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U.S. ENVIRONMENTAL PROTECTION AGENCY
DRAFT QUESTIONNAIRE FOR THE COALBED METHANE
EXTRACTION SECTOR



Form Approved
OMB Control No. 2040-NEW
Approval Expires XXX

The public reporting and recordkeeping burden for this collection of information is estimated to average approximately 80 hours per response. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions, develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID No. EPA-HQ-OW-2006-0771, which is available for public viewing at the Water Docket in the EPA Docket Center (EPA/DC), EPA West, Room 3334, 1301 Constitution Ave., NW, Washington, DC 20004. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426. An electronic version of the public docket is available at <http://www.regulations.gov>. Use Regulations.gov to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, Attention: Desk Officer for EPA. Please include the EPA Docket ID No. EPA-HQ-OW-2006-0771 and OMB control number (2040-NEW) in any correspondence.

DATE

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) is conducting a survey of coalbed methane (CBM) extraction operations. EPA will use the responses collected in this detailed questionnaire to inform its decision on whether to initiate a rulemaking to potentially revise the effluent guidelines for the Oil and Gas Extraction Point Source Category (40 CFR 435) to include limits for pollutants discharged in CBM produced water. This questionnaire is not focused on conventional oil and gas extraction. The technical data collected will be used to determine the characteristics of CBM produced water, potential environmental impacts, existing management, beneficial use, and disposal practices for CBM produced water, and the related costs for this industry sector. The financial and economic data collected will be used to characterize the economic status of the industry sector and to estimate the possible economic impacts of potential technology and beneficial use options for CBM produced water. EPA is conducting this survey as part of its annual review of existing effluent guidelines, which is required by the Clean Water Act (CWA) sections 301(d) and 304(b). You must respond to this questionnaire if you operated a CBM well in 2007.

EPA is conducting this survey under the authority of Section 308 of the Clean Water Act (Federal Water Pollution Control Act, 33 U.S.C. Section 1318). **You must respond to this questionnaire within 60 days** of receiving it. Failure to respond, late filing, or failure to comply with the instructions may result in criminal fines, civil penalties, and other sanctions, as provided by law.

OVERVIEW OF THE QUESTIONNAIRE

The questionnaire is divided into three parts: Part A lists the projects operated by your company that have been selected for this questionnaire, Part B contains financial and economic information, and part C contains produced water management information. The parts are divided into the following sections:

PART A: CBM PROJECTS SELECTED FOR QUESTIONNAIRE AND CERTIFICATION

Part A of the questionnaire identifies the projects selected for this questionnaire and identifies the wells associated with the project. The questions in Parts B and C pertain only to the projects listed in Part A.

PART B: FINANCIAL AND ECONOMIC INFORMATION

INSTRUCTIONS FOR PART B

- SECTION 1: CONTACT INFORMATION
- SECTION 2: FIRM-LEVEL FINANCIAL QUESTIONS
- SECTION 3: PROJECT-LEVEL QUESTIONS

The financial and economic data collected in Part B of this questionnaire will be used to characterize the economic status of the industry and to estimate the possible economic impacts of wastewater regulations. The questions in Part B pertain to calendar years 2005 through 2007.

PART C: PRODUCED WATER MANAGEMENT INFORMATION

INSTRUCTIONS FOR PART C

- SECTION 1: GENERAL OPERATOR INFORMATION
- SECTION 2: PRODUCED WATER MANAGEMENT SYSTEM GENERAL QUESTIONS
- SECTION 3: DETAILED PRODUCED WATER MANAGEMENT AND TREATMENT QUESTIONS
- SECTION 4: PRODUCED WATER QUALITY DATA

The information requested in Part C of this questionnaire will be used to analyze produced water production rates, produced water characteristics, and produced water management, treatment, and disposal practices. Part C requests information for calendar year 2007.

PART D: SUPPORTING INFORMATION

LIST OF ACRONYMS

DEFINITION OF KEY TERMS

COMPLETION OF THE QUESTIONNAIRE

Each section of the questionnaire should be completed by the person(s) most knowledgeable about the information requested. The corporate official or designee responsible for directing or supervising the response to the questionnaire must sign the Certification Statements on page 5 to verify and validate the information provided.

Keep a Copy of the Completed Questionnaire

Please keep a copy of the completed questionnaire, including attachments. EPA will review the information submitted and may request your cooperation in answering follow-up questions, if necessary, to complete analyses.

QUESTIONNAIRE ASSISTANCE

EPA Coalbed Methane Help Lines

Information About Part B: Financial and Economic Information

Eastern Research Group, Inc..... XXX-XXX-XXXX
Internet Electronic Mailing Address..... XXX@erg.com

Information About Part C: Produced Water Management Information

PG Environmental/Eastern Research Group, Inc..... XXX-XXX-XXXX
Internet Electronic Mailing Address..... XXX@XXX.com

WHEN TO RETURN QUESTIONNAIRE

You must respond to this questionnaire within 60 days of receiving it.

If you wish to request an extension, you must do so **in writing** within 30 days of receipt of this questionnaire. Written requests may be e-mailed to Mr. Carey Johnston at johnston.carey@epa.gov with "CBM Survey Extension Request" in the e-mail subject line or may be mailed to:

United States Postal Service
Mr. Carey Johnston
U.S. EPA, Office of Water
Mail Code: 4303T
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

One- or Two-Day Delivery (e.g., FedEx)
Mr. Carey Johnston
U.S. EPA, Office of Water
Room 6231G, EPA West
1301 Constitution Avenue, NW
Washington, DC 20004

Extension requests will be evaluated on a case-by-case basis. Submittal of an extension request to EPA does **not** alter the due date of your questionnaire unless and until EPA agrees to the extension and establishes a new date.

WHERE TO RETURN QUESTIONNAIRE

After completing the questionnaire and certifying the information that it contains, please use the enclosed mailing label to mail the completed questionnaire to:

U.S. Environmental Protection Agency
CBM Industry Survey
c/o PG Environmental, LLC
447B Carlisle Drive
Herndon, VA 20170

REQUESTING AN ELECTRONIC VERSION OF THE QUESTIONNAIRE

If you would like an electronic version of the questionnaire, it is available on the EPA Web site at:

<http://www.epa.gov/guide/cbm/>.

CONFIDENTIAL BUSINESS INFORMATION

If no business confidentiality claim accompanies the information when it is received by EPA, EPA may make the information available to the public without further notice.

Regulations governing the confidentiality of business information are contained in the Code of Federal Regulations (CFR) at Title 40 Part 2, Subpart B. You may assert a business confidentiality claim covering part or all of the information you submit, other than effluent data and information or data that is otherwise publicly available, as described in 40 CFR 2.203(b):

“(b) Method and time of asserting business confidentiality claim. A business which is submitting information to EPA may assert a business confidentiality claim covering the information by placing on (or attaching to) the information, at the time it is submitted to EPA, a cover sheet, stamped or typed legend, or other suitable form of notice complying language such as ‘trade secret,’ ‘proprietary,’ or ‘company confidential.’ Allegedly confidential portions of otherwise non-confidential documents should be clearly identified by the business, and may be submitted separately to facilitate identification and handling by EPA. If the business desires confidential treatment only until a certain date or until the occurrence of a certain event, the notice should so state.”

You may claim as confidential all information included in the response to a question by checking the Confidential Business Information (CBI) box next to the question number. Note that you may be required to justify any claim of confidentiality at a later time. Note also that facility effluent data are not eligible for confidential treatment, pursuant to Section 308(b) of the Clean Water Act, and thus will be treated as non-confidential even if the CBI box is checked. In addition, information that is publicly-available should not be claimed confidential. Note also that information claimed confidential cannot be accessed, verified, or used by the industry to evaluate data and analyses supporting the results of the CBM study.

Information covered by a claim of confidentiality will be disclosed by EPA only to the extent of, and by means of, the procedures set forth in 40 CFR Part 2, Subpart B. In general, submitted information protected by a business confidentiality claim may be disclosed to other employees, officers, or authorized representatives of the United States concerned with implementing the Clean Water Act. Exemption 4 of the Freedom of Information Act (FOIA) protects from disclosure “trade secrets and commercial or financial information obtained from a person and privileged or confidential.” See 5 U.S.C. 552(b)(4).

Information covered by a claim of confidentiality will be made available to EPA contractors under EPA Contract Numbers No. 68-C02-095, EP-C-07-029, and EP-C-05-030 to enable the contractors to perform the work required by their contracts with EPA. All EPA contracts provide that contractor employees use the information only for the purpose of performing the work required by their contracts and will not disclose any CBI to anyone other than EPA without prior written approval from each affected business or from EPA’s legal office. EPA has approved written procedures for each contractor on how they will gather, safeguard, and secure CBI. Any comments you may wish to make on this issue must be submitted in writing along with your completed survey.

PART A. CBM PROJECTS SELECTED FOR QUESTIONNAIRE

A.1.1. Did you respond to EPA's screener questionnaire on CBM projects?

- Yes. Continue with Question A.1.2.
 No. Skip to Question A.1.3.

A.1.2. You have been selected by EPA to respond to questions about projects you identified in EPA's screener survey sent to you on XXX, 2008. EPA has selected the following projects in its representative sampling of CBM projects for this survey:

[This table will be pre-populated based on information collected in the screener questionnaire.]

Table A-1. Projects Selected for this Questionnaire

Project Identifier	Count of Wells Productive in 2007 (from screener)

For each of the projects listed in Table A -1, EPA requests that you provide identifying information on all wells that were actively producing either water or gas in 2007. The number of wells with identifying information submitted should match the number of wells listed in Table A -1 (reported in your screener survey). Reasons for any discrepancies should be reported in the Comments section in Question A.1.4. You may use Table A -2 to fill in this information or you can submit your own printout or electronic form, whichever is more convenient. Make as many copies of the table as you need, ensuring that the relevant project identifier is written on the top right hand corner of the page.

Please provide the API number for each well in the project unless the well is located in Kansas, Virginia, or Indiana. List the API number in Column A of Table A -2 if you choose to use this table. Please follow the instructions below for Kansas, Virginia, and Indiana and enter the information into Column B of Table A -2 if using this table.

- Kansas -The well identifying information should be the lease/permit number that is in the form of a six-digit number, e.g., 221405.
- Virginia -The well identifying information should be the permit number that is in the form of a 2-letter and 4-digit number combination, e.g., BU-0390.
- Indiana -The well identifying information should be the permit number that is in the form of a 5-digit number, e.g., 50125.

Please skip Question A.1.3. Remember to sign the Certification Statement on page 5 after completing the rest of the questionnaire.

Project ID: _____

A.1.3. According to EPA's information, you did not receive a screener questionnaire, but most likely you operated only one or two CBM projects in 2007. *A CBM project comprises a well, group of wells, lease, group of leases, or recognized unit for which you operated as an economic unit when making production decisions in 2007.* If you did not operate any CBM wells in 2007, please contact the EPA help line for further instructions. Otherwise, EPA requests that you provide identifying information on all CBM wells that were actively producing water or gas in 2007, by project. EPA recognizes that such groupings can change over time, so define your project(s) in a way that is best representative of your production decision grouping in 2007.

Please provide an identifying name or number for your project in the top right-hand corner of Table A -2 (you will need to copy the table if you have more than one project). You will need to use this project identifier in other sections of this survey questionnaire.

Please provide the API number in Column A of Table A -2 for each well in the project unless the well is located in Kansas, Virginia, or Indiana. Please follow the instructions below for Kansas, Virginia, and Indiana and enter the information into Column B of Table A -2 if using this table.

- Kansas – The well identifying information should be the lease/permit number that is in the form of a six-digit number, e.g., 221405.
- Virginia – The well identifying information should be the permit number that is in the form of a 2-letter and 4-digit number combination, e.g., BU-0390.
- Indiana – The well identifying information should be the permit number that is in the form of a 5-digit number, e.g., 50125.

Remember to sign the Certification Statement on page 5 after completing the rest of the questionnaire.

A.1.4. **Comments on Part A.** Please cross-reference your comments by question number. **If you need additional space, please photocopy this page before writing on it,** and number each copy in the space provided.

Question Number	Comment
CBI? <input type="checkbox"/> Yes	

CERTIFICATION STATEMENT

I certify under penalty of law that the attached questionnaire was prepared under my direction or supervision and that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, accurate and complete. In those cases where we did not possess the requested information for questions applicable to our operations, we provided best estimates. We have to the best of our ability indicated what we believe to be company confidential business information as defined under 40 CFR Part 2, Subpart B. We understand that we may be required at a later time to justify our claim in detail with respect to each item claimed confidential. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment as explained in Section 308 of the Clean Water Act.

Signature of Certifying Official

Date

Printed Name of Certifying Official

() _____
Telephone Number of Certifying Official

Title of Certifying Official

Facility Name

(Continue to Part B, Section 1 of the questionnaire, complete all sections, and return the questionnaire along with the signed Certification Statement to the address provided on page 2.)

Operator ID: _____

PART B. FINANCIAL AND ECONOMIC INFORMATION

SECTION 1: CONTACT INFORMATION

GENERAL INSTRUCTIONS FOR SECTION 1

This section of the questionnaire is designed to collect general operator information pertinent to Part B, including contact information.

Indicate information that should be treated as confidential by checking the Confidential Business Information (CBI) box next to each question number with responses containing CBI. Any response where "CBI" is not checked will be considered non-confidential. Refer to the instructions given in the CONFIDENTIAL BUSINESS INFORMATION section on page 3 for additional information regarding EPA's confidentiality procedures set forth in 40 CFR Part 2, Subpart B.

CBI?
 Yes

B.1.1. Provide the name, title, telephone and facsimile numbers, street address, and e-mail address of the primary contact at your operation for information supplied in the firm-level financial and economic portions of the questionnaire (**Part B, Section 2**).

Primary Contact Name

Telephone Number

Primary Contact Title

Facsimile Number

Email Address

Convenient time to call between:
 am / pm and
 am / pm (Eastern Time)

Street Address

City

State

Zip Code

CBI?
 Yes

B.1.2. Provide the name, title, telephone and facsimile numbers, street address, and e-mail address of the secondary contact at your operation for information supplied in the firm-level financial and economic portions of the questionnaire (**Part B, Section 2**).

Secondary Contact Name

Telephone Number

Secondary Contact Title

Facsimile Number

Email Address

Convenient time to call between:
 am / pm and
 am / pm (Eastern Time)

Street Address

City

State

Zip Code

Operator ID: _____

CBI?
 Yes

B.1.3. Provide the name, title, telephone and facsimile numbers, street address, and e-mail address of the primary contact at your operation for information supplied in the project-level economic and financial portions of this questionnaire (**Part C, Section 3**), if different from the primary contact for **Part B, Section 2**.

_____	(____)
Primary Contact Name	Telephone Number
_____	(____)
Primary Contact Title	Facsimile Number
_____	Convenient time to call between:
Email Address	_____ <input type="checkbox"/> am / <input type="checkbox"/> pm and
_____	_____ <input type="checkbox"/> am / <input type="checkbox"/> pm (Eastern Time)
Street Address	

City	State Zip Code

CBI?
 Yes

B.1.4. Provide the name, title, telephone and facsimile numbers, street address, and e-mail address of the secondary contact at your operation for information supplied in **Part B, Section 3**, of this questionnaire, if different from the secondary contact for **Part B, Section 2**.

_____	(____)
Secondary Contact Name	Telephone Number
_____	(____)
Secondary Contact Title	Facsimile Number
_____	Convenient time to call between:
Email Address	_____ <input type="checkbox"/> am / <input type="checkbox"/> pm and
_____	_____ <input type="checkbox"/> am / <input type="checkbox"/> pm (Eastern Time)
Street Address	

City	State Zip Code

CBI?
 Yes

B.1.5. If you know that other facilities in your firm have received this questionnaire and would like to reference the firm-level information provided by another respondent, please provide the operator ID (shown at the top of each page of the questionnaire) of the respondent who is submitting Part B Section 2 for your firm:

SECTION 2: FIRM-LEVEL FINANCIAL QUESTIONS

Instructions: For the purposes of this questionnaire, the term “**immediate owner/operator**” applies to an **owner who operates**, a **contract operator who has no working interest, but operates**, or an **owner who contracts with an operator of one or more CBM projects (responsible party)**. The immediate owner operator is responsible for management and day-to-day operation of this project and makes the following types of decisions:

- Whether well(s) should be shut-in, worked over or abandoned;
- Whether additional or replacement wells should be drilled into a reservoir;
- Whether additional or different production equipment should be installed; and
- Any other decision factor used by DOE in the General Instructions to Form EIA-23 (see also definition of management decisions in the Definitions of Key Terms section at the end of the questionnaire).

If you are an owner but contract out the operation of the project or projects, you are still considered the owner/operator for the purposes of this questionnaire, although you may need to consult with or send portions of this questionnaire to your contract operator for assistance.

EPA would like at least some minimum information on three levels of corporate hierarchy, if applicable: immediate owner/operator, owner, and parent or ultimate parent. Some immediate owner/operators are independent (not owned by any other firm). Others have owner firms above them in the hierarchy. The owner firm, in turn, may be owned directly or through other intermediate parents by an ultimate parent, which is the highest level of the corporate hierarchy. In many cases, information requested from higher levels of the corporate hierarchy will include only the names of key corporate entities.

Additionally, some immediate owner/operators are owned by more than one owner firm (e.g., joint ventures). EPA will be requesting only the corporate names of joint owners; financial information will be requested only from the firm created as the joint venture (e.g., a limited liability corporation).

Most questions in Part B Section 2 are relevant to the immediate owner/operator, but the type of information requested, if not accounted for at that level, may need to be obtained from a higher corporate level.

Operator ID: _____

CBI?
 Yes

B.2.1. Describe the position in the corporate hierarchy of the immediate owner/operator (as defined above). If the location to which this questionnaire was mailed is, for example, a field office and not considered a separate corporate entity for accounting purposes, you may need to confer with corporate staff to complete Part B, Section 2. In this case, check the box that applies to the lowest level in your corporate hierarchy where accounting statements are recorded (audited or unaudited). This may be at the division level or at a higher firm level, depending on your circumstances. If you are not sure how to answer this question, please contact the EPA help line.

(Choose only one of the following)

- Independent owner/operator. This firm is not owned or affiliated with any other firm. Skip to Question B.2.4.
- Joint venture. This firm is owned by at least two other firms (not individuals). Skip to Question B.2.3.
- Division or profit center. This entity is owned by no more than one owner firm, although the owner firm, in turn, might be a subsidiary or a joint venture. Continue with Question B.2.2.
- Subsidiary firm. This firm is owned by no more than one owner firm (portions may be publicly held). The owner firm, in turn, might be a subsidiary or a joint venture, however. Continue with Question B.2.2.

CBI?
 Yes

B.2.2. What is the name of the ultimate parent company for the immediate owner/operator (if there is only one owner firm above the immediate owner/operator, please respond "none")?

CBI?
 Yes
CBI?

B.2.3. If the immediate owner/operator is, in turn, owned by an owner firm or firms (is not an independent owner/operator), what is the corporate name (or names, if a joint venture) of the owner(s)?

CBI?
 Yes

B.2.4. Does the immediate owner/operator qualify as a small business under the Small Business Administration (SBA) definitions? If you responded to this question in EPA's screener questionnaire, the response you provided at that time has been transferred to this questionnaire and you do not need to respond further to this question. Otherwise, please refer to Page 9 for definitions that may assist in answering this question. If you need further assistance beyond that provided in Part D, please contact the EPA help line. **[NOTE: Question will be prepopulated if they provided a screener answer.]**

- Yes
- No

CBI?
 Yes

B.2.5. What is the 6-digit NAICS code for the immediate owner/operator? Please refer to Page 9 for definitions that may assist in answering this question. If you need any further assistance, please contact the EPA help line and EPA will help you make this determination.

CBI?
 Yes

B.2.6. Is the immediate owner/operator a contract operator only (owns no working interests in any CBM projects)?

- Yes
- No

CBI?
 Yes

B.2.7. What is the organization type of the immediate owner/operator?

- C Corporation
- S Corporation, Limited Liability Corporation, or Limited Liability Partnership
- Division or Profit Center. Owner firm is a:
 - C Corporation
 - S Corporation, Limited Liability Corporation, or Limited Liability Partnership
 - Other: _____
- Other: _____

CBI?
 Yes

B.2.8. Are you required to use the cost-depletion method (unit of production) in computing your depletion allowance for tax purposes?

- Yes
- No

CBI?
 Yes

B.2.9. What was the 2007 employment at the immediate owner/operator? Please include any local contract labor, but do not allocate overhead employment from higher corporate levels.

- a. Total 2007 employment was _____
- b. 2007 employment attributable to CBM operations was _____ (estimate if necessary).

CBI?
 Yes

B.2.10. In 2007, was **all** produced water from **all** CBM projects operated by the immediate owner/operator injected into a receiving formation in a Class II injection well under the UIC program?

- Yes. You have completed Section B, Part 2. Please continue with Section B, Part 3.
- No. Continue with Question B2-11.

The following questions should be answered at the **lowest level** of firm organization at which **substantial financial** decisions are made on CBM operations (e.g., decisions on major capital investments or major production decisions for an individual project, such as converting from discharge of produced water to subsurface injection, or whether to develop a new or abandon an existing CBM project). This may be the operator or the operator's owner firm, for example, or even higher in the corporate hierarchy, such as at a parent firm.

Questions B.2.12 through B.2.25 ask for information critical to evaluating CBM project decisions and/or understanding the financial situation reflected in the information provided in this section. To the extent possible (or relevant), provide this information at the immediate owner/operator level, whether a profit center or a firm. Otherwise, please provide this information at the lowest level of corporate hierarchy where such decision-making is made.

CBI?
 Yes

B.2.11. Indicate the corporate level at which major investment decisions (such as those discussed above) are made:

- Immediate Owner/Operator
- Owner Firm(s)
- Other. Name of entity:

EPA intends to make assumptions about the method of capital investment analysis and cost of capital for projects you operate. You can agree to these assumptions if they seem to reflect your operation adequately, or you can provide alternative assumptions if you feel these assumptions are not appropriate to your operation. **If you leave the questions unanswered, EPA will assume you agree with the proposed approach.**

Operator ID: _____

CBI?
 Yes

B.2.12. EPA plans to use a net present value analysis to determine the extent to which costs of various produced water alternatives that are analyzed affect production decisions, up to and including a finding that it is not economical to install and operate produced water management alternatives. (Choose one answer.)

- Agree. A net present value analysis should reasonably reflect how we make decisions on whether to make either initial or ongoing investments in a project.
- Disagree. We would prefer EPA consider an analysis as described in the comments section on Page 31.

CBI?
 Yes

B.2.13. EPA plans to use the average pre-tax cost of capital as recommended by OMB, which assumes an average investment risk. With no inflation considered, this rate is 7 percent. This rate corresponds roughly to a 10 percent interest rate, for example, if a 3 percent inflation rate is assumed throughout the time frame of the analysis. (Choose one answer).

- Agree. This assumption adequately reflects what rate we would pay, pre-tax, given our typical mix of debt and equity, for a capital investment today. We realize that this is not the hurdle rate or minimum investment return required for prospective projects.
- Disagree. We would prefer EPA to use the following figure to represent our pre-tax cost of capital. Provide the nominal rate (i.e., do not subtract an inflation rate from this figure).

_____ %

CBI?
 Yes

B.2.14. EPA will also investigate the impact of alternative produced water management costs using a hurdle rate for future projects (the return required to undertake a project). EPA plans to use a hurdle rate (not including inflation) in sensitivity analyses ranging from 12% to 22%. This would be equivalent to a hurdle rate that includes a factor for inflation of roughly 15% to 25% (assuming a 3 percent factor).

- Agree. This assumption adequately reflects the return we would need to expect before undertaking a major investment.
- Disagree. We would prefer EPA to use the following figure (nominal, including inflation) to represent our hurdle rate:

_____ %

Instructions: The following questions ask for income statement (through net income) and balance sheet information. Information is requested at the **lowest level** in the corporate hierarchy at which such information is kept.

CBI?
 Yes

B.2.15. If you qualify as a small business under SBA definitions and answered YES to Question B.2.4, you have the option of providing just your accounting reports or income tax returns (e.g., Schedule C) for the years 2005, 2006, 2007, showing income and balance sheet information. EPA will fill out most of the information needed using your accounting reports or returns.

- Yes. We are a small business and are opting to have EPA prepare the answers to Questions B.2.16 to B.2.22 for us. We are providing an estimate of the percentage of our earnings (net revenues minus operating costs minus depreciation) attributable to CBM production in 2005, 2006, and 2007:

2005: _____ %

2006: _____ %

2007: _____ %. Skip to Question B.2.23.

- No. Continue with Question B.2.16.

Operator ID: _____

Instructions: EPA understands that audited financial data may not be available at the immediate owner/operator level in the corporate hierarchy, but wishes to assess impacts on the most sensitive portion of the corporation and encourages good faith estimates or unaudited financial data if this is what is available at this level. If you are not comfortable with an estimate, you can opt to answer at a higher level, but please answer all income statement questions (Questions B.2.16 through B.2.19 at the same corporate level. You will be able to use either an estimate or "NA" to apply to some line items that might not be recorded at a division level, if this is the level at which you are responding.

CBI?
 Yes

B.2.16. Income Statement Information: Questions B.2.17 through B.2.19 ask for revenues, costs and expenses, and earnings, interest, taxes and net income (loss). To the extent possible, provide this information at the immediate owner/operator level, whether a profit center or firm. EPA acknowledges that some items, such as depreciation, taxes, and interest might be kept only at a higher corporate level in some cases, although some or all of these may be routinely estimated for planning purposes. In this case, EPA would like these estimates. If you can provide all but depreciation, taxes, and interest at the immediate owner/operator level, please do so, using "NA" for depreciation, taxes and interest. Otherwise, information at the next higher level (owner firm) is acceptable. Please indicate the corporate level at which these income statement data are being provided.

- Immediate Owner/Operator
- Owner Firm
- Other (list corporate name): _____

CBI?
 Yes

B.2.17. What were your organization's revenues for 2005-2007? Report in nearest thousands of dollars (i.e., if net sales were \$1,253,779, please report as \$1,254,000; zeroes have been provided already). If you would like EPA to know that you estimated any line item, you can indicate this by checking (X) the estimate column (Est.).

	Est.	Revenues	2005	2006	2007
a.	<input type="checkbox"/>	Net sales and other operating revenues (all operations, including non-oil and gas related revenues)	_____,000	_____,000	_____,000
b.	<input type="checkbox"/>	Revenues attributable to all oil and gas operations (including CBM)	_____,000	_____,000	_____,000
c.	<input type="checkbox"/>	Revenues attributable to CBM operations only	_____,000	_____,000	_____,000
d.	<input type="checkbox"/>	Other income (specify): _____	_____,000	_____,000	_____,000
e.	<input type="checkbox"/>	Total revenues (a plus d)	_____,000	_____,000	_____,000

Operator ID: _____

CBI?
 Yes

B.2.18. What were your organization's operating expenses for 2005-2007? Report in nearest thousands of dollars (i.e., if operating costs were \$1,253,779, please report as \$1,254,000; zeroes have been provided already). If depreciation information is not recorded at the corporate level represented in the income statement information provided above, or is not usually estimated for your corporate level, please insert NA. If depreciation is routinely estimated or you opt to estimate depreciation, please provide the information. If you would like EPA to know that you estimated any line item, you can indicate this by checking (X) the estimate column (Est.).

	Est.	Costs and Expenses	2005	2006	2007
a.	<input type="checkbox"/>	Operating costs (all operations)	_____, .000	_____, .000	_____, .000
b.	<input type="checkbox"/>	Operating costs attributable to all oil and gas operations (including CBM)	_____, .000	_____, .000	_____, .000
c.	<input type="checkbox"/>	Operating costs attributable to CBM operations only	_____, .000	_____, .000	_____, .000
d.	<input type="checkbox"/>	Selling, general, and administrative costs	_____, .000	_____, .000	_____, .000
e.	<input type="checkbox"/>	Depreciation, depletion, and amortization	_____, .000	_____, .000	_____, .000
f.	<input type="checkbox"/>	Royalty payments	_____, .000	_____, .000	_____, .000
g.	<input type="checkbox"/>	Severance tax payments	_____, .000	_____, .000	_____, .000
h.	<input type="checkbox"/>	Other costs (specify): _____	_____, .000	_____, .000	_____, .000
i.	<input type="checkbox"/>	Total costs and expenses (a plus d through h)	_____, .000	_____, .000	_____, .000

CBI?
 Yes

B.2.19. What were your organization's earnings and net income for 2005-2007? Report in nearest thousands of dollars (i.e., if earnings were \$1,253,779, please report as \$1,254,000; zeroes have been provided already). If tax and/or interest information is not recorded at the corporate level represented in the income statement information provided above, or is not usually estimated for your corporate level, please insert NA. If these items are routinely estimated or you opt to estimate them, please provide the estimates. If you would like EPA to know that you estimated any line item, you can indicate this by checking (X) the estimate column (Est.).

	Est.	Earnings and Net Income	2005	2006	2007
a.	<input type="checkbox"/>	Earnings before interest and taxes (Question minus Question B.2.18i)	_____, .000	_____, .000	_____, .000
b.	<input type="checkbox"/>	Interest expense	_____, .000	_____, .000	_____, .000
c.	<input type="checkbox"/>	Federal and state income tax	_____, .000	_____, .000	_____, .000
d.	<input type="checkbox"/>	Net income or net loss (a minus b minus c)	_____, .000	_____, .000	_____, .000

Operator ID: _____

CBI?
 Yes

B.2.20. Balance Sheet Questions: Questions B.2.21 through B.2.23 ask for assets, liabilities and equity information, as well as information on payments to principal. EPA acknowledges that balance sheets might be kept only at a higher corporate level than the income statement information provided, in some cases, although some or all of these may be routinely estimated for planning purposes. In this case, EPA would like these estimates. If you can provide estimates at the immediate owner/operator level, please do so. If not, information at the next higher level (owner firm) is preferred to information at higher levels of the corporation, even if at this level, the information is unaudited. Please indicate the level at which these balance sheet and other data are being provided:

- Immediate Owner/Operator
- Owner Firm
- Other (list corporate name):

CBI?
 Yes

B.2.21. What were your company's assets in 2007? Report in nearest thousands of dollars (i.e., if assets were \$1,253,779, please report as \$1,254,000; zeroes have been provided already). If you would like EPA to know that you estimated any line item, you can indicate this by checking (X) the estimate column (Est.).

	Est.	Assets	2007
a.	<input type="checkbox"/>	Current assets	_____, _____, .000
b.	<input type="checkbox"/>	Property, plant, and equipment (net of depreciation)	_____, _____, .000
c.	<input type="checkbox"/>	Other assets (net of depreciation)	_____, _____, .000
d.	<input type="checkbox"/>	Cumulative depreciation	_____, _____, .000
e.	<input type="checkbox"/>	Total assets (sum of a through c minus d)	_____, _____, .000

CBI?
 Yes

B.2.22. What were your company's liabilities and equity in 2007? Report in nearest thousands of dollars (i.e., if total liabilities were \$1,253,779, please report as \$1,254,000; zeroes have been provided already). If you would like EPA know that you estimated any line item, you can indicate this by checking (X) the estimate column (Est.).

	Est.	Liabilities and Equity	2007
a.	<input type="checkbox"/>	Current liabilities (including accounts payable, accrued expenses and taxes, and the current portion of long-term debt)	_____, _____, .000
b.	<input type="checkbox"/>	Long-term debt (including bonds, debentures, long-term leases, bank debt, and all other noncurrent liabilities such as deferred income taxes)	_____, _____, .000
c.	<input type="checkbox"/>	Retained earnings	_____, _____, .000
d.	<input type="checkbox"/>	Other owner equity (not including retained earnings)	_____, _____, .000
e.	<input type="checkbox"/>	Sum of liabilities and owner equity (sum of a, b, c, and d)	_____, _____, .000

Operator ID: _____

CBI?
 Yes

B.2.23. What were your estimated or actual payments to principal (for long-term debt) at the corporate level for which balance sheet data were provided in Question B.2.22 (or which reflect the financials you submitted in response to Question B.2.15) in:

a. 2005? \$ _____, _____,000 This is an estimate: (optional check box)

b. 2006? \$ _____, _____,000 This is an estimate: (optional check box)

c. 2007? \$ _____, _____,000 This is an estimate: (optional check box)

CBI?
 Yes

B.2.24. The income statement and balance sheet information reflect a fiscal year starting in (month):

CBI?
 Yes

B.2.25. Please provide financial statements.

Instructions: Include copies of all 2005-2007 financial statements used to compile the answers to Questions B.2.17 through B.2.24 above with your completed questionnaire. These may be accountant reports, annual reports, Federal income tax returns (e.g., Schedule C), and/or 10-K reports and MUST include income statements, balance sheets, and associated notes for your organization to the extent possible. These financial statements should include those for the owner firm or higher levels if these levels were checked in either Questions B.2.11 or B.2.20 or if used to create estimates in any of the Part B, Section 2 questions.

Attached.

SECTION 3: PROJECT-LEVEL QUESTIONS

Instructions: This section asks for information from the operator of the project or projects identified in Part A, where operator is defined as the person responsible for the management and day-to-day operation of this project or projects as defined in Section 2 and in the definitions section of this questionnaire. **If your project numbers have not been prepopulated in the tables that follow, please provide the project identifiers you assigned the project in Table A -1.**

If you own but do not operate the project in question, and you are not able to complete some or all of the information, please contact your contract operator to obtain answers to questions or remove Section 2 of the questionnaire and provide the remaining portions of the questionnaire to your contract operator. You are responsible for obtaining the questionnaire from your contract operator, recompiling the questionnaire, signing the certification pages, and returning the entire questionnaire to EPA.

If a project operates as a unit in which you are not the sole operator, please include information only for that portion of each unit you actively operate

[Note: Additional copies will be provided if Part A contains more than 3 projects].

DRAFT

Operator ID: _____

Table B-3. General Project Information—Projects through Year End 2007 [project identifiers will be pre-populated, where possible]

	Question	Project _____	Project _____	Project _____
	Project Identifier Information			
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.1. Name or Identifier of Project.	Prepopulated	Prepopulated	Prepopulated
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.2. Name of Field(s). Indicate "unnamed" if no name has been assigned.			
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.3. Is this project considered a wildcat project?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.4. Does this project commingle CBM with conventional oil and gas production? <i>NOTE: unless otherwise specified, all further questions relating to gas production or water production in Part B pertain to total (conventional and CBM) production.</i>	<input type="checkbox"/> Yes. Continue with Question B.3.5. <input type="checkbox"/> No. Skip to Question B.3.9.	<input type="checkbox"/> Yes. Continue with Question B.3.5. <input type="checkbox"/> No. Skip to Question B.3.9.	<input type="checkbox"/> Yes. Continue with Question B.3.5. <input type="checkbox"/> No. Skip to Question B.3.9.
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.5. What percentage of the gas and water produced from this project was extracted from coalbeds in 2007 (%) (estimate if necessary)?	a. Gas _____ % b. Water _____ %	a. Gas _____ % b. Water _____ %	a. Gas _____ % b. Water _____ %
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.6. What was the oil production from this project in 2007 (bbls)?	_____ bbls	_____ bbls	_____ bbls
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.7. Is the average royalty rate on this oil the same as that for gas? If no, please provide the royalty rate; if not applicable or the rate is the same as that for gas, please insert "NA."	_____ %	_____ %	_____ %
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.8. In what year did conventional gas and/or oil production begin?			
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.9. Unit Number, or other group identifier (if relevant) Skip to Question B3-11 if not part of a formal unit.			
<input type="checkbox"/> CBI? <input type="checkbox"/> Yes	B.3.10. Indicate the percentage of annual production on the unit in 2007 associated with your portion of the unit (%).	_____ %	_____ %	_____ %

	Question	Project _____	Project _____	Project _____
Numbers of Wells in Project at Year End 2007				
CBI? <input type="checkbox"/> Yes	B.3.11. Number of Non-Development Wells Drilled to Date: Exploratory: _____ Delineation: _____	Vertical _____ Horizontal _____ Vertical _____ Horizontal _____	Vertical _____ Horizontal _____ Vertical _____ Horizontal _____	Vertical _____ Horizontal _____ Vertical _____ Horizontal _____
CBI? <input type="checkbox"/> Yes	B.3.12. Total actively producing (water or gas) (include any exploratory or delineation wells that are active) in 2007.	Vertical _____ Horizontal _____	Vertical _____ Horizontal _____	Vertical _____ Horizontal _____
CBI? <input type="checkbox"/> Yes	B.3.13. Planned, with active permits. (include any exploratory or delineation wells that are planned) in 2007.	Vertical _____ Horizontal _____	Vertical _____ Horizontal _____	Vertical _____ Horizontal _____
CBI? <input type="checkbox"/> Yes	B.3.14. Spudded, drilling, or completed (production pending) (include any exploratory or delineation wells that were pending production) in 2007.	Vertical _____ Horizontal _____	Vertical _____ Horizontal _____	Vertical _____ Horizontal _____
CBI? <input type="checkbox"/> Yes	B.3.15. Inactive (shut in, temporarily abandoned, or other non-productive status during all of 2007) (include any exploratory or delineation wells that are inactive).	Vertical _____ Horizontal _____	Vertical _____ Horizontal _____	Vertical _____ Horizontal _____
Basic Historic Information				
CBI? <input type="checkbox"/> Yes	B.3.16. Year first lease in your project was acquired or first year you acquired any portion of the project from another operator (e.g., 2003). Projects or portions of projects acquired from another operator after lease acquisition but prior to development are considered part of the lease acquisition process for the purposes of this question. Fill in both "project began" and "acquired project" dates if both are applicable (e.g., you added a project acquired from another operator to a project you began to create a larger project.	Project Began _____ Acquired Project (if you answer here, please skip to question B.3.42). _____	Project Began _____ Acquired Project (if you answer here, please skip to question B.3.42). _____	Project Began _____ Acquired Project (if you answer here, please skip to question B.3.42). _____
CBI? <input type="checkbox"/> Yes	B.3.17. Did you answer the "project began" question with any answer that was earlier than 2003 OR did you answer the "project acquired" question?	<input type="checkbox"/> Yes. Skip to Question B.3.42. <input type="checkbox"/> No. Continue with Question B.3.18.	<input type="checkbox"/> Yes. Skip to Question B.3.42. <input type="checkbox"/> No. Continue with Question B.3.18.	<input type="checkbox"/> Yes. Skip to Question B.3.42. <input type="checkbox"/> No. Continue with Question B.3.18.

Table B -4 requests additional historic information on your projects. Note that good faith estimates are acceptable, including averages or typical values, where information is difficult to quantify. You may note if you have provided an estimate, where applicable, in the box to the far left shown as "Est."

Instructions: If you indicated this project began prior to 2003, or if you acquired any portion of the project after development began (i.e., beyond just lease acquisition), **skip to Question B.3.42**. Otherwise, provide information for Questions B.3.18 through B.3.41 on project costs and timing for **any project you initiated as of January 2003 or later that you have operated continuously since that time** (i.e., you did not acquire any portion of the project in any stage of development beyond lease acquisition). Report dollar amounts in nearest thousands of dollars where indicated (i.e., if lease development costs were \$1,253,779, please report as \$1,254,000; zeroes have been provided already).

Table B-4. Project History

	Question	Project _____	Project _____	Project _____
General Questions				
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.18. Between January 1, 2003 and December 31, 2007 (2003-2007), had you done any exploratory drilling in the basin in which this project is located (including for this project, if applicable)?	<input type="checkbox"/> No. Skip to Question B.3.21. <input type="checkbox"/> Yes. Continue with Question B.3.19.	<input type="checkbox"/> No. Skip to Question B.3.21. <input type="checkbox"/> Yes. Continue with Question B.3.19.	<input type="checkbox"/> No. Skip to Question B.3.21. <input type="checkbox"/> Yes. Continue with Question B.3.19.
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.19. In this basin, between 2003 and 2007, what was your average exploratory well success rate (exploratory well results in a project that produces or is expected to produce commercial gas)? (including for this project, if applicable)? (%)			
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.20. Between 2003 and 2007, what was your average cost per well to drill exploratory wells in this basin (including for this project, if applicable)?			
Lease Acquisition Costs				
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.21. Total lease acquisition amount (or sum of such amounts, if multi-lease), 2003-2006. Note: 2007 data is requested later (\$000)	\$ _____, _____,000	\$ _____, _____,000	\$ _____, _____,000
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.22. Year(s) of lease(s) acquisition (e.g., 2003, 2004).			

CBI?
 Yes
 Est.?
 Yes

Question	Project	Project	Project
B.3.23. Total <i>lump sum</i> payments associated with securing the leases other than those to mineral rights owners, such as those to surface owner(s) (all leases). Do not include royalties, rents, or other recurring payments. Also do not include costs incurred to provide surface owners with amenities in lieu of lump sum payments. (\$000)	\$ _____,000	\$ _____,000	\$ _____,000

Lease Development Costs

CBI?
 Yes
 Est.?
 Yes

B.3.24. Total capital costs of project development. Include all planning, geological and geophysical costs, and all site development costs (roads, pads, any surface owner amenities. Exclude all permit costs, well drilling costs through tophole equipment (e.g., Christmas tree), and any costs for water management systems after final gas/water separation (including piping) through year end 2006. Note: 2007 data is requested later. (\$000).	\$ _____,000	\$ _____,000	\$ _____,000
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CBI?
 Yes
 Est.?
 Yes

B.3.25. Total costs of all developmental well drilling through December 31, 2006 (through tophole equipment, e.g., Christmas tree); see definition (\$000). Note: 2007 data is requested later.	\$ _____,000	\$ _____,000	\$ _____,000
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CBI?
 Yes
 Est.?
 Yes

B.3.26. Total costs of all delineation well drilling through December 31, 2006 (through tophole equipment, if applicable) (\$000). Note: 2007 data is requested later.	\$ _____,000	\$ _____,000	\$ _____,000
--	--------------	--------------	--------------

CBI?
 Yes
 Est.?
 Yes

B.3.27. Total costs of permit application fees and associated costs to prepare permit applications (e.g., one-time costs to perform permit-related studies, etc.) through end of 2006 (do not include ongoing costs of monitoring, recordkeeping, and reporting or any costs related to produced water management permitting) (\$000)	\$ _____,000	\$ _____,000	\$ _____,000
---	--------------	--------------	--------------

	Question	Project _____	Project _____	Project _____
	Project Development Schedule			
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.28. Year site preparation work began (e.g., 2004).			
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.29. Year drilling began.			
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.30. Year water production began.			
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.31. Year CBM gas production began (do not include conventional gas or oil, if applicable).			
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.32. Year of peak water production (NA if water production has not yet peaked).			
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.33. Water produced in peak year (bbls) (NA if water production has not yet peaked).	_____ bbls	_____ bbls	_____ bbls
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.34. Year of peak gas production (CBM and conventional if applicable) (NA if gas production has not yet peaked).			
CBI? <input type="checkbox"/> Yes Est.? <input type="checkbox"/> Yes	B.3.35. Gas produced in peak year (MMBtu) (CBM and conventional, if applicable) (NA if gas production has not yet peaked).	_____ MMBtu	_____ MMBtu	_____ MMBtu

CBI?
 Yes
 Est.?
 Yes

CBI?
 Yes
 Est.?
 Yes

CBI?
 Yes
 Est.?
 Yes

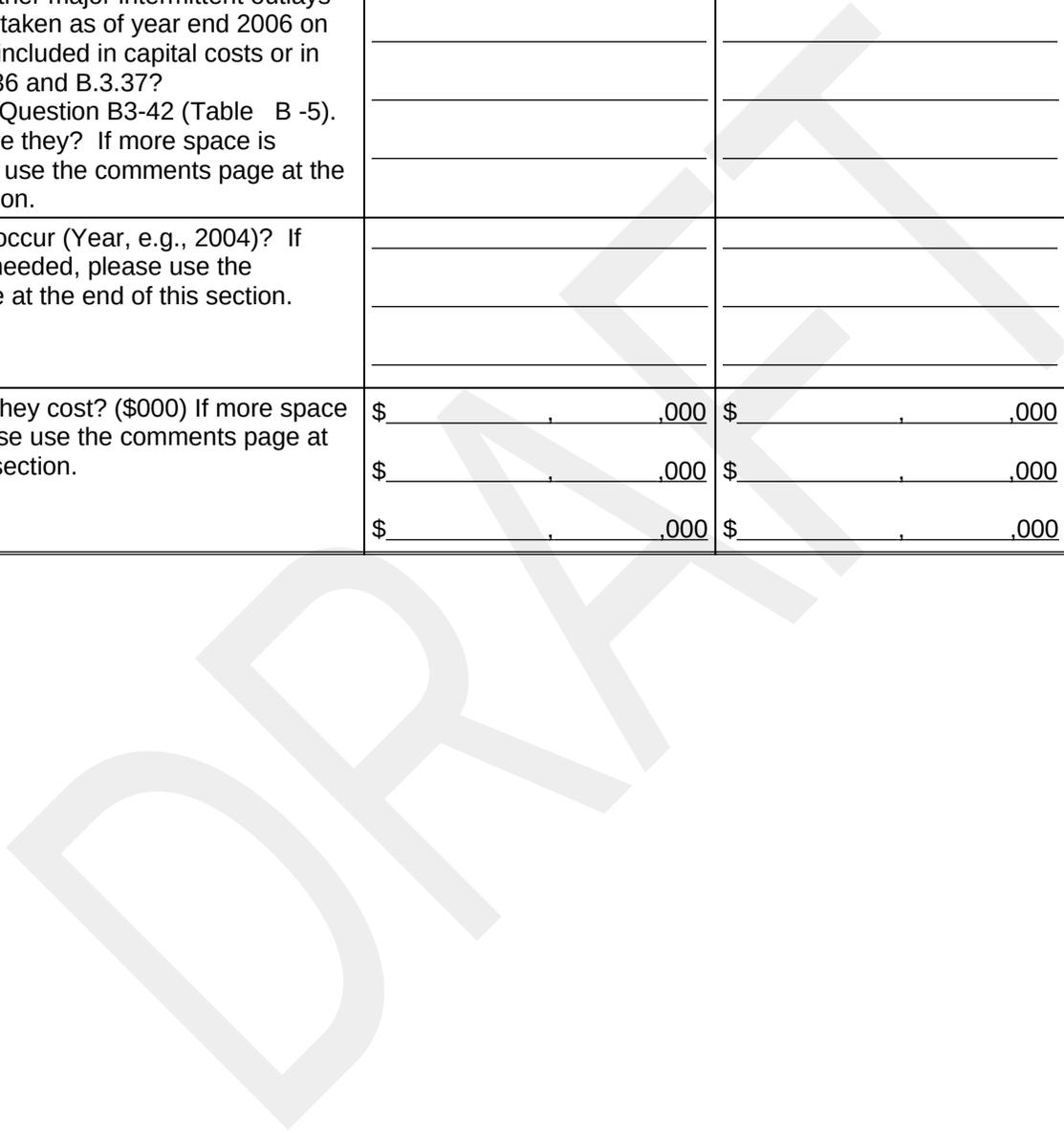
Question	Project _____	Project _____	Project _____
Other Major Expenditures Associated with Project			
B.3.36. In 2003 through 2006, what were your O&M costs for this project by year. Include any regularly recurring costs, such as lease rental costs, annual payments to surface owners, or recurring costs associated with permits (e.g., monitoring, recordkeeping and reporting or other such payments) that are not related to produced water management. Exclude all costs of water management after final gas/water separation such as NPDES permitting costs and produced water treatment. Also exclude any costs of workovers, stimulations, and recompletions or other activities if they are considered extraordinary or unusual expenditures in these years. If your project was not active in a year shown, please indicate with NA.	2003: \$ _____,000	2003: \$ _____,000	2003: \$ _____,000
	2004: \$ _____,000	2004: \$ _____,000	2004: \$ _____,000
	2005: \$ _____,000	2005: \$ _____,000	2005: \$ _____,000
	2006: \$ _____,000	2006: \$ _____,000	2006: \$ _____,000
B.3.37. Total cost of major expenditures through year end 2006 \$(000). If not incurred, indicate 0; if considered routine O&M and included in Question B.3.36, indicate NA:: Workovers Stimulations Recompletions	\$ _____,000	\$ _____,000	\$ _____,000
	\$ _____,000	\$ _____,000	\$ _____,000
	\$ _____,000	\$ _____,000	\$ _____,000
B.3.38. Total number of such activities through year end 2006. If not incurred indicate 0; if considered routine O&M and included in Question B.3.36, indicate NA: Workovers Stimulations Recompletions	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

CBI?
 Yes
 Est.?
 Yes

CBI?
 Yes
 Est.?
 Yes

CBI?
 Yes
 Est.?
 Yes

Question	Project _____	Project _____	Project _____
B.3.39. Are there any other major intermittent outlays that were undertaken as of year end 2006 on this project not included in capital costs or in Questions B.3.36 and B.3.37? <input type="checkbox"/> No. Skip to Question B3-42 (Table B -5). If so: What were they? If more space is needed, please use the comments page at the end of this section.			
B.3.40. When did they occur (Year, e.g., 2004)? If more space is needed, please use the comments page at the end of this section.			
B.3.41. How much did they cost? (\$000) If more space is needed, please use the comments page at the end of this section.	\$ _____, _____,000	\$ _____, _____,000	\$ _____, _____,000
	\$ _____, _____,000	\$ _____, _____,000	\$ _____, _____,000
	\$ _____, _____,000	\$ _____, _____,000	\$ _____, _____,000



Operator ID: _____

Table B -5 requests information about your project in 2007. Note that good faith estimates, including averages or typical values, where information is difficult to quantify are acceptable. Please note if you have provided an estimate, where applicable, in the box to the far left shown as "Est."
Instructions: Respond to questions for **all projects**, regardless of when the project began development or when you acquired the project. Report large dollar amounts in nearest thousands of dollars where indicated (i.e., if fixed operating costs were \$1,253,779, please report as \$1,254,000; zeroes have been provided already).

Table B-5. Current (2007) Operations at Your Projects

	Question	Project _____	Project _____	Project _____
General Information				
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.42. If this is a single lease project, indicate type of lease (fee, federal, state, tribal, other) and skip to Question B.3.44. Otherwise indicate NA and answer B.3.43.			
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.43. If this is a unit or multi-lease project, list the number of each type of lease.	_____ Fee _____ Federal _____ State _____ Tribal _____ Other	_____ Fee _____ Federal _____ State _____ Tribal _____ Other	_____ Fee _____ Federal _____ State _____ Tribal _____ Other
2007 Operating and Maintenance Costs of Project (do not include extraordinary expenses such as well drilling or major maintenance activities that are not done every year)				
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.44. 2007 total operating and maintenance costs of gas production. Include any lease rental costs, annual payments to surface owners, or recurring costs associated with permits (e.g., monitoring, recordkeeping and reporting or other such payments) that are not related to produced water management. Exclude all costs of water management after final gas/water separation such as NPDES permitting costs and produced water treatment. Also exclude any costs of workovers, stimulations, and recompletions or other activities if they are considered extraordinary or unusual expenditures (i.e., occurred in 2007, but do not typically occur). (\$000).	\$ _____, _____,000	\$ _____, _____,000	\$ _____, _____,000

CBI?
 Yes
 Est.?
 Yes

Question	Project _____	Project _____	Project _____
B.3.45. In 2007, please estimate the percentage of O&M costs that would have been incurred had the project been temporarily shut in throughout the year. This factor should account for any labor to check on equipment, any payments to surface owners, leasehold payments, permit costs not related to produced water management or other expenditures that might occur regardless of production. EPA will assume this percentage is 5 percent of total 2007 O&M unless you specify otherwise.	<input type="checkbox"/> We estimate _____% <input type="checkbox"/> We accept the 5% estimate	<input type="checkbox"/> We estimate _____% <input type="checkbox"/> We accept the 5% estimate	<input type="checkbox"/> We estimate _____% <input type="checkbox"/> We accept the 5% estimate
B.3.46. What were any other recurring costs associated with this project in 2007 (\$000)? If applicable, please specify what these are: _____	\$ _____,000	\$ _____,000	\$ _____,000
2007 Extraordinary and Other Expenses (e.g., well drilling expenditures, workovers, recompletions, other expenses that might not occur every year)			
B.3.47. What was the total cost of all developmental well drilling in this project in 2007? (\$000)	\$ _____,000	\$ _____,000	\$ _____,000
B.3.48. What was the total number of all developmental wells drilled in this project in 2007?			
B.3.49. What was the total cost of all delineation well drilling in this project in 2007? (\$000)	\$ _____,000	\$ _____,000	\$ _____,000
B.3.50. What was the total number of all delineation wells drilled in this project in 2007?			
B.3.51. What was the cost of all infrastructure additions in 2007? (include all infrastructure additions, even those not directly associated with production, such as roads, septic systems, and buildings, but exclude any water management infrastructure additions, such as new impoundments) (\$000).	\$ _____,000	\$ _____,000	\$ _____,000

CBI?
 Yes
 Est.?
 Yes

	Question	Project	Project	Project
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.52. What activities are represented in the extraordinary expenditures included in Question B.3.51? (Describe.)			
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.53. What was the total cost of all workovers, stimulations, recompletions or other major, extraordinary (i.e., occurred in 2007, but does not occur every year) maintenance activity on this project in 2007? Do not include such costs if they are considered typical for the year and were included in Questions B.3.44 or B.3.46 (\$000).	\$ _____,000	\$ _____,000	\$ _____,000
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.54. Were any other major expenditures (including capital expenditures or new lease acquisitions) incurred at this project in 2007? If so, what were they?			
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.55. What was the total cost of all other major expenditures reported in B.3.54 for this project in 2007 (\$000) (include any capital expenditures as well)?	\$ _____,000 \$ _____,000 \$ _____,000	\$ _____,000 \$ _____,000 \$ _____,000	\$ _____,000 \$ _____,000 \$ _____,000
2007 Production, Royalties, and Taxes				
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.56. What was the total gas production from this project in 2007? (MMBtu)	_____ MMBtu	_____ MMBtu	_____ MMBtu
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.57. What was the total gas sold from this project in 2007? (MMBtu)	_____ MMBtu	_____ MMBtu	_____ MMBtu
CBI? <input type="checkbox"/> Yes <input type="checkbox"/> Est.? <input type="checkbox"/> Yes	B.3.58. What was the total gas used by this project in 2007? (MMBtu)	_____ MMBtu	_____ MMBtu	_____ MMBtu

CBI?
 Yes
Est.?
 Yes

Question	Project _____	Project _____	Project _____
B.3.59. What was the minimum, average, and maximum wellhead price received for sold gas for this project in 2007? (\$.\$/MMBtu)	\$ _____ min	\$ _____ min	\$ _____ min
	\$ _____ average	\$ _____ average	\$ _____ average
	\$ _____ max	\$ _____ max	\$ _____ max

CBI?
 Yes
Est.?
 Yes

B.3.60. What was this project's total water production in 2007 (provide estimate if this was not measured)? (bbls)	_____ bbls	_____ bbls	_____ bbls
--	------------	------------	------------

CBI?
 Yes
Est.?
 Yes

B.3.61. What was your average working interest share for this project in 2007 (%)	_____ %	_____ %	_____ %
---	---------	---------	---------

CBI?
 Yes
Est.?
 Yes

B.3.62. What was the average gas royalty rate for this project in 2007 (among all parties over all leases, including surface owner if relevant) (%)	_____ %	_____ %	_____ %
---	---------	---------	---------

CBI?
 Yes
Est.?
 Yes

B.3.63. What were the total severance taxes from this project in 2007 (% or \$000)	_____ %	_____ %	_____ %
	\$ _____,000	\$ _____,000	\$ _____,000

CBI?
 Yes
Est.?
 Yes

B.3.64. Are there any other taxes such as ad valorem or production shares associated with this project? Provide dollar amount and/or percent and describe: _____	_____ %	_____ %	_____ %
	\$ _____,000	\$ _____,000	\$ _____,000

Reserves Information

CBI?
 Yes
Est.?
 Yes

B.3.65. Do you report reserves information to SEC or to DOE using the EIA Form 23 survey?	<input type="checkbox"/> Yes. Please continue with Question B.3.66. <input type="checkbox"/> No. Please skip to Question B.3.68.	<input type="checkbox"/> Yes. Please continue with Question B.3.66. <input type="checkbox"/> No. Please skip to Question B.3.68.	<input type="checkbox"/> Yes. Please continue with Question B.3.66. <input type="checkbox"/> No. Please skip to Question B.3.68.
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CBI?
 Yes
Est.?
 Yes

B.3.66. What is the estimated remaining proved reserves associated with this project as of December 31, 2007? (Prorate field estimates to project, where necessary, and specify units used and estimation method.) Units (e.g., MMcf): _____ Estimation Method: <input type="checkbox"/> SEC Definition of Proved Reserves <input type="checkbox"/> Other: _____			
--	--	--	--

- CBI?**
 Yes
 Est.?
 Yes

Question	Project _____	Project _____	Project _____
B.3.67. What discount rate and wellhead price was used for this proved reserve estimate?	\$ _____ at _____ %	\$ _____ at _____ %	\$ _____ at _____ %
B.3.68. If available , what is the estimated remaining technically recoverable reserves (year end 2007)? (Prorate field estimates to project, where necessary, and specify units used, e.g. MMcf.) Indicate NA if you do not compute technically recoverable reserves.			
B.3.69. If available , what is the projected remaining productive life of this project in the technically recoverable reserves estimate? (years)	_____ years	_____ years	_____ years
B.3.70. What was the cumulative gas production at 2007 year end for this project? Specify units (e.g., MMBtu) _____			
B.3.71. What was the cumulative water production at 2007 year end for this project (estimate if not measured)? Specify units (e.g., thousand bbls): _____			

Questions for Project Associated with Project _____

[One copy will be provided for each project in Part A.]

FUTURE COSTS AND REVENUES

Instructions: EPA will need to project costs and revenues of this project over the next 10 years. EPA acknowledges that projections beyond 5 years are very uncertain and will project information beyond the 5 year horizon, unless respondents prefer to provide those estimates themselves. You have several options for providing projection information:

- 1) Provide your own estimate of costs and revenues at the project over the next 5 years up to the end of your planning horizon (at least through 2010) in Table B -6;
- 2) Accept certain assumptions EPA would plan to make in lieu of using your projections;
- 3) Provide your 5-year projection in Table B -6 plus an additional 5-year projection beyond the fifth year, which you can attach to the questionnaire separately;
- 4) Use a combination of any of these.

For respondents choosing not to do their own projections or choosing only to project certain information, EPA will rely on state information on production for the wells in your project to determine a production profile, where possible, information provided by other respondents to this questionnaire, and/or best professional judgment. For any item you feel that EPA's assumptions will not work for your project, you can fill out those items in the 5-year projection table (or provide a 10-year projection, if you choose) for any of Questions B.3.83 to B.3.95 in Table B -6. Please check which overall option you have chosen and follow the instructions associated with the options you have selected.

CBI?
 Yes

B.3.72. Please indicate how you would like to handle projections of project data requested in the remainder of this questionnaire. Check any that apply.

- We request EPA make some or all of these projections based on the information provided below in Questions B.3.73 through B.3.83 for any items for which we have not provided a projection for in Table B -6. **Instructions:** Please complete Questions B.3.73 through B.3.83 for this project. You do not have to complete Table B -6, which asks for 5 years of year-by-year projections, unless you have opted out of certain assumptions and have chosen to provide a projection for one or more line items.
- We will be skipping Questions B.3.73 through B.3.83 and will provide year-by-year projection data for three to five years in Table B -6. **Instructions:** Please complete Questions B.3.73 through B.3.83 for this project. Please fill out Table B -6 for as many years as you have in your planning horizon. EPA is requesting your best judgment on these projections; the Agency is aware that projections are not certain. If the number of years requested exceeds your planning horizon, please indicate with NA in any remaining years.
- We have attached to additional projections out 10 years for some or all of the information shown in Table B -6 to this questionnaire.

Operator ID: _____

Instructions: EPA will make projections from 2007 or beyond your planning horizon (as shown in your responses to Table B -6) based on your answers to the following questions, your reported 2007 data, and any information provided in Table B -6. Please provide information to the extent possible without considering the effects of inflation. If this is not possible, please note the inflation rate inherent in your answers in the Comments Section in Question B.3.96. If you have provided some projections in Table B -6, EPA will assume further projections based on your answers to the following questions and/or either your last year's reported values in Table B -6 or the patterns seen in the projections provided (assuming at least 3 years' projections have been provided). For any of the questions B.3.73 through B.3.83 that have not been answered and for which alternative information has not been provided in Table B -6 or attached to this questionnaire, EPA will assume you have agreed to EPA's approach.

For the few projects where conventional oil is also produced, EPA will make the oil production projections and price projections, unless you provide oil production curves and/or other information with your questionnaire.

CBI?
 Yes B.3.73. Please provide the numbers of wells you plan to drill in this project over the next 5 years by year. If any years are beyond your planning horizon, please indicate with "NA."

2008 _____	2011 _____
2009 _____	2012 _____
2010 _____	

CBI?
 Yes B.3.74. In what year do you estimate drilling will be completed for this project, based on your current plans (and barring any changes in regulations, changes in your assumptions about future gas prices, etc.)

CBI?
 Yes B.3.75. EPA will use estimated costs of drilling based on data collected in this questionnaire of the CBM industry, publicly available information, and best engineering judgments as specific to your basin as possible to project drilling costs over 10 years. EPA will also assume drilling costs per well will not change by more than ordinary inflation (estimated as a function of the recent historic Producer Price Index for the oil and gas extraction industry) over the 10-year period (check any that apply):

- We agree to this approach.
- We would like EPA to use the following average cost per well for drilling:
 \$ _____ per well
- We would prefer EPA to consider the following factor **incremental to inflation** to represent drilling cost increases over time at our project:
 \$ _____ % per year

CBI?
 Yes B.3.76. At this point in time, using your current assumptions about wellhead prices, how much longer would you expect this project to produce economically?

- We are planning to shut in this year.
- From one to 3 years.
- More than 3 years but less than or equal to 5 years.
- More than 5 years but less than or equal to 8 years.
- More than 8 years but less than or equal to 10 years.
- More than 10 years.
- Unknown.

Operator ID: _____

CBI? Yes B.3.77. EPA will use gas production data found in state reported production data to create gas production profiles for this project. Note that EPA has little to no historic gas production information from Indiana and Illinois and very dated information from Pennsylvania, so production curves from operators in these states would be especially appreciated. If historic water production data for this project are not publicly available, or if your project is too new to provide much information to create a production profile, EPA will use information that might be generated by this questionnaire considered likely to be most representative of your project, general information on water production profiles from the state or other published sources, and, if necessary, professional judgment or information from other, similar basins (if relevant) to create the water production profile from this project.

- We agree to this approach.
- We have attached a gas production curve for this project.
- We have attached a gas production curve for a typical well in this project.
- We have projected our water volumes for this project in Table B -6.
- Other approach (provide information in comments section).

CBI? Yes B.3.78. EPA will use water production data found in state reported production data to create produced water production profiles for this project. Note that EPA does not have any well-specific or lease-specific produced water production information from state agencies in the following states: Arkansas, Kansas, Illinois, Indiana, Ohio, Oklahoma, and West Virginia. Also, if water reporting is voluntary and you do not report water to your state agency, EPA will not have this information. Production curves, or any other production data, from operators in states where production data might be missing would be especially appreciated If historic water production data for this project are not publicly available, or if your project is too new to provide much information to create a production profile, EPA will use information that might be generated by this questionnaire considered likely to be most representative of your project, general information on water production profiles from the state or other published sources, and, if necessary, professional judgment or information from other states in the same or with similar basins (if relevant) to create the water production profile from this project.

- We agree to this approach.
- We have attached a water production curve for this project.
- We have attached a water production curve for a typical well in this project.
- We have projected our water volumes for this project in Table B -6.
- Other approach (provide information in comments section)

CBI? Yes B.3.79. EPA will use frequency of workovers, stimulations, and recompletions based on data collected in this questionnaire of the CBM industry, publicly available information, and best engineering judgments as specific to your basin as possible to project such activities in EPA's 10-year projection:

- We agree to this approach.
- We prefer to provide EPA with workover frequencies specific to our project. On average, a well in this project is worked over:
_____ time(s) per 10-year period (note that fractions are acceptable).
- We prefer to provide EPA with stimulation frequencies specific to our project. On average, a well in this project is stimulated:
_____ time(s) per 10-year period (note that fractions are acceptable).
- We prefer to provide EPA with recompletion costs specific to our project. On average, a well is recompleted:
_____ time(s) per 10-year period (note that fractions are acceptable).

Operator ID: _____

CBI?
 Yes

B.3.80. EPA will use estimated costs of workovers, stimulations, and recompletions based on data collected in this questionnaire of the CBM industry, publicly available information, and best engineering judgments as specific to your basin as possible to project costs of such activities in EPA's 10-year projection:

- We agree to this approach.
- We prefer to provide EPA with workover costs specific to our project.
Average workover cost per well (2007\$): \$ _____
- We prefer to provide EPA with stimulation costs specific to our project.
Average stimulation cost per well (2007\$): \$ _____
- We prefer to provide EPA with recompletion costs specific to our project.
Average recompletion cost per well (2007\$): \$ _____

CBI?
 Yes

B.3.81. EPA will use the range and average well head prices reported for your project, along with similar information from other projects in the vicinity of your project, DOE projections of wellhead prices from the current EIA's Annual Energy Outlook, historic gas prices at Henry Hub, and other publicly available information to project wellhead gas price over the next 10 years at your project. EPA will take into account basin-specific infrastructure projections, well drilling projections, and other information to identify trends in future basin differentials. Sensitivity analyses will also be run using low and high wellhead prices based on DOE's low and high wellhead price projections.

- We agree to this approach.
- We have provided a projection of wellhead price in Table B -6.
- We have provided additional information in comments that we think should be used in computing this project's projected wellhead price.

CBI?
 Yes

B.3.82. Using the percentage provided in Question B.3.45 to split 2007 O&M costs (excluding produced water management costs) between fixed and variable costs, EPA will assume your existing variable O&M costs for this project (estimated on a per MMBtu basis) and your existing fixed costs (estimated on a per-year basis) will not vary over the 10-year projection, assuming no inflation.

- We agree to this approach.
- We have provided a projection of O&M costs for this project (excluding produced water management) in Table B -6.
- We have provided additional information in comments that we think should be used in computing this project's projected O&M costs for this project.

CBI?
 Yes

B.3.83. Please use the space below to add any additional comments you think might be useful to EPA in understanding what issues might affect costs in the next few years, particularly changes to state regulations that may be pending, competition for drilling rigs, changes in infrastructure availability, changes to royalty rates or severance, etc.

If you will not be continuing with Table B -6, please proceed to Part C. of this questionnaire. Note: you do not need to indicate whether the items in Table B -6 are estimates; EPA will assume all entries are estimates and acknowledges that such estimates are speculative.

Report large dollar amounts in nearest thousands of dollars where indicated (i.e., if additional capital expenditures are expected to be \$1,253,779, please report as \$1,254,000; zeroes have been provided already). If you are providing information on a project that also produces conventional oil, and wish to provide projections of oil production and oil prices, please do so in an attachment or in the comments section in question B.3.96.

Table B-6. Projections of Costs and Production over 5 Years

CBI?
 Yes

Question	2008	2009	2010	2011	2012
B.3.84. Estimated O&M costs of gas production. Include any lease rental costs, annual payments to surface owners, or recurring costs associated with permits (e.g., monitoring, recordkeeping and reporting or other such payments) that are not related to produced water management. Exclude all costs of water management after final gas/water separation such as NPDES permitting costs and produced water treatment. Also exclude any costs of workovers, stimulations, and recompletions or other activities if they are considered extraordinary or unusual expenditures (i.e., occurred in 2007, but do not typically occur). (\$000.)	\$ _____,000	\$ _____,000	\$ _____,000	\$ _____,000	\$ _____,000
Drilling and Major Expenditure Schedule					
B.3.85. Estimated number of wells drilled annually.					
B.3.86. Estimated total drilling costs incurred (see definition), by year (\$).					

CBI?
 Yes

CBI?
 Yes

Question		2008	2009	2010	2011	2012
CBI? <input type="checkbox"/> Yes	B.3.87. Estimated number of the following activities: (if not expected to occur indicate 0; if considered a part of O&M costs and included in Question B3-85 indicate "NA"):					
	Workovers					
	Stimulations					
	Recompletions					
	Other major maintenance					
CBI? <input type="checkbox"/> Yes	B.3.88. Estimated total cost (\$000) of the following activities in each year(if not expected to occur indicate 0; if considered a part of O&M costs and included in Question B3-87 indicate "NA"):					
	Workovers	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000
	Stimulations	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000
	Recompletions	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000
	Other major maintenance	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000
CBI? <input type="checkbox"/> Yes	B.3.89. Estimated additional capital expenditures incurred, by year (\$000).	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000	\$, . ,000

Question		2008	2009	2010	2011	2012
B.3.90. Estimated additional expenditures not captured in Questions B.3.86 to B.3.89, including one-time permit costs (e.g., permit renewals) not associated with produced water management. Exclude O&M costs and any monitoring, recordkeeping and reporting costs. Describe: _____ _____		\$ _____,000	\$ _____,000	\$ _____,000	\$ _____,000	\$ _____,000
Production Schedule						
CBI? <input type="checkbox"/> Yes	B.3.91. What is your projection of gas production at this project (MMBtu/yr)	\$ _____ MMBtu				
CBI? <input type="checkbox"/> Yes	B.3.92. What is your projection of water production at this project (bbls/yr)	\$ _____ bbls				
CBI? <input type="checkbox"/> Yes	B.3.93. What wellhead price of gas have you used to project gas production? (\$./MMBtu)	\$ _____ MMBtu				
CBI? <input type="checkbox"/> Yes	B.3.94. What is your projection of severance and other production taxes? (\$000)	\$ _____,000	\$ _____,000	\$ _____,000	\$ _____,000	\$ _____,000
CBI? <input type="checkbox"/> Yes	B.3.95. What inflation rate are you using in these projections (including expenditure projections)? If using more than one inflator for different cost items, use the comments section to specify (%).					

Operator ID: ____
 Copy ____ of ____

B.3.96. **Comments on Part B.** Please cross-reference your comments by question number. **If you need additional space, please photocopy this page before writing on it,** and number each copy in the space provided.

Question Number	Comment
CBI? <input type="checkbox"/> Yes	

PART C. PRODUCED WATER MANAGEMENT INFORMATION

INSTRUCTIONS FOR PART C (Technical Portion of Questionnaire)

Read all question-specific instructions and definitions of key terms (Part D).

Data may be submitted as clearly marked electronic attachments to this questionnaire.

Complete this part of the questionnaire for only the projects listed in Part A.

You may need to make copies of some PAGES before responding. Some pages in Part C of the questionnaire will need to be photocopied before you respond. Indicate how many copies of the PAGE you are submitting by completing the entry "Copy ___ of ___" in the top right corner.

Not all questions will be applicable to every operator. EPA prepared Part C of the questionnaire to be applicable to a variety of operators; therefore, not all of the questions will apply to every operator. Complete each relevant item in the questionnaire.

Mark responses for each question. Fill in the appropriate response(s) to each question. Please use **black ink** or **type** in the spaces provided. Answer the questions in sequence unless you are directed to SKIP. Do not leave any entry blank. If the answer is zero, write "0" or "zero". If a question is not applicable to your operations, write "NA." EPA intends that responses to all questions be based upon available data and information. Please provide best estimates when exact data are not available. If you provide an estimate, note the methods that were used to make the estimate, along with the section and question number that the estimate refers, on the Comments page at the end of Part C.

You are not required to perform new or non-routine tests or measurements solely for the purpose of responding to this questionnaire. EPA intends that responses to all questions be based upon available data and information. In the event that exact data are not available, please provide best engineering estimates and note the methods that were used to make the estimates on the Comments page located at the end of each section.

Include any clarifying attachments. If additional attachments are required to clarify a response, please place the associated question number and your operator identification number in the top right corner of each page of the attachments. The following list contains examples of items that may be included as attachments to this questionnaire:

- Operations brochure, pamphlet, general description;
- Produced water treatment flow diagrams;
- Hard copy or electronic water quality data collected from water monitoring locations;
- Produced water treatment operation and maintenance logs; and
- Pollution prevention or management practices policies or data.

Pay close attention to the measurement units requested (e.g., barrels per day, milligrams per liter). Report answers in the units that are specified, unless the question requires you to specify the units.

Indicate information that should be treated as confidential. You may claim as confidential all information included in the response to a question by checking the Confidential Business Information (CBI) box next to the question number. Note that you may be required to justify any claim of confidentiality at a later time. See the CONFIDENTIAL BUSINESS INFORMATION section on page 3.

Questions? If you have any questions regarding the completion of this questionnaire, see the QUESTIONNAIRE ASSISTANCE section on page 2.

Operator ID: _____

SECTION 1: GENERAL OPERATOR INFORMATION

GENERAL INSTRUCTIONS FOR SECTION 1

This section of the questionnaire collects operator and company address and contact information.

Indicate information that should be treated as confidential by checking the Confidential Business Information (CBI) box next to each question number with responses containing CBI. Any response where "CBI" is not checked will be considered non-confidential. Refer to the instructions given in the CONFIDENTIAL BUSINESS INFORMATION section on page 3 for additional information regarding EPA's confidentiality procedures set forth in 40 CFR Part 2, Subpart B.

CBI?
 Yes

C.1.1. Provide the name, title, telephone and facsimile numbers, and e-mail address of the primary contact at your operation for information supplied in Part C. of this questionnaire.

_____	(____) _____
Primary Contact Name	Telephone Number
_____	(____) _____
Primary Contact Title	Facsimile Number
_____	Convenient time to call between:
Email Address	_____ <input type="checkbox"/> am / <input type="checkbox"/> pm and
_____	_____ <input type="checkbox"/> am / <input type="checkbox"/> pm (Eastern Time)
Street Address	
_____	_____
City	State Zip Code

CBI?
 Yes

C.1.2. Provide the name, title, telephone and facsimile numbers, and e-mail address of the secondary contact at your operation for information supplied in Part C. of this questionnaire.

_____	(____) _____
Secondary Contact Name	Telephone Number
_____	(____) _____
Secondary Contact Title	Facsimile Number
_____	Convenient time to call between:
Email Address	_____ <input type="checkbox"/> am / <input type="checkbox"/> pm and
_____	_____ <input type="checkbox"/> am / <input type="checkbox"/> pm (Eastern Time)
Street Address	
_____	_____
City	State Zip Code

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

SECTION 2: PRODUCED WATER MANAGEMENT SYSTEM GENERAL QUESTIONS

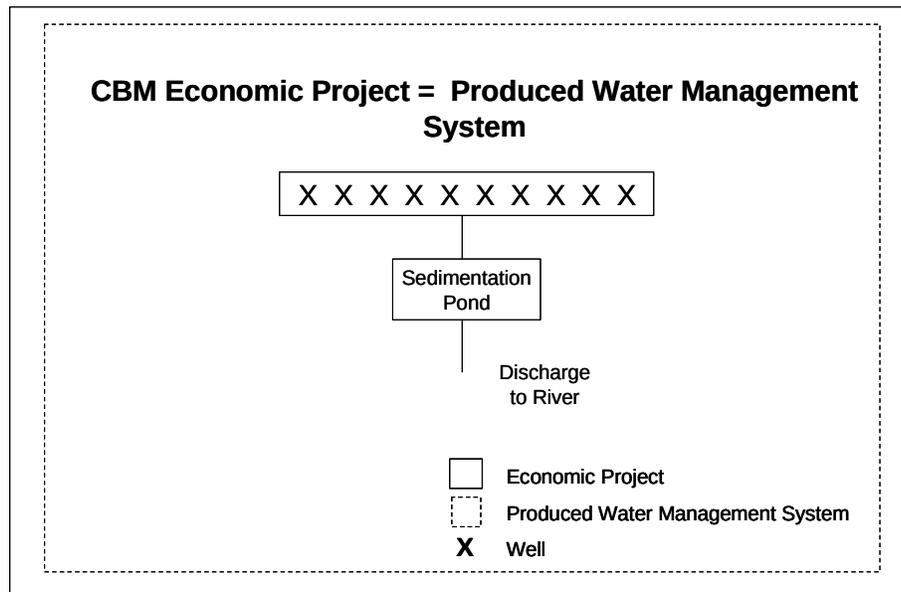
GENERAL INSTRUCTIONS FOR PART C SECTION 2

The following questions request general information on the components and costs of the Produced Water Management System(s) used for the project(s) listed in Section A. These data will be used to evaluate the costs and benefits of various CBM water management arrangements.

Produced Water Management System (PWMS) - For the purposes of this questionnaire, Produced Water Management System is defined as a system that is managed by the operator as a single unit for produced water management. Produced water management may include different treatment, transfer to disposal locations, and/or reuse practices. The Produced Water Management System may treat water from a lease, field, project, or plan of development (POD). Water discharge permits, land application permits, and applications for permits to drill (APD) typically use one of these terms to define the well grouping. Note that the Produced Water Management System can have multiple disposal options but it is managed as a single unit. For example, an operator may use a combination of stock tanks, irrigation, and storage ponds on a single Produced Water Management System. Also note that the Produced Water Management System may serve the same or different wells from the CBM project defined in Part A.

The following diagrams are designed to help you determine the Produced Water Management Systems that should be included in this section of the questionnaire. Please complete a copy of this section for each Produced Water Management System used for the projects listed in Part A.

In Example 1, the operator is using the same produced water management system for all wells in the CBM project listed in Part A. Therefore, the CBM economic project and Produced Water Management System are the same. The operator should complete one copy of Part C. Sections 2 and 3 for the Produced Water Management System.



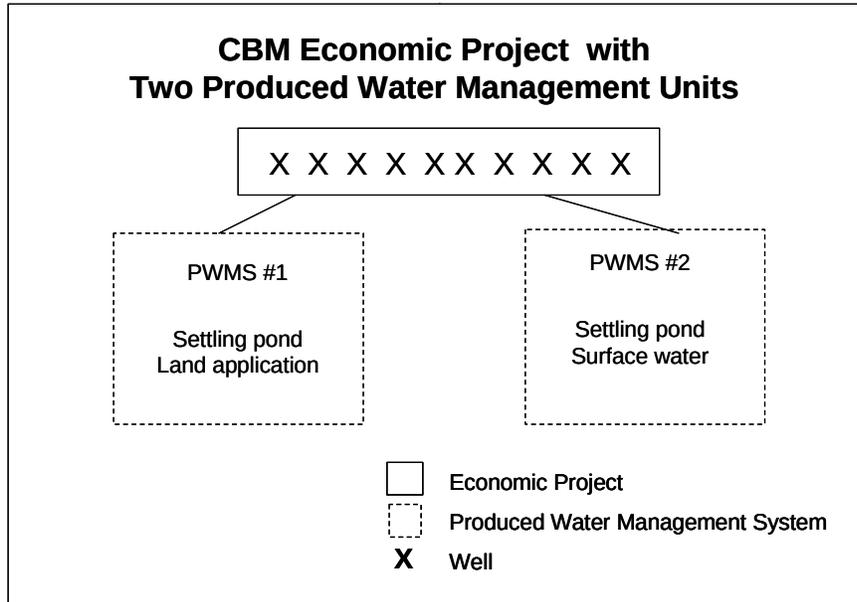
Example 1.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

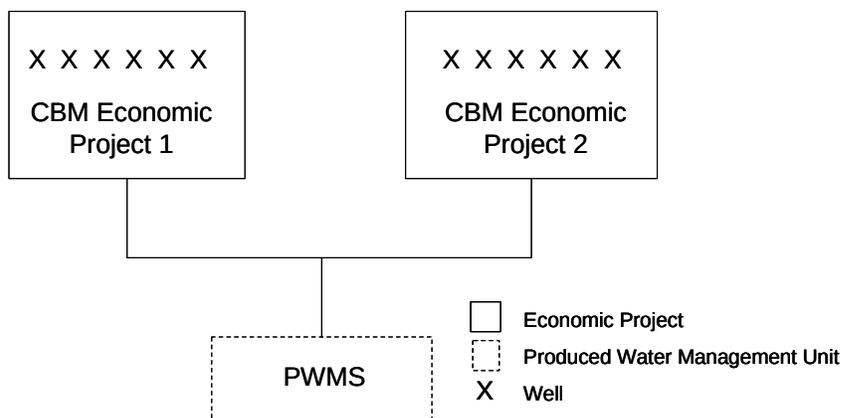
In **Example 2**, the operator is using the two Produced Water Management Systems for the wells included in the CBM economic project listed in Part A. The operator should complete two copies of Part C. Section 2 and Part C. Section 3, one for each produced water management scenario used as part of this economic project.



Example 2.

In Example 3, the operator has two economic projects that share the same produced water management system. One of the economic projects, CBM Economic Project 1, was listed in Part A. The operator should have completed Part B., Section 3 for Economic Project 1. The operator did not need to provide information for Economic Project 2 because it was not listed in Part A. The operator should complete one copy of Part C. for the combined produced water management system. In **Example 3** the operator will identify the CBM wells and different produced water volumes managed by the PWMS from Project 1 and Project 2.

**Multiple Economic Projects Sharing
the same
Produced Water Management Unit**



Example 3.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

For EACH Produced Water Management System you operated in 2007 to treat produced water from the wells listed in Section A, complete a copy of the entire Part C. Section 2 and Section 3. You may need to make multiple copies of these sections. Please enter a Produced Water Management System number or name in the upper right-hand corner of this section. The number you choose could be one you use internally to refer to the project, but can be just a number such as 1, 2, 3, etc., if you use no formal identifier. This information will be used to check that the detailed information provided in this section is linked to the correct Produced Water Management System.

Question C.2.1 requests a block flow diagram or narrative description for each Produced Water Management System. EPA has provided examples to guide you in completing this question.

Questions C.2.2 through C.2.13 request general information on the Produced Water Management System such as how the management system was selected and capital and operating costs.

Questions Error: Reference source not found through C.3.12 request discharge and treatment information for the Produced Water Management System.

Questions C.4.1 through C.4.2 request water quality and whole effluent toxicity data.

A comment page is included at the end of this section to clarify responses.

Note that this section was designed to be applicable to a variety of operators. Many of the detailed questions are only applicable to discharge of produced water to surface waters, a POTW, or third party. Please follow the skip patterns noted throughout the section.

EPA may contact you for additional detailed cost data for the information you provide in this section of the questionnaire.

If you are unsure of how to complete any parts of this section, please refer to the QUESTIONNAIRE ASSISTANCE information on page 2.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

CBI?
 Yes

C.2.1. For each Produced Water Management System, please provide a block diagram (as in the following examples) or a narrative description that shows how the produced water was managed in 2007. Refer to this diagram or narrative as you answer questions throughout this section. Hand drawings are sufficient for this question. Please provide a Produced Water Management System identification number and name for each diagram.

- Attached a block diagram.
- Attached a narrative description.

The following items should be included on your diagram or discussed in your narrative for each Produced Water Management System:

- Name or identification number for this Produced Water Management System. This name or number should be noted in the upper right-hand corner of all pages in this section.
- Discharge, disposal, and reuse practices for this Produced Water Management System including the final destination of the produced water.
- Individual treatment units prior to discharge, disposal, or reuse. Please show each individual unit on the diagram. For example, if you have two sedimentation ponds, please show each one on the diagram.
- Points of chemical addition, along with the chemical name.
- Descriptions of any waste streams resulting from CBM produced water treatment (e.g., concentrated brine, ion exchange regeneration wastewater, settled solids).
- Destinations for all produced water. Please remember to include evaporation or infiltration.
- The locations where routine water quality data are collected (you will be asked to provide some of this data in Part C. Section 4).
- Please note whether any produced water from conventional oil and gas extraction is commingled with produced water from this CBM project. Please indicate on the diagram the volumes or flow rates of the conventional oil and gas extraction produced water as well as the point at which these waters are commingled.
- Please note whether any produced water from another CBM project (either yours or another operators) is commingled with produced water from this CBM project. If produced water from another project operated by your company enters this management system, provide the name of the project as provided in your screener survey. Please indicate on the diagram the volumes or flow rates of the CBM produced waters not from this CBM project as well as the point at which these waters are commingled.

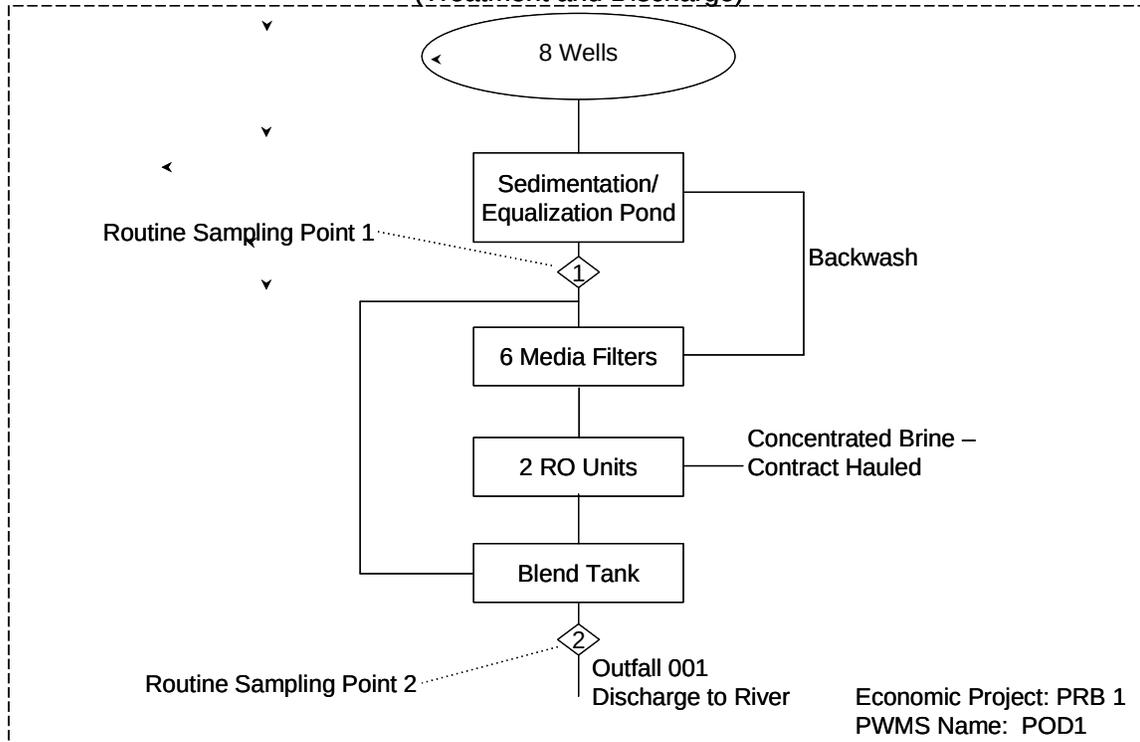
Example 4 illustrates a Produced Water Management System with only one management practice. In this example, you would complete one copy of this section for this Produced Water Management System.

Operator ID: 9999

Project ID from Part A: PRB1

Operator's Name or ID for this Produced Water Management System: POD1

**One Produced Water Management System for the CBM Project
 (Treatment and Discharge)**



Example 4.

Example 5 is an example of a narrative description for a CBM project with only one PWMS. In this example, you would complete one copy of this section for this Produced Water Management System.

Produced water from the eight CBM wells in the San Juan POD is piped to six storage tanks. Only water from the eight wells enters the storage tanks. The water is trucked from the storage tanks to one of two injection wells. The water is filtered and a biocide is added prior to re-injection. A sample of the water is tested prior to re-injection.

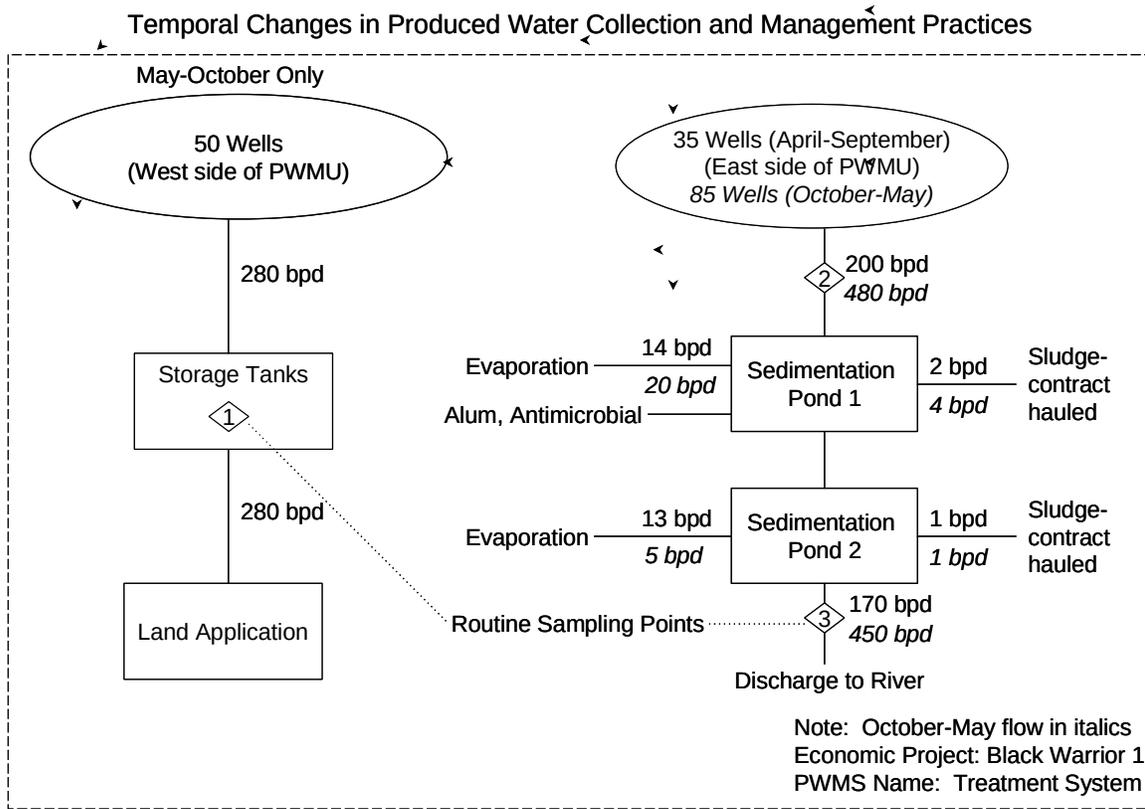
Example 5.

Example 6 illustrates a Produced Water Management System with multiple produced water management practices that vary throughout the year. The dates during which each water management practice is in use are shown above that branch of the flow diagram. You should complete two copies of Part C Sections 2 and 3 for this scenario, one for the west side and one for the east side.

Operator ID: 9900

Project ID from Part A: Black Warrior 1

Operator's Name or ID for this Produced Water Management System: Treatment System 1



Example 6.

Operator ID: _____
Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

CBI?
 Yes C.2.2. In what year did this Produced Water Management System begin operating? _____

Number of days in operation in 2007:

365 days; or
 _____ days

CBI?
 Yes C.2.3. What was the average annual flowrate or total volume of water treated by this Produced Water Management System in 2007?

_____ Please specify the volume units: _____

CBI?
 Yes C.2.4. What percentage of water treated by this Produced Water Management System is from the project from Part A listed at the top of the page:

_____ %

CBI?
 Yes C.2.5. **Selection of Management Option**

a. How was the Produced Water Management System designed? (Check all that apply.)

- Input from the surface owner during development of the surface use plan
- Work with outside contractor
- Other: Please describe _____

b. Who manages the day-to-day operations for the produced water management?

- Operator (Skip to Question C.3.3)
- Landowner (Skip to Question C.3.3)
- Contractor/third party; please provide company name _____

c. Cost of hiring the contractor/third party for produced water management in 2007

2007 annual operating and maintenance cost \$ _____

Minimum quantity of CBM produced water required for contract: _____ bbl
Skip to Question C.2.9.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

CBI?
 Yes

C.2.6. Produced Water Management System Capital Costs – Please provide the following capital cost information for this Produced Water Management System. Exclude any costs associated with excavating surface impoundments if the impoundment was converted from other uses, such as drill pits, but do include the costs of conversion.

a. Capital cost in dollars: \$ _____
 Check this box if your company purchased an existing treatment system from another company and does not have capital cost information.

b. Year cost incurred: _____

c. Please check () the components from the list below that are included in the capital cost you reported in C2-6(a).

- | | | | |
|--------------------------|--|--------------------------|--------------------------|
| <input type="checkbox"/> | Storage tanks | <input type="checkbox"/> | Ion exchange unit |
| <input type="checkbox"/> | Pumps | <input type="checkbox"/> | Membrane filtration unit |
| <input type="checkbox"/> | Piping/hoses | <input type="checkbox"/> | Liner |
| <input type="checkbox"/> | Outfall structure | <input type="checkbox"/> | Stock tanks |
| <input type="checkbox"/> | Land application equipment | <input type="checkbox"/> | Land acquisition |
| <input type="checkbox"/> | Underground injection well | <input type="checkbox"/> | Monitoring equipment |
| <input type="checkbox"/> | Surface impoundment/sedimentation pond | <input type="checkbox"/> | Other: _____ |

CBI?
 Yes

C.2.7. Produced Water Management System Operating and Maintenance Costs – Please provide the costs for this Produced Water Management System for 2007 and check the components included in this cost.

a. \$ _____

b. Please check () the components from the list below that are included in the cost you reported in C2-7(a).

- | | | | |
|--------------------------|------------------|--------------------------|-----------------------|
| <input type="checkbox"/> | Transportation | <input type="checkbox"/> | Maintenance materials |
| <input type="checkbox"/> | Chemicals | <input type="checkbox"/> | Maintenance labor |
| <input type="checkbox"/> | Energy: electric | <input type="checkbox"/> | Operating labor |
| <input type="checkbox"/> | Energy: gas | <input type="checkbox"/> | Other: _____ |
| <input type="checkbox"/> | Energy: oil | <input type="checkbox"/> | Other: _____ |

c. Please provide any annual revenue received from operating this Produced Water Management System (e.g., payments from water recipients, payment for treating produced water from another operator) \$ _____

Operator ID: _____
 Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

CBI?
 Yes C.2.8. Please indicate the land area occupied by your operations.

	Location	Area	Units
a.	Total Project Area (Part A Project)		
b.	Total PWMS Area		
c.	Total Undeveloped Area		

d. Is the undeveloped area suitable for construction of new or additional wastewater treatment systems?

Yes
 No: Provide explanation: _____

CBI?
 Yes C.2.9. Have you ever operated or considered operating a produced water management system other than what is described in this section for the project?

Yes
 No (Skip to Question C.2.12)

CBI?
 Yes C.2.10. What type of management system did you consider?

CBI?
 Yes C.2.11. What were the reasons for not implementing or for stopping the operation of the management system?

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

CBI?
 Yes

C.2.12. Have any monitoring or other studies been conducted to assess the potential impacts of produced water for this Produced Water Management System, such as impacts related to irrigation, impoundment, or surface water discharges? Produced water related impacts may include but are not limited to: changes in soil characteristics, changes in stream flows, changes in aquatic toxicity, and changes in aquatic and riparian species composition.

Yes

No (Skip to Question Part C Section 3)

CBI?
 Yes

C.2.13. Indicate the following information about the studies, if known. If there are additional studies, please provide the information in the Comments Section.

Title: _____

Publication Date: _____ / _____ / _____

Operator ID: _____
 Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

SECTION 3: DETAILED PRODUCED WATER MANAGEMENT AND TREATMENT QUESTIONS

GENERAL INSTRUCTIONS FOR SECTION 3

Questions Error: Reference source not found through C.3.12 request detailed information for the Produced Water Management System. Please see the following tables to identify the questions you should complete.

CBI?
 Yes

C.3.1. **Produced Water Destination** - This table provides direction on how to provide information on the final destination of the produced water for this Produced Water Management System. Check (☒) all that apply.

Table C-7. Final Destination of CBM Produced Water

	Check (☐) all that	Destination	Flowrate of Produced Water to Final Destination and Maximum Capacity	Additional Information
a.	<input type="checkbox"/>	Discharge to surface water (requiring NPDES permit)	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Complete Question C.3.2.
b.	<input type="checkbox"/>	Discharge to POTW or third party (e.g., discharge to another operator's treatment system)	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Complete Question C.3.3.
c.	<input type="checkbox"/>	Land Application (no crop production)	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Complete Question C3-12
d.	<input type="checkbox"/>	Land Application (for crop production)	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Complete Question C3-12
e.	<input type="checkbox"/>	Underground Injection	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Skip to Part C Section 4.
f.	<input type="checkbox"/>	Evaporation or infiltration pond (with no intended discharge to surface water)	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Skip to Part C Section 4.
g.	<input type="checkbox"/>	Livestock or Wildlife Watering	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Skip to Part C Section 4.

	Check () all that	Destination	Flowrate of Produced Water to Final Destination and Maximum Capacity	Additional Information
h.	<input type="checkbox"/>	Hauled off site	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Skip to Part C Section 4.
i.	<input type="checkbox"/>	Other: _____ _____ _____	Flowrate: _____ Flowrate Units: _____ Maximum Capacity: _____ Capacity Units: _____	Skip to Part C Section 4.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

Surface Water Discharge Question Copy _____ of _____

CBI?
 Yes

C.3.2. Surface Water Discharge. Complete Question C.3.2 if you checked that this Produced Water Management System discharges to surface water in Table C3-1. If this Produced Water Management System does not discharge to surface water, skip to Question C.3.3. Complete one copy of this question for each surface water discharge permit used in this Produced Water Management System.

a. **General Information on Surface Water Discharge Permit** – Please complete the following table of general information about the surface water discharge permit.

NPDES Permit Number	
Permit Type	<input type="checkbox"/> General <input type="checkbox"/> Individual
Expiration Date (MM-DD-YYYY)	
Stream Monitoring Required?	<input type="checkbox"/> Yes (specify frequency: _____) <input type="checkbox"/> No
Effluent Monitoring Required?	<input type="checkbox"/> Yes (specify frequency: _____) <input type="checkbox"/> No
Permit currently being reviewed or modified?	<input type="checkbox"/> Yes <input type="checkbox"/> No

b. **General Information on Outfalls Included in Permit** – Please complete the following table of general information about the outfalls included in the permit listed in part (a) of this question.

- i. Outfall Number – List each outfall included in the NPDES permit.
- ii. Aeration Equipment– Check () any aeration equipment or other treatment equipment used at the outfall.
- iii. Flowrate or Volume Discharged Through Outfall – Please provide the total volume discharged through each outfall in 2007.
- iv. Frequency of Discharge – Indicate the frequency of discharge including number of days discharged in 2007.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

Surface Water Discharge Question Copy _____ of _____

Outfall Number	Treatment at Outfall(s)	Flowrate or Volume Discharged Through Outfall (specify units)	Frequency of discharge
	<input type="checkbox"/> None <input type="checkbox"/> Rip Rap <input type="checkbox"/> Atomizer <input type="checkbox"/> Sprinkler head <input type="checkbox"/> Diffuser <input type="checkbox"/> Other Please specify: _____ _____	_____ Units: _____	<input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent Number of days of intermittent discharge in 2007 _____ <input type="checkbox"/> Emergency discharge only Number of days of emergency discharge in 2007 _____
	<input type="checkbox"/> None <input type="checkbox"/> Rip Rap <input type="checkbox"/> Atomizer <input type="checkbox"/> Sprinkler head <input type="checkbox"/> Diffuser <input type="checkbox"/> Other Please specify: _____ _____	_____ Units: _____	<input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent Number of days of intermittent discharge in 2007 _____ <input type="checkbox"/> Emergency discharge only Number of days of emergency discharge in 2007 _____
	<input type="checkbox"/> None <input type="checkbox"/> Rip Rap <input type="checkbox"/> Atomizer <input type="checkbox"/> Sprinkler head <input type="checkbox"/> Diffuser <input type="checkbox"/> Other Please specify: _____ _____	_____ Units: _____	<input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent Number of days of intermittent discharge in 2007 _____ <input type="checkbox"/> Emergency discharge only Number of days of emergency discharge in 2007 _____

c. **Discharge Permit and Discharge Monitoring Reports.** Please attach a copy of the current surface water discharge NPDES permit. Please report any discharge monitoring report (DMR) data for 2005 through 2007 in Part C Section 4. If available, EPA prefers this DMR data be submitted in an electronic format.

Permit Attached.

Complete Question C.3.3 if you checked this Produced Water Management System also discharges to a POTW or third party, else go to Question C.3.4.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

POTW/Third Party Discharge Question Copy _____ of _____

CBI?
 Yes

C.3.3. Discharge to POTW or third party. Complete Question C.3.3 if you checked that this Produced Water Management System discharges to a POTW or third party in Table C -7. If this Produced Water Management System does not discharge to a POTW or third party, skip to Question C.3.4. Complete one copy of this question for each POTW or third party used in this Produced Water Management System.

- POTW.
- PrOTW.
- Other facility.

a. Provide the POTW, PrOTW, or facility name, address, primary contact, and phone number (if applicable).

POTW/PrOTW/Facility Name

Address

City

State

Zip Code

Primary Contact Name

(_____) _____
Telephone Number

b. Please attach a copy of the current permit or discharge agreement. Please report any monitoring data in Part C Section 4. If available, EPA prefers data be submitted in an electronic format.

Permit/Discharge Agreement Attached

Continue to Question C.3.4.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

Produced Water Treatment

CBI?
 Yes C.3.4. Do you treat produced water to remove pollutants prior to discharge to surface water or POTW/third party?

- Yes
- No (Skip to Part C Section 4)

CBI?
 Yes C.3.5. Did you dispose of any sludge or solids from this treatment system in 2007?

- Yes, please complete the following table.
- No

Average frequency of sludge removal	_____
Amount of sludge removed in 2007	_____ Tons
Destination of removed sludge	<input type="checkbox"/> Landfill <input type="checkbox"/> On-site land application <input type="checkbox"/> Other

CBI?
 Yes C.3.6. **Produced Water Transportation Questions.** Please provide cost and design information for transporting the produced water from the well heads to the treatment system.

a. What is the approximate percentage of this project (as measured by the volume of produced water transported) that uses piping to transport produced water from the wellhead to a centralized treatment location?

_____ %

Estimated pump and pipe replacement and repair costs in 2007: \$ _____

b. Please answer the following questions if you transport produced water via trucking. Otherwise, skip to Question C.3.7.

i. Volume of water requiring trucking/hauling in 2007:

ii. Average trucking/hauling distance in 2007:

iii. Number of days trucking/hauling required in 2007:

iv. Trucking Costs in 2007: \$

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

CBI?
 Yes

C.3.7. This table provides direction on how to provide information on the treatment of the produced water for this Produced Water Management System. Check (☒) all that apply. EPA will request more detailed information about treatment of the produced water in later questions.

Table C-8. Treatment of CBM Produced Water

	Check (☐) all that apply	Type of Treatment Unit	Do you have water quality data for the produced water entering and/or leaving this treatment unit? If so, please provide in Section 4 (water quality section).	Additional Information
a.	<input type="checkbox"/>	Sedimentation Pond (for equalization or suspended solids removal)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Complete Question C.3.8 for each pond.
b.	<input type="checkbox"/>	Ion exchange	<input type="checkbox"/> Yes <input type="checkbox"/> No	Complete Question C.3.9 for each ion exchange unit.
c.	<input type="checkbox"/>	Low-Pressure Filtration (e.g., Hydro-cyclone, Multi-media filtration)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Complete Question C.3.10 for each low-pressure filtration unit.
d.	<input type="checkbox"/>	High-Pressure Filtration (e.g., Reverse Osmosis, Nanofiltration)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Complete Question C.3.11 for each high-pressure filtration unit.
e.	<input type="checkbox"/>	Other: please specify: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	Complete Question C.3.12 for any additional treatment units not listed elsewhere.

Copy pages as needed to include information on all treatment units checked (☒) in the table above. Please be sure to enter the Produced Water Management System identification number or name so that EPA can link the information in this section to the correct Produced Water Management System.

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

Surface Impoundments/Sedimentation Ponds Question Copy _____ of _____

CBI?
 Yes

C.3.8. Sedimentation Ponds – Complete Question C.3.8 if you checked that this Produced Water Management System uses sedimentation ponds in Table C-8. Also, please indicate the water quality parameters that are removed by this treatment unit and the estimated removal efficiency. If this Produced Water Management System does not use sedimentation ponds, skip to Question C.3.9.

Design Capacity (acre-feet)	_____ acre-feet	
Volume of Produced Water into Sedimentation Basin in 2007	_____ bbl	
Surface Area	_____ acres	
Type of Liner and Thickness (if applicable)	<input type="checkbox"/> Yes – Liner used Specify type and thickness: _____ <input type="checkbox"/> No liner	
Chemicals added (e.g., coagulants, biocides)		
Capital Cost of Sedimentation Basin	\$ _____	
Initial Bonding Costs	\$ _____	
2007 Operating and Maintenance Cost of Sedimentation Basin	\$ _____	
Targeted Water Quality Parameter – Answer This Section if you Checked (<input type="checkbox"/>) Surface Impoundments/Treatment Above		
Parameter Name	Estimated Removal Efficiency	Basis/Comments

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

Ion Exchange Question Copy _____ of _____

CBI?
 Yes

C.3.9. Ion Exchange - Complete Question C.3.9 if you checked that this Produced Water Management System uses ion exchange in Table C-8. Also, please indicate the water quality parameters that are removed by this treatment unit and the estimated removal efficiency. If this Produced Water Management System does not use ion exchange, skip to Question C.3.10. Remember to complete one copy of this question for each ion exchange unit used in this Produced Water Management System.

Design Capacity of Ion Exchange System (bbl/d)	_____ bbl/d	
Volume of produced water into Ion Exchange in 2007 (bbl)	_____ bbl	
Vendor/Unit Name		
Resin Name/Type		
Average Regeneration Frequency (specify units)		
Average Resin Life (yrs)	_____ years	
Approximate Volume of Regeneration Waste Generated in 2007	_____ bbl/d	
Destination of Regeneration Waste Stream (check all that apply)	<input type="checkbox"/> Injection <input type="checkbox"/> Use as Drilling Fluid <input type="checkbox"/> Direct Discharge <input type="checkbox"/> POTW <input type="checkbox"/> Sale	
Chemicals added (e.g., coagulants, biocides)		
Capital Cost of Ion Exchange Unit	\$ _____	
2007 Operating and Maintenance Cost of Ion Exchange Unit	\$ _____	
Pilot Project	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Targeted Water Quality Parameter		
Parameter Name	Estimated Removal Efficiency	Basis/Comments

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

Low-Pressure Filtration Question Copy _____ of _____

CBI?
 Yes

C.3.10. Low-Pressure Filtration – Complete Question C.3.10 if you checked that this Produced Water Management System uses low-pressure filtration in Table C -8. Also, please indicate the water quality parameters that are removed by this treatment unit and the estimated removal efficiency. If this Produced Water Management System does not use low-pressure filtration, skip to Question C.3.11. Remember to complete one copy of this question for each low-pressure filtration unit used in this Produced Water Management System.

Design Capacity of Filtration System (bbl/d)	_____ bbl/d	
Volume of Produced Water Entering Low-Pressure Filtration Unit in 2007 (bbl)	_____ bbl	
Type	<input type="checkbox"/> Multimedia <input type="checkbox"/> Sand <input type="checkbox"/> Other: _____	
Vendor/Unit Name	_____	
Approximate Volume of Waste Stream Generated in 2007	_____ bbl	
Destination of Waste Stream (check all that apply)	<input type="checkbox"/> Injection <input type="checkbox"/> Direct Discharge <input type="checkbox"/> Use as Drilling Fluid <input type="checkbox"/> POTW <input type="checkbox"/> Sale	
Average Cleaning Frequency (specify units)	_____	
Chemicals added (e.g., coagulants, biocides)	_____	
Capital Cost of Filtration System	\$ _____	
2007 Operating and Maintenance Cost of Filtration System	\$ _____	
Pilot Project	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Targeted Water Quality Parameter		
Parameter Name	Estimated Removal Efficiency	Basis/Comments

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

High-Pressure Filtration Question Copy _____ of _____

CBI?
 Yes

C.3.11. High-Pressure Filtration – Complete Question C.3.11 if you checked that this Produced Water Management System uses high-pressure filtration in Table C -8. Also, please indicate the water quality parameters that are removed by this treatment unit and the estimated removal efficiency. If this Produced Water Management System does not use high-pressure filtration, skip to Question C.3.12. Remember to complete one copy of this question for each high-pressure filtration unit used in this Produced Water Management System.

Design Capacity of Filtration System (bbl/d)	_____ bbl/d
Volume of Produced Water Entering Low-Pressure Filtration Unit in 2007 (bbl)	_____ bbl
Type	<input type="checkbox"/> Reverse Osmosis <input type="checkbox"/> Ultrafiltration <input type="checkbox"/> Nanofiltration <input type="checkbox"/> Other (specify type): _____
Vendor/Unit Name	_____
Approximate Volume of Waste Stream Generated in 2007	_____
Destination of Waste Stream (check all that apply)	<input type="checkbox"/> Injection <input type="checkbox"/> Direct Discharge <input type="checkbox"/> Use as Drilling Fluid <input type="checkbox"/> POTW <input type="checkbox"/> Sale
Average Regeneration/Cleaning Frequency (specify units)	_____
Membrane Life (years)	_____ years
Chemicals added (e.g. coagulants, biocides)	_____
Capital Cost of Filtration System	\$ _____
2007 Operating and Maintenance Cost of Filtration System	\$ _____
Pilot Project	<input type="checkbox"/> Yes <input type="checkbox"/> No

Targeted Water Quality Parameter		
Parameter Name	Estimated Removal Efficiency	Basis/Comments

Operator ID: _____
 Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

Land Application or Treatment Not Specified Elsewhere Question Copy _____ of _____

CBI?
 Yes

C.3.12. Land Application or Treatment Not Specified Elsewhere – Complete Question C.3.12 if you checked that this Produced Water Management System uses land application or treatment not specified elsewhere in Table C -8. Remember to complete one copy of this question for any additional treatment units used at this Produced Water Management System.

- a. General Information - Please complete the following table of general information. Also, please indicate the water quality parameters that are removed by any treatment unit and the estimate removal efficiency.

Design Capacity of This Land Application or Treatment System (bbl/d)	_____ bbl/d	
Volume of Produce Water Entering Land Application or Treatment Unit in 2007 (bbl)	_____ bbl	
Description of Land Application or Treatment System		
Type and Amounts of Chemicals Used With This System in 2007 (e.g., coagulants, biocides, soil amendments)		
Final Destination of CBM Produced Water (check all that apply)	<input type="checkbox"/> Injection <input type="checkbox"/> Direct Discharge <input type="checkbox"/> Dust Suppression <input type="checkbox"/> Other	<input type="checkbox"/> Land Application <input type="checkbox"/> POTW <input type="checkbox"/> Use as Drilling Fluid
Pilot Project	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Land Application (Complete for Irrigation and Non-Irrigation Land Application)		
Area of Land Used for Land Application (acres)		
Describe any criteria on the Produced Water for This Land Application		
Type of Land Application/Irrigation	<input type="checkbox"/> Above-ground irrigation (e.g., center-pivot) <input type="checkbox"/> Sub-surface drip irrigation (SDI) <input type="checkbox"/> Other (please specify): _____	
Frequency of Application	<input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent: Number of days applied in 2007 _____ Months applied in 2007 _____	
Targeted Water Quality Parameter (Complete for Treatment Technology Not Specified Elsewhere)		
Name	Estimated Removal Efficiency	Basis/Comments

Operator ID: _____

Project ID from Part A: _____

Operator's Name or ID for this Produced Water Management System: _____

SECTION 4: PRODUCED WATER QUALITY DATA

CBI?
 Yes

C.4.1. Table C -9 for **all** locations in this Produced Water Management System for which you have water quality data. If you need more space, make a copy of this page. Locations may include: wellhead, influent to treatment; effluent from treatment; and discharge outfalls. Please include all paired influent and effluent data for an treatment units operated by your site. Provide all relevant data for 2007. If 2007 data is unavailable, please provide the most recent data.

- The **pollutant** analyzed;
- The measured value including units (if not detected, list the detection limit value preceded by a less than (<) symbol);
- The analytical method used;
- The detection limit for the specific method used;
- The date samples were collected;
- Where the samples were collected (this should be a number from a label on your block flow diagram);
- Whether the samples were collected as grabs or as composites; and
- Provide flow rate only if flow rate data were recorded at the sampling point during the sampling period.

If you already have these data in electronic or hardcopy format, you may submit these data using your own reporting method.

Submitted own data as attachment to this questionnaire.

CBI?
 Yes

C.4.2. Whole Effluent Toxicity Information

a. Have you performed any whole effluent toxicity (WET) testing for this Produced Water Management System?

- Yes
 No, Skip to C.4.3.

b. Please provide the information on the WET testing conducted, including the including the test organism, test type (e.g., acute or chronic), and the results.

c. Has toxicity ever exceeded permit limits?

- Yes
 No, Skip to C.4.3.

d. Was a toxicity identification evaluation (TIE), toxicity reduction evaluation (TRE), or other study performed to determine the cause, treatability, or effective management of toxicity?

- Yes
 No, Skip to C.4.3.

e. Please describe the cause of the toxicity and the final resolution of the toxicity issue.

 Attached

PART D. SUPPORTING INFORMATION

SECTION 1: LIST OF ACRONYMS AND ABBREVIATIONS

%	Percent
bbl	Barrel (42 gallons)
bcf	Billion cubic feet
BPJ	Best Professional Judgment
BTU	British thermal unit
CBM	Coal bed methane
CFR	Code of Federal Regulations
CFS	Cubic feet per second
Cl-	Chloride
CWA	Clean Water Act
dpy	Days per year
EA	Environmental Assessment
EC	Electrical Conductivity
EDR	Electrodialysis Reversal
ELG	Effluent limitations guideline
EPA	U.S. Environmental Protection Agency
ft	Foot
ft ²	Square foot
ft ³	Cubic foot
gal	Gallon
gpd	Gallons per day
gpm	Gallons per minute
hrs/day	Hours per day
in	Inch
kWh	Kilowatt-hour
lb	Pound
lb/hr	Pounds per hour
mcf	Thousand cubic feet
MCL	Maximum contaminant level
mg/L	Milligrams per liter
MGD	Million gallons per day
MMBTU/hr	Million BTUs per hour
mmcf	Million cubic feet
MW	Megawatt
NA	Not applicable
POTW	Publicly Owned Treatment Works
ppm	Parts per million
PrOTW	Privately Owned Treatment Works
psi	pounds per square inch
RO	Reverse osmosis
s	Second
SAR	Sodium Adsorption Ratio
SIC	Standard Industrial Classification
tcf	Trillion cubic feet
TDS	Total dissolved solids
ton	English ton, wet weight
TMDL	Total maximum daily load
tpy	Ton per year
TSS	Total suspended solids
yr	Year

SECTION 2: DEFINITION OF KEY TERMS

Ad Valorem Taxes—A type of property taxes, usually levied as a percentage of production or value of production by local authorities, such as a county, a school district, city, or township.

Aeration—Process that mixes air and water, normally by injecting air into water, spraying water into the air, or allowing water to pass over an irregular surface, to release compounds from the water through oxidation, precipitation, or evaporation.

Arroyo—An intermittently dry creek.

Balance Sheet—A quantitative summary of a company's financial condition at a specific point in time, including assets, liabilities and net worth. The first part of a balance sheet shows all the productive assets a company owns, and the second part shows all the financing methods (such as liabilities and shareholders' equity); also called statement of condition.

Batch (Intermittent) Discharge or Application—A discreet volume or mass of liquid or solid that is collected and discharged periodically.

Beneficial Use—The produced water is of good enough quality to be used for wildlife propagation or livestock watering or other agricultural uses and the produced water is actually put to such use during periods of discharge.

Best Management Practices (BMP)—Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from non-point sources. Activities, maintenance procedures, and other management practices to prevent or reduce the pollution. BMPs may include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

C Corporation—A business that is a completely separate entity from its owners, unlike a partnership.

Capital Cost—The costs associated with the purchase, development or construction of fixed assets such as land, stations, buildings, and water treatment equipment.

Capital Cost of Project Development—As defined for Question B3-13. this includes all capital and one-time costs of project development beyond the immediate tophole equipment (e.g., Christmas tree), including any exploratory costs, planning costs, geological and geophysical costs, site development costs, such as pads and roads or other land preparation activities, production pumps, gas/water separation equipment, other onsite gas gathering or treatment equipment, and gas pipelines to offsite location and/or point of sale. It does not include any capital costs of water management (see definition).

Clarification—Separation and concentration of solids from liquid/solid mixtures that are mostly liquid.

Clean Water Act—Federal legislation enacted by Congress to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (Federal Water Pollution Control Act of 1972, as amended, 33 U.S.C. 1251 et seq.).

Coalbed Methane (CBM)—Natural gas found in coal seam reservoirs.

Coalbed Methane (CBM) Project— A CBM project comprises a well, group of wells, lease, group of leases, or recognized unit which you operate as an economic unit when making production decisions. The well or wells may be associated with one or more water management practices (that is, the project should be defined on the basis of gas production economics, not necessarily on the basis of a water management system). If a project operates as a unit in which you are not the sole operator, please include information only for that portion of a unit for which you actively operate. EPA understands that the concept of a project is variable over time, so the well or wells included as a part of a project should be those that best defined the project as it existed in 2007.

Coalbed Methane (CBM) Unit—A unit is a group of leases that are managed together with the intention of maximizing production (and/or minimizing costs), where operating these leases independently might result in more wells drilled, less production realized, or both. Units can be formal, legal entities that are written into lease agreements, pooling agreements, and/or state permits; or informal, particularly where minerals rights on several leases are owned by the same entity.

Continuous Flow—A flow regime characterized by persistent flow, as opposed to intermittent flow or *batch* processes.

Contract Haul—The removal of any waste stream (including produced water) from a facility by a company authorized to transport and dispose of the waste, excluding discharges to sewers or surface waters.

Cost-Depletion Method—Recovery of the tax basis in a mineral deposit by deducting it proportionately over the productive life of the deposit. This is in contrast to the percentage depletion method, which permits a taxpayer with an economic interest in a mineral deposit to deduct a specified percentage of the gross income from the deposit instead of using the cost depletion method. Percentage depletion is generally restricted to independent producers, royalty owners, and some other narrow categories of oil and gas owners.

Cost of Capital—The opportunity cost of an investment; that is, the rate of return that a company would otherwise be able to earn at the same risk level as the investment that has been selected. For example, when an investor purchases stock in a company, he/she expects to see a return on that investment. Since the individual expects to get back more than his/her initial investment, the cost of capital is equal to this return that the investor receives, or the money that the company misses out on by selling its stock.

Creek—A small, natural stream that is often a shallow or intermittent tributary to a river.

Cumulative Depreciation—The total charges against the fixed assets of a company for wear and tear, obsolescence, or the depletion of a natural resource—oil in the ground, for instance—as it is used up.

Current Assets—Any asset that can reasonably be expected to be used up or converted to cash or sold within a year or less, e.g., cash, accounts receivable, prepaid expenses.

Current Liabilities—Debts that are payable within 1 year, including accounts payable, notes payable within one year, accrued expenses and taxes, and the portion of long-term debt that are paid this year.

Depreciation, Depletion, and Amortization—The allocation of the cost of an asset over a period of time for accounting and tax purposes. Depletion, which reflects the declining value of a natural resource asset as it is produced, may be calculated either using the cost-depletion or percentage depletion method, depending on type of firm (see cost-depletion method).

Design Capacity Flow Rate—Maximum flow rate a treatment unit is designed to handle.

Direct Discharge—The discernible, confined, and discrete conveyance of pollutants to United States surface waters such as rivers, lakes, and oceans. See 40 CFR 122.2.

Discharge—The discernible, confined, and discrete conveyance of pollutants to: (1) United States surface waters such as rivers, lakes, and oceans (“direct discharge”), or (2) a publicly owned, privately owned, federally owned, combined, or other treatment works (“indirect discharge”). See 40 CFR 122.2.

Disposal—Intentional placement of waste (including produced water) into or on any land where the material will remain after closure. Waste placed into water is defined as discharge, not disposal.

Division—A business unit of a firm, often treated as a profit center (see profit center).

Earnings Before Interest and Taxes (EBIT)—A measure of a company’s earning power from ongoing operations, equal to earnings before deduction of interest payments and income taxes; also called operating profit or operating income.

Emergency Discharge—A volume or mass of liquid or solid residuals are discharged only during extenuating circumstances (i.e., a treatment process malfunction).

Equalization—The process of storing produced water for later treatment or discharge. This process can also provide some removal of some suspended solids.

Evaporation—The process by which water or other liquid becomes a gas. Water from land areas, bodies of water, and all other moist surfaces is absorbed into the atmosphere as a vapor.

Fiscal Year—A 12-month period over which a company budgets its spending. A fiscal year does not always begin in January and end in December; it may run over any period of 12 months.

Filtration—This treatment technology relies on the difference in size between the pore and the particle to be removed. Low-Pressure Filtration typical involves using can include direct media filtration using one or more layers of granular media such as sand and/or anthracite with coagulation. High-Pressure Filtration typically uses a driving force to transport wastewater through a membrane, which separates the wastewater into two flows: permeate and retentate (e.g., microfiltration, ultrafiltration, and reverse osmosis).

Groundwater—Water in a saturated zone or stratum beneath the surface of land or water.

Hurdle Rate—The required rate of return in a discounted cash flow analysis, above which an investment makes sense and below which it does not. Often, this is based on the firm's cost of capital or weighted average cost of capital, plus or minus a risk premium to reflect the project's specific risk characteristics; also called required rate of return.

Income Statement—An accounting report showing various categories of revenues, expenses, interest payments, taxes, and net income.

Indirect Discharge—The discernible, confined, and discrete conveyance of pollutants to a publicly owned, privately owned, federally owned, combined, or other treatment works.

Infiltration—The process by which water penetrates into soil from the ground surface

Injection Well (Deep or Shallow Well Injection) —Any bored, drilled, or driven shaft or a dug hole, improved sinkhole, or a subsurface fluid distribution system where the depth is greater than the largest surface dimension that is used to dispose of fluids underground. See underground injection.

Interest Expense—An expense for interest on a loan.

Intermittent Flow—A flow regime characterized by flows that occur sporadically, seasonally, or for only a portion of time during normal operations.

Ion Exchange (IX) —Treatment process using a resin formulated to adsorb cationic or anionic species to remove pollutants from an influent stream.

Lake—A body of freshwater or saltwater surrounded by land.

Landfill—A natural or man-made formation in the earth into which solid waste, sludges, or other process residuals are placed for permanent disposal.

Lease Bid—Amount (generally a lump sum at time of lease acquisition) paid to the mineral rights owner to hold the property for a period of time, whether or not the lease is developed. This does not include rental payments, which may be charged over time, nor does it include royalties, which are paid only once production begins.

Limited Liability Corporation or Company—A type of company, authorized only in certain states, whose owners and managers receive the limited liability and (usually) tax benefits of an S Corporation without having to conform to the S corporation restrictions.

Limited Liability Partnership—See limited liability corporation.

Long-term Debt—Liabilities that are paid off over periods greater than 1 year, including mortgages, notes, bonds, debentures, long-term leases, bank debt, and deferred income taxes.

Maximum Daily Flow—The maximum flow in a 24-hour period.

Membrane Filtration—Separation processes that use a membrane as the filter mechanism.

Mineral Rights Owner—Party owning the rights to minerals beneath land that has been or will be used for the purposes of producing minerals or hydrocarbons. Party may or may not own the rights to the land surface. See surface owner.

NAICS—NAICS is an economic classification system. Economic units that use like processes to produce goods or services are grouped together. These units are assigned a code for identification purposes. US Census Bureau (<http://www.census.gov/epcd/www/naics.html>). Common 6-digit NAICS in the CBM extraction industry include 211111, Crude Petroleum & Natural Gas Extraction; 213111, Drilling Oil and Gas Wells; 213112, Support Activities for Oil and Gas; 212111, Bituminous Coal & Lignite Surface Mining; 212112, Bituminous Coal Underground Mining; 221210, Natural Gas Distribution; 221112, Fossil Fuel Electric Power Generation; and 324110 Petroleum Refineries.

Nanofiltration—A method of water treatment that utilizes membranes to remove hardness, bacteria, viruses, and organic-related color.

Net Income—Gross sales minus taxes, interest, depreciation, and other expenses.

Net Sales—Gross sales minus returns, discounts, and allowances (investorwords.com).

NPDES Permit Program—The National Pollutant Discharge Elimination System (NPDES) program authorized by Sections 307, 318, 402, and 405 of the Clean Water Act that applies to facilities that discharge wastewater directly to United States surface waters. For the CBM industry, operators are required to obtain NPDES permits for their direct discharges to surface waters.

Operating Costs (income statement)—These are the recurring expenses which are related to the operation of a business.

Operator—The person responsible for the management and day-to-day operation of one or more CBM wells. The operator is generally a working interest owner or a company under contract to the working interest owner(s).

Operating and Maintenance Cost—The ongoing, repetitive costs of operating a water system; for example, employee wages and costs for treatment chemicals and periodic equipment maintenance.

Other Assets (net of depreciation)—Any non-current assets (assets that cannot be easily converted to cash) other than property, plant and equipment.

Owner/Operator—The entity (firm or division, if a profit center) responsible for the management and day-to-day operation of a well. The owner/operator is generally a working interest owner or a company under contract to the working interest owner(s). Management decisions might include whether well(s) should be shut-in, worked over or abandoned, whether additional or replacement wells should be drilled, whether additional or different production equipment should be installed, and any other decision factor used by DOE in the General Instructions to Form EIA-23.

Owner Firm—The next level up in the corporate hierarchy from the owner/operator. This firm owns the owner/operator firm or division, regardless of whether the owner/operator is a contract operator or a working interest operator.

Payback Period—The amount of time taken to break even on an investment. Since this method ignores the time value of money and cash flows after the payback period, it can provide only a partial picture of whether the investment is worthwhile.

Payments to Principal—Payments made on the principal portion of a loan or other borrowing mechanism classified as long-term debt (excludes the interest payments on these loans).

Pollutant—Under the Clean Water Act, a dredged spoil, solid waste, incinerator residue, filter backwash, sewage sludge, munitions, chemical waste, biological material, certain radioactive material, heat, wrecked or discarded equipment, rock sand, cellar dirt, and industrial, municipal, and agricultural waste (40 CFR 122.2).

Pollution Prevention—The use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes. It includes practices that reduce the use of hazardous and non-hazardous materials, energy, water, or other resources, as well as those practices that protect natural resources through conservation or more efficient use. Pollution prevention includes but is not limited to source reduction, in-process recycle and reuse, and water conservation practices.

Primary Collection Point—The first point in the Produced Water Management System where produced water from all wells flowing to one final destination are combined. In example 4, the sedimentation/equalization pond would be the primary collection point.

Privately Owned or Held—A company whose shares are not traded on the open market.

Produced Water—Water drawn from any hydrologic unit for the purpose of producing hydrocarbons.

Produced Water Management System—For the purposes of this questionnaire, a Produced Water Management System is defined as the production area or grouping of wells that is managed by the operator as a single unit for produced water management which may include treatment, transfer to disposal locations, and reuse/use. The Produced Water Management System may be a lease, field, project, or plan of development (POD). Water discharge permits, land application permits, and applications for permits to drill (APD) typically use one of these terms to define the well grouping. Operators may also report production information to state agencies by lease, field, project, or POD. Note that the Produced Water Management System can have multiple disposal options but it is managed as a single unit. For example, an operation may use a combination of stock tanks, irrigation, and storage ponds on a single Produced Water Management System.

Produced Water Treatment or Treatment—The treatment of water with physical, chemical, biological, or other processes to remove specific pollutants from the water stream or to alter the physical or chemical state of specific pollutants in the water stream. Produced water treatment is performed to allow for discharge, disposal or beneficial use of the water.

Profit Center—A business unit or department which is treated as a distinct entity enabling revenues and expenses to be determined so that profitability can be measured. For the purposes of this questionnaire a profit center is defined as an entity that tracks finances at least through earnings before interest and taxes.

Property, Plant and Equipment—A type of asset a company owns that is vital to business operations but cannot be easily liquidated. The value of property, plant and equipment is typically depreciated over the estimated life of the assets, because even the longest-term assets become obsolete or useless after a period of time.

Publicly Owned or Held—A company which has issued securities through an offering, and which are now traded on the open market.

Publicly Owned Treatment Works (POTW) —Any device or system owned by a state or municipality that is used to recycle, reclaim, or treat liquid municipal sewage and/or liquid industrial wastes.

Receiving Waters—A stream, river, or other surface water body to which wastewater or other pollutants are discharged.

Retained Earnings—Earnings not paid out as dividends but instead reinvested in the core business or used to pay off debt; also called earned surplus or accumulated earnings or unappropriated profit.

Reverse Osmosis (RO)—A method of water treatment that involves the application of pressure to a concentrated solution which causes the passage of a liquid from the concentrated solution to a weaker solution across a semi-permeable membrane. The membrane allows the passage of the solvent (water) but not the dissolved solids (solutes). This water treatment method is typically used for desalinization and the removal of ions, radionuclides, bacteria, and viruses.

River—Water which flows in a channel from high ground to low ground and ultimately to a lake or sea.

Royalty Payments—Payments made to the mineral rights owner. These payments may be based on a percentage of the gas produced or as a percentage of the revenues received. A royalty is not a working interest share (see working interest).

S Corporation—A form of corporation, allowed by the IRS for most companies with 75 or fewer shareholders, which enables the company to enjoy the benefits of incorporation but be taxed as if it were a partnership. Also called Subchapter S Corporation.

SEC Proved Reserves—Proved oil and gas reserves are the estimated quantities of crude oil, natural gas, and natural gas liquids which geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions, i.e., prices and costs as of the date the estimate is made. Prices include consideration of changes in existing prices provided only by contractual arrangements, but not on escalations based upon future conditions. See SEC SX Reg. 210.4-10 (November 18, 1981).

Sedimentation Pond—An impoundment constructed at the produced water treatment site to remove suspended solids from the produced water. These impoundments can also provide equalization of the produced water prior to treatment or discharge.

Selling, General and Administrative Costs—Income statement item which combines salaries, commissions, and travel expenses for executives and salespeople, advertising costs, and payroll expenses.

Severance Tax Payments—Payments made to a state for the right to remove a natural resource, usually applied to gas for use in another state.

Sludge—The accumulated solids and solid residues separated from liquids by settling or treatment.

Sodium Adsorption Ratio (SAR) —Irrigation water containing large amounts of sodium is of special concern due to sodium's effects on the soil and poses a sodium hazard. Sodium hazard is usually expressed in terms of sodium adsorption ratio (SAR). SAR is calculated from the following equation with sodium to calcium and magnesium concentrations expressed in units of millimoles per liter (mmol/L).

$$\text{SAR} = \frac{[\text{Na}^+]}{\sqrt{\frac{1}{2}([\text{Ca}^{2+}] + [\text{Mg}^{2+}])}}$$

Storage Pond—An impound for liquid wastes.

Sum of Liabilities and Owner Equity—Current Liabilities + Long-Term Debt + Retained Earnings + Other Owner Equity.

Surface Owner—Party owning land that has been or will be used for the purposes of producing minerals or hydrocarbons. Party may or may not own mineral rights beneath that land.

Surface Use Plan—Agreement between a landowner and a coalbed methane producer describing the conditions of land use for coalbed methane production including existing and proposed facilities (e.g. wells, roads, pipelines, and treatment systems), compensation for property damages, and considerations for land reclamation.

Surface Waters—Waters of the United States including, but not limited to, oceans and all interstate and intrastate lakes, rivers, streams, creeks, arroyos, mudflats, sand flats, wetlands, sloughs, wet meadows, playa lakes, and natural ponds (40 CFR 122.2).

Technically Recoverable Reserves—Reserves recoverable given current technologies and industry practices and assuming no limitations on production due to market conditions.

Total Assets—Total Current Assets + Total Non-current Assets (including Property, Plant, and Equipment and Other Assets Net of Depreciation).

Treatment Unit—A unit operation used to remove pollutants from produced water. Treatment units include, but are not limited to sedimentation ponds, ion exchange systems, and filters.

Ultimate Parent—The firm at the highest level of the corporate hierarchy. If the owner firm is not owned by another firm, the owner firm is the ultimate parent. If the owner/operator is not owned by any other firm, there is no ultimate parent.

Ultrafiltration (UF) —A method of water treatment that utilizes membranes in a pressure-driven process for concentrating solutions containing colloids and higher molecular weight materials. This water treatment method typically removes viruses, colloids, clays, bacteria, humic acids, and fulvic acids, but not ions or radionuclides.

Underground Injection—The technology of placing fluids underground, in porous formations of rocks, through wells or other similar conveyance systems. See injection well.

Water Reuse—Beneficial use of coalbed methane produced water (e.g., livestock watering, irrigation, or dust control) in lieu of discharge/disposal.

Wellhead Price of Gas—The price of gas at the wellhead, which is different from the price at natural gas hubs, reflecting the implicit cost to transport the gas to buyer, including the cost of gathering, compression, dehydration, etc.

Working Interest—Percentage of ownership in an oil and gas lease granting its owner the right to explore, drill and produce oil and gas from a tract of property. Working interest owners are obligated to pay a corresponding percentage of the cost of leasing, drilling, producing and operating a well or unit. After royalties are paid, the working interest also entitles its owner to share in production revenues with other working interest owners, based on the percentage of working interest owned. Working interest is not royalty; mineral rights owners who do not have working interests do not contribute to the costs of production.

Workover, Stimulation, or Recompletion—Major, intermittent tasks. Workovers are major maintenance or remedial treatments on a well. Well stimulation includes fracturing, for example, either performed initially or later in the productive life of the well. Recompletion is a process undertaken to restore the productivity of a well, including to complete a well in a new stratum or strata.

Zero Discharge—Disposal of produced water other than by direct discharge to surface water or by indirect discharge to a POTW. Zero discharge does not allow for periodic or infrequent discharges attributed to activities such as maintenance, blowdown, or system purges. Examples include evaporation, underground injection, contract hauling, and/or water reuse.

SECTION 3: SMALL BUSINESS DEFINITIONS AND NAICS IDENTIFICATION

SBA allows small businesses to self-certify (subject to challenges, if they arise), which means that if you classify yourself as a small business, EPA will assume you have made this designation in good faith and will accept this designation.

The Small Business Administration (SBA) defines small businesses in the following way:

“The Small Business Act states that a small business concern is "one that is independently owned and operated and which is not dominant in its field of operation." The law also states that in determining what constitutes a small business, the definition will vary from industry to industry to reflect industry differences accurately. SBA's Small Business Size Regulations implement the Small Business Act's mandate to SBA. SBA has also established a table of size standards, matched to North American Industry Classification System (NAICS) industries.”

The following table lists NAICS codes that are likely to be common among CBM operators. It also lists the current SBA definitions of small business for each of these likely NAICS codes. If, for any reason, you are not certain of your NAICS, the following website can be accessed using a key word search:

<http://www.census.gov/naics/2007/index.html>; alternatively, you can use <http://www.census.gov/naics/2007/NAICOD07.HTM>, if you prefer to scroll through the definitions by type of industry. Note that clicking on the NAICS codes provides a definition of the industry in question.

If you do not see an applicable NAICS in this table, you can refer to SBA's Table of Size Standards, accessible at http://www.sba.gov/idc/groups/public/documents/sba_homepage/serv_sstd_tablepdf.pdf. Alternatively, if you prefer, you can contact the EPA help line for assistance.

NAICS	Name of Industry	SBA Size Standard
211xxx	Oil and Gas Extraction	500 employees
21211x	Coal Mining	500 employees
213111	Drilling Oil and Gas Wells	500 employees
213112	Support Activities for Oil and Gas Operations	\$6.5 million annual revenues
213113	Support Activities for Coal Mining	\$6.5 million annual revenues
22111x	Electric Power Generation	<4 million mW-hrs/year
221112	Fossil Fuels Electric Power Generation	<4 million mW-hrs/year
22112x	Electric Power, Transmission, Control and Distribution	<4 million mW-hrs/year
22121x	Natural Gas Distribution	500 employees
32411x	Petroleum Refineries	1,500 employees
486110	Pipeline Transportation of Crude Oil	1,500 employees
486210	Pipeline Transportation of Natural Gas	\$6.5 million annual revenues

The size standards are not the only standards that apply, however. SBA further defines small business in such a way that any business concern that is affiliated with a large business or, in many cases, a foreign firm cannot be considered a small business. SBA defines affiliation as:

(a) General Principles of Affiliation.

- (1) Concerns and entities are affiliates of each other when one controls or has the power to control the other, or a third party or parties controls or has the power to control both. It does not matter whether control is exercised, so long as the power to control exists.
- (2) SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists.
- (3) Control may be affirmative or negative. Negative control includes, but is not limited to, instances where a minority shareholder has the ability, under the concern's charter, by-laws,

or shareholder's agreement, to prevent a quorum or otherwise block action by the board of directors or shareholders.

(4) Affiliation may be found where an individual, concern, or entity exercises control indirectly through a third party.

(5) In determining whether affiliation exists, SBA will consider the totality of the circumstances, and may find affiliation even though no single factor is sufficient to constitute affiliation.

Examples of affiliation would include a subsidiary of a large firm, a firm owned 50 percent or more by a large firm, and a joint venture by a small firm and a large firm. Even if the joint venture itself meets size standards, this affiliation would render the joint venture a large firm. However, if two small firms, each of which meets SBA size standards, join in a joint venture, the joint venture is also considered a small firm if it meets size standards. Another example of affiliation is a business concern that has as a corporate officer a person who is a corporate officer of a large firm. Small firms associated with large venture capital firms or investment firms through their investments in the small firm, however, are not considered affiliated.