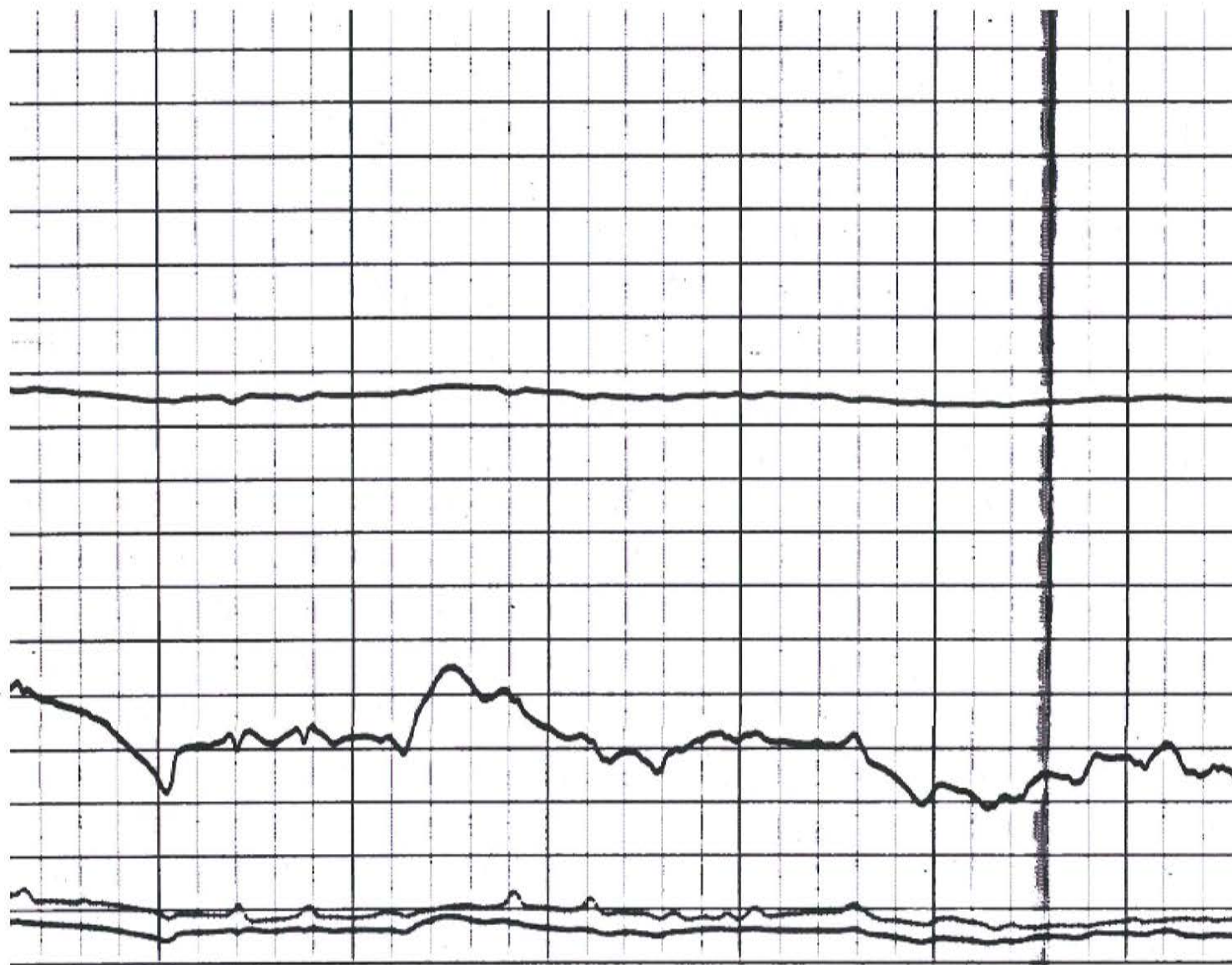






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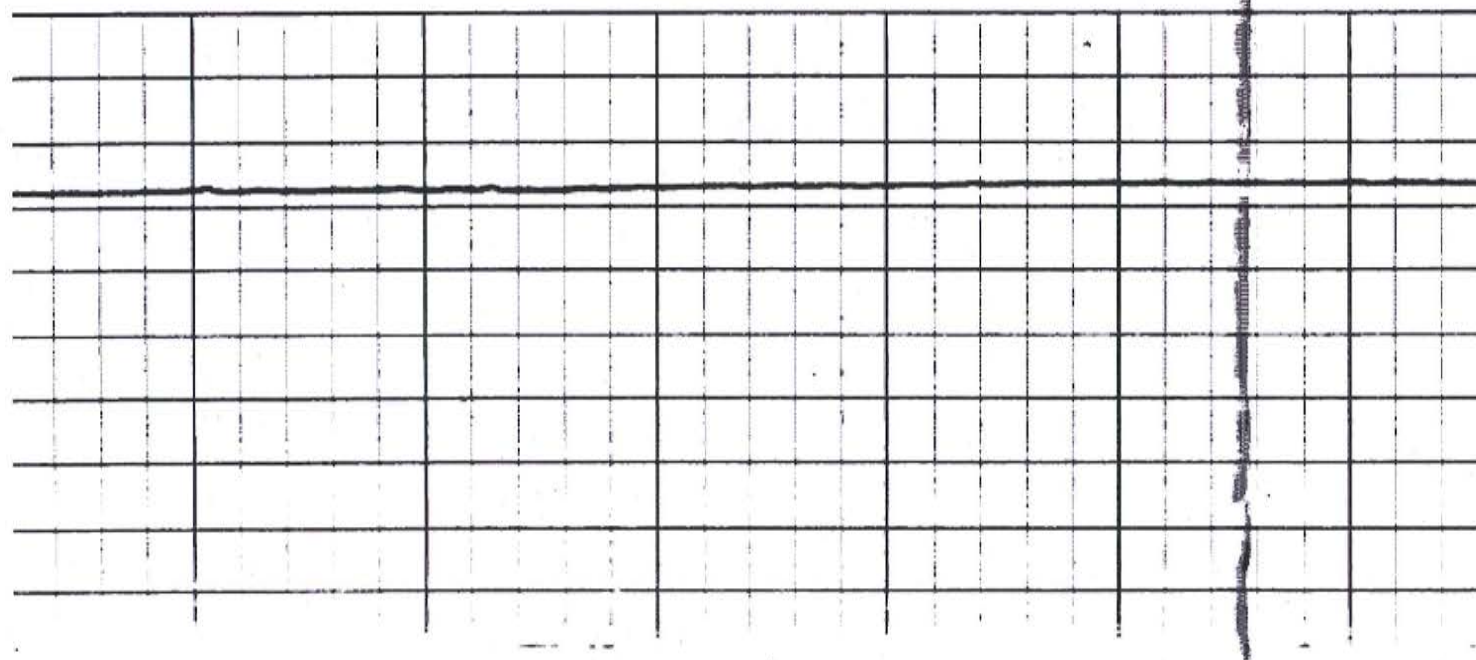


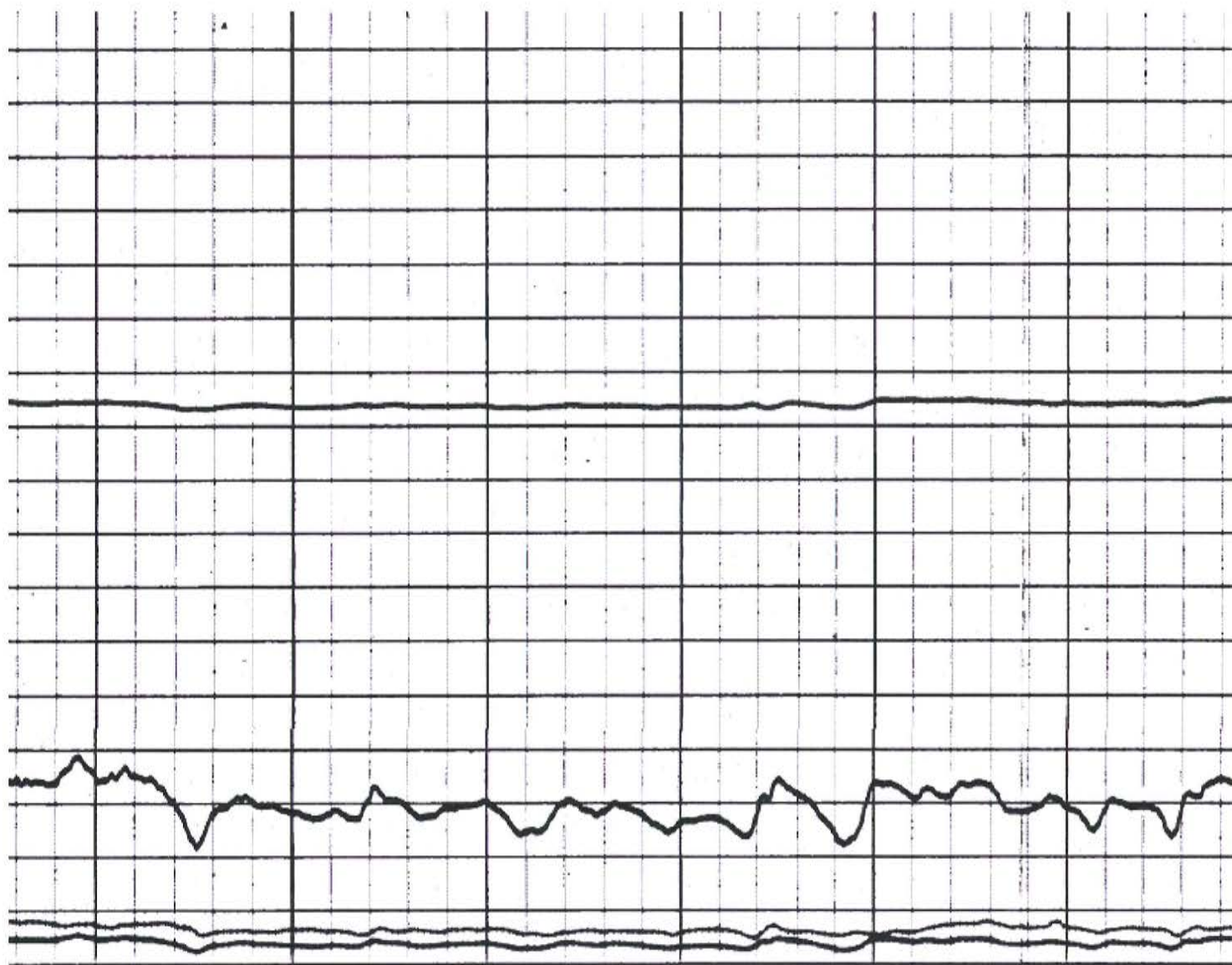


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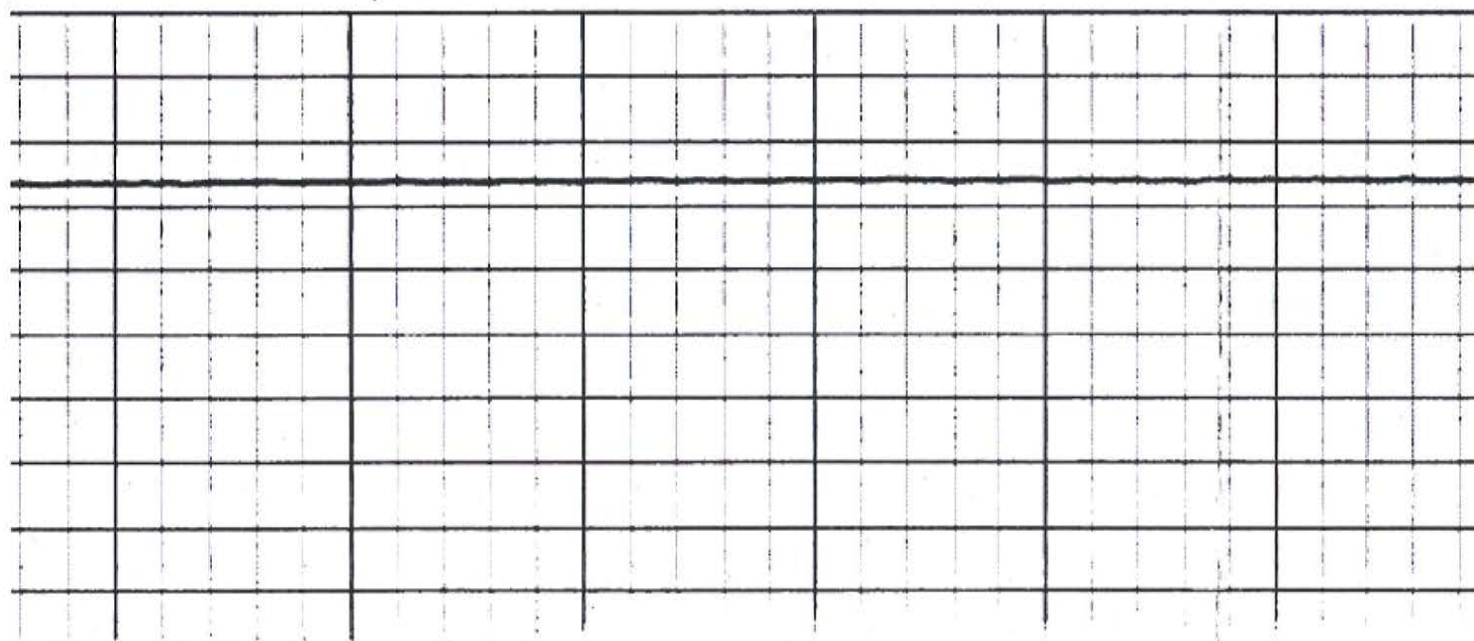


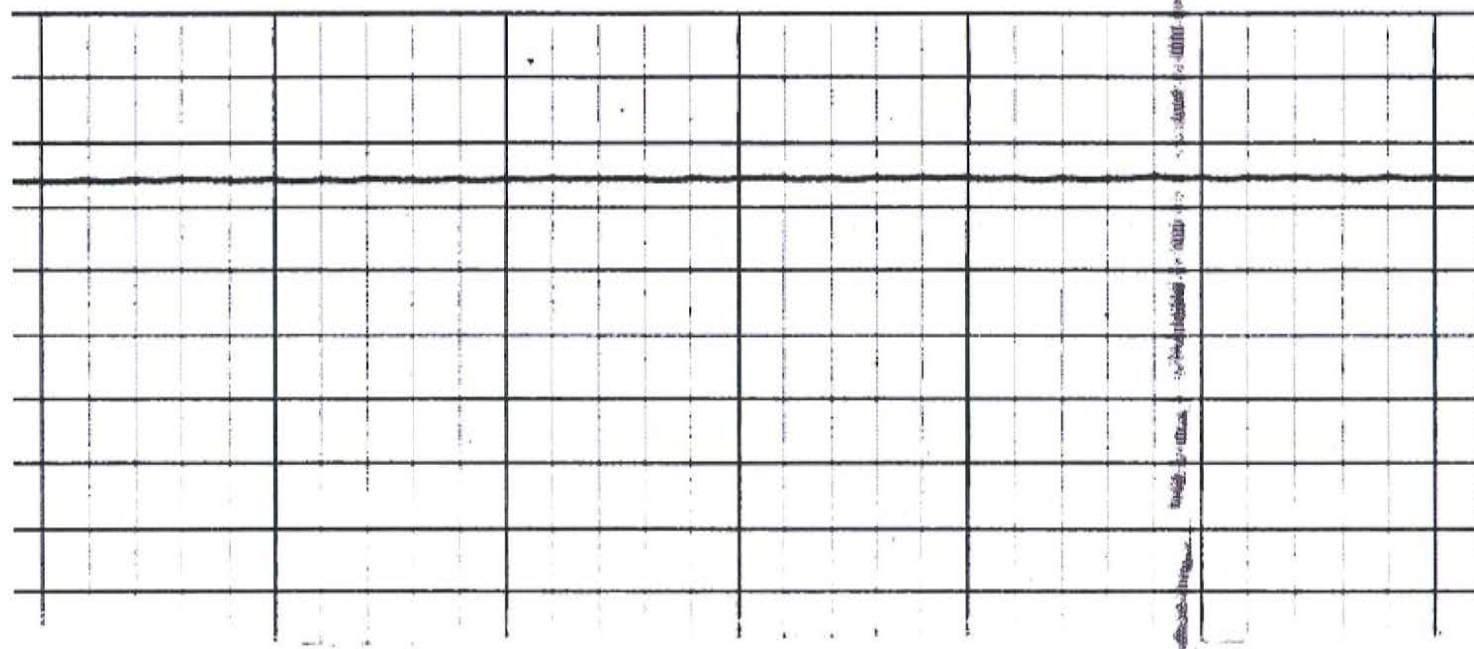
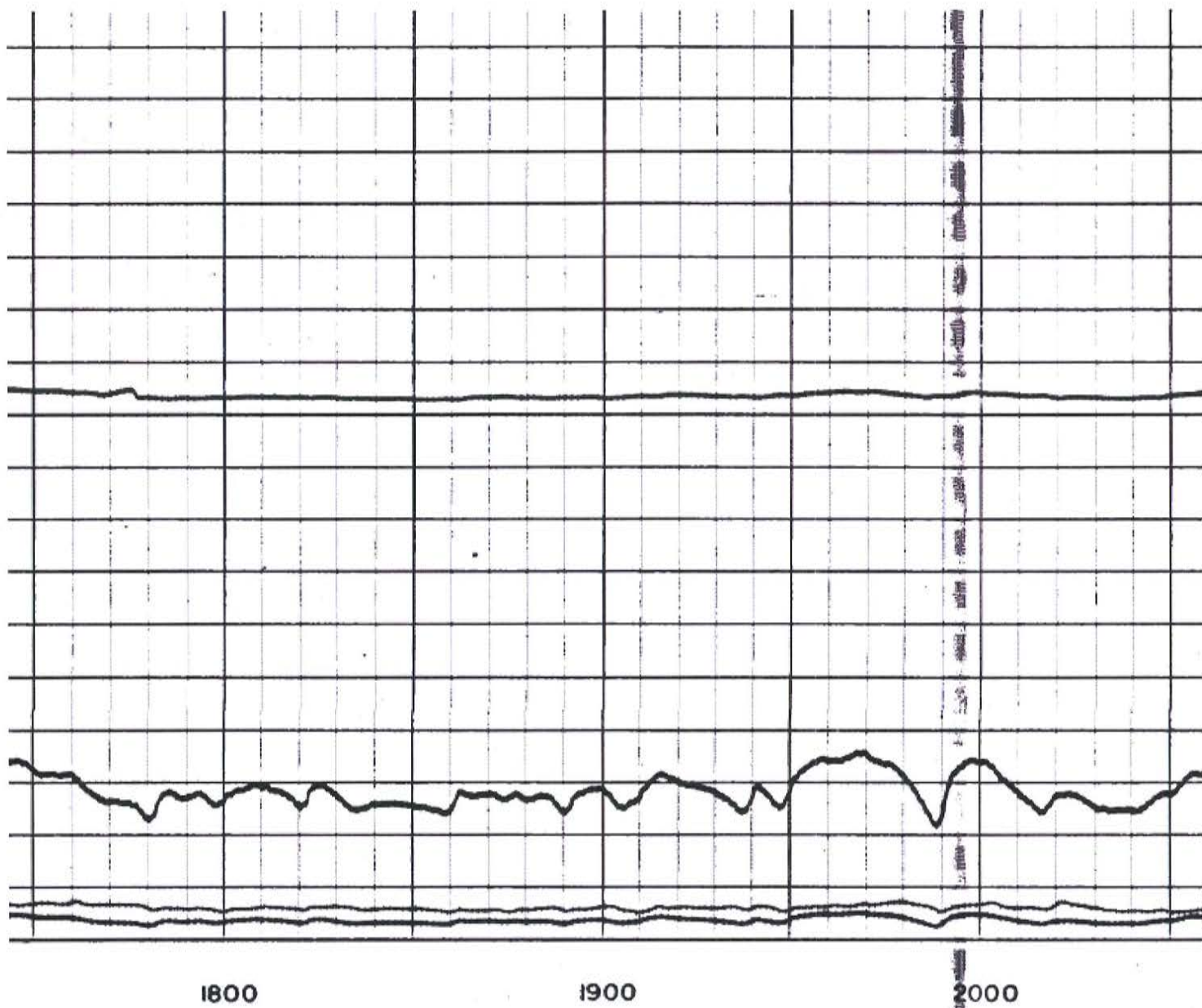


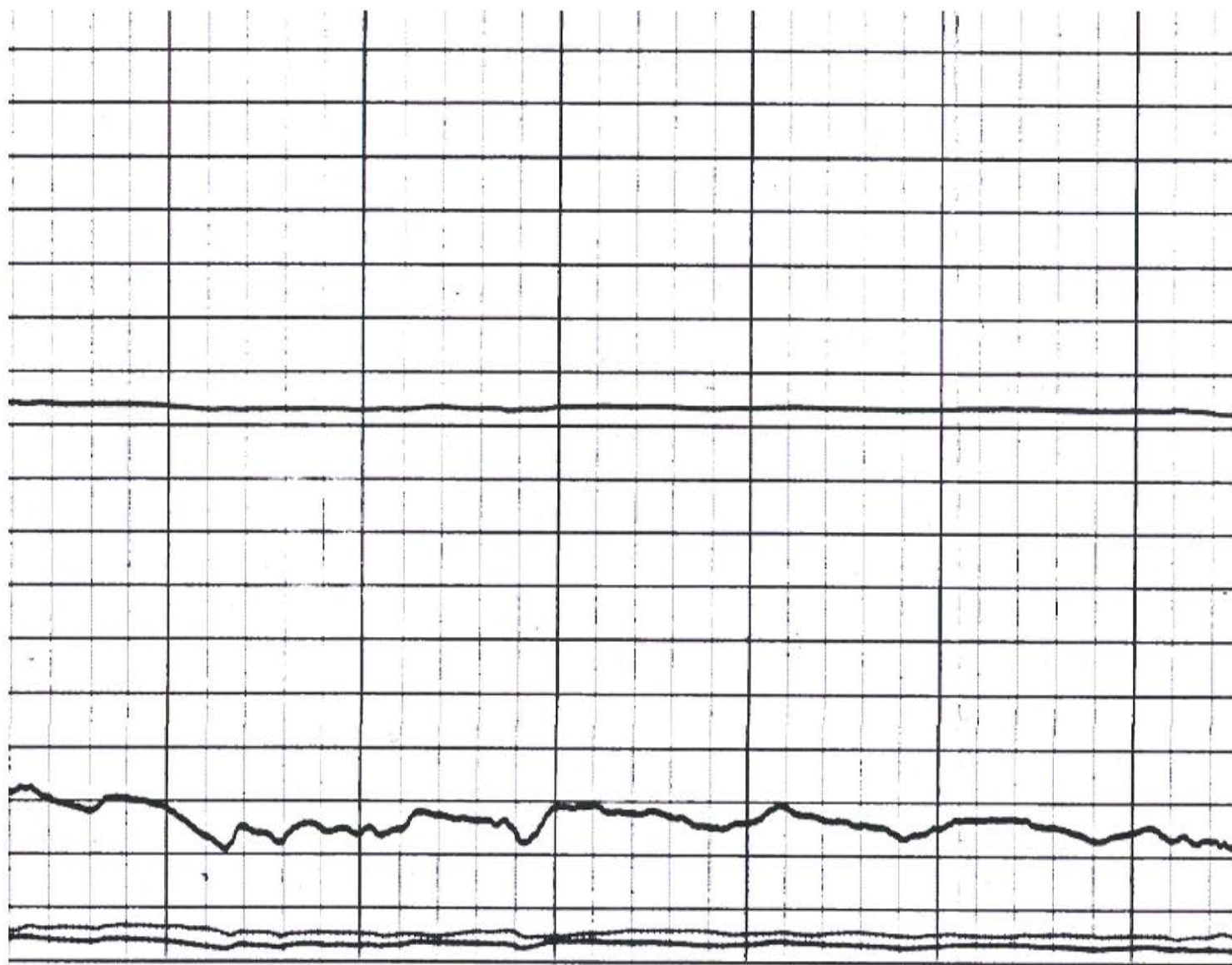
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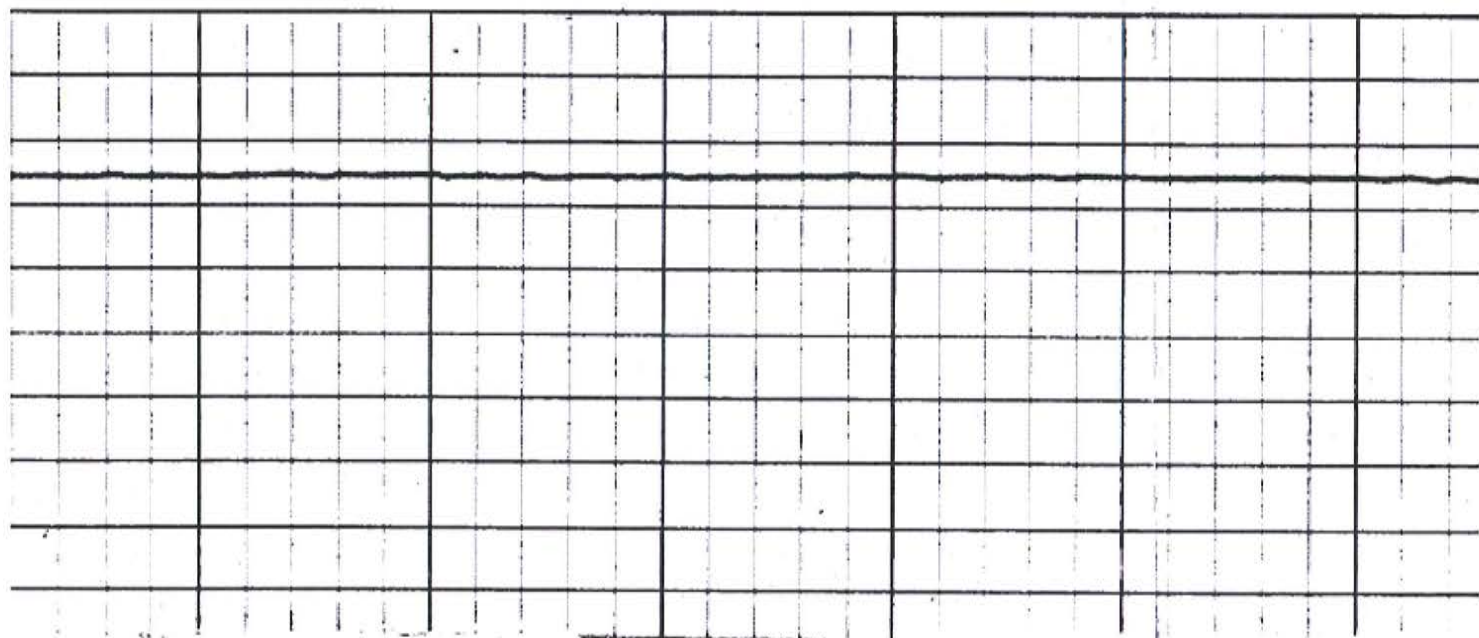


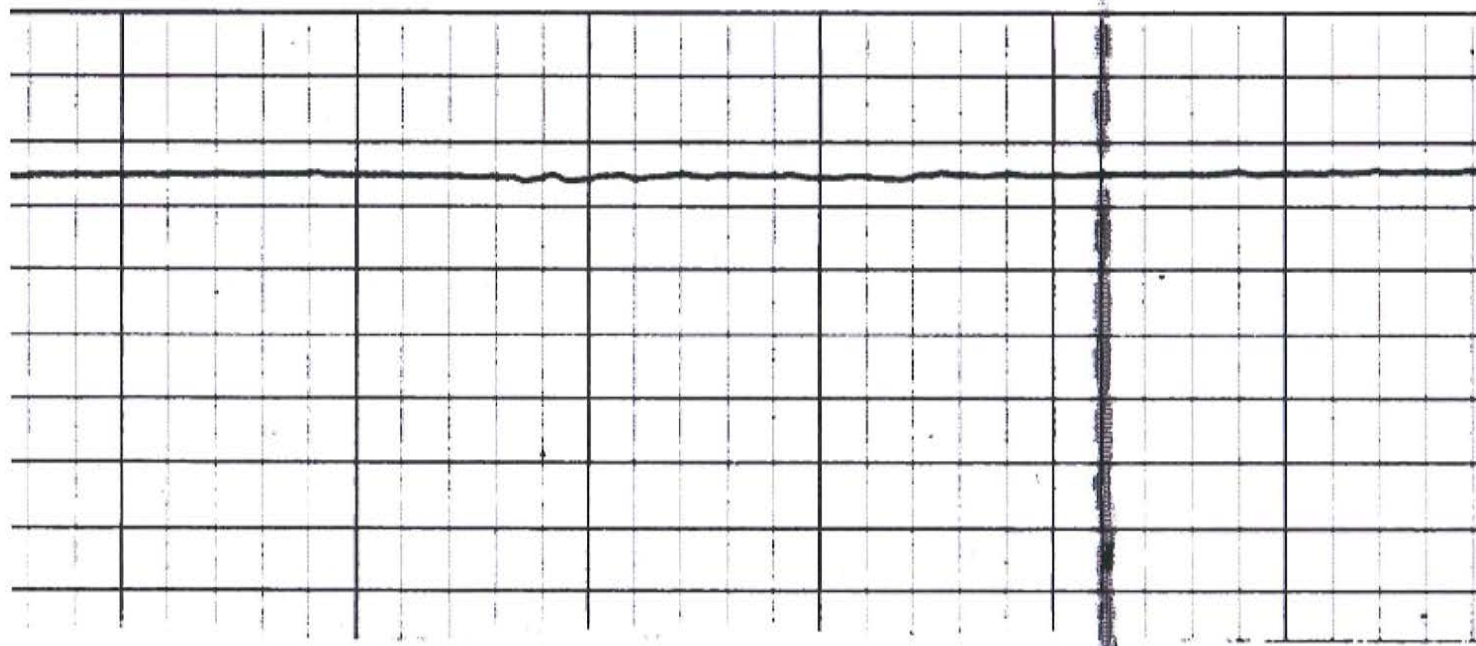
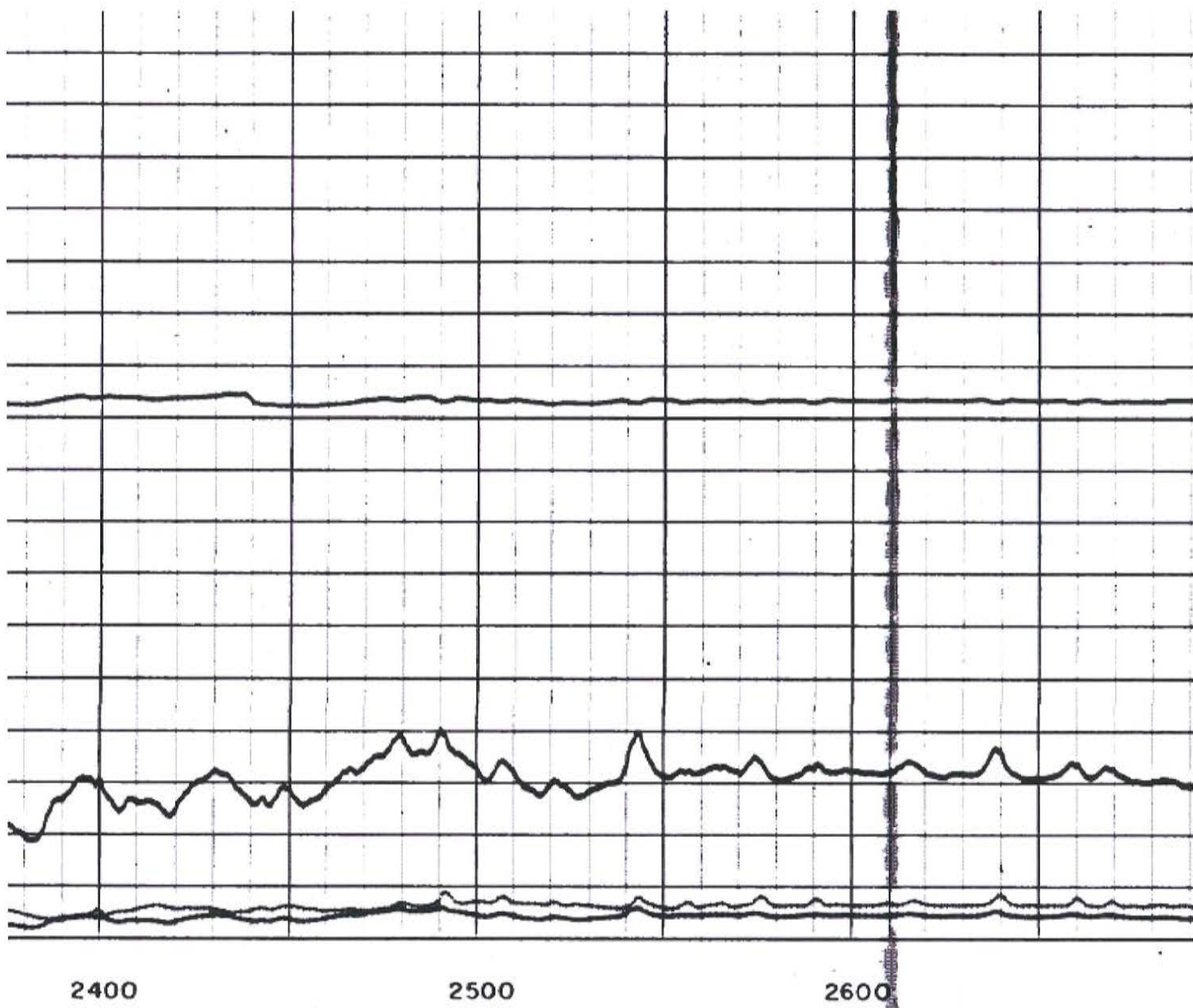


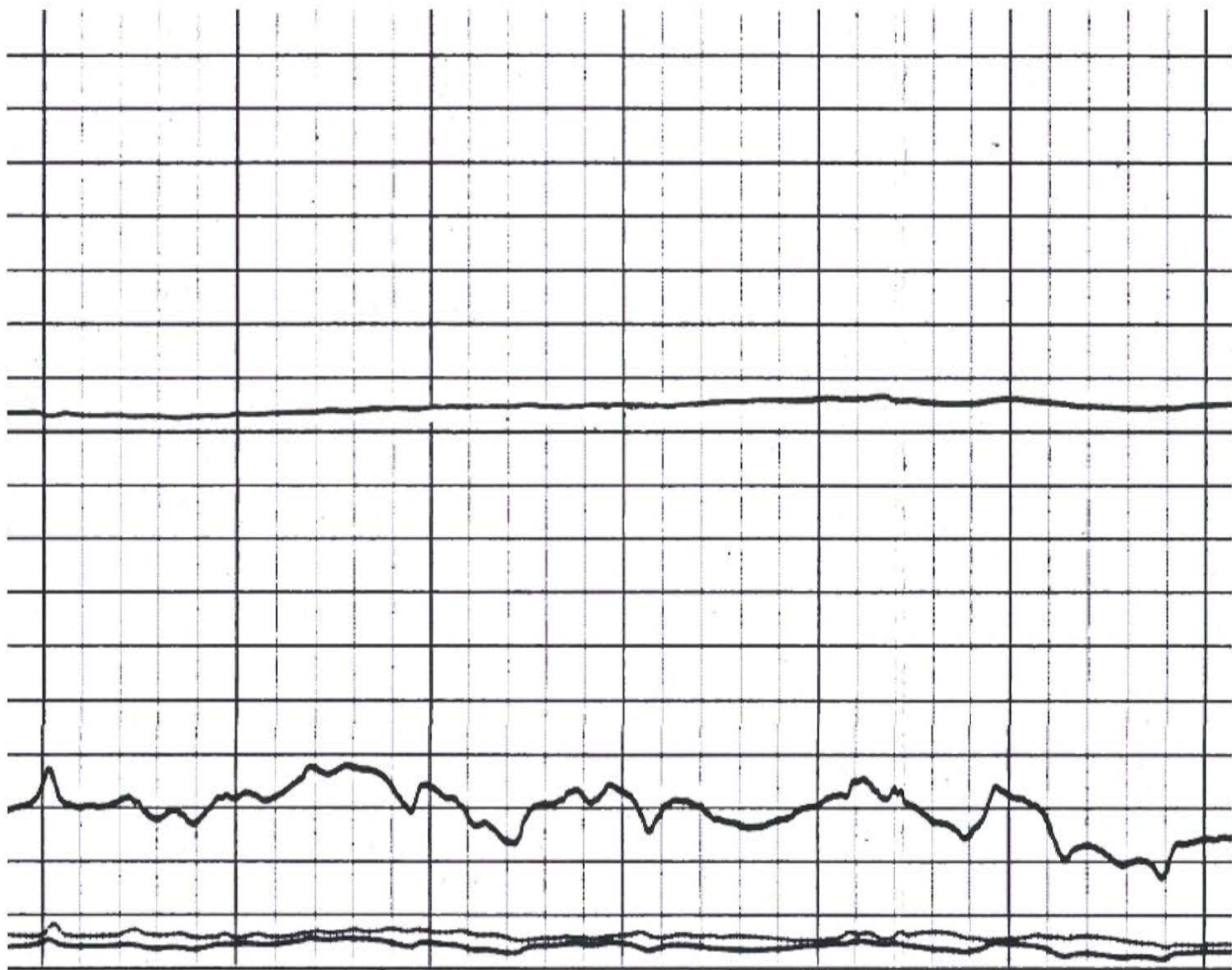
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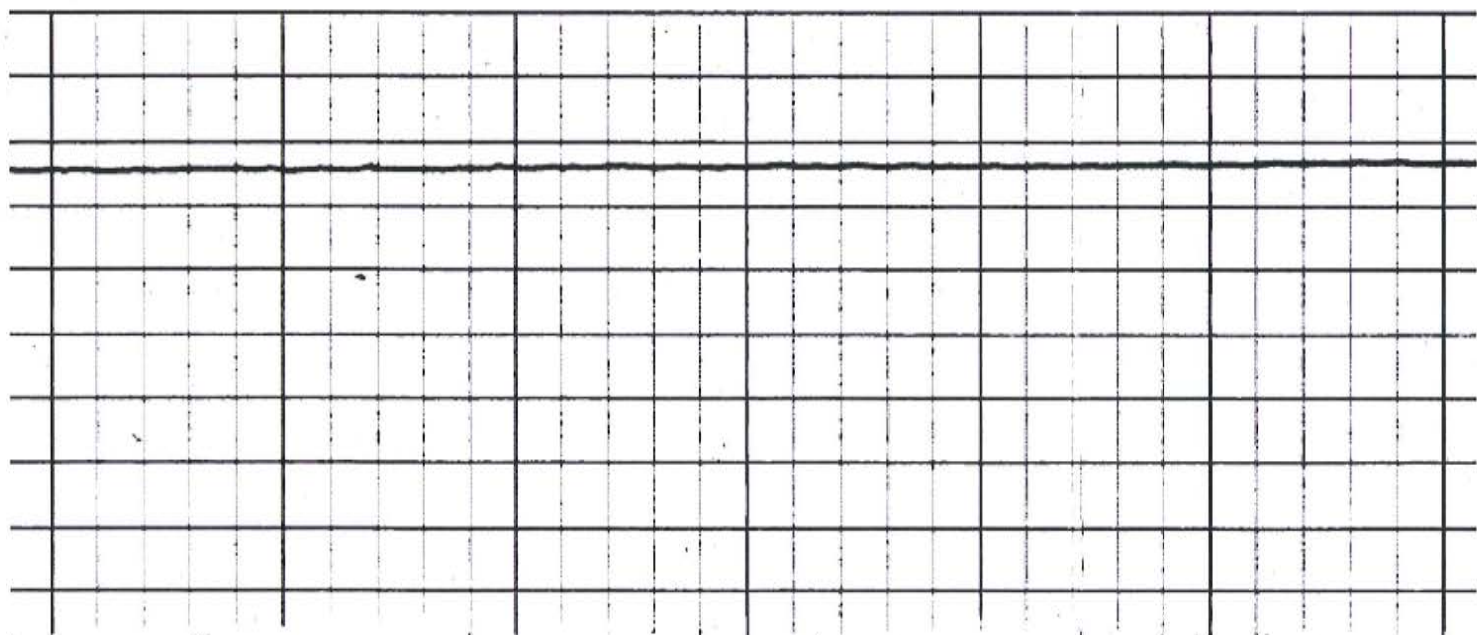


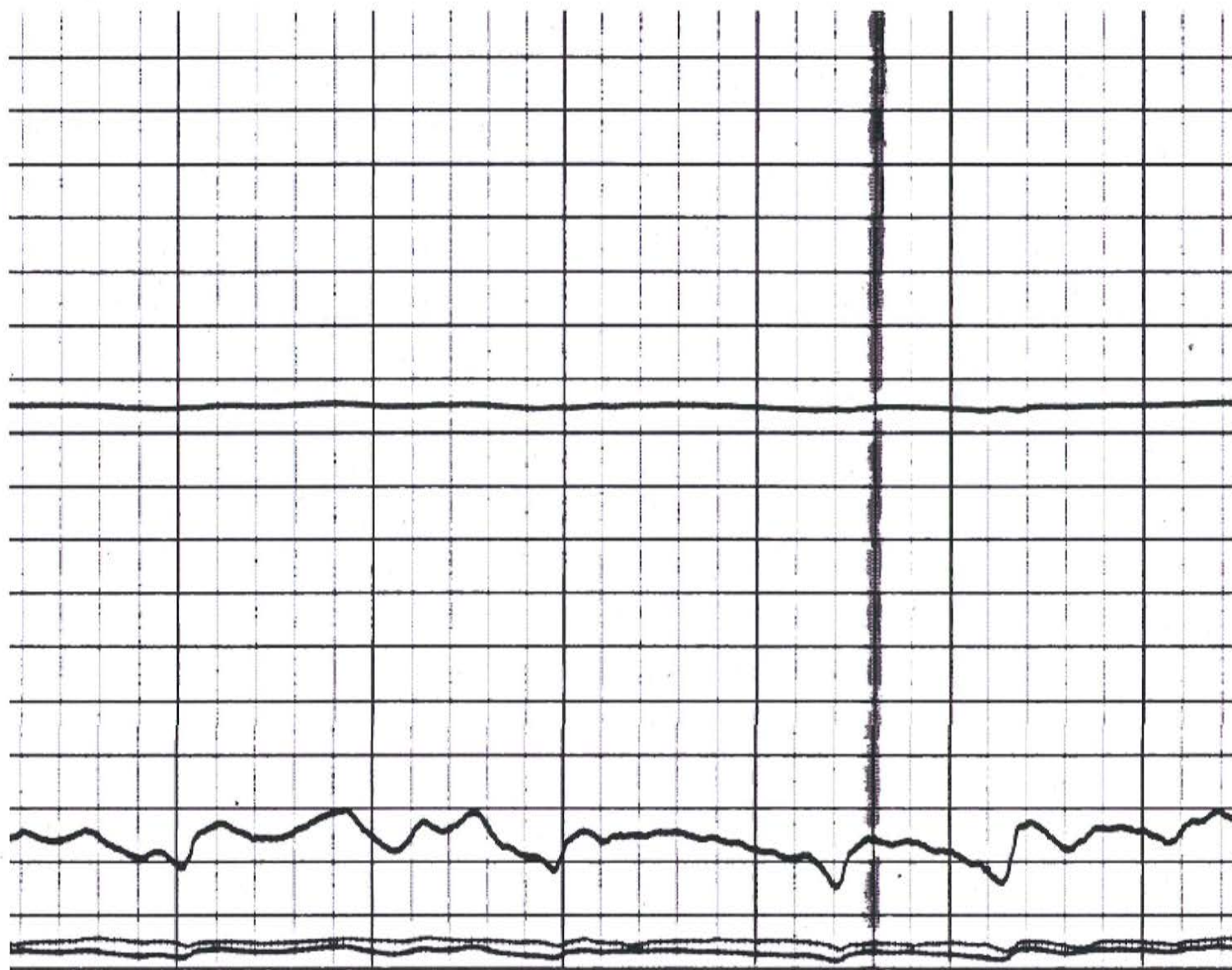
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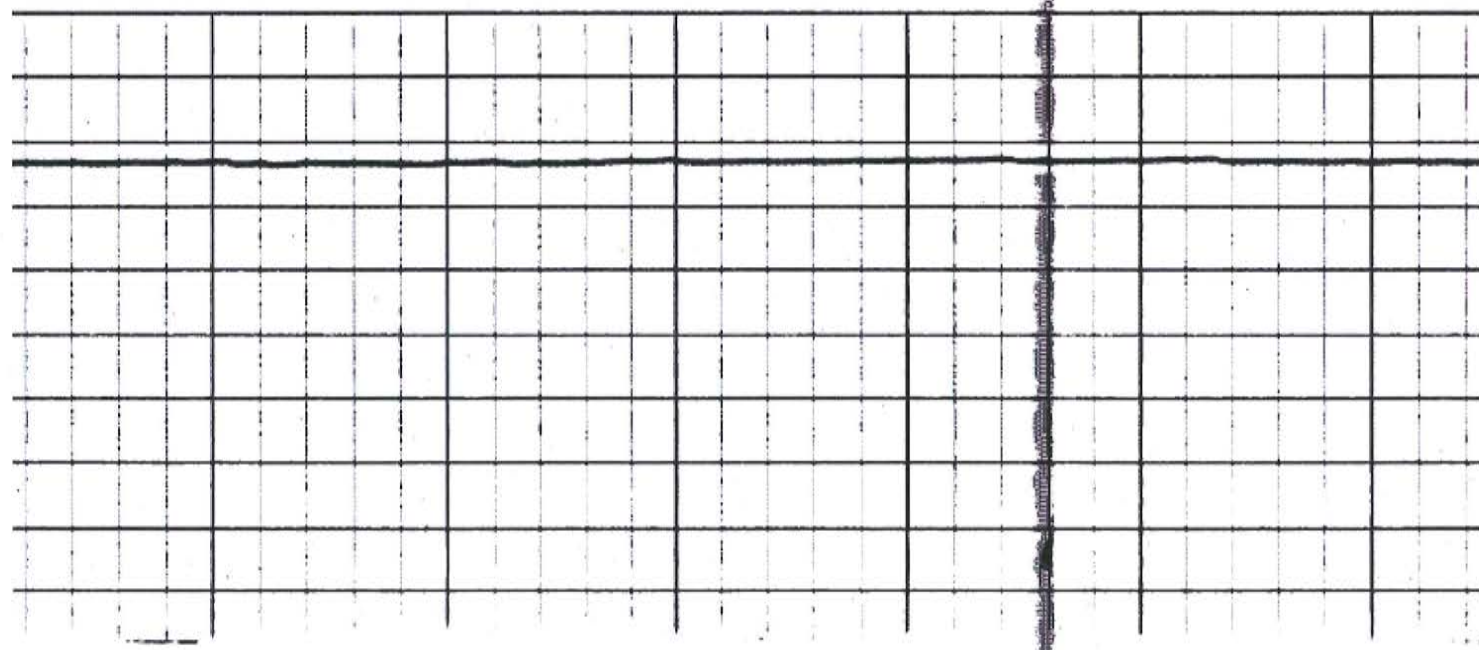


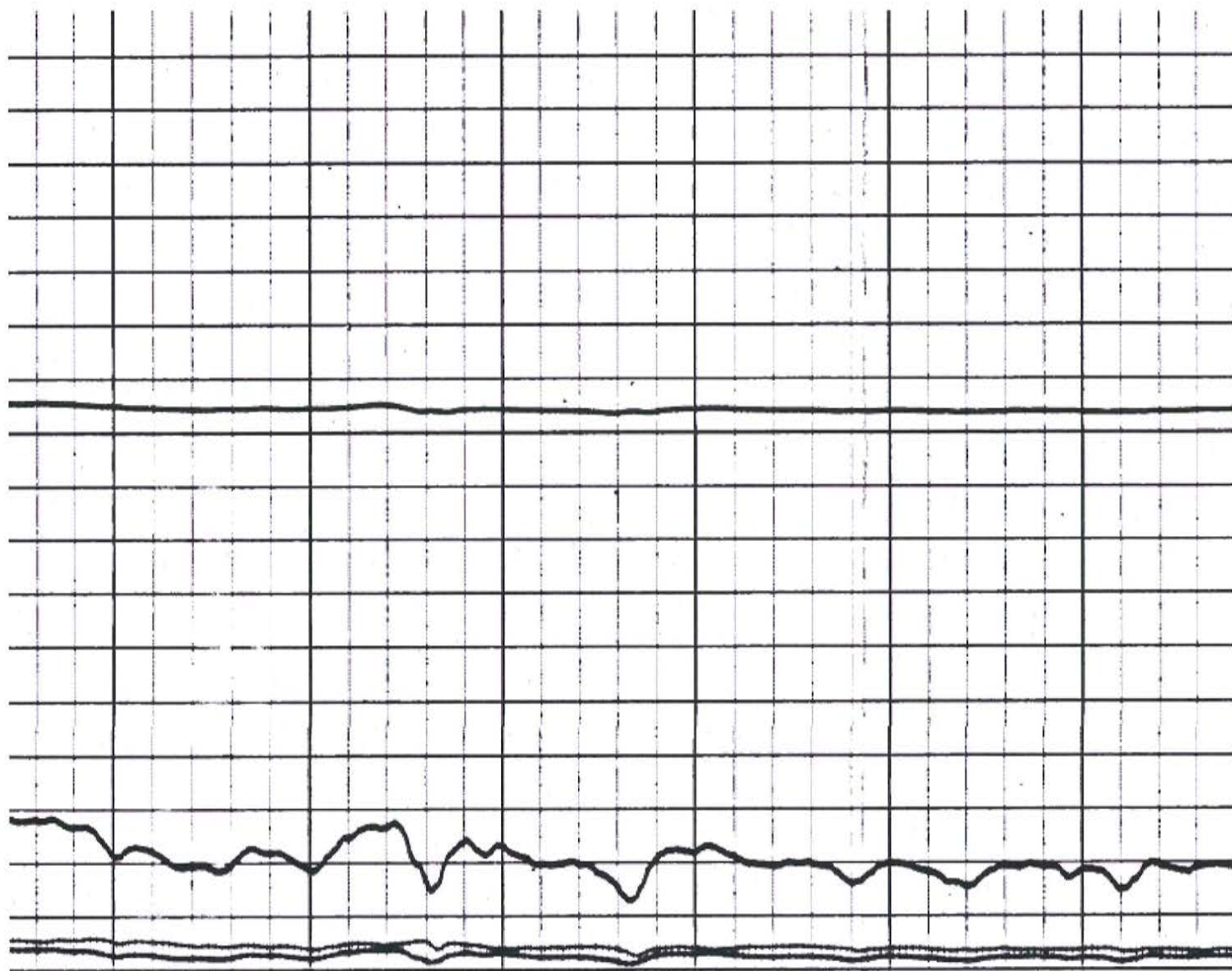
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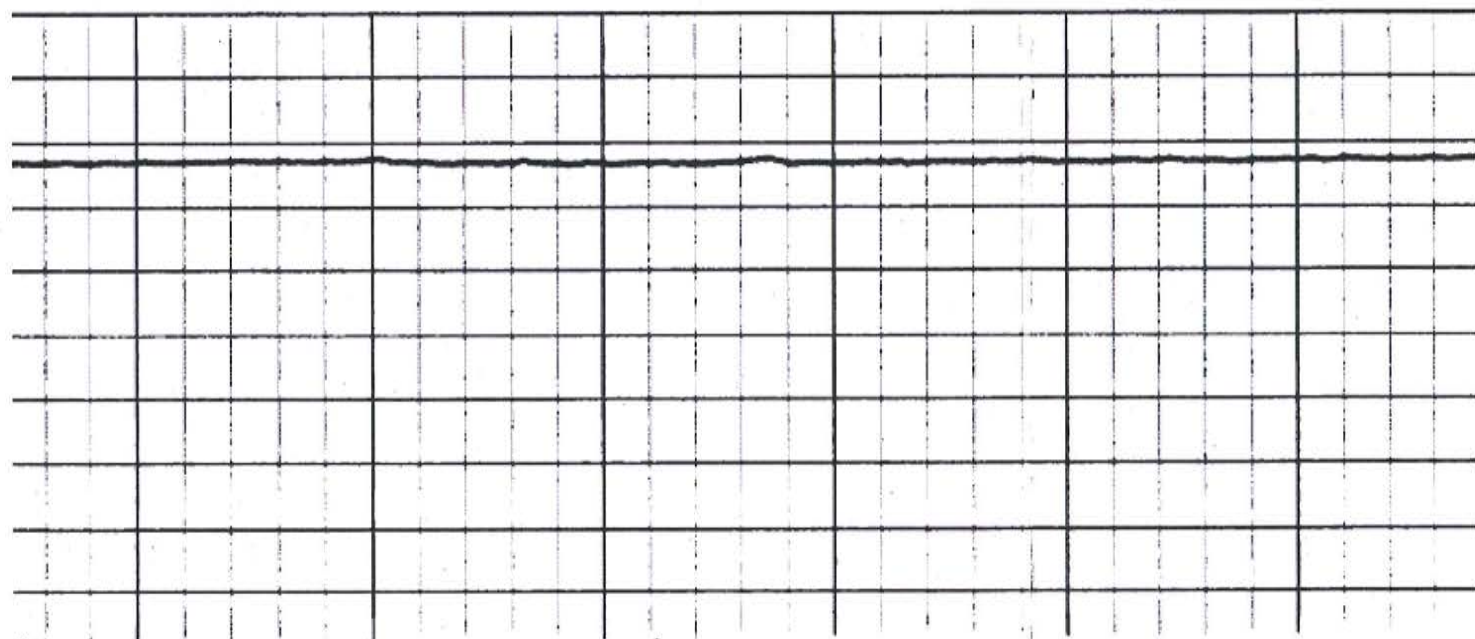


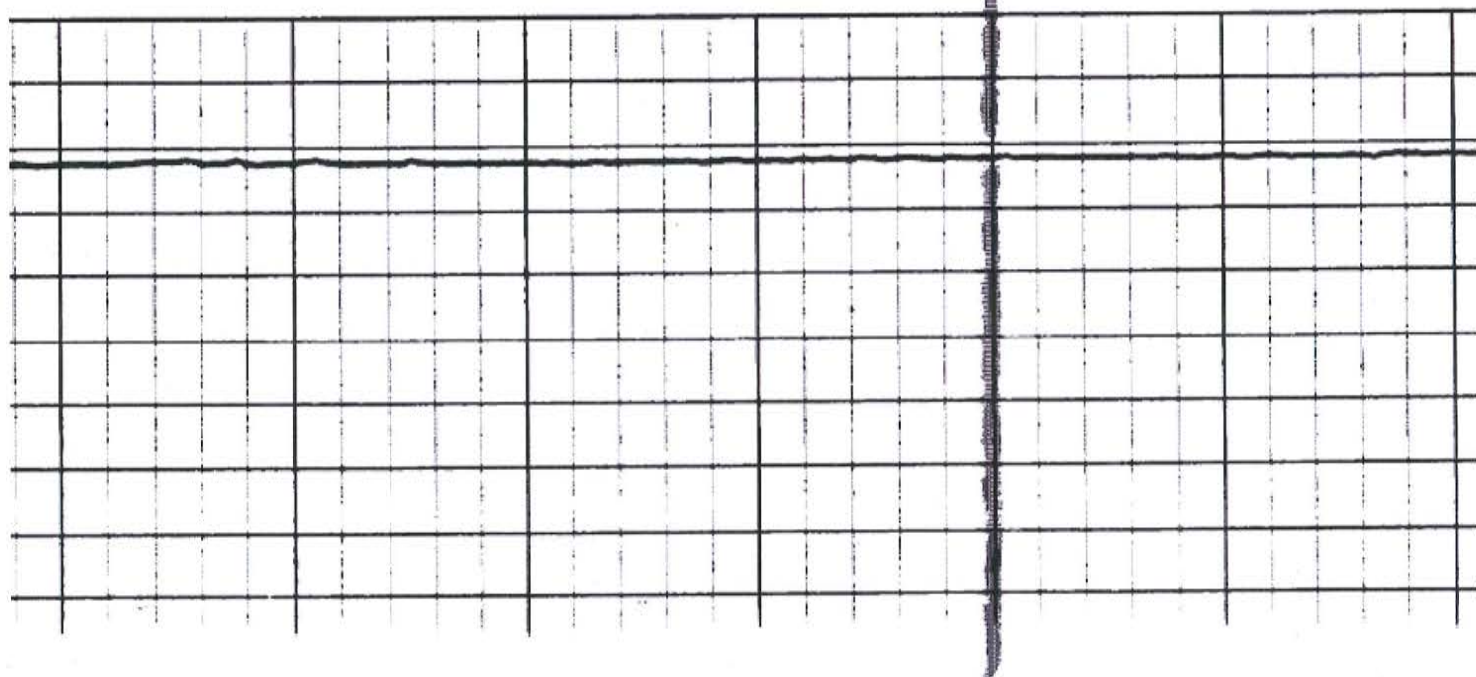
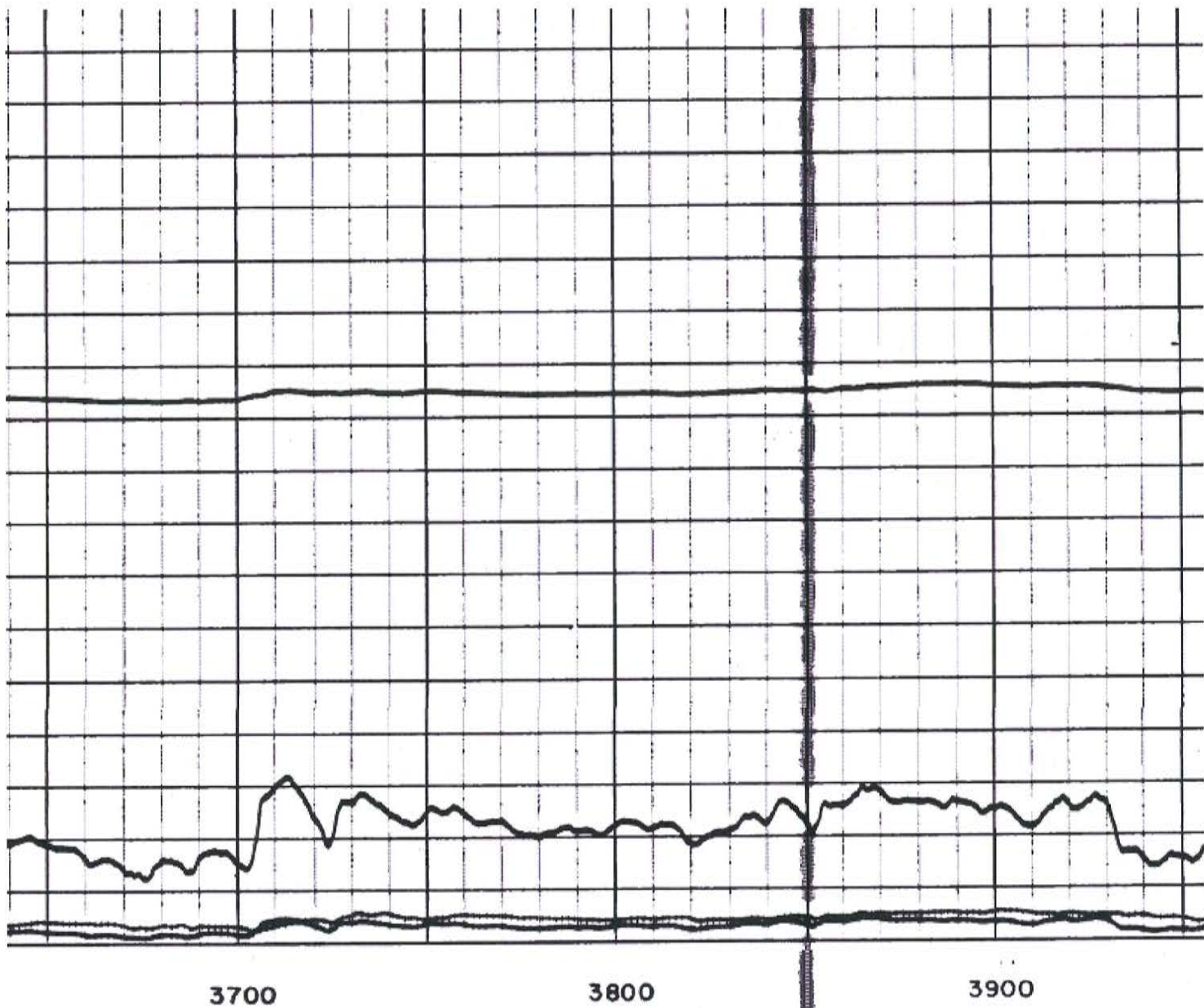


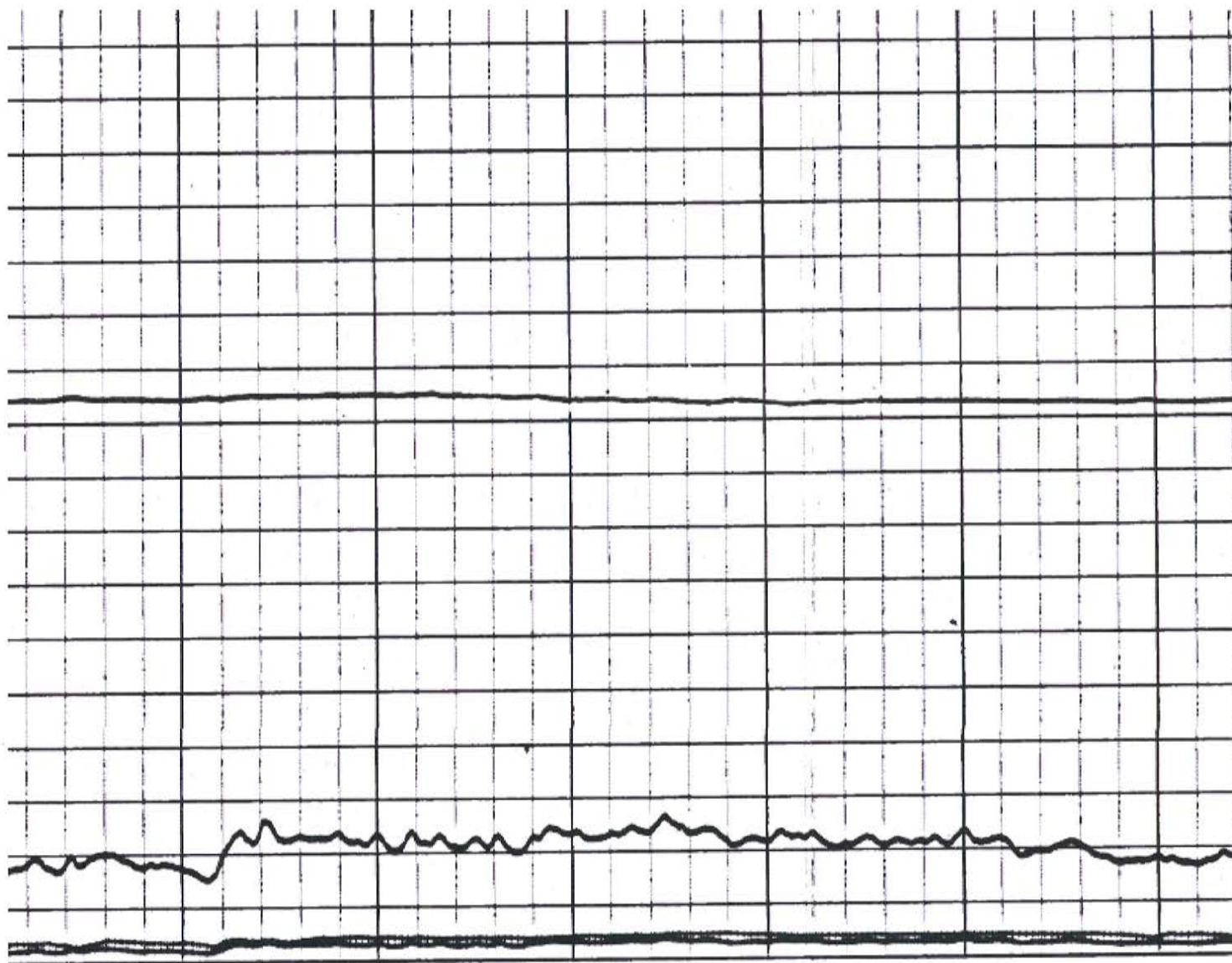
3400

3500

3600



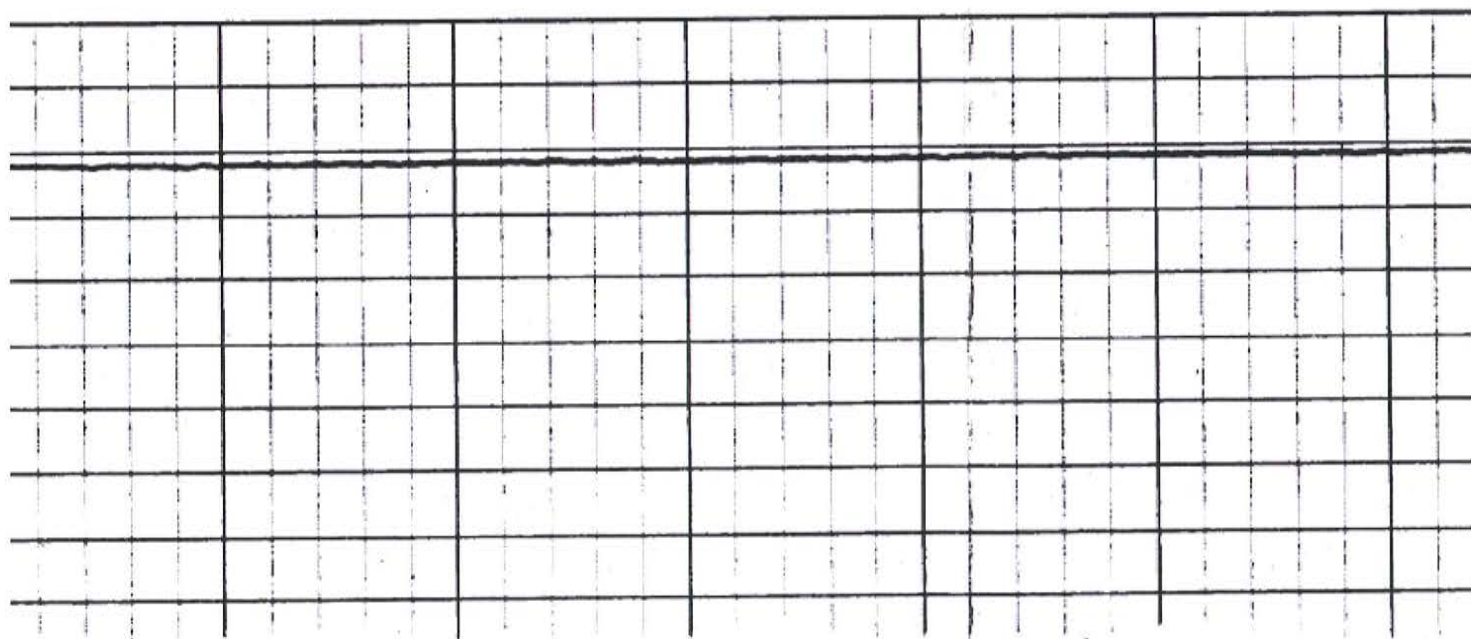


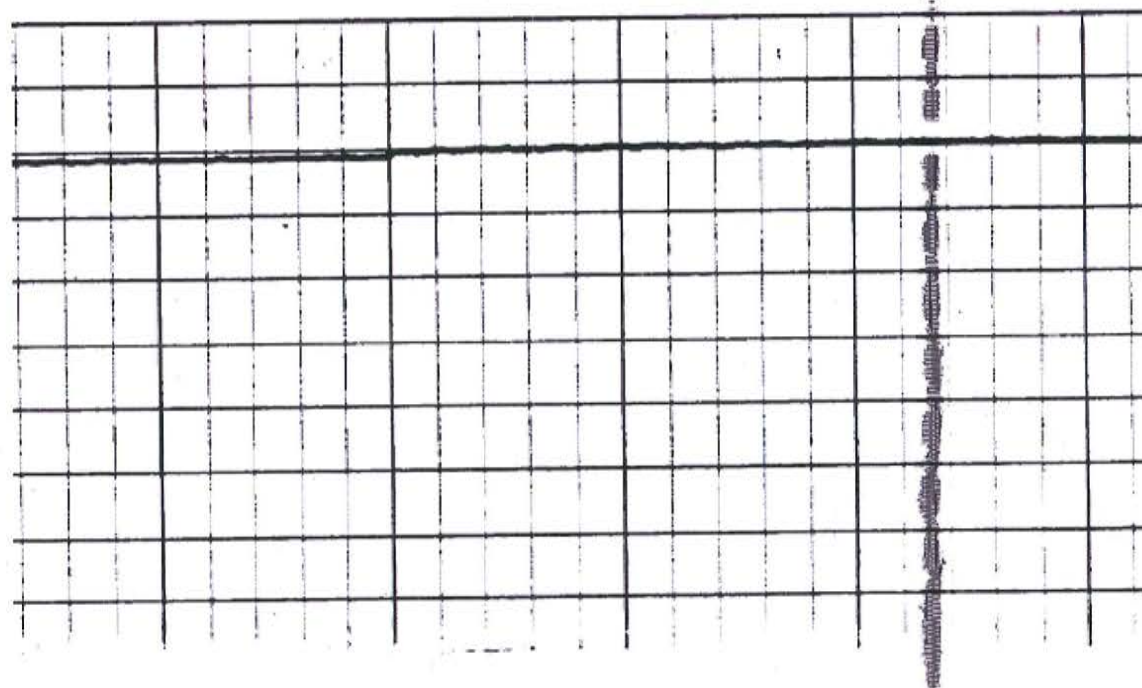
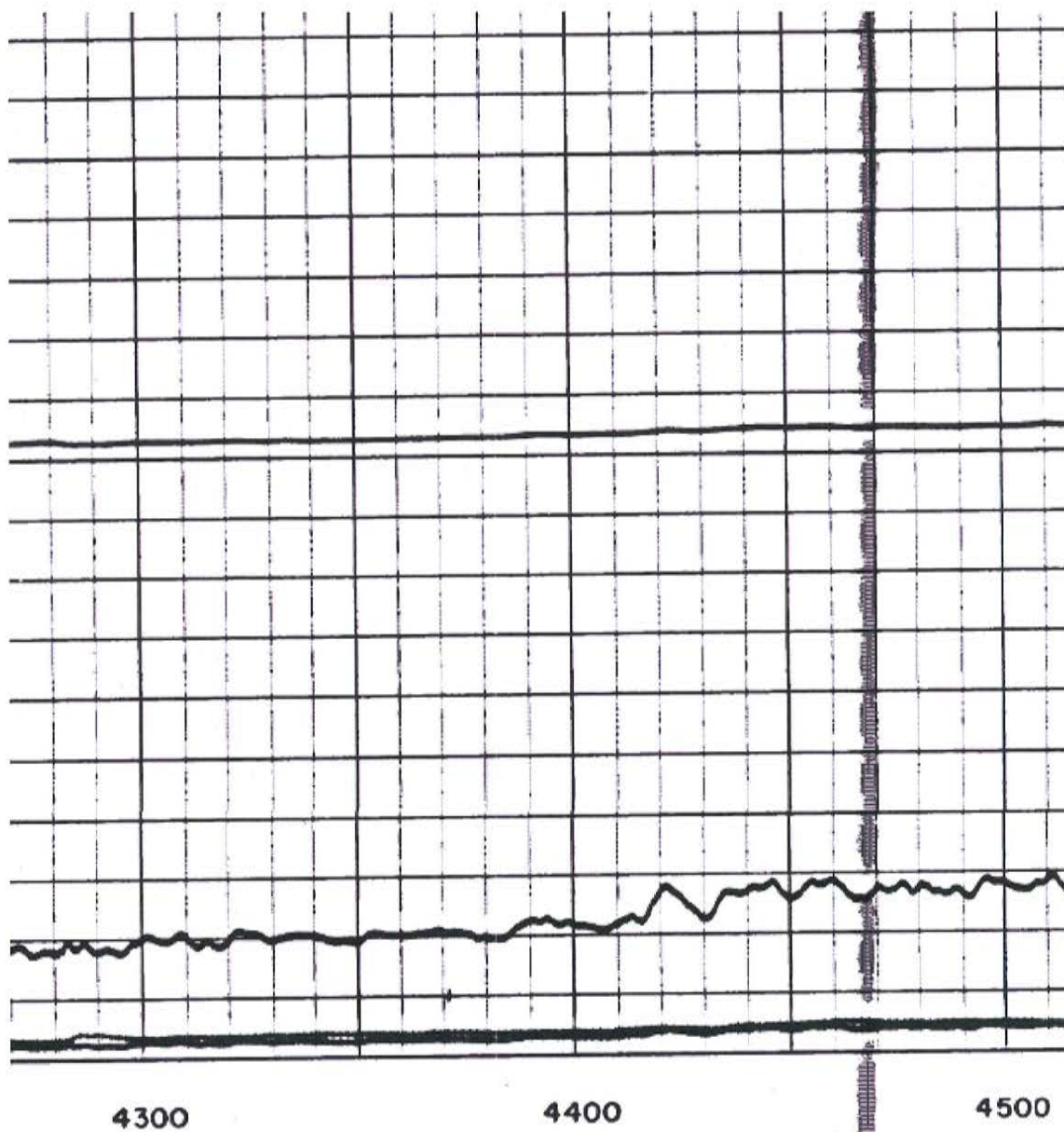


4000

4100

4200

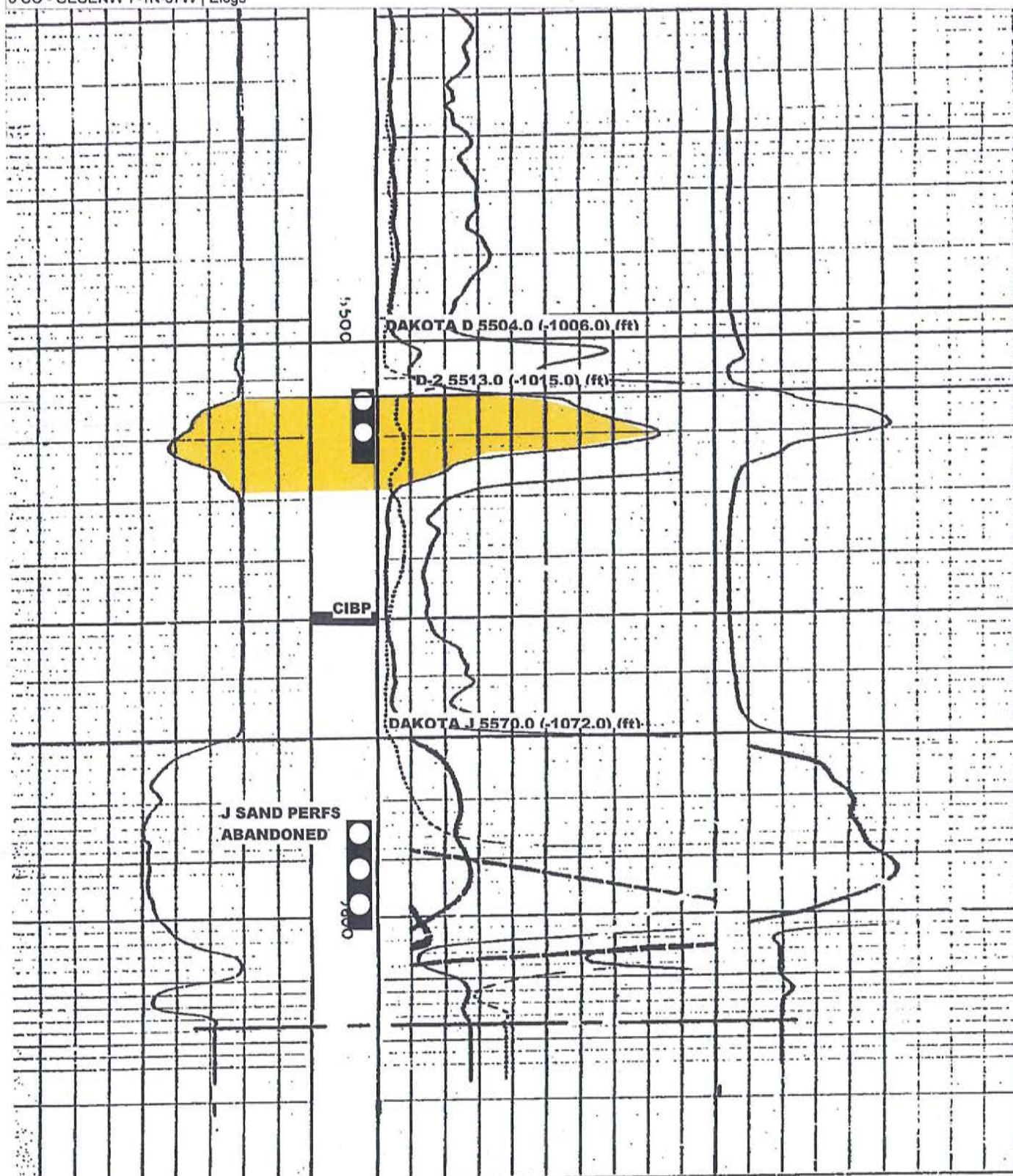




Addendum D-2
Type Section of D-Sand and J-Sand Interval

TYPE LOG - HOUGH A-2 (HOUGH D-SAND UNIT APPLICATION)

6 CO - SESENW 7-1N-57W | Elogs



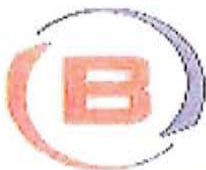
- 120 +

F.R.
5617

0	NORMAL	50	0	LONG	NORMAL	50
0		500	0			50
0	LATERAL	50				
0		500				
	APPROXIMATE NORMAL	10				

PURE OIL CO.
HOUGH # 2
SEC. 7-1N-57W
MORGAN COUNTY COLORADO

Addendum D-3
Chemical Analysis of the Fluid to be Injected



BASICTM
ENERGY SERVICES

P.O. BOX 219 • 12701 ENERGY ROAD • FORT MORGAN, CO. 80701 • PH (970) 667-2769 • FAX (970) 667-2769

WATER ANALYSIS

COMPANY: BLACK RAVEN

FAX: _____
E-MAIL: _____

LEASE: HOUGH
#A-2

DATE: 8/21/2013

SAMPLE NUMBER: WS821131

DISSOLVED SOLIDS:

CATIONS:

Sodium, Na (Calc) ppm: 5,882
Calcium, Ca, ppm: 102
Magnesium, Mg, ppm: 34

WELL DATA

Depth: _____ ft
Formation: _____
Water BPD: _____

ANIONS

Chlorides, Cl ppm: 8,000
Sulfates, SO₄, ppm: 49
Bicarbonates, HCO₃ ppm: 2,257
Carbonates, CO₃ ppm: _____

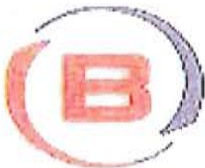
OTHER PROPERTIES

pH: 7.0
Specific Gravity: 1.0085 72 °F
Resisivity (Meter) ohm*M: 0.46 72 °F
Total Hardness, ppm: 136

Total Dissolved Solids (Tested) ppm: 10,442
TDS (Derived from Specific Gravity) ppm: 13,100
Iron, Fe (Total) ppm: 0
Sulfide, as H₂S ppm: NONE

REMARKS AND RECOMMENDATIONS:

Analyst: ALAN L. DU BOIS



BASICTM
ENERGY SERVICES

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WATER ANALYSIS

COMPANY: BLACK RAVEN

FAX: _____
E-MAIL: _____

LEASE: ADENA

DATE: 8/27/2013

SAMPLE NUMBER: WS827131

DISSOLVED SOLIDS:

CATIONS:

Sodium, Na (Calc) ppm: 2,925
Calcium, Ca, ppm: 51
Magnesium, Mg, ppm: 0

WELL DATA

Depth: _____ ft
Formation: J-SAND
Water BPD: _____

ANIONS

Chlorides, Cl ppm: 3,500
Sulfates, SO₄, ppm: 49
Bicarbonates, HCO₃ ppm: 1,830
Carbonates, CO₃ ppm: _____

OTHER PROPERTIES

pH: 7.5
Specific Gravity: 1.0035 72 °F
Resisivity (Meter) ohm*M: 0.92 72 °F
Total Hardness, ppm: 51

Total Dissolved Solids (Tested) ppm: 8355
TDS (Derived from Specific Gravity) ppm: 5,400
Iron, Fe (Total) ppm: 0
Sulfide, as H₂S ppm: TESTED 3PPM

REMARKS AND RECOMMENDATIONS:

BACTERIA= POSITIVE

Analyst: ALAN L. DU BOIS

BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO

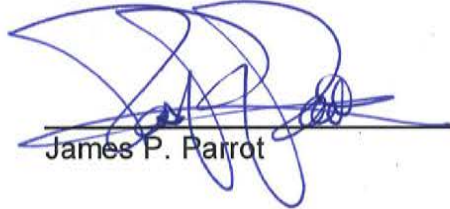
IN THE MATTER OF THE APPLICATION OF
BLACK RAVEN ENERGY, INC. FOR AN ORDER
ESTABLISHING THE HOUGH D-SAND UNIT Cause No. _____
STATE UNIT FOR ENHANCED RECOVERY
FROM THE D-SAND FORMATION FOR Docket No. _____
CERTAIN DESCRIBED LANDS IN THE ADENA
FIELD, MORGAN COUNTY, COLORADO

AFFIDAVIT OF MAILING

STATE OF COLORADO)
)ss.
CITY AND COUNTY OF DENVER)

James P. Parrot of lawful age, and being first duly sworn upon his oath, states and declares:

That he is the attorney for Black Raven Energy, Inc., that on or before July 23, 2015, he caused a copy of the attached Application to be deposited in the United States Mail, postage prepaid, addressed to the parties listed on Exhibit C to the Application.



James P. Parrot

Witness my hand and official seal.

My commission expires: 10-04-17



Notary Public

TERESA L. PETERSON
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19894002026
MY COMMISSION EXPIRES OCT.4, 2017