

FREQUENTLY ASKED QUESTIONS (FAQS) REGARDING THE EPA COALBED METHANE (CBM) EXTRACTION SECTOR DETAILED QUESTIONNAIRE

This document is designed to supplement the instructions contained in the CBM detailed questionnaire, as well as the Instruction Guide for the Detailed Questionnaire. Sections 1 and 2 provide answers to frequently asked questions related to the detailed questionnaire. Section 3 provides a list of acronyms used in the CBM detailed questionnaire, and Section 4 provides definitions for selected key terms used in the CBM detailed questionnaire.

1. GENERAL QUESTIONS

Background Questions

What are ELGs?

Effluent limitation guidelines and standards (ELGs) are discharge limits for categories of dischargers of wastewater. Depending on the industrial category, the discharge limits may cover process wastewater, stormwater, and/or cooling water. The limits are incorporated into National Pollutant Discharge Elimination System (NPDES) permits.

Do I have to fill out the questionnaire?

Yes. The U.S. Environmental Protection Agency (EPA) is conducting this data collection under the authority of Section 308 of the Clean Water Act or CWA (Federal Water Pollution Control Act, 33 U.S.C. Section 1318). You must respond to this questionnaire within 60 days of receiving it. For more information, please see the instruction booklet provided with the questionnaire.

Do I have to answer all the questions?

Yes. You must complete all the questions as instructed. If the information for a question is not available or unknown, provide a comment in the applicable Comments section as the response to the question.

Why do I have to fill out the questionnaire?

EPA is conducting this data collection under the authority of Section 308 of the CWA (Federal Water Pollution Control Act, 33 U.S.C. Section 1318). You must respond to this questionnaire within 60 days of receiving it. For more information, please see the questionnaire General Instructions. EPA plans to use the “Coalbed Methane Extraction Sector Survey” to collect information on geographical and geologic differences in the characteristics of CBM produced waters, environmental data, current regulatory controls, and availability and affordability of treatment technology options.

Why did I get a questionnaire?

Detailed questionnaire recipients were primarily selected from respondents to the CBM screener questionnaire. Note that EPA also selected a small number of projects to receive detailed questionnaires based on publicly available information.

How long do I have to complete the questionnaire?

The questionnaire must be completed and returned to EPA within 60 days, calculated from the date of receipt.

How long will it take to complete the questionnaire?

EPA estimates an average of approximately 80 hours per response to generate, maintain, retain, or provide information in the questionnaire.

What if I need more time to complete the questionnaire?

If you wish to request an extension, you must do so **in writing** within 30 days of receipt of this questionnaire. For more information, please see the questionnaire Introduction, When to Return Questionnaire subsection.

How many sites have received this questionnaire?

The detailed questionnaire will collect financial and technical data on approximately 250 CBM projects across the country.

I received more than one detailed questionnaire; do I have to fill out all of them?

Yes, some establishments received more than one questionnaire since response to the screener survey indicated you operated projects in more than one basin and/or state. If you have any questions about the basins and/or states that our records show you operating in, please contact the Help Line (1-800-864-9230 or cbmdetailed@pgenv.com) for assistance.

How will the survey results be used?

EPA will use the information collected in the survey to determine whether to initiate a rulemaking to potentially revise the ELGs for the Oil and Gas Extraction Point Source Category (40 CFR Part 435) to include limits for pollutants discharged in CBM produced water.

The technical data collected with this survey 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 in this survey 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.

Can I obtain results of the survey?

EPA is posting project status and supporting information at <http://www.epa.gov/guide/cbm/>. Please contact Carey Johnston, EPA at johnston.carey@epamail.epa.gov for additional information.

Completing the Questionnaire

How can I get assistance to complete responses to the questionnaire?

You can obtain assistance to complete the questionnaire using EPA's Coalbed Methane Help Line. The email address is cbmdetailed@pgenv.com, and the phone number is 1-800-864-9230. The EPA Coalbed Methane Help Line is operated by PG Environmental LLC and Eastern Research Group, Inc., contractors to EPA.

Where do I send the completed questionnaire?

Keep a copy and mail the completed questionnaire (hard copy or electronic file on CD) to:

U.S. Environmental Protection Agency
CBM Industry Detailed Questionnaire
c/o PG Environmental, LLC
570 Herndon Parkway
Suite 500
Herndon, VA 20170

Remember to enclose a hard-copy signed certification statement, even if all other files are being submitted electronically.

What exactly do I need to include in my submission package to EPA?

Part A (CBM Project Information), including a signed certification statement

Part B (Financial and Economic Information)

Part C (Produced Water Management information)

Part C data attachments (note that not all may be applicable)

- Operations brochure, pamphlet, general description;
- Produced water treatment flow diagrams or narrative descriptions;
- Current surface water discharge NPDES permit or discharge agreement;
- Discharge monitoring report (DMR) data for 2006 through 2008;
- Water quality data collected from water monitoring locations;
- Produced water treatment operation and maintenance logs;
- Pollution prevention or management practices policies or data; and
- Whole Effluent Toxicity Information.

If available, EPA prefers that data be submitted in an electronic format (e.g., Microsoft® Access, Microsoft® Excel, non-scanned PDF).

Is there an electronic version of the detailed questionnaire available?

Yes. EPA has made an electronic version of the detailed questionnaire available in Microsoft® Word format. 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/>.

Can I fill out a hard-copy questionnaire rather than the electronic version?

Yes, however, EPA encourages you to use the electronic format. The electronic version is designed to reduce the burden associated with completion of the survey – for example, changing one of your responses requires significantly less effort in the electronic version than in a hard copy form.

Can I get another hard copy of the questionnaire?

Yes. A printable version and an electronic version of a blank questionnaire are available on the EPA website at <http://www.epa.gov/guide/cbm/>

You may also request a blank questionnaire by email to cbmdetailed@pgenv.com, by phone to 1-800-864-9230, or by writing to:

U.S. Environmental Protection Agency
CBM Industry Detailed Questionnaire
c/o PG Environmental, LLC
570 Herndon Parkway
Suite 500
Herndon, VA 20170

However, a request for additional blank copies does **not** change your due date for returning the questionnaire.

What if my response is larger than the space provided in the hard-copy survey?

To complete multiple copies of specific questions, photocopy the question page(s) before writing on it and number the photocopied pages in the upper right hand corner “Copy _of_”. Insert copies in sequence behind the original. You may also write “see comments” and provide extended answers in the “Comments” section.

What if my response is larger than the space provided in the electronic survey?

You should write “see comments” and provide extended answers in the applicable Comments sections of the questionnaire.

Confidential Business Information

What about submitting confidential business information (CBI)?

If you wish to protect the information from public disclosure, you may assert a claim of business confidentiality covering all or part of the information you submit. This should be done at the time the information is submitted.

Regulations regarding data confidentiality and directions for claiming data confidentiality are discussed in the general instructions, Confidential Business Information subsection. Regulations governing the confidentiality of business information are contained in 40 CFR Part 2, Subpart B.

You may claim all eligible data as CBI using a global check-off box, or you may claim specific response information as confidential using the question-specific CBI check-off box. If a response is not marked as confidential (either by the global check box or through specific CBI identification of a question response), EPA assumes that the response is not confidential.

What assurances do I have that CBI will be protected?

Regulations governing the handling of confidential business information are contained in 40 CFR Part 2, Subpart B. Please refer to the questionnaire Introduction, Confidential Business Information subsection, for a summary of these regulations.

2. PART SPECIFIC QUESTIONS

2.1 Part A: CBM wells selected for questionnaire and certification

Question A1-2

What if I don't have any projects listed in Table A-1?

If no projects are listed in Table A-1, you did not respond to the screener questionnaire on CBM projects and should proceed to question A1-3.

What if I don't recognize the project identifier in Table A-1?

The identifier for the project is a name or number that was provided in the screener questionnaire as the project identifier. If no identifier existed, identifiers A, B, C, etc. were assigned. If you are still having problems figuring out the project identifiers please contact the EPA Coalbed Methane Help Line (1-800-864-9230 or cbmdetailed@pgenv.com).

I'm not sure we are the owner or operator of CBM wells. What does this mean?

The survey defines “owner or operator” as the entity listed with state oil and gas commissions, e.g., in well drilling or production databases. If you believe another firm might be the owner or operator of CBM wells (for example if you sold CBM wells to another firm in 2008), please contact the EPA Coalbed Methane Help Line. For more information on what EPA means by owner or operator, see Page B-2 of the questionnaire.

Question A1-3

What if I do not operate any CBM wells?

Please state that you do not operate any CBM wells in the Comments section on Page A-4. If you did not operate CBM wells because you sold CBM wells prior to 2008, please indicate in the Comments section that CBM wells were sold, to whom the wells were sold, and when. Then sign the certification statement on Page A-5 and return the survey to EPA.

I'm not sure whether we should be considered to own or operate CBM wells; we sold/acquired wells so we have only a few weeks/months of data?

Even if you only owned or operated wells briefly in 2008, please indicate the month bought or sold and to whom or from whom you bought or sold the wells in the Comments section to Part A on Page A-4. Please continue with the survey, providing the information over the months that you operated the wells.

I'm not sure we are the owner or operator of CBM wells. What does this mean?

The survey defines “owner or operator” as the entity listed with state oil and gas commissions, e.g., in well drilling or production databases. If you believe another firm might be the owner or operator of CBM wells (for example if you sold CBM wells to another firm in 2007), please contact the EPA Coalbed Methane Help Line. For more information on what EPA means by owner or operator, see Page B-2 of the questionnaire.

If I only have a working interest and do not operate CBM wells, does this mean I should provide information in Table A-2?

According to data collected by EPA, in 2007 you were listed by the State Agency that permits and collects production data for these wells (e.g., the state Oil & Gas Commission) as the operator or responsible party for CBM well permits. Generally, this should be the owner or operator of the well. If your status as the listed party has changed since that time, please contact the EPA Coalbed Methane Help Line for further assistance and instructions. Otherwise, please continue with the survey. You might need to obtain some of the information from your operator if you own but do not operate the wells in question.

I am not sure what is meant by “project?”

If you are not certain, please contact the EPA Coalbed Methane Help Line at 1-800-864-9230 or cbmdetailed@pgenv.com for assistance.

I am a contract operator of CBM wells, and I do not own a working interest. Should I be providing the information in this survey?

Yes, if you are the listed operator according to the state agency (e.g., the state Oil & Gas Commission). If you if you have any concerns with answering the questions that follow, you can contact the EPA Coalbed Methane Help Line for further assistance and instructions.

I operate CBM wells but they did not produce CBM or water in 2008. Do I still need to complete the questionnaire?

Please provide a count of wells that have not been permanently abandoned and indicate that the wells did not produce either CBM or water in 2008 in the Comments section on Page A-4. Then sign the certification statement on Page A-5 and return the survey to EPA.

I operate wells where a portion of the gas from these wells is considered conventional (or another unconventional gas), not CBM. Do I continue with filling out Table A-2?

If any of the wells are producing gas and/or water from coalbed strata, please continue with completing the survey.

In 2008, wells in my project(s) produced only water and no CBM. Do I continue with filling out Table A-2?

If these wells are dewatering a coalbed stratum for the ultimate purpose of producing CBM, please continue with completing the survey.

In 2008, the wells in my project were drilled but were not yet producing either CBM or water. Do I continue with answering Table A-2?

If these wells are now producing or are expected to produce CBM gas, please indicate the number of such wells and provide an explanation for why they were not producing in 2008 (e.g., no pipeline available) in the Comments section on Page A-4. Then sign the certification statement on Page A-5 and return the survey to EPA.

Certification Statement

Who should certify the questionnaire?

The individual that directed or supervised questionnaire preparation should read and sign the certification statement. The signatory should be a corporate official or their authorized representative.

I didn't complete the questionnaire myself. How can I sign the certification?

Your signature means that to the best of your knowledge, employees under your supervision properly completed the questionnaire.

Because the electronic questionnaire was broken out into two parts for technical and financial information, does each section need to have the Certification Statement signed or will one Certification Statement for the whole document be adequate?

One signed Certification Statement is adequate for the whole questionnaire.

2.2 Part B: Financial and Economic Information

Part B, Section 1

I am the contact for Part B, Section 2 (or Part B, Section 3). Do I fill out Question B1-1 or B1-2?

If you are the contact for Part B, Section 2 (firm-level financial information), fill out Question B1-1. If you are the contact for Part B, Section 3 (project-level financial information), fill out Question B1-2.

Part B, Section 2

Questions B2-1 through B2-3

I don't understand how to answer questions B2-1 through B2-3?

There may be some very complicated corporate structures, but EPA is only looking to identify the basic structure—the next corporate level above the respondent and the highest corporate level over all.

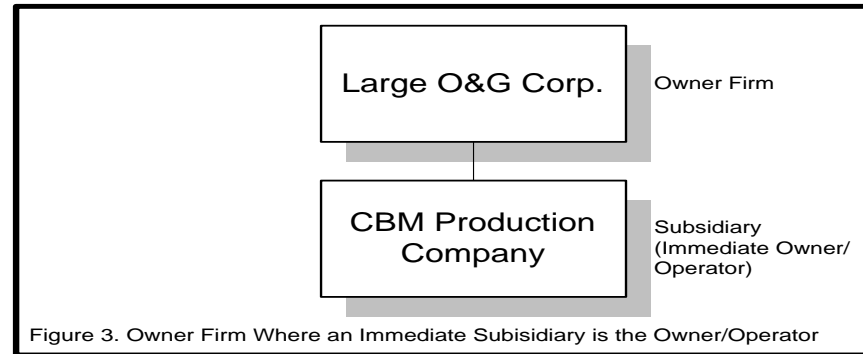
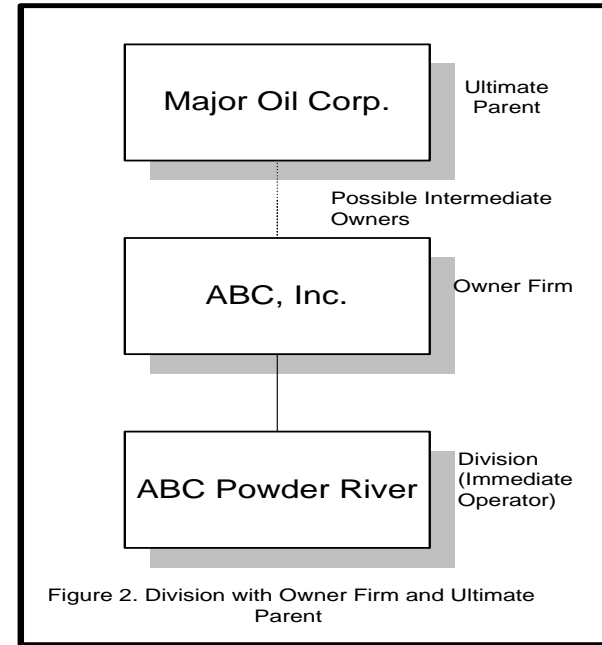
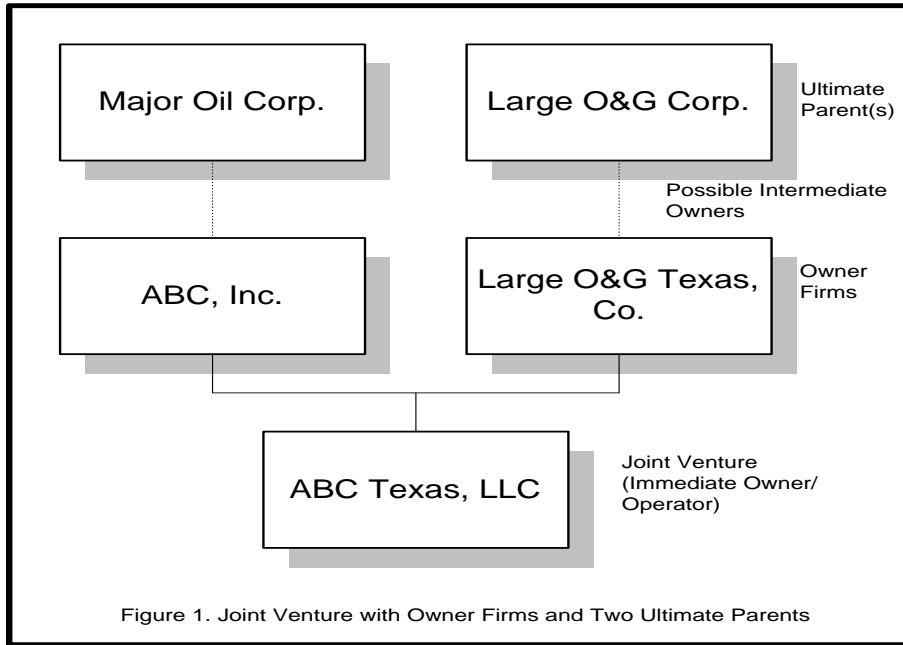
See figures 1 through 3 for some of the ownership structures EPA would expect in terms of the simple connections EPA is seeking.

Example 1: (figure not shown) XYZ Corp. is independently owned and operated. No other company owns this firm as a subsidiary, either partially or wholly, although various individuals and companies might own publicly traded shares in this firm. No one company owns a majority share of stock, however. Such a firm checks “Independent owner/operator” and skips to Question B2-4.

Example 2: (Figure 1) ABC Texas, LLC, is a joint venture operated by ABC, Inc. and Large O&G Texas Co. These companies are in turn owned (with no to several intermediary firms) by Major Oil and Large O&G Corp., which are the highest level of the corporate structure, and thus the ultimate parent companies of the two owner-partner firms. ABC Texas checks “Joint Venture,” and answers Question B2-2 (which asks for owner firm) with ABC, Inc. and Large O&G Texas Co. Such a firm also answers Question B2-3 (which asks for ultimate parent companies) with Major Oil Corp. and Large O&G Corp. (or however many ultimate parents might be involved—there may be no ultimate parent for one or more of the owner firms). If no ultimate parents are involved, the answer to Question B2-3 is “none.” The respondent for a joint venture firm might not know the ultimate parent company of one or more of the owner-partners. As long as Question B2-2 is answered, answering “unknown” is acceptable.

Example 3: (Figure 2) ABC Powder River is not incorporated but is a division of ABC, Inc. Such an operation should check “Division or profit center.” Question B2-2 should list ABC, Inc., as the owner firm, and Question B2-3 should list the ultimate parent company (e.g., Major Oil Corp.). If no higher corporate level exists, then Question B2-3 should be answered “none.”

Example 4: (Figure 3) CBM Production Co. is wholly or partly owned (majority interest) directly by Large O&G Corp., which is the highest level of corporate ownership. A minority portion of CBM Production Co. might also be publicly owned through publicly traded shares. Such a firm should check “Subsidiary firm,” and should answer Question B2-2 with Large O&G Corp. In this example, Large O&G Corp. has no higher corporate level, so Question B2-3 should be answered “none.” However, Question B2-3 should be answered with the name of the ultimate parent if, for example, Large O&G Corp. were owned in turn by another company.



Question B2-4

My firm is owned (in part or in whole) by another firm. Can my firm qualify as a small business?

Your firm might be able to qualify as a small business, but only if your firm has no affiliation with a large firm. If your owner firm owns a majority share and is a large business, your firm is considered *affiliated* with a large firm and cannot claim to be a small business. In some instances, even if your firm is minority owned by a large firm, it can be considered affiliated if that minority share is the largest share held. Even if you have no owner above your firm, but the officer of a large firm holds an officer position in your firm, you are likely to be considered affiliated and might not be considered a small firm. The defining condition is the extent of control the firm has on your operations.

My firm is foreign-owned. If we meet the size standards, are we classified as a small business?

Only in rare instances can a foreign-owned firm meet the conditions for being a small business, because that firm must (1) meet the size standards and also (2) provide a significant contribution to the U.S. economy. If you are foreign-owned, check the box marked “no.”

Question B2-6

I am a contract operator for the surveyed project(s), but I own working interests in other CBM projects. Do I answer yes or no to the question of whether I am a contract operator?

OR

I own working interests in conventional oil and gas projects, but not CBM projects. Do I answer yes or no to the question of whether I am a contract operator?

If you own *no* CBM wells, either outright or with a working interest, you are a contract operator with respect to CBM operations, and should answer “yes” to Question B2-6. If you own even a small working interest in one CBM well (whether you operate it or not), please answer “no.”

Question B2-9

I have part-timers at my operation. How do I account for them?

You can either use full time equivalents, in which total labor hours over all personnel are divided by 2080, or you can provide fractional employees (for example, if you employ 2 full time and 1 half time employee, you can indicate 2.5 employees).

Question B2-10

I truck all my water, or a contractor hauls all of my water, from CBM production to a commercial Class II well. Does this mean I can skip the rest of Section B, Part 2?

Yes. Check the yes box in Question B-2-10 and continue with Section B, Part 3

*I have projects in two basins, one where I discharge all produced water and a second where I inject all produced water. You have asked me to respond **only** for my project in the basin where I inject all produced water. Does this mean I can skip the rest of Section B Part 2?*

No. Section B Part 2 collects organization information while Part 3 collects project information. You can only skip the rest of Section B Part 2 if **all** of your produced water is injected at all CBM projects that you operate.

Questions B2-11 to B2-14

I don't make these types of decisions. These decisions are made at corporate headquarters. What do I do?

You have a couple of choices:

- 1) You can contact your corporate headquarters and obtain the information from them; or
- 2) You can check the boxes indicating that you don't know; EPA will need to use the standard assumptions shown.

Please be aware that the more accurate EPA's information is about your particular circumstances, the likelier it is that EPA would come to the same conclusions as your firm regarding the financial viability of your projects under various produced water management cost scenarios.

What if I don't know at what level these types of decisions are made?

At a minimum, EPA would like you to at least make that determination, even if you cannot get the specific information requested in Questions B2-12 through B2-14. If this is not possible, please check "other" and write in "unknown" in Question B2-11. You can then check "Agree or Don't Know" in Questions B2-12 through B2-14

Question B2-15

What if I don't keep any information on what are CBM earnings vs. what are earnings from our conventional oil and gas operations?

EPA is looking only for a rough estimate if you do not keep separate accounting for your CBM project(s). For example, if you think costs for your CBM wells are roughly the same as

those for conventional wells on a per well basis, then perhaps you could estimate the percentage of earnings on the basis of the percentage of revenues you get from your CBM wells, that is, if revenues from your CBM wells in the years requested make up about 40 percent of revenues from all of your oil and gas operations, you can use 40 percent. If they are less expensive or more expensive, you can tweak the percentage up or down. Because of your knowledge of your CBM business, EPA considers your estimate the best one to use in the analysis.

Questions B2-16 through B-19

My operation is a division, so I have no information on taxes, interest and depreciation. Should I send this to my corporate headquarters?

If you have information on division revenues and costs, please submit that information. Do not respond to those questions with information from higher up in your corporate hierarchy. For taxes, interest, or depreciation, you can either estimate them for your operation, or you can indicate “NA.” There are checkboxes to indicate that items are estimated.

My operation at this location is only an operational office, and we track revenues, but not costs, from this operation. Should I send this to my corporate headquarters or obtain information from them?

Please send this section to or request information from the lowest level of the corporate hierarchy at which information on **earnings** are recorded. If a regional office, for example, tracks earnings (costs and revenues) then send the section there. If costs and revenues are recorded only by your corporate headquarters, then send this section to or request information from your corporate headquarters.

Where should I put expensed non-operating costs such as exploration costs? What about expensed intangible drilling costs (IDCs)?

Please put expensed exploration costs in “other costs” in Question B2-18(h). Expensed IDCs can be included in operating costs in Question B2-18, a, b, and c.

I have an item for deferred taxes. Do I include these in Federal and state income taxes?

Please do not include deferred taxes or any non-cash outlays or income in Questions B2-17 through B2-19, but you can include these items in the Comments section on Page B-35.

Questions B2-20 through B2-23

We do not have information on assets, liabilities, etc. at this location. Do I send this section to or obtain information from my corporate headquarters even though I responded to the previous questions on revenues and costs at the immediate owner/operator level?

If you can estimate any such information at your location, please provide the information and indicate that these data are estimates. If this is not possible, please obtain the information from the lowest level in your corporate hierarchy where such information is recorded. If you are a portion of a subsidiary and the subsidiary records assets and liabilities at that level of the corporate hierarchy, then request the information from the subsidiary. If this information is only recorded at your corporate headquarters, then request the information at that level. Please do not mix information from two levels (e.g., by reporting assets of the subsidiary and liabilities of the corporate parent). It is acceptable, however, to report income statement information at your level, and asset and liability information at a higher level, as long as you clearly indicate this in the answers to Questions B2-16 and B2-20.

Question B2-23

How do I calculate payments to principal?

You should be able to calculate payments to principal by adding up all payments made on debt over the fiscal years requested and subtracting interest payments. If you had credit lines, the payments to principal can be calculated as the difference between the line balance at the end of the previous fiscal year and the balance at the end of the fiscal year requested, for 2006, 2007, and 2008.

Part B, Section 3

Table B-1

Question B3-4

There are conventional wells that are served by the same gas gathering system as the CBM wells in this project, but the water management system is separate. Do I consider this project as commingling conventional and unconventional gas?

It depends.

- If you included conventional and CBM wells in your project in the screener survey, which is replicated in the well counts as shown in Table A-1, and/or in Table A-2, you should consider this a commingling project, unless you believe you need to reconsider your answers to the screener and/or Table A-2 (see next bullet). Please answer the questions that follow. You will also need to provide information from the water treatment systems for the entire project in Part C of this questionnaire, but please note in your diagram or narrative in Part C that the wells discussed for the produced water management system in question are conventional, as requested in the instructions to that section.
- If you consider CBM and conventional gas production separately (e.g., revenues and costs are tracked separately for CBM), this is not a commingled project. You may want to reconsider your list of wells in Table A-2 that you assigned to this project. If you reduce

the number of wells in your project from those counted in your screener survey (if applicable), please do not forget to indicate the reason for this in the Comments section on Page A-4.

My project produces both from coalbeds and tight sands/oil shale/deep gas. Do I answer the commingled questions and include the production from all these sources?

Yes. EPA considers this a commingled project, since not all of the gas produced is from coalbeds. If you would like, you can indicate from what other unconventional sources you produce in the Comments section on Page B-35.

Table B-1, Questions B3-15 and B3-16

I don't understand these questions. Why is it important whether my project began before 2004 or was acquired from another operator?

EPA wants historic cost information only for more recently constructed projects. If you began investing in the project before 2004 or if you bought all or part of a project from another operator the costs requested in Table B-2 are likely to be outdated and/or incomplete. To reduce your burden in trying to answer questions with incomplete data or old data that might be difficult to locate, you are directed to skip Table B-2 if your project was begun prior to 2004 or acquired from another operator.

I acquired only one well of this project, do I still say yes to "acquired project"?

Yes. Even if you acquired only one well and developed all of the other aspects of this project, you need to indicate the year you acquired that one well.

One or more item listed cost less than \$1,000. How can I answer?

Cross out the 000s provided and write in your answer.

I don't understand why costs of workovers or other such activities might go either in O&M costs or in a separate category. Which place should I put such costs?

How you answer the questions on workovers or other major maintenance tasks depends on how you consider the costs. Some operators with large projects do many workovers, stimulations, and/or recompletions in a year and consider this a part of O&M costs. Operators with very small projects or one-well projects might consider such activities as one-time or intermittent and not a part of the usual O&M costs. If you do not incur costs for these activities every year, provide these costs in Question B3-52, otherwise, if you consider them a part of normal O&M, provide these costs in Question B3-50.

I don't understand what is meant by unusual expenditures.

The instructions to Tables B-2 through B-4 contain information on what EPA believes might be considered unusual expenditures. The instructions read as follows:

One term that EPA uses in this table is *unusual expenditures*. There might be two types of unusual expenditures—those that are amortized (i.e., capitalized) and those that are expensed (i.e., generally considered a part of O&M but the expenditure *does not occur in every year* and is a relatively large percentage of O&M). For the purposes of this survey, an unusual expenditure is defined as:

- 1) An expenditure that does not occur every year and that is more than 10 percent of O&M (e.g., major storm damage causes large outlay for repairs); or
- 2) A capitalized one-time or capital cost not considered a lease acquisition or development cost (e.g. construction of a septic system or a building not directly associated with production) and is not a cost covered in Part C.

If you have a question on a specific outlay and whether it fits into this classification, please call or email the EPA Coalbed Methane Help Line at 1-800-864-9230 or cbmdetailed@pgeenv.com.

My records for gas production are in Mcf. Can I use Mcf instead of MMBtus to respond to questions on production?

Yes, but EPA will use the conversion factor of 1 Mcf = 1 MMBtu unless you indicate another conversion factor in the Comments section in Question B3-103.

Table B-3, Questions B3-71 and B3-72

I do not have a current estimate of recoverable reserves. Should I complete a new estimate?

EPA is not requiring anyone who does not have this information currently available to compute the information just for this survey. If, however, it is something that you were planning to do anyway, EPA would appreciate the information. If you have a previous estimate from within the past 3 years, you can submit this information instead. Please indicate the estimate year in the Comments section in Question B3-103.

Questions for Individual Projects (Page B-26)

Is it okay if we fill out some lines in Table B-4 and not others if we answer all of the questions B3-76 through B3-86?

Yes, you may do this; please check the first box in Question B3-75.

2.3 Part C: Produced Water Management Information

General

I don't have a Produced Water Management System, do I need to fill out Part C?

Management may include treatment, but, for the purposes of this questionnaire, may simply involve the transfer of produced water to disposal locations. Many of the detailed questions are only applicable to discharge of produced water to surface waters, a publicly owned treatment works (POTW), or third party; please follow the skip patterns noted throughout Part C.

I didn't discharge produced water. Do I still need to complete Part C of the questionnaire?

Yes, if you produced CBM produced water or gas, you must complete Part C of the questionnaire. If you store produced water, please consider evaporation and/or infiltration in Question C3-1. 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 Part C.

I commingle CBM produced water with water from conventional gas extraction. Should I include information for commingled water or try to segregate the CBM produced water component when providing responses?

Please indicate on the process flow diagram or in the narrative description (Question C2-1), 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. You may report commingled values or CBM segregated values in answering the questions, as long as the basis is clearly stated in the flow diagram or narrative and/or in the Comments section (Question C4-3).

I commingle CBM produced water from multiple projects. Do I need to repeat Part C for each project?

You only need to repeat Part C, Sections 2 and 3 for each produced water management system that you operated in 2008 to manage water from the wells listed in Part A of the questionnaire. Please indicate on the process flow diagram or in the narrative description (Question C2-1), the name of the projects feeding each produced water management system (or identify if the produced water is from another operator's project). Please also indicate on the diagram or in your narrative description, the volumes or flow rates of the CBM produced waters from each CBM project, as well as the point where these waters are commingled.

Part C, Section 1

Question C1-1

Who should be the primary contact for the produced water management system information?

The primary contact should be the person that completes the technical information and can clarify the responses in Part C if follow-up is needed.

Part C Section 2

Question C2-1

What if I do not have a block diagram readily available.

If you do not have a block diagram available, EPA is requesting that operators generate a simplified schematic diagram or a narrative description. Refer to the example block diagrams in Part C, Section 2, that illustrate simplified schematics for produced water management systems.

My collection and management practices change during the year, what should my block diagram reflect?

Your block diagram should reflect these differences. See Example 6 in Part C, Section 2. You will need to complete Part C, Sections 2 and 3 for each distinct management practice.

I use the same treatment setup year round, but the discharge varies seasonal (e.g., direct discharge when not using the produced water for land application). Do I need fill out Part C, Sections 2 and 3, two times?

If the produced water collection and management practices are the same, except for a variable discharge destination, you may complete Part C, Sections 2 and 3 one time. You will list all destinations for managed water in Question C3-1. You will still need to complete Question C3-2 for each destination (twice in this example – direct discharge to surface water and land application). Note that as necessary, you will also need to complete Question C3-3 for each residual generated.

If the produced water collection and management practices vary (e.g., differing flows and/or treatment methods in addition to varying discharge locations), then you should fill out Part C, Sections 2 and 3, multiple times. See Part C, Section 2, Example 6.

Question C2-2

We began operations in 2008. How should we complete the questionnaire?

The questionnaire should be completed using the 2008 data. If operations began during 2008, please note that in the Comments section (Question C4-3) that the management operations were initiated and that the data are provided for only a portion of 2008.

Our produced water management system operated during the 2008 season, but it operates differently now. How should we complete the questionnaire?

The questionnaire should be completed based on the operation in 2008. Please note your process changes in the Comments section (Question C4-3).

Question C2-3

What if flow rates are not available?

You are not required to perform non-routine tests or measurements solely for the purpose of responding to this questionnaire. Therefore EPA will accept estimated flow values. If the flow rates are estimated using a calculation method, please describe the method in the Comments section (Question C4-3).

Question C2-5c

What if I don't have exact costs for hiring a contractor or third party to manage my produced water?

Please provide a reasonable estimate and provide the basis in the Comments section (Question C4-3).

Questions C2-6 and C2-8b

We built the produced water management system or gathering system over multiple years, what year should we use?

You should provide the years that the system was built (e.g., 1995 and 1996).

Question C2-8

What if I trucked water to my produced water management system for part of 2008, but also implemented a piped gathering system in 2008?

For the part of the year that produced water was piped to the produced water management system, Questions C2-8a through C2-8c should be completed. For the part of the year that

produced water was trucked to the produced water management system, Question C2-8d should be completed.

Question C2-9

What does undeveloped area mean?

For purposes of this questionnaire, an undeveloped area includes areas within the project site that would be suitable for constructing new or additional wastewater treatment systems.

Part C, Section 3

Question C3-1

A third party contracts to haul my produced water for treatment. I don't know their treatment method/disposal methods. Should I enter discharge to a POTW or third party or enter hauled off site?

You should enter hauled off-site.

A third party or POTW treats my produced water for treatment. I don't know specifics of their treatment method/disposal methods. Do I need to fill out detailed information on treatment/discharge in Part, C Section 3?

Unless you provide any treatment prior to sending the produced water to a third party or POTW, you do not need to respond to Questions C3-9 through C3-13. If you do treat the produced water prior to sending the produced water to a third party or POTW, then you must complete lease complete Questions C3-9 through C3-13 as it relates to the treatment you do provide.

I don't think my produced water management method is reflected in the list of options. How should I respond?

If you do not think your management method is reflected, you can contact the EPA Coalbed Methane Help Line (1-800-864-9230 or cbmdetailed@pgenv.com) for assistance. You may also use the Comments section at the end of Part C of the questionnaire to describe your management method in detail.

Question C3-3

What if I have different types of residuals generated by the same produced water management system?

Please copy the page and complete Question C3-3 for each type of residual. Make sure that you indicate the Operator ID for the produced water management system and the copy number in the top right hand corner of the page.

Question C3-4b

I intermittently discharge, but also had an emergency discharge. Should I enter intermittent discharge, emergency discharge, or both?

You should enter intermittent and enter a comment (Question C3-4) with information on the emergency discharge(s).

Questions C3-7 and C3-8

I discharge to impoundments/ponds/lagoons/tanks before discharge, is the storage considered treatment?

Note that storage ponds/lagoons/tanks that hold produced water prior to discharge are considered to be treatment units (because they provide equalization of the produced water). You should include this type of treatment in response to Question C3-8, Table C-2 under Other (Specify).

Questions C3-9 through C3-13

Should my 2008 operating and maintenance costs include residuals transportation and disposal?

Yes, any costs associated with residual streams from the treatment operation should be included in the operating and maintenance costs (e.g., the cost to transport and dispose of regenerant brine at an underground injection site).

Part C, Section 4

Question C4-1

What if I don't have paired influent and effluent data, but I do have effluent data?

Any produced water quality data that you can provide will aid EPA in characterizing produced water.

3. LIST OF ACRONYMS AND ABBREVIATIONS

%	Percent
API	American Petroleum Institute
bbl	Barrel (42 gallons)
bbl/d	Barrels per day
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
DOE	U.S. Department of Energy
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
NPDES	National Pollutant Discharge Elimination System
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

4. DEFINITIONS OF SELECTED KEY TERMS

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.

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.

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 2008.

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.

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.

Drilling Cost—Includes tangible and intangible costs of drilling and completing a well (if completed), as defined in API’s Joint Association Survey of Drilling Costs, which includes “expenditures for drilling dry holes and productive wells and equipping new productive wells through the Christmas tree” installation...these cost elements are the costs of labor, materials, supplies, water, fuels, power, and direct overhead (i.e., field, district, and regional), for such operations as site preparation, road building, erecting and dismantling derricks and drilling rigs, drilling hole, running and cementing casing, hauling materials, etc. Include the total cost of water, if purchased, or cost of water well, if drilled and chargeable to oil or gas well drilling operations. Well costs also include machinery and tool charges and rentals, and depreciation charges, where appropriate, for rigs and other equipment and facilities which will be used in drilling more than one well. Deduct the condition value of materials salvaged after use where appropriate. Do not report the cost of lease equipment such as artificial lift equipment and downhole lift equipment, flow lines, flow tans, separators, etc. that are required for production. Do not reduce the costs by test well, bottom hole, or dry hole contributions.

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.

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 low pressure and 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., nanofiltration and reverse osmosis).

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.

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.

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.

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.

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.

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 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.

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).

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

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.

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.

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.

Privately Owned Treatment Works (PrOTW)—Any device or system owned and operated by a private entity and used for storage, treatment, recycling, or reclamation of liquid industrial wastes.

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

Produced Water Management System— 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. Finally, for the purposes of this questionnaire, the PWMS does not include the produced water gathering system (e.g., piping or trucking) that is used to transport the produced water between the CBM wellhead and a centralized location (e.g., treatment unit, land application site). For example, produced water gathering pipes are typically installed underground at the same time as the gas gathering pipes.

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.

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.

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.

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. See 40 CFR 122.2.
(<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=8a3bce0135f51c11befeff39ba51e426&rgn=div5&view=text&node=40:21.0.1.1.12&idno=40#40:21.0.1.1.12.1.6.2.>)

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.

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

Unusual Expenditure—An expenditure that does not occur every year and that is more than 10 percent of O&M (e.g., major storm damage causes large outlay for repairs); or a capitalized one-time or capital cost not considered a lease acquisition or development cost (e.g., construction of a septic system or a building not directly associated with production) and is not a cost covered in Part C.

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.