SUPPORTING STATEMENT

COALBED METHANE EXTRACTION SECTOR QUESTIONNAIRE

INFORMATION COLLECTION REQUST SUPPORTING THE
U.S. EPA CLEAN WATER ACT SECTION 304(b)
EFFLUENT GUIDELINES ANNUAL REVIEWS

U.S. ENVIRONMENTAL PROTECTION AGENCY

January 2008

TABLE OF CONTENTS

Page

PART A OF THE SUPPORTING STATEMENT

TABLE OF CONTENTS (Continued)

Page

PART B OF THE SUPPORTING STATEMENT

LIST OF TABLES

Page

PART A OF THE SUPPORTING STATEMENT

1. IDENTIFICATION OF THE INFORMATION COLLECTION

1.a) Title of the Information Collection

Coalbed Methane Extraction Sector Questionnaire

1.b) Short Characterization/Abstract

This Information Collection Request (ICR) package requests the Office of Management and Budget (OMB) to review and approve the U.S. Environmental Protection Agency's (EPA's), Office of Water survey titled: "Coalbed Methane Extraction Sector Questionnaire." EPA identified the CBM sector as a candidate for a detailed study in the 2006 Clean Water Act (CWA) Section 304(b) Effluent Guidelines Review (71 FR 76656; December 21, 2006) and also identified that it would develop an industry survey to support this detailed study and would seek OMB approval under the Paperwork Reduction Act (PRA). EPA is conducting this review to determine if it would be appropriate to conduct a rulemaking to revise the effluent guidelines for the Oil and Gas Extraction Point Source Category (40 CFR 435) to control pollutants discharged in CBM produced water. EPA also noticed it will conduct an ICR for the CBM extraction sector in its 2007 CWA Section 304(b) Effluent Guidelines Review (72 FR 61343; October 30, 2007).

The CBM extraction sector is an important domestic source of natural gas. In 2004, CBM production accounted for about 10.4 percent of the total U.S. natural gas production and is expanding in many locations across the Nation. The growth in the CBM industrial sector can be explained by the decrease in both drilling and transmission costs, improved clarity of gas ownership, and the increase of long-term natural gas prices.

CBM extraction requires removal of large amounts of water from underground coal seams before CBM can be released. CBM wells have a distinctive production history characterized by an early stage when large amounts of water are produced to reduce reservoir pressure which in turn encourages release of gas; a stable stage when quantities of produced gas increase as the quantities of produced water decrease; and a late stage when the amount of gas produced declines and water production remains low. Pollutants often found in these wastewaters include chloride, sodium, sulfate, bicarbonate, fluoride, iron, barium, magnesium, ammonia, and arsenic. All of these parameters can potentially cause adverse environmental impacts and also affect the potential for beneficial reuse of CBM produced water.

Currently, regulatory controls for CBM produced waters vary from state to state and permit to permit (see EPA– HQ–OW–2004–0032–2782, 2540). Permit information (e.g., effluent limits, restrictions) for this industrial sector is not available in a central database. This information is in state and local offices scattered across the country. Consequently, EPA is gathering additional information from state National Pollution Discharge Elimination System (NPDES) permit programs and the industry on the current regulatory controls across the different CBM basins.

EPA indicated in the 2006 Effluent Guidelines Review (71 FR 76656) that it will need to gather information about the CBM industry to determine whether it would be appropriate to conduct a rulemaking to potentially revise the effluent guidelines for the Oil and Gas Extraction Point Source Category to include limits for CBM. In particular, EPA will need to collect technical, economic, and environmental data from a wide range of CBM operations. EPA plans to use a questionnaire to survey the CBM industry to collect information about, among other things, geographical differences in the characteristics of CBM-produced waters, current regulatory controls, potential environmental impacts, and availability and affordability of treatment technology options. The CBM questionnaire will collect information on the following:

- General information on the operator and parent company;
- Produced water volumes, water quality, and treatment, reuse, and disposal methods;
- Destination of CBM produced water;
- Produced water treatment methods, including system design, operating, and cost information;
- Environmental impact on receiving waters;
- Pollutant monitoring;
- Firm-level financial information; and
- Project-level financial information.

EPA will distribute the CBM questionnaire to a statistical sample of operators in areas with significant CBM production. Part B of this supporting statement provides additional details on the sampling methodology. [To be included after sample methodology has been finalized.] EPA estimates the total respondent burden and costs associated with completing the questionnaires are approximately 65,100 hours and $2,839,000. The cost estimate includes operational costs of photocopying and mailing the completed questionnaires to EPA ($24,000). There are no capital costs associated with this survey. Additional details on burden can be found in Section 6. An overview of the survey burden is provided below:

- Estimated total number of potential respondents: 400
- Frequency of response: One-Time
- Estimated total average number of responses for each respondent: One
- Estimated total annual burden hours: 65,100
- Average burden hours per respondent: 163 (~ 65,100 hours/400 respondents)
- Average cost per respondent: $7,100 (~ $2,839,000/400 respondents).

2. NEED FOR AND USE OF THE INFORMATION COLLECTION

2.a) Need/Authority for the Information Collection

The 1972 Clean Water Act (CWA) directs EPA to develop and annually review national technology-based regulations, placing limits on the pollutants that are discharged by categories of industry to surface waters (termed "effluent guidelines") or to sewage treatment plants[1] (termed "pretreatment standards"). The Act also directs EPA to develop and annually review national technology-based regulations (termed "new source performance standards") for new industrial facilities that are discharging non-trivial amounts of toxic or non-conventional pollutants. See CWA, 33 U.S.C. 1251, et seq., and in particular sections 301(d), 304(b), 304(g), 304(m), 306, 307(b), and 308, 33 U.S.C. 1311(d), 1314(b), 1314(g), 1314(m), 1316, 1317, and 1318.

Under the authority of Section 308 of the Clean Water Act (33 U.S.C. Section 1318), EPA's Office of Water has begun an effort to determine whether it would be appropriate to conduct a rulemaking to potentially revise the effluent guidelines for the Oil and Gas Extraction Point Source Category to include limits for CBM. Currently, such discharges are not regulated by existing effluent limitations guidelines (ELGs). EPA did not consider CBM production in developing the 1979 national technology-based effluent limitations guidelines for the Onshore and Agricultural and Wildlife Water Use Subcategories of the Oil and Gas Extraction Point Source Category (40 CFR 435, Subparts C and E) because there was no significant CBM production in 1979.[2] Additionally, EPA did not consider CBM production in developing effluent guidelines for the Coal Mining Point Source Category in 1977 and 1985. None of these rulemakings considered CBM extraction in any of the supporting analyses or records. EPA reviewed effluent guidelines for the 56 industrial point source categories and determined that CBM is best reviewed as a potentially new subcategory under the Oil and Gas Extraction Point Source Category (40 CFR 435).

2.b) Practical Utility/Users of the Data

(i) General Use of the Data

EPA plans to use a survey questionnaire to solicit detailed information specific to individual CBM projects. EPA will use this information, along with other available information, to determine whether it would be appropriate to conduct a rulemaking to potentially revise the effluent guidelines for the Oil and Gas Extraction Point Source Category to include limits for CBM. EPA will use information collected with the survey to quantify pollutants currently discharged by the industry, and to assess CBM production processes, technological and economic achievability of available controls, potential environmental impacts, and produced water disposal practices. EPA is aware that the economics and environmental impacts of CBM

---

[1] Also referred to as publicly owned treatment works or POTWs.

[2] O'Farrell, Thomas P., EPA's Industrial Technology Division. Letter to Constance B. Harriman, Steptoe & Johnson. June 1, 1989. EPA-HQ-OW-2003-0074, DCN 01191.

production are highly dependent on the location of the CBM development and the surrounding ecosystem; therefore, the CBM questionnaire will be sent to a statistical sample of operators in each basin with CBM production.

The CBM questionnaire is designed to collect the following information. Part A of the questionnaire provides a list of wells operated by the questionnaire recipient. The recipient is directed to provide financial, economic, and technical information about the CBM projects each well is part of. Part A also helps the operator determine whether the survey is applicable to their operations; Part B of the questionnaire collects financial and economic information; and Part C collects technical CBM produced water management information.

EPA will use the data collected by the questionnaire to evaluate the discharges from this industrial sector against the four factors (pollutant discharges, available technology, economic achievability, and implementation and efficiency) that EPA uses in its review of discharges from existing industrial point source categories (see 71 FR 76666). EPA will use these four factors to determine whether an effluent guidelines rulemaking is warranted. These factors are derived from sections 301(b)(2) and 304(b) of the CWA, which specify the factors EPA must consider when selecting the best available technology economically achievable for an industrial category. Among others, these factors include:

- Identifying applicable and demonstrated technologies, process changes, or pollution prevention approaches that would substantially reduce pollutant discharges; and

- Determining if the cost of the technologies, process changes, or pollution prevention approaches is likely to be affordable by the industry.

For EPA to determine if an effluent guidelines rulemaking for the CBM extraction sector is appropriate, EPA needs information to confirm the availability of produced water management technologies that can reduce pollutant discharges. EPA also needs to understand how these technologies are limited by the quality and quantity of the produced water and the location in which the water is produced. In addition, EPA needs information to determine if the costs of the produced water management technologies are likely to be affordable by the CBM industry, both for existing projects and projects that will be developed in the future. EPA will use all of information collected by the questionnaire to address these factors and determine if an effluent guidelines rulemaking is appropriate for this industry sector.

Note that EPA may decide to take different actions for different segments of the industry. For example, EPA will use the data collected through this survey and the four factors identified above to determine whether an effluent guidelines rulemaking is warranted across all CBM basins and operators or a subset of these basins and operators.

Specifically, EPA will use the financial information in Part B of the questionnaire to estimate:

- The baseline financial condition of each CBM operator;

- The baseline financial condition of each project surveyed;

- The impacts of the cost of additional produced water management on existing and new CBM projects; and

- The likelihood of project shut-ins (closings) and loss of productive life due to increased costs of providing improved management, and estimates of associated losses in numbers of firms operating CBM projects, employment, revenues, production, and balance of trade considerations.

The technical information collected in Part C of the questionnaire will allow EPA to:

- Properly characterize, classify, and if necessary subcategorize the CBM industry by basin, pollutants generated, or a combination of these or other factors yet to be determined;

- Establish baseline estimates of CBM produced water pollutant discharges so that the incremental reductions achievable by available produced water management technologies can be estimated;

- Identify best management practices and pollution prevention and source reduction activities that can reduce pollutant discharges;

- Identify best available technologies, which are based on factors such as pollutant removal; and

- Determine potential environmental impacts of CBM produced water.

(ii) Detailed Economic Analyses Supported by Part B of the Questionnaire

EPA will conduct detailed analyses of the economic and financial data collected in Part B of the questionnaire. These analyses will be designed to determine if the costs of produced water management technologies are likely to be affordable by the CBM industry, both for existing projects and projects that will be developed in the future. Specific analyses using the economic and financial data are described below.

(a) *Estimation of Impacts on Projects*

EPA will use the information provided in Part B, Section 3 of the questionnaire to determine the baseline financial conditions of CBM projects throughout the U.S. The overall profitability of the project, accounting for capital costs and earnings, determines whether it makes economic sense to install and operate additional produced water management equipment. EPA engineers will use information from Part C of the questionnaire to develop produced water management and treatment costs for various management options. EPA economists will use

historic, current, and projected information on production and costs of production, along with the engineering costs, to calculate baseline and post-option earnings and historic, current, and projected investment costs, including project development costs. These earning estimates will allow EPA to project how additional produced water management costs will impact operator CBM production decisions.

(b) *Estimation of Impacts on Companies*

EPA will use the information provided in Part B, Section 2 of the questionnaire to determine the baseline financial condition of firms. Part B Section 2 information will also help EPA determine whether firms will be able to afford to invest in the produced water management options considered by EPA. This information will also determine how important the CBM portion of their business is to the financial condition of the firms. EPA will use Part B Section 2 information to evaluate whether firms may face bankruptcy if required to use additional produced water management technologies. For example, some firms may not be able to afford to purchase and install option equipment.

(c) *Estimation of Secondary Impacts*

EPA will use estimated project-level and firm-level impacts to estimate effects on employment in the affected communities. EPA will also use estimated project-level impacts to determine the effects on the production of gas, and thereby effects on royalties for individuals, states, and the federal government, effects on state severance taxes and any possible effects on state and federal income. EPA will use estimates of reductions in gas production to determine any impacts on regional gas markets, the U.S. dependence on foreign sources of energy, and coal miner worker safety.[3] EPA will also use estimates of lost CBM revenues to identify possible employment and economic output effects on communities through direct, indirect, and induced impacts on local and state economies.

(d) *Small Business Regulatory Flexibility Analysis (SBRFA)*

EPA will use information obtained from Part B, Section 2, of the questionnaire to identify which firms are small businesses. Using results of firm failure analyses and revenue test results, EPA will identify the numbers of small businesses that might incur significant impacts to assess whether SBRFA analysis would be required if EPA initiated an effluent guidelines rulemaking for the CBM extraction sector.

(iii) Detailed Technical Analyses Supported by Part C of the Questionnaire

EPA will conduct detailed analyses of the technical data collected in Part C of the questionnaire to identify applicable and demonstrated technologies, process changes, or pollution prevention approaches (including beneficial reuse) that would substantially reduce pollutant discharges. Specific analyses using the technical data are described below.

---

[3] Some operators extract CBM in advance of underground coal mining operations, which promotes worker safety in underground mines due to the reduction of methane in the mines.

(a) *Subcategorization*

In order to determine whether to initiate an effluent guidelines rulemaking for the CBM extraction sector, EPA will evaluate the basin-specific differences in CBM operations and consider whether it is appropriate to subcategorize the CBM industry based upon such factors as:

- Geographical location;
- Geology;
- Operator size as defined by CBM production;
- Maturity of CBM projects as defined by project start;
- Produced water volume;
- Produced water quality;
- Available discharge, disposal, and reuse practices;
- Available treatment technologies; and
- Non-water quality or secondary impacts.

EPA will use the questionnaire data, EPA site visits, and industry submissions to evaluate and consider each of the factors listed above. Note that the subcategorization review may determine that an effluent guidelines rulemaking is only warranted for certain operators or basins.

(b) *Characterization of CBM Produced Water*

Produced water characteristics (e.g., volumes, pollutant types and concentrations) directly influence the technologies that can be used for treatment and disposal of produced water. For this reason, EPA needs information identifying and quantifying the constituents present in produced water to identify applicable produced water management technologies. EPA will use data collected by the questionnaire to analyze CBM produced water management practices, treatment systems, and discharge, disposal, and reuse options. Specifically, EPA will analyze factors affecting CBM produced water generation (e.g., location, well age); management options (e.g., state regulations, surface rights agreements); and treatment (e.g., water quality and volumes, costs).

CBM produced water characterization data will provide information on the variations in water quality by basin and the effectiveness of treatment. EPA will use any sampling data provided to develop a list of pollutants that are commonly found in CBM produced water and compare the performance of the different treatment technologies to control these pollutants.

(c) *Technology Analysis*

In order to determine whether to initiate an effluent guidelines rulemaking for the CBM extraction sector, EPA will identify available technologies (including beneficial reuse) for CBM produced water. EPA will also evaluate the feasibility of using these technologies in the different CBM basins. EPA will evaluate the effectiveness of the control technologies at reducing or eliminating discharges of specific pollutants, demonstrated performance, and cost effectiveness.

(d) *Pollutant Loadings and Removals*

EPA will calculate baseline pollutant loadings in discharges of produced water (in pounds/year). EPA will also calculate the amount of pollutant that would be removed if various produced water management technologies were implemented. EPA will use these calculations to evaluate the effectiveness of the control technologies, estimate benefits gained from removing pollutants discharged, estimate the costs to achieve such reductions, and evaluate the cost-effectiveness of the technology in reducing the pollutant loadings. Calculating pollutant discharges and removals includes the following:

- Using estimates of the volume of produced water discharged and pollutant concentrations, calculating the baseline discharges in 2007 (i.e., the pollutant loadings discharged prior to any potential revisions);

- Using estimates of pollutant concentrations and volume of produced water that would be discharged after implementation of management options, calculating loadings after implementation of each produced water management option; and

- Calculating the pollutant reductions (i.e., the difference between the baseline loadings and the post-treatment loadings).

(e) *Assessment of Technology Costs*

EPA will estimate the incremental investment costs and incremental operating and maintenance costs for operators to implement treatment technologies. These compliance costs will be used to determine the potential economic impacts on the industry. In addition, these compliance costs will be weighed against the effluent reductions resulting from each technology option.

To estimate these incremental costs, EPA will use information collected with the CBM questionnaire about treatment system components; capital costs for engineering design, equipment, installation, and utility connections; annual operating and maintenance (O&M) costs for the equipment and equipment operators; and capital amortization. EPA will estimate the direct costs of CBM produced water treatment to determine if any technologies are economically feasible using these data as well as data on CBM produced water volumes and quality.

(f) *Environmental Assessment and Economic Benefits Analysis*

EPA will perform an environmental assessment to identify potentially affected environmental resources and assess the environmental impacts associated with CBM produced water discharges. To do this, EPA will use data collected from the questionnaires on the pollutant concentrations discharged by the facilities and the location of the discharges. EPA will also use information provided by the operators regarding monitoring efforts or other studies to assess the potential impact of discharges to receiving waters.

(g) *Assessment of Non-Water Quality Environmental Impacts*

EPA will also use the survey data to identify the potential non-water quality environmental impacts associated with different technology options. These include any energy requirements, air emissions, and disposal capacity of produced water treatment residuals. To do this, EPA will use data collected from the questionnaires on energy requirements of the various treatment options, transportation and disposal methods for CBM produced water and treatment residuals, and disposal capacities for the different disposal methods.

(h) *Final Decision*

After EPA identifies all subcategories, assesses technologies, calculates pollutant reductions and non-water quality environmental impacts, performs an environmental assessment, and performs economic analyses, EPA will determine the appropriate action for each basin. EPA has several options after evaluating the data collected for the detailed study, and may take different action in different basins. For example, EPA may:

- Initiate an effluent guidelines rulemaking;

- Develop guidance for permit writers (i.e., a framework for permit writers to use to decide what is best available technology economically achievable (BAT) for each site);

- Develop a resource book for operators and permit writers that describes, but does not recommend, CBM produced water control technologies; or

- Take no action.

3. NONDUPLICATION, CONSULTATIONS, AND OTHER COLLECTION EFFORTS

3.a) Nonduplication

The Office of Science and Technology of the Agency's Office of Water has made every reasonable attempt to insure that the CBM questionnaire does not request data and information currently available through less burdensome mechanisms. EPA is working with a range of stakeholders (e.g., industry representatives; Federal, State, and Tribal representatives; public interest groups and landowners; and produced water treatment experts) throughout the CBM Detailed Study to obtain the best available information on the industry and its practices.

To initiate data collection and stakeholder involvement EPA conducted seven teleconferences in June and July 2007 to identify interested parties and provide an overview of the study and data collection needs. EPA also conducted site visits and stakeholder meetings in basins with active CBM development to obtain information about CBM production. In total EPA conducted 20 sites visits to different locations within six CBM basins:

- Black Warrior Basin (Alabama);
- Upper Appalachian (southwestern Pennsylvania);
- Central Appalachian (southwestern Virginia and southern West Virginia);
- Powder River Basin (Wyoming and Montana);
- San Juan (Colorado and New Mexico); and
- Raton (Colorado and New Mexico).

As part of the site visits, EPA met with industry representatives, local government agencies, and public interest groups to assess publicly available sources of information relevant to the study and to solicit comments on the topics that will be covered in the CBM questionnaire.

All information collected during these site visits and stakeholder meetings is contained in the record for this project which is available to all interested parties at www.regulations.gov (EPA Docket Number EPA-HQ-OW-2006-0771). EPA will continue to review and assess information collected during the detailed study and include it in the public record. Note that EPA excluded any information claimed as Confidential Business Information (CBI) from the public record.

EPA has determined that existing public data is insufficient to meet its it needs (e.g., financial data to determine economic achievability of different technology options) and that more comprehensive information on CBM operators, as described in Section 4 of this supporting statement, is needed to determine whether to initiate an effluent guidelines rulemaking for the CBM extraction sector.

3.b) Public Notice Required Prior to ICR Submission to OMB

(i) Publication of the Federal Register Notice

[Note this text will be finalized for the publication of the second FRN.]

EPA published two Federal Register notices announcing EPA's intention to develop an industry survey to support this detailed study and to seek OMB approval for this survey under the Paperwork Reduction Act (PRA) (see 71 FR 76656; December 21, 2006; and 72 FR 61343; October 30, 2007). More recently, EPA published another notice in the Federal Register on XXX (XX FR XXX), announcing more details for the Agency's intent to submit a request for a new Information Collection Request (ICR) and to collect comments on the Draft Questionnaire for the Coalbed Methane Extraction Sector. A copy of this last notice is included in Attachment XXX.

In addition to publishing these Federal Register notices, EPA informed over 700 CBM stakeholders, who participated in EPA's stakeholder meetings and site visits, of the notice publication via phone and e-mail. The last Federal Register notice included more details on the description of the entities to be affected by the proposed questionnaire, a brief explanation of the need for the questionnaire, identification of the authority under which the questionnaire will be issued, and an estimate of burden to be incurred by questionnaire respondents. By means of this last notice, the Agency requested comments and suggestions regarding the questionnaire and the reduction of data collection burden, and asked that the public submit all comments and suggestions within 60 days of the Federal Register notice publication.

Pursuant to section 3506(c)(2)(A) of the Paperwork Reduction Act, EPA specifically solicited comments and information to enable it to:

1. Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the Agency, including whether the information will have practical utility.

2. Evaluate the accuracy of the Agency's estimate of burden of the proposed collection of information, including the validity of the methodology and assumptions used.

3. Enhance the quality, unity, and clarity of the information to be collected.

4. Minimize the burden of the collection of information on those who are to respond.

(ii) Public Response to the Federal Register Notice

[EPA will also add a summary here of the comments received after publication of the **Federal Register** notice.]

(iii) EPA Action Resulting from Public Comment

[EPA will add a summary here of EPA's response to the public comments received after publication of the **Federal Register** notice.]

3.c) Consultations

The Agency organized and conducted numerous meetings and teleconferences with industry trade groups and other stakeholders in the process of obtaining both informal and formal comments on the draft questionnaire. The Agency provided the industry stakeholders an initial list of questionnaire topics during the industry site visits to gauge initial reactions and obtain general comments and suggestions (DCN 05206). EPA conducted industry stakeholder meetings in conjunction with the site visits performed in each of the six CBM basins to solicit industry comments on EPA's CBM detailed study and planned ICR. EPA also conducted teleconferences and meetings with other government agencies and interested parties to solicit input on the CBM detailed study. Table 3-1 lists the dates for all industry and other stakeholder meetings.

Table 3-1. List of EPA Outreach Activities

No.	Meeting/Teleconference	Location	Date	DCN
1	Department of Energy's Office of Fossil Energy and Energy Information Administration	Washington, DC	15-May-07	
2	Stakeholder Teleconference	Washington, DC	21-Jun-07	
3	Stakeholder Teleconference	Washington, DC	26-Jun-07	
4	Stakeholder Teleconference	Washington, DC	27-Jun-07	
5	Stakeholder Teleconference	Washington, DC	28-Jun-07	
6	Stakeholder Teleconference	Washington, DC	10-Jul-07	
7	Stakeholder Teleconference	Washington, DC	24-Jul-07	
8	Stakeholder Teleconference	Washington, DC	26-Jul-07	
9	Alabama Coalbed Methane Industry Meeting	Tuscaloosa, AL	07-Aug-07	
10	U.S. Fish and Wildlife, Daphne Field Office and Geological Survey of Alabama Meeting Minutes	Tuscaloosa, AL	07-Aug-07	
11	Geological Survey of Alabama and State Oil and Gas Board of Alabama Meeting	Tuscaloosa, AL	08-Aug-07	
12	U.S. Geological Survey	Reston, VA	09-Aug-07	
13	U.S. Forest Service	Arlington, VA	10-Aug-07	
14	Department of Energy, Energy Information Administration Teleconference	Washington, DC	17-Aug-07	
15	CBM Trade Associations and Operators	Washington, DC	30-Aug-07	
16	Bureau of Land Management	Washington, DC	31-Aug-07	
17	West Virginia Department of Environmental Protection Teleconference	Washington, DC	21-Sep-07	
18	West Virginia Coalbed Methane Industry Stakeholder Meeting	Beckley, WV	24-Sep-07	
19	API Clean Water Task Force Meeting	Washington, DC	03-Oct-07	
20	Public Interest Group Meeting	Melcroft, PA	11-Oct-07	
21	Pennsylvania Coalbed Methane Industry and Pennsylvania Department of Environmental Protection (PADEP) Meeting	Canonsburg, PA	11-Oct-07	

Table 3-1. List of EPA Outreach Activities

22	Public Interest Group Meeting	Broadus, MT	16-Oct-07	
23	Wyoming Coalbed Methane Industry Stakeholder Meeting	Gillette, WY	17-Oct-07	
24	Meeting with Federal and State Regulators	Sheridan, WY	17-Oct-07	
25	Public Interest Group Meeting	Sheridan, WY	17-Oct-07	
26	Meeting with Federal and State Regulators	Billings, MT	18-Oct-07	
27	Public Interest Group Meeting	Billings, MT	18-Oct-07	
28	Northern Cheyenne Meeting	Billings, MT	19-Oct-07	
29	Colorado Coalbed Methane Industry Stakeholder Meeting	Durango, CO	22-Oct-07	
30	Meeting with Federal and State Regulators	Farmington, NM	22-Oct-07	
31	U.S. Forest Service on Northern San Juan FEIS & ROD	Durango, CO	22-Oct-07	
32	Meeting with Oil and Gas Accountability Project	Durango, CO	23-Oct-07	
33	Southern Ute Meeting	Igancio, CO	24-Oct-07	
34	Colorado Coalbed Methane Industry Stakeholder Meeting	Trinidad, CO	25-Oct-07	
35	Public Interest Group Meeting	Trinidad, CO	25-Oct-07	
36	Meeting with City of Raton, NM	Raton, NM	26-Oct-07	
37	Methane Energy (Coos Bay, OR) Teleconference	Washington, DC	31-Oct-07	
38	Colorado Petroleum Association Meeting Minutes,	Washington, DC	01-Nov-07	
39	Teleconference with Mary Williams, Minerals Management Service	Denver, CO	02-Nov-07	
40	14th International Petroleum Environmental Conference Presentation	Houston, TX	07-Nov-07	
41	Industry Questionnaire Meeting	Washington, DC	11-Dec-07	
42	Department of Interior, Bureau of Reclamation Teleconference	Washington, DC	27-Dec-07	
43	Industry Questionnaire Meeting	Washington, DC	15-Jan-08	

[XXX - DCN's to be filled in prior to notice publication]

3.d) Effects of Less Frequent Collection

The CBM ICR is a *one time only* data collection activity for the respondents.

3.e) General Guidelines

EPA will conduct data collection activities in accordance with the Paperwork Reduction Act guidelines in 5 CFR 1320.6 and EPA's Quality Assurance Guidance. Information to be disseminated will comply with EPA's Information Quality Guidelines, which were developed for implementing OMB's Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of the Information Disseminated by Federal Agencies.

3.f) Confidentiality

The questionnaire informs respondents of their right to claim information as business confidential in accordance with 40 CFR Part 2, Subpart B, Section 2.203. The questionnaire provides instructions for claiming confidentiality, and informs respondents of the terms and rules

governing the protection of Confidential Business Information (CBI) under the Clean Water Act and 40 CFR 2.203(B). Each question which requests potentially confidential information is accompanied by a CBI checkbox. Questionnaire respondents are requested to check the CBI checkboxes which accompany responses they claim as confidential.

EPA and its contractors will follow existing written procedures to protect data labeled as CBI. These procedures include the following:

- Ensure secure handling of completed questionnaires to preclude access by unauthorized personnel.

- Store completed questionnaires and databases in secured areas of offices, and restrict access to authorized EPA and contractor personnel only.

- Restrict any publication or dissemination of confidential study results or findings to aggregate statistics and coded listings. Individual respondents will not be identified in summary reports and EPA contractors will not release respondents' names to unauthorized individuals.

A copy of the written procedures for gathering, safeguarding, and securing CBI is located Office of Water, Office of Science and Technology's "Confidential Business Information Application Security Plan," which EPA included in the record supporting this ICR (see DCN 05359).

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 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. Each EPA contractor that collects, possesses, or stores CBI is responsible for the proper handling of that data. Each contractor will safeguard information as described in Section 2.211(d) of Subpart B and is obligated to use or disclose information only as permitted by the contract under which the information is furnished.

3.g) Sensitive Questions

No sensitive questions pertaining to private or personal information, such as sexual behavior or religious beliefs, will be asked in the questionnaire.

4. THE RESPONDENTS AND THE INFORMATION REQUESTED

4.a) Respondents NAICS Codes

The respondents affected by this information collection request include over 400 companies operating over 43,000 wells that were active CBM producers in the U.S. as of mid-2007. CBM operations are classified under North American Industry Classification System (NAICS) identification number 21111, Oil and Gas Extraction, and Standard Industrial Classification code 1311, Crude Petroleum and Natural Gas.

4.b) Information Requested

(i) Detailed Description of the CBM Questionnaire

EPA is planning to conduct a survey of CBM operators. The general questionnaire for this survey is designed to collect comprehensive technical and economic data about CBM produced water characteristics; produced water management and associated costs; and industry financial information. It will provide information to evaluate the need for initiating an effluent guidelines rulemaking for the CBM extraction sector.

The questionnaire consists of three parts. Part A contains screener questions to determine whether the operator needs to complete the questionnaire. Part B requests company- and project-level financial and economic information that will be used to characterize the economic status of the industry and to estimate economic impacts of potential regulations. Part C requests general facility and technical data, which will be used to determine produced water generation rates and water quality, water management techniques including reuse, and treatment and disposal costs and practices.

EPA solicits comment on whether it should develop an electronic version of the questionnaire. For example, EPA developed an electronic questionnaire for the Drinking Water Treatment effluent guidelines rulemaking (see http://www.epa.gov/guide/dw/ and EPA-HQ-OW-2004-0035]. If EPA develops the electronic questionnaire it will meet the 1998 Government Paperwork Elimination Act (GPEA). EPA anticipates that most respondents will be familiar and comfortable with electronic submission forms. Additionally, the electronic questionnaire will allow for automatic population of a database with responses—reducing the potential for errors introduced though key-entry of data.

EPA designed the questionnaire to include many burden-reducing features. For example, it contains many “screener” questions that direct respondents to skip detailed questions that may not pertain to their company or CBM operations.

The questionnaire was designed in modular fashion to reduce burden on management in delegating questionnaire sections to respondents. The hardcopy questionnaire can be separated, copies of selected sections can be made when needed, and portions distributed to the appropriate

staff. The electronic questionnaire format may further simplify this task by allowing facilities to electronically generate the required number of copies of each section.

Some sections will not be applicable to all facilities. General instructions to the questionnaire describe allowable responses for cases in which a facility will be unable to respond to a question. A response of "NA" corresponds to questions that are *not applicable*.

(a) *Part A: Selection of Wells for the Questionnaire*

Part A will list wells EPA selected to be surveyed for each operator. These wells will be identified by American Petroleum Institute (API) number (or state identification (ID) number in a few cases where API numbers are not available) and have been compiled from state data and data from HPDI, Inc., indicating that they are CBM wells operated by the questionnaire respondent. EPA will use introductory questions and the table to help respondents identify whether the selected well or wells are within the scope of the CBM questionnaire. The questionnaire first asks if the operator owned or operated any CBM wells in 2007. Respondents that did not own or operate any CBM wells in 2007 do not need to complete the questionnaire. The respondent will then complete a table that provides information on the wells EPA selected. The table will be used to determine whether the respondent needs to complete the entire questionnaire or only a section. Part A will help EPA and the respondent determine whether the respondent is within the scope of the survey. The table also collects information on whether production from a well is commingled with production from conventional oil and gas wells. This is a special case that EPA needs to have clearly identified in the survey information, since this case has potential implications for analyzing potential technology options for commingled systems.

The respondent will certify whether they do not own CBM wells or whether they own CBM wells and need to provide further information. The certification also attests to the truth and accuracy of the responses provided.

EPA is considering inserting a question or questions that would identify respondents who operate CBM projects only in certain basins where injection (including commercial injection) is the predominant practice used for produced water management and all of the operator's projects in that basin inject produced water. Such basins include, for example, the San Juan Basin. The questions would then instruct such respondents to skip most of the Part B questions and continue with Part C. EPA solicits comment on the use of such a skip pattern.

The EPA burden estimate is based on the number of entities receiving the questionnaire. To reduce the survey burden, EPA intends to select a statistical random sample of entities within the CBM industry. The resulting sample will minimize both the burden to respondents in completing the questionnaire and to the Agency in managing and effectively utilizing the data and information supplied by respondents. EPA solicits comments and supporting information that would allow it to evaluate alternative methods of selecting the random sample that will reduce the overall burden.

First, EPA solicits information about publicly available data sources that would permit EPA to assign wells to individual projects so that it could select fewer entities. Second, EPA solicits comments on approaches to obtaining project information from non-public sources. For example, one approach might be for EPA to conduct a two-phase survey that would require all operators to complete a short questionnaire ("screener") that identifies all of the projects and links the wells to each project ID. After receiving the results, EPA would statistically select a random sample of projects to receive a detailed questionnaire. In order to use this approach, EPA would require operators to return the completed screeners within a short period of time (e.g., 30 days), thereby lengthening the study schedule by a minimum of 3 months (assuming it takes EPA a month to process the completed screener results and another month to draw a representative sample and distribute the detailed questionnaire). EPA solicits comments on the two-phase approach and whether the assignment of all wells to projects is relatively easy for operators. EPA also solicits comment on other approaches that would provide information to assign wells to projects.

Third, EPA solicits comments on ways to reduce the burden to operators with many wells and still collect information in a manner that will allow for appropriate statistical inferences to be drawn from responses. Under the current assumptions, large operators may be required to respond for many wells, thus resulting in a relatively large burden for them. EPA also is concerned that it would be collecting more information than necessary to characterize practices by the operator. To reduce burden, one approach might be for operators to select the wells using criteria specified by EPA. EPA is interested in comments about the appropriate number of wells and selection criteria.

Fourth, EPA solicits comments on stratification variables to use in selecting the random sample. Existing information about the industry can be used to improve the survey design and the precision estimates. One common technique is to use publicly available information to group similar entities together into mutually exclusive strata. Then, by selecting entities from each stratum to participate in the survey, it ensures that the sample will include entities that have the various characteristics that are represented by the different strata. However, increasing the number of stratification variables also increases the number of entities selected and the overall burden. EPA is considering stratifying by basin, state, and operator size (e.g., small, large). Incorporating each additional variable in a statistical design will provide more information about the industry; however, more entities must be selected to provide statistically representative results. EPA solicits comments on whether all variables (e.g., basin, state, operator size as defined by total CBM production) are necessary and whether it also should consider other variables (e.g., type of coal seams and geology, maturity of CBM projects as defined by start date).

Fifth, EPA solicits comments on the extent to which the sample design should consider location of the CBM projects within a basin. EPA recognizes that location of the CBM project may result in wells being operated differently within each basin due to different produced water characteristics, geology, and available management options. EPA also recognizes that state requirements can impact the well operations and finances. EPA's current statistical design selects wells at random within each basin, and can be easily modified to select wells within states.

Because stratification is intended to distinguish between large groups, and thus, may not be the best statistical choice to distinguish between geographic locations, EPA also is researching an area-based design that uses location clusters of wells formed within the known basins, as well as within states. EPA then would randomly select clusters of wells. For each selected location cluster, EPA would require that the operators of the wells provide information about all of their projects that fall within the cluster. Cluster sampling generally results in a higher burden because more entities must be selected (initial estimates range from 1.4 to ten times more), however, it will allow for more geographic and geologic representation. EPA solicits comments on the extent that basins and states should be considered within the statistical design. EPA further solicits comments on the extent to which statistical design should consider other geographic and geology features.

Sixth, since the industry is constantly adding new wells, EPA's survey needs to incorporate industry changes between the time the data were collected and end of the study. This may require additional entities to be selected for the questionnaire. EPA solicits comments on the extent to which industry growth should be considered in selecting the entities for the survey.

Finally, EPA will also use the survey to collect data to evaluate potential impacts to small businesses that might occur due to alternative produced water management options. To minimize burden, the only information requested at the ultimate parent company level, if different from the level at which detailed financial information is provided, is employment and revenue data. EPA solicits comment on alternative survey questions to collect data for EPA's small business analyses.

(b) *Part B: CBM Economic Information*

(i) Section 1 General Operator Information

Section 1 of Part B collects contact information to ensure EPA can contact the appropriate persons to clarify responses to the financial and economic questions.

Table 4-1. Detailed Description of Part B, Section 1

Question Number	Question Description	Purpose of Question
B1-1-B1-4.	Requests names, titles, telephone and facsimile numbers, and e-mail addresses of primary and secondary contacts for the owner/ operator regarding information supplied in Part B, Sections 2 and 3 of the survey.	EPA needs to know who should be contacted to verify or clarify the economic questionnaire information. The contacts may be different from the technical contacts requested in Part A. Furthermore, the contacts for the firm financial information in Part B, Section 2, may be different from those for the project-specific information in Part B, Section 3.

Table 4-1. Detailed Description of Part B, Section 1

B1-5.	Requests respondent to indicate if another survey ID will be submitting Part B, Section 2 information (firm-level financial information).	This question allows a firm to coordinate one response for firm financial information if multiple surveys have been sent to the same firm. EPA cannot necessarily know in advance if the same or similar firm name in more than one basin indicates the same firm will be submitting Part B. Section 2 or whether each name indicates a separate division or profit center that will each provide different information in response to Part B. Section 2.

(ii) Section 2 Firm-Level Financial Questions

Section 2 of Part B will gather information necessary to complete a firm-level economic impact analysis of produced water management options for the CBM industry. The questions collect ownership information, including information about any intermediate owner firms and corporate parents. Section 2 also collects information on employment, revenues, and NAICS classification to indicate whether the respondent is a small business. It also requests detailed information about the first level of corporate hierarchy at which financial information is kept, such as discount rate, income statement, and balance sheet information. To minimize burden, the only information requested at the ultimate parent company level, if different from the level at which detailed financial information is provided, is employment and revenue data.

To further minimize the burden of responding to the questionnaire, the questions are phrased with commonly used terminology. Tables are organized with formats familiar to financial officers in the respondents' industry. Questions requesting similar types of information are arranged together to facilitate review of pertinent records and completion of the questionnaire.

For some questions, 3 years of data are needed to provide information to identify industry trends, to resolve data anomalies, and to identify potential irregularities caused by events outside of the CBM industry's control. In particular, given the volatility of natural gas prices, relying on one year's income statement data could overstate or understate longer-term trends in firm revenues in the industry. EPA requests income statement financial information for the fiscal years ending 2005, 2006, and 2007—the most recent years for which data are available. Because balance sheet information tends to be less volatile, only one year's data (2007) are requested to minimize burden to respondent.

Table 4-2. Detailed Description of Part B, Section 2

Question Number	Question Description	Purpose of Question
	Requests name of immediate owner/operator, if not the same as that on the survey label.	EPA needs this information to update the survey universe database information for that operator.
	Asks about the structure of any corporate hierarchy above the level of the immediate owner operator.	EPA will use this information on the ownership structure of the immediate owner/operator to understand the structure in which it operates. This question also helps set up which questions should be answered, depending on this structure.

Table 4-2. Detailed Description of Part B, Section 2

	Asks for the name of the ultimate parent company, where relevant.	EPA will use this information to link to other survey information if affiliated firms have been surveyed. EPA will also use the information to identify possible publicly available information on parent firms.
	Asks if the immediate owner/operator qualifies as a small business under Small Business Administration definitions.	Allows EPA to omit questions pertaining to the highest corporate level that would have been needed for establishing whether the firm is a small business.
	Asks for the name or names of owner firms.	EPA will use this information to link to other survey information if affiliated firms have been surveyed. EPA will also use the information to identify possible publicly available information on owner firms.
	Requests six-digit NAICS at the immediate owner/operator level.	EPA needs this information to profile the types of industries that own or operate CBM wells.
	Asks if the operator acts strictly as a contract operator in all their U.S. CBM well operations.	Alerts EPA to the need to analyze the operator differently in the firm level analysis. A contract operator will not be affected directly by option costs, but will be affected if projects shut-in.
	Asks respondents to identify from a checklist the corporation type that best describes the immediate owner/operator.	EPA needs this information to determine a company's tax status for the economic analysis, which estimates firm tax burdens and computes post-tax impacts.
	Asks for 2007 employment, both total and attributable to CBM operations.	EPA needs employment information to determine impacts if projects are projected to shut-in or if firms are estimated to fail. EPA will use the CBM portion of employment to estimate what employment effects might be associated with project shut-ins.
	Asks for the corporate level at which data for questions B2-11 to B2-16 are provided.	EPA needs this information to link the entities described in Questions B2-1 through B2-9 to the responses to Questions B2-11 through B2-16. These questions are important to EPA's understanding of the economic factors that determine whether a project should be undertaken. Some owner/operators may engage in project decision making, whereas others will not. For these latter entities, the decision to go forward with a project is made at a higher level in the corporate hierarchy.
	Asks how capital investment decisions are made.	EPA can use the response to this question to determine whether to analyze impacts on some new projects using a payback approach instead of a net present value approach. In some cases, the choice of approach might affect the investment decision.
	Asks for the payback period.	EPA will use this information to define a payback period in analyzing investment decisions for certain new projects.

Table 4-2. Detailed Description of Part B, Section 2

	Asks whether a cost of capital is included in payback calculations.	Indicates whether cost of capital should be used in analyzing certain new projects where payback analysis might be undertaken.
	Asks for cost of capital given the typical mix of equity and debt.	EPA will use the cost of capital as a discount rate to annualize the cost of future produced water management investments. Requesting only the overall cost of capital simplifies the response, allowing respondents to calculate and report one number rather than report interest rates, equity rates, and the mix.
	Asks respondents for their hurdle rate (minimum desired investment return).	With this information, EPA will be able to use both a hurdle rate and cost of capital in assessing investment decisions and to separate the risk component in the investment decision.
	Asks if the respondent is required to use the cost depletion method in computing depletion allowances.	The answer to this question will tell EPA how to calculate depletion in the CBM model. Using the model, EPA will select the depletion calculation method based on the response to this question. The answer also helps EPA categorize respondents into majors (vertically integrated firms with downstream and upstream oil and gas activities) and independents for profiling purposes.
	Requests corporate level at which income statement information is being provided.	To put the data into perspective and to link the information to that information collected in Questions B2-1 through B2-9, the corporate level is requested. Questions B2-18 through B2-20 allow the respondent to provide information at a level where the information is commonly kept, rather than to ask for information prorated to a lower level, if that is not the level at which the accounting takes place.

Table 4-2. Detailed Description of Part B, Section 2

	Asks respondents to report revenue information for the lowest corporate level that keeps such information for fiscal years 2005 through 2007. Information requested includes total revenue, as well as a breakout of revenues associated with CBM.	EPA is requesting 3 years of revenue, cost, and income data for several reasons. First, three consecutive years of data will provide a much more accurate picture of the financial condition of the firm. Second, 3 years of data provides EPA with an estimate of the year-to-year variation in income and costs. The firm-level analysis will not hinge on a single, possibly atypical, year. Third, EPA can identify possible trends in the data over various groups of respondents. EPA will use identified trends to provide additional information when selecting the best method for projecting future financial conditions. EPA will use the responses to Questions B2-18 through B2-20 as the basis for developing forecasted earnings (discounted cash flow) for a firm failure analysis. For example, EPA's earnings projections might indicate sharply declining and/or negative earnings when produced water management option costs are incurred, and EPA may assess a probable firm failure associated with that option. More specifically, EPA will calculate the present value of earnings (as cash flow) and the present value of incremental produced water management costs for each firm using the cost of capital information collected in Question B2-14. EPA will adjust the present value of cash flow by the estimated aggregate present value costs of upgrading all the respondent's CBM projects. EPA will use this change in present value of cash flow as one component of the firm failure analysis. EPA will use taxes and net income information to select the appropriate marginal tax rate for the firm in order to calculate post-tax impacts at the project and firm level. In these questions, EPA also asks for costs and revenues associated with the CBM portion of the business. EPA will use this information to evaluate the relative importance of CBM operations to the company. EPA understands that this information is not usually broken out in most accounting reports, but must be estimated. The information is critical, however, to EPA's understanding of how the firm or division might behave when faced with produced water management option investment costs and the extent to which the firm may be affected by all costs of an option.
	Asks respondents to report costs and expenses for the lowest corporate level that keeps such information for fiscal years 2005 through 2007. Information requested includes operating costs, depletion, royalties, and other cost items. Information requested includes total operating costs, as well as a breakout of operating costs associated with CBM.	
	Asks respondents to report earnings and net income for the lowest corporate level that keeps such information for fiscal years 2005 through 2007. Information requested includes earnings before interest and taxes (EBIT), interest, taxes, and net income.	

Table 4-2. Detailed Description of Part B, Section 2

	Requests corporate level at which balance sheet information is provided.	EPA will use the responses to this question to put the data into perspective and to link to information requested in Questions B2-1 through B2-9. Questions B2-21 through B2-26 allow the respondent to provide information at a level where the information is commonly kept, rather than to ask for information prorated to a lower level, if that is not the level at which the accounting takes place.
	Asks for current assets, property, plant, and equipment, other assets, cumulative depreciation and total assets.	EPA will use the balance sheet data to calculate financial ratios that indicate financial health (e.g., current ratio, working capital-to-debt, and other debt-to-assets). Because balance sheet data tend to be less volatile than income statement data, only one year of data is requested to reduce respondent burden.
	Asks for liabilities and equity, including current liabilities, long-term debt, retained earnings, other owner equity and sum of liabilities and owner equity.	
	Asks for payments to principal for fiscal years 2005, 2006, and 2007.	EPA will use this information in evaluating firm-level discounted cash flow. At a minimum, discounted cash flow must be positive for a firm to continue as a viable entity. However, an evaluation method that uses a discounted cash flow greater than zero to indicate good financial health may not be appropriate, since a certain amount of cash is necessary for ongoing operations. EPA will use payments to principal to estimate future cash needs for investment to maintain an ongoing business. EPA attempted to solicit information on costs of capital replacement in another survey (considered potentially a more accurate estimator of cash needs for ongoing business operations); however, respondents found this computation difficult, and many did not attempt to provide information. Payments to principal are cash needs that are easier to calculate.
	Asks for the month the company's fiscal year starts.	EPA will use this information to determine how to interpret the actual reporting year. A fiscal year starting January will need a different inflator/ deflator than one starting in September to put the financial information on a same dollar basis.

Table 4-2. Detailed Description of Part B, Section 2

	Requests 2005-2007 financial statements used to compile answers to questions in Part B, Section 2.	EPA will use the additional information that may be contained in notes or additional line items, if necessary, which can help avoid calls to the respondent for clarifications. EPA does not use these financial statements in lieu of requesting that respondents complete Part B, Section 2 questions. EPA does this because there are often variations and extenuating circumstances indicated in numerous notes to the financial statements that need to be considered when the financial tables in this questionnaire are completed. EPA believes the respondents are the best equipped to understand their particular circumstances and provide the information in the tables with these circumstances taken into account. Even with notes to the financial statements, EPA may not be entirely certain that a respondent's 10-K information is properly represented in the questionnaire tables if EPA constructs these tables themselves. The request for the detailed financial information in Part B, Section 2 reduces the need for EPA to contact the respondent to clarify financial information in the 10-Ks and to confirm that EPA has correctly interpreted the 10-K information for insertion into these tables.

(iii) Section 3 Project-Level Financial Questions

Section 3 of Part B of the questionnaire will gather information necessary to complete a project-level analysis of the economic impact of produced water management options. The questions collect project-specific information in three major time periods: 1) historic information on initial investments in developing the project through 2006 (Questions B3-10 through Questions B3-26), 2) current year information on investments and operating information (Questions B3-27 through B3-54), and 3) an additional 10-year projection of that same type of information (Questions B3-55 through B3-75). EPA uses current year (2007) and 10-year projections as inputs to model existing projects. EPA adds historic data prior to 2007 to current year and 10-year projections to model new CBM projects. This questionnaire section requires operators to estimate project-investment information over a 5 year period with an additional estimate of likely trends over the following 5 years.

The CBM model is a cash flow model that arrays operating revenues and expenditures over at least 10 years, allowing a project to shut-in when operating costs exceed operating revenues. The model also accepts various additional costs (such as drilling costs and other capital infusions into years in which they occur or are expected to incur) and takes all of the year-by-year cash flow into account up to the year of shut-in to calculate the net present value of the entire project. EPA will use the model outputs to compute reductions in project life, reductions in production, reductions in net present value of the project, etc. These results can then be used to determine if the project is no longer economically viable or would not be undertaken (if a new project) when produced water option costs are considered.

To minimize the burden of responding to questionnaire Part B Section 3, the questions are phrased with commonly used terminology. Historic questions are asked only of respondents most likely to have the information easily accessible (those whose projects are fairly new and who have owned/operated the project continuously since initiated). Questions requesting similar types of information are arranged together to facilitate review of pertinent records and completion of the questionnaire.

Table 4-3. Detailed Description of Part B, Section 3

Question Number	Question Description	Purpose of Question
Table 1 General Project Information		
Project Identifier Information (for Questions B3-1 to B3-4)		EPA will use responses to these questions to locate additional information associated with a project in publicly available records.
	Requests name or identifier of project.	EPA will use this information to confirm that two or more surveyed wells are in the same project when further questions are not answered. The project identifier also facilitates communication if respondents are called because they are more likely to recognize the project name than an API number.
	Requests state permit number or lease number associated with project.	EPA will use this information to link to EPA's survey universe database to provide additional information on wells associated with a project.
	Requests unit number or other group identifier.	EPA will use this information to determine if the project is a recognized unit. EPA can also link to other surveys using unit numbers, if a project is a part of a multi-operator unit and other projects in the unit are surveyed. Additionally, EPA can link to data in some states where unit information can be accessed by unit number.
	Requests percentage of total unit production if the project is part of a multi-operator project.	Based on publicly available data found in EPA's CBM universe database, EPA may be able to link the respondent's project with other operators and identify the unit in question. This question may allow EPA to extend an analysis to the overall unit for greater predictive results in the analysis, especially if other portions of the unit are sampled.
	Requests number of wells actively producing.	EPA needs information on the current numbers of wells and their status in 2007. EPA's collection of publicly available data reflect the numbers of wells and status only through, at best, mid-2007. EPA will use this information to create a more recent profile of existing and planned wells and to provide an additional full year of data for well development trend analysis. EPA will also use these data to calculate aggregate per-well drilling cost averages (if missing data must be imputed for some projects) and to assist with projections (if respondents have not provided year-by-year projections of drilling costs).
	Requests number of planned wells with active permits.	
	Requests numbers of spudded, drilling or completed (production pending) wells.	
	Requests number of inactive wells.	

Table 4-3. Detailed Description of Part B, Section 3

	Requests year project development began or year project was acquired.	EPA will use this question to ensure those who should or should not fill out the next section are properly identified (next section should only be filled out by those who began project development after 2003 and who are the original owners; this was done to reduce the burden on operators who might not have easy access to such data).
Table B-2 Project History		EPA will use the information provided in this table (Questions B3-10 to B3-26) to construct new source models of CBM projects. In new source models, the cash flow and net present value of projects are calculated from project inception. Therefore, data on all costs from project inception to current year plus projections (information requested later in this section) are required. Respondents are requested to provide information only on recently developed projects owned continuously since inception to minimize burden. Additionally, EPA must make a number of assumptions about inflation if cost data from many years ago are to be converted to current year dollars. These assumptions may not be sufficiently accurate to produce realistic current year cost estimates.
Lease Acquisition Costs (Questions B3-10 to B3-12)		
	Requests original lease bids.	EPA uses this information as one of the cost inputs to the CBM model for new projects.
	Requests year or years of lease acquisition.	EPA uses this information to input into the CBM model with the costs of lease bids in the year or years over which these costs were incurred for new projects.
	Requests payment to surface owner(s) if lump sum.	EPA will include this cost, if relevant, in the lease acquisition cost that is input to the CBM model (if it is an ongoing rent payment, this is captured in Table B-3, Current Operations, instead).
Lease Development Costs (Questions B3-13 to B3-15)		
	Requests total capital costs of project development through 2007 minus drilling costs and produced water management costs.	EPA will use the capital costs of gas production other than drilling and produced water management for input to the CBM model. Capital costs are requested separately so that drilling costs, which might occur much later in project life can be separated from costs that occur only in the early years of project development. Additionally, actual produced water management capital costs need to be distinguished so these costs can be compared to the capital costs of produced water management option costs.
	Requests produced water management costs and splits them between treatment costs and reuse or disposal costs.	This question may be deleted depending on the ultimate structure of Part C.

Table 4-3. Detailed Description of Part B, Section 3

	Requests total cost of well drilling.	EPA will use this information to develop an average cost per well drilled in the project using information in Table B-1 on total numbers of wells drilled to date (regardless of status). EPA will use average well drilling costs to estimate CBM well drilling costs in basins that are not being surveyed because development is just starting or not yet underway. EPA will also use these costs to develop projections of drilling costs where respondents have not provided year-by-year estimates in Table B-4.
Project Development Schedule (Questions B3-10 to B3-22)		
	Requests the year project construction began.	EPA will use this information to determine when project construction costs enter the year-by-year CBM cash flow model.
	Requests years between project construction and water production.	EPA will use this information to determine if project construction costs should be arrayed over more than one year.
	Requests years between initial water production and initial gas production.	In some cases, CBM wells must produce water for an extended period of time before gas production can begin. If this is more than a few months, EPA will use this information to input produced water production costs in a year or years before revenues enter the model.
	Requests year of peak gas production.	EPA will use this information to model the project's gas production volumes between first production and current production (reported in Table B-3, Current Operations).
	Requests amount of gas produced in peak year.	
	Requests year of peak water production.	EPA will use this information to model the project's produced water production volumes between first production and current production (reported in Table B-3, Current Operations).
	Requests amount of water produced in peak year.	
Other Major Expenditures (Questions B3-23 to B3-26)		
	Requests costs of workovers, stimulations and recompletions.	EPA will use these major intermittent cash outlays as inputs to the model in the years they were incurred. EPA is not requesting years incurred for workovers, stimulations, and recompletions. EPA will make assumptions about how to distribute these costs over time to reduce respondent burden. Major capital outlays are more variable and sporadic, so EPA will not attempt to make assumptions about the timing of these expenditures.
	Requests major intermittent capital outlays that have been undertaken if not included in Question B3-13 (if respondent did not incur any major capital outlays they are instructed to skip to Question B3-27).	
	Requests when the capital outlays were incurred.	
	Requests how much they cost.	
Table B-3 Current (2007) Operations at Your Projects		
General Information		
	Requests information on type of lease if single lease project.	EPA will use this information to allocate royalty impacts to individuals, states, federal government, or tribes. The type of lease indicates the type of royalty recipient. EPA will estimate total impacts on royalties using the CBM model.
	Requests numbers of leases by type of lease if multi-lease project.	

Table 4-3. Detailed Description of Part B, Section 3

2007 Operating and Maintenance Costs (Questions B3-29 to B3-33)		EPA will use operation and maintenance (O&M) costs as one input for calculating 2007 operating earnings of the project. EPA will use the operating earnings for 2007 to provide a starting point for projections in cases where respondents ask EPA to do the projections (see Questions B3-55 to B3-63). Operating earnings are the key factor in ongoing production decisions. Projects will operate as long as operating earnings are positive. Some individual cost items are requested separately to ensure all components of operating costs are included.
	Requests total 2007 fixed operating cost of gas production excluding produced water management costs after separation (fixed costs are those that do not vary by gas production volumes).	EPA will use the information in these questions to model year-by-year cash flow for 2007 and beyond (combined with the answers to Questions B3-55 through B3-75). EPA needs fixed and variable costs to be reported separately because CBM production declines over time, as do variable costs. Without a fixed cost component, operating costs would be understated near the end of the productive life of a project.
	Requests total 2007 variable costs of gas production, excluding produced water management after water separation.	
	Requests total fixed operating costs of produced water management after separation.	EPA requests comment on whether information from Part C will adequately provide data on the total fixed operating costs of produced water management after separation.
	Requests variable costs of produced water management after separation.	EPA requests comment on whether information from Part C will adequately provide data on the variable fixed operating costs of produced water management after separation.
	Requests any other O&M costs of the project, including a description.	This question provides an opportunity for respondents with any confusion about fixed vs. variable cost items to provide costs for which they are uncertain. EPA will then make the determination of whether they are better modeled as fixed or variable.
Extraordinary Expenditures (Questions B3-34 to B3-38)		This section allows for large, intermittent costs to be accounted for.
	Requests the total cost of well drilling in 2007.	EPA will use costs reported in these major expenditure categories as a cash outflow in the model. EPA will also use the reported costs to project similar costs over the remaining life of the project (combined with the answers to Questions B3-55 through B3-75). Additionally, Questions B3-37 and B3-38 allow respondents who do not feel the above categories adequately describe their particular expenditure to provide a description of any such items and their costs. EPA will assess what type of cost it is and how it should be treated in the CBM model for tax deduction purposes (i.e., expensed in one year or capitalized and spread over several years).
	Requests total cost of any infrastructure additions in 2007, including what was added.	
	Requests the total cost of any workovers, stimulations, and recompletions for the project in 2007.	
	Requests a description of other major expenditures (including capital expenditures for the project) in 2007.	
	Requests the total cost of any other unusual capital expenses for this project in 2007.	

Table 4-3. Detailed Description of Part B, Section 3

2007 Production, Royalties, and Taxes (Questions B3-39 through B3-47)		EPA will use the responses to these questions to compute net revenues. Net revenues are compared to operating costs when making production decisions (projects shut-in if operating costs exceed net revenues). EPA will also use the information (combined with the answers to Questions B3-55 through B3-75) for projections over the remaining life of the project.
	Requests the total gas production from this project in 2007.	EPA has collected data on gas production from virtually all CBM wells in the U.S. but has obtained only a partial 2007 production year in most states, and no production figures from some states. EPA will use these 2007 data so that 2007 can be used consistently as the base year for analytical purposes.
	Requests the total gas sold from this project in 2007.	EPA will use this information to compute net revenues. Total gas minus gas sold is a component of net revenues.
	Requests total gas used by the project in 2007.	EPA will use this information to compute net revenues. Total production minus total gas sold that is not used is lost production or shrinkage and is a part of net revenues
	Requests the average wellhead price received for sold gas in 2007.	EPA will use this information with volumes of gas sold in computing net revenues.
	Requests produced water volumes.	EPA requests comment on whether information from Part C will adequately provide data on the produced water volumes for this project.
	Requests average working interest share in this project.	EPA will prorate project produced water management option costs to the firm on the basis of working interest share. EPA will also use this question to identify contract operators, since their share of a project would be 0%.
	Requests the average royalty rate for this project.	EPA will use the average royalty rate with total production to calculate another factor that must be netted out of project revenues to compute net revenues.
	Requests the total severance taxes from this project in 2007.	EPA will use severance taxes with other net revenue factors in calculating net revenues. EPA needs to ask this question because the severance tax factors can vary by production volumes or other considerations by state. EPA might need to create state-specific questions and ask several additional questions for operations in some states to obtain the same information represented by this one question. EPA believes this question may reduce the burden for some respondents.
	Requests any other taxes, such as ad valorem.	EPA will use this information in the net revenue calculation. These taxes can also vary considerably by a variety of factors. Respondents have a choice of providing a production share or a total dollar amount, whichever is easiest to report.
Reserves Information (Questions B3-48 to B3-54)		

Table 4-3. Detailed Description of Part B, Section 3

B3-1.	Requests the most recent remaining proved reserves estimate prepared for DOE or their own internal planning purposes, if relevant, prorated to the project, if possible.	EPA will use this information to estimate the life of the project and to assist in making projections (combined with the answers to Questions B3-55 through B3-75). Operators may have information on proved reserves at a project as part of their calculations of proved reserves for submission to DOE in their annual survey (Form EIA-23L). Other operators may also calculate proved reserves for their own planning purposes for some projects. EPA will use this information directly in modeling the project if: 1) a project conforms to the field in which it operates, 2) the respondent can pro-rate field-level information to the project, or 3) the respondent can provide a project-specific estimate.
	Requests the wellhead price used for proved reserves estimate.	Proved reserves are those that are believed by the operator to be technically and economically recoverable. To determine if the reserves are economically recoverable, the operator must assume a price of gas and, most likely, a discount rate. EPA will use the responses to these questions to determine alternative proved reserves using other prices and discount rates. EPA can also compare these results with the CBM model results to ensure the model is well calibrated.
	Requests the discount rate used for proved reserve estimate.	
	Requests the remaining technically recoverable reserves.	EPA will use this information, if available, to restrict the model so that no production is assumed beyond this amount, regardless of economics.
	Requests the projected remaining life of the project.	EPA will compare this information to the CBM model estimates to calibrate the model for that project.
	Requests cumulative gas production at 2007 year end.	EPA will use this information in estimating year-by-year production projections (combined with the answers to Questions B3-55 through B3-75) to help with production projections.
	Requests cumulative produced water production at 2007 year end.	EPA will use this information in estimating year-by-year production projections (combined with the answers to Questions B3-55 through B3-75) to help with production projections.
Future Costs and Revenues—Project-Specific (Questions B3-55 to B3-75)		
	Asks respondent to check off which method they prefer to use for answering questions about projections of costs and production.	EPA will use this information to check that the respondent skipped appropriate questions.

Table 4-3. Detailed Description of Part B, Section 3

	Requests trend-related information pertaining to drilling cost projections using multiple check off questions with specific request for percentage change information, if relevant.	EPA will use the responses to Questions B3-56 through B3-63 to perform projections similar to those requested in Table B-4, if the operator chooses not to make those projections. Because the CBM model is a year-by-year cash flow model, projected revenues and costs are required for every year in which the project is estimated to operate. Assumptions about production decline rates, cost trends, etc. are more accurate when the operators have input to these assumptions. All of the information requested in Questions B3-56 through B3-64 are key inputs for calculating operating earnings. EPA will use these projected operating earnings to determine likely to shut-in decisions and for calculating overall net present value of projects.
	Requests trend related information pertaining to gas production projections using multiple check off questions with specific request for percentage change information, if relevant.	
	Requests trend related information pertaining to produced water production projections using multiple check off questions with specific request for percentage change information, if relevant.	
	Requests trend related information pertaining to wellhead price projections using multiple check off questions with specific request for percentage change information, if relevant.	
	Requests trend related information pertaining to fixed operating cost projections for gas production using multiple check off questions with specific request for percentage change information, if relevant.	
	Requests trend related information pertaining to variable operating cost projections for gas production using multiple check off questions with specific request for percentage change information, if relevant.	
	Requests trend related information pertaining to fixed operating cost projections for produced water management using multiple check off questions with specific request for percentage change information, if relevant.	
	Requests trend related information pertaining to variable operating costs for water management projections using multiple check off questions with specific request for percentage change information, if relevant.	

Table 4-3. Detailed Description of Part B, Section 3

Table B-4 Projections of Costs and Production over 10 Years (Questions B3-64 to B3-75)		EPA will use the responses to these questions to model the costs, revenues and production of gas and produced water over the analytical time frame. The use of respondent-generated responses is expected to be the most accurate means of projecting costs and production, since the respondent considers each year separately and can assign any unusual expenses to the year in which the respondent believes they are likelier to be incurred. The more years of data the respondent can provide, the more accurate EPA's projections.
Drilling and Major Expenditure Schedule (Questions B3-64 to B3-68)		
	Requests estimated number of wells drilled in the year they are expected to be drilled.	EPA will use the responses to these questions to model cash outflows that are not a part of operating and maintenance costs in the year in which they are expected to be incurred. This approach will lead to a more accurate cash flow projection. EPA will also use the information to construct projections for new projects and to help with making projections for projects for which Table 4 is not completed.
	Requests estimated drilling costs in year they are expected to be incurred.	
	Requests estimated number of workovers, stimulations and recompletions in the year they are expected to be done.	
	Requests estimated workover costs in year they are expected to be incurred.	
	Requests estimated major capital expenditures in year they are expected to be incurred.	
Production Schedule (Questions B3-69 to B3-73)		
	Requests year-by-year gas production projections.	EPA will use the information in the responses to these questions to model the year-by-year revenue streams over the life of the project. These questions allows respondents to provide changes in production year by year. These changes can include gas and water increases that might occur in years in which new wells are added. They can also include gas and water production declines in older wells. EPA will also use the information to construct projections for new projects and to help with making projections for projects for which Table B-4 is not completed.
	Requests year-by-year produced water production projections.	
	Requests expected average wellhead price by year.	EPA will use this information to project wellhead prices for the project over the time frame of the analysis. EPA will also use the information to construct projections for new projects and to help with making projections for projects for which Table B-4 is not completed.
	Requests year-by-year severance and other production taxes.	EPA will use this information to project net revenues for the project over the time frame of the analysis. EPA is requesting this information because these taxes can vary according to production volumes or other considerations. EPA will also use the information to construct projections for new projects and to help with making projections for projects for which Table B-4 is not completed.

Table 4-3. Detailed Description of Part B, Section 3

	Requests the inflation rate used in projecting wellhead prices in Questions B3-71 and Questions B3-64 through B3-68 in Table B-4.	EPA uses real dollars in the CBM model and, therefore, must adjust wellhead prices and costs if the respondent used an inflation rate to create the projections of wellhead prices and expenditures.
Operating Cost Schedule (Questions B3-74 and B3-75)		
	Requests total fixed operating costs for gas and produced water.	EPA will use the information in the responses to these questions to model the year-by-year operating cost streams over the life of the project. These questions allow respondents to report changes in costs year by year. These changes can include increased variable costs when new wells are added to production, or declines in variable costs as production declines in older wells. Produced water management costs and gas production costs are split out to allow EPA to compare current produced water management operating costs to option costs. EPA will also use the information to construct projections for new projects and to help with making projections for projects for which Table B-4 is not completed.
	Requests total variable operating costs for gas and produced water.	
	Comments section.	Space is provided for additional explanations of any response in Part B and/or descriptions of estimation methods.

(c) *Part C: CBM Produced Water Management Information*

Part C collects detailed technical data and is divided into four sections:

- Section 1 requests general information about the operator;
- Section 2 requests information on produced water generation, management, and treatment;
- Section 3 requests detailed information on the individual components of the produced water management system; and
- Section 4 requests information on produced water quality.

(i) Section 1: General Operator Information

Section 1 requests contact information for the technical portion of the questionnaire. EPA needs contact information to know who should be contacted to verify or clarify the technical questionnaire information. This contact may be different from the contact specified in the economic and financial portions of the questionnaire.

(ii) Section 2: Produced Water Management System General Questions

Table 4-4 provides a summary of the questions in this section and the purpose of each question.

Table 4-4. Detailed Description of Part C, Section 2

Question Number	Question Description	Purpose of Question
	Requests a general block diagram that shows the produced water management system. The diagram should show the path of produced water from the wells to the final destination (discharge, disposal, or reuse). An example diagram is provided to illustrate the level of detail required. A checklist is provided to ensure all requested items are included in the diagram. The respondents are not required to develop a new diagram if an existing diagram has all required information. The respondents can also hand mark an existing diagram or submit a hand-drawn diagram.	EPA needs a block diagram to understand how the operator manages the produced water. The diagram will be used in later questions to help the operator understand how to complete the questionnaire. The diagram will also aid EPA questionnaire reviewers in understanding the questionnaire responses and verifying that the questionnaire has been completed properly.
	Requests the year the produced water management system began operating and the number of days per year the system operates.	EPA needs this information to help evaluate costs for the industry for a consistent year and operating schedule. EPA will use cost indices to update costs to a base year of 2007.
	Requests lists of individual wells producing water treated by the produced water management system along with the well location, date water production began, and 2007 water production.	EPA needs information on the wells that are linked to each produced water management system to assign incremental management costs to the CBM projects for which financial information is required in Part B. EPA needs water volumes to evaluate the total cost of treatment per barrel of water. EPA will use this information to develop costs for the entire CBM industry.
	Requests information on how the management option was selected, who is responsible for the management of the produced water, and any costs associated with the management of produced water by a third-party or contractor.	This question will help EPA determine the factors that affect the method in which produced water is managed and the party responsible for the produced water management. If the operator uses a third-party or contractor to manage the produced water, EPA is requesting cost information to understand the costs associated with produced water management and the parties that could incur incremental costs for various control options.
	Requests information on transporting the produced water from the well to the final destination including engineering methods used for transportation (e.g., piping, pumps, trucking) and capital and operating and maintenance costs.	Transporting produced water may be a significant portion of an operator's produced water management costs. EPA needs this information to estimate baseline transportation costs and to understand how various management and treatment options will change transportation costs. This question requests information for all methods and equipment used to transport produced water (e.g., piping, pumps, trucking).
	Requests the total capital cost for the produced water management system. A checkbox is provide for cases where an operator may have purchased an existing management or treatment system and therefore does not have the cost information. This question also requests the year the capital cost was incurrent and an indication of the components of the capital cost.	This question provides EPA the overall capital cost which will be used to estimate baseline and incremental costs. EPA will use these costs to evaluate the economic achievability of various produced water management options.

Table 4-4. Detailed Description of Part C, Section 2

	Requests the total operating and maintenance costs for 2007 for the produced water management system and the components of the operating and maintenance costs.	This question provides EPA the overall operating and maintenance costs which will be used to estimate baseline and incremental costs. EPA will use these costs to evaluate the economic achievability of various produced water management options.
	Yes/No question asking whether any monitoring or other studies have been performed to assess the environmental impacts of produced water for this produced water management system.	These questions will be used by EPA environmental assessment staff to identify available information that may be used to review potential environmental impacts of CBM produced water.
	Requests title and date of any studies performed.	

(iii) Section 3: Detailed Produced Water Management and Treatment Questions

This series of questions requests information on each component in the produced water management system (e.g., surface discharge, land application, treatment). These questions will help EPA determine which management options are currently being used in each CBM basin and the differences between systems. These questions also provide information on the design components in each system. EPA will use this information along with the total capital and operating and maintenance costs provided in Part C Section 2 to develop baseline costs for managing produced water, determine the affordability of any alternative management options, and evaluate produced water management costs for new sources. Table 4-5 provides a summary of the questions in this section and the purpose of each question. Tables C3-1 and C3-2 in the questionnaire provide a skip pattern for completing the questions in this section.

Table 4-5. Detailed Description of Part C, Section 3

Detailed Produced Water Management and Treatment Questions		
General		
	Surface Water Discharge	
a.	General Information on Surface Water Discharge Permit – Requests NPDES permit number, permit type, expiration date, and monitoring information.	EPA will use this information to locate additional information from states and Regions and develop a profile of how existing surface discharges are permitted.
b.	General Information on Outfalls Included in Permit – Requests information about each outfall including location, receiving water, treatment, and flowrates.	EPA will use this information to develop a profile of existing discharges
c.	Surface Discharge Design Components	EPA will use this information to evaluate the type of equipment typically used for surface discharge and to compute incremental costs for alternate management options.
d.	Discharge Monitoring Reports (DMR)	EPA will use these data to identify pollutants of concern by state and basin; calculate current discharge loads in pounds per year using flow information provided; and calculate pollutant reductions for the alternate management options.
	Land Application	

Table 4-5. Detailed Description of Part C, Section 3

a.	General Information on Land Application/Irrigation - Requests information on discharge permit, type of land application, responsible party, and produced water volume and application frequency.	EPA will use this information to develop a profile of current land application/irrigation techniques and potentially gather additional information from permit agencies.
b.	Land Application/Irrigation Design Components	EPA will use this information to estimate the costs of produced water management options and account for current treatment-in-place when evaluating the costs of alternate management options.
	Underground Injection	
a.	General Information on Underground Injection - Requests information on underground injection control (UIC) permit, injection formation, injection well, and volume of produced injected.	EPA will use this information to determine where underground injection is currently used and potentially gather additional information from permit agencies.
b.	Underground Injection Design Components	EPA will use this information to estimate the costs of produced water management options and account for current treatment-in-place when evaluating the costs of alternate management options.
	Surface Impoundments/Sedimentation Ponds	
a.	General Information on Surface Impoundment/ Sedimentation Ponds – Requests information on type of impoundment, volumes of produced water, sludge removal, and pollutant reductions.	EPA will use this information to develop a profile of produced water management techniques, evaluate the pollutants removed in these systems, and evaluate non-water quality impacts associated with sludge disposal.
b.	Surface Impoundment/Sedimentation Pond Design Components	EPA will use this information to estimate the costs of produced water management options and account for current treatment-in-place when evaluating the costs of alternate management options.
	Livestock or Widlife Watering	
a.	General Information on Livestock Watering – Requests information on volume of produced water used for livestock watering and the number of livestock receiving produced water.	EPA will use this information to develop a profile of produced water management techniques.
b.	Livestock Watering Design Components	EPA will use this information to estimate the costs of produced water management options and account for current treatment-in-place when evaluating the costs of alternate management options.
	Ion Exchange	
a.	General Information on Ion Exchange – Requests information on vendor, design capacity, regeneration, and components of the system.	EPA will use this information to develop a profile of produced water management techniques, evaluate the pollutants removed in these systems, and evaluate non-water quality impacts associated with waste stream and resin disposal.
b.	Ion Exchange Design Components	EPA will use this information to estimate the costs of produced water management options and account for current treatment-in-place when evaluating the costs of alternate management options.
	Low-Pressure Filtration	

Table 4-5. Detailed Description of Part C, Section 3

a.	General Information on Low-Pressure Filtration– Requests information on vendor, design capacity, regeneration, and components of the system.	EPA will use this information to develop a profile of produced water management techniques, evaluate the pollutants removed in these systems, and evaluate non-water quality impacts associated with waste stream disposal.
b.	Low-Pressure Filtration Design Components	EPA will use this information to estimate the costs of produced water management options and account for current treatment-in-place when evaluating the costs of alternate management options.
	High-Pressure Filtration	
a.	General Information on High-Pressure Filtration– Requests information on vendor, design capacity, regeneration, and components of the system.	EPA will use this information to develop a profile of produced water management techniques, evaluate the pollutants removed in these systems, and evaluate non-water quality impacts associated with waste stream disposal.
b.	High-Pressure Filtration Design Components	EPA will use this information to estimate the costs of produced water management options and account for current treatment-in-place when evaluating the costs of alternate management options.
	Treatment Not Specified Elsewhere	
a.	General Information for Treatment Not Specified Elsewhere– Requests information on vendor, design capacity, regeneration, and components of the system.	EPA will use this information to develop a profile of produced water management techniques, evaluate the pollutants removed in these systems, and evaluate non-water quality impacts associated with waste stream disposal.
b.	Treatment Not Specified Elsewhere Design Components	EPA will use this information to estimate the costs of produced water management options and account for current treatment-in-place when evaluating the costs of alternate management options.

(iv) Section 4: Produced Water Quality Data

Section 4 requests existing CBM produced water quality data at gathering locations such as treatment units or discharge locations. All information collected will aid EPA in determining CBM produced water characteristics by basin; identifying pollutants; calculating baseline pollutant loadings; and estimating the effectiveness of treatment technologies in removing pollutants of concern. The question asks respondents to complete a table with analytical data for 2007 for any monitoring performed in their produced water management system. The monitoring locations should be shown on the diagram in Question C2-1 which will help EPA link the data to a specific location. Note that respondents may provide this data electronically or can attach existing hardcopy reports.

Section 4 also requests information on whole effluent toxicity (WET) testing performed by the operator which will be used to identify any environmental impacts of CBM produced water.

Question C4-3 provides space for additional explanations of any response in Part C and/ or descriptions of estimation methods.

(ii) Respondents Activities

Each respondent will receive a transmittal letter with attachments citing EPA's authority under Section 308 of the Clean Water Act to collect this information, the ability of the respondent to make a claim of business confidentiality, and EPA's process for gathering, safeguarding, and securing confidential business information (CBI). Each respondent will also receive Parts A, B, and C of the questionnaire. Respondents must read the General Instructions section in the beginning of the questionnaire and the instructions preceding Parts A, B, and C. The General Instructions describes the purpose and use of the questionnaire, help-line information, how to return the questionnaire, and provisions regarding data confidentiality. The separate sets of instructions preceding Parts B and C of the questionnaire give the respondents guidance on completing the responses in each part.

The questionnaire respondents must read and understand the questionnaire, plan response activities, gather information, compile and review information, and complete the questionnaire form. The respondents should retain the completed questionnaire for up to one year in the event that EPA has to contact the facility for clarification of any response. There will be no need for the respondents to maintain any new records because this is a one-time information collection effort.

5. THE INFORMATION COLLECTED - AGENCY ACTIVITIES, COLLECTION METHODOLOGY, AND INFORMATION

5.a) Agency Activities

The Agency has conducted, is conducting, or will conduct the following activities to administer the CBM questionnaire:

- Develop the questionnaire;
- Provide the questionnaire for review by trade associations, industry representatives, public interest groups, state regulating agencies, EPA workgroup, OMB, and other stakeholders;
- Develop the ICR;
- Revise the questionnaire based on comments from trade associations, industry representatives, public interest groups, state regulating agencies, EPA workgroup members, OMB, and other stakeholders;
- Work with state data and industry to identify appropriate contacts and develop a mailing list database and mailing labels;
- Develop a tracking system for questionnaire mail-out, receipt, and return activities;
- Distribute questionnaires;
- Develop and maintain help lines for respondents who require assistance in completing their questionnaire;
- Conduct meeting and teleconferences with questionnaire respondents to assist in the completion of the survey;
- Develop an electronic questionnaire and supporting database for questionnaire responses;
- Receive and review questionnaire responses;
- Summarize and analyze questionnaire responses; and
- Conduct economic and technical analyses to identify available and affordable technology options for CBM produced water.

The Agency will transfer data received from the questionnaire forms to a master database for future use if the Agency decides to initiate an effluent guidelines rulemaking.

5.b) Collection Methodology and Management

Each selected operator will receive a questionnaire with an assigned operator identification number. Each operator can complete the questionnaire by legibly handwriting or typing the responses in the spaces provided, or they may use the electronic version. The questionnaire will be sent via Federal Express or comparable carrier to ensure that a point of contact (the facility contact person) receives and signs for the questionnaire package. Each facility will be allowed 60 calendar days to return the completed questionnaire.

EPA will include an e-mail address and phone number in the instructions that respondents can use to request assistance in completing the questionnaire. Using these assistance methods enables the respondents to receive a timely response to any inquiries that they may have. E-mail and telephone communication will also reduce any misinterpretations of the questionnaire and thus decrease the burden of follow-up phone calls and letters to the respondents. Finally, EPA will conduct a series of teleconferences and interactive forums (e.g., meetings, webcasts) to help respondents complete the questionnaire.

Each page of the questionnaire will have a unique operator identification number for ease of tracking. The operator identification number will be used to track the mailing date of the questionnaire, questionnaire receipt date, follow-up letters and telephone calls to respondents, and EPA's receipt of the completed questionnaire. EPA will also use the identification number as an identification code in the questionnaire database. The Agency will make follow-up calls as needed to clarify inconsistencies in operator responses, and to remind non-respondents of their requirement to complete and return the questionnaire.

Upon receipt of completed questionnaires, EPA will review the questionnaires for completeness and internal consistency and enter the responses into a database. This database will then be used to perform data analysis.

5.c) Small Entity Flexibility

Preliminary investigations indicate that up to 65 percent of the CBM operators in some basins either meet the Small Business Administration's (SBA's) definition of a small business or cannot be identified as large because their employment or revenue figures are not known. EPA has taken several steps to minimize the burden of responding to the questionnaire for all respondents, including small businesses. The questions are phrased with commonly used terminology. Tables are organized with formats familiar to financial officers in the respondents' industry. Questions requesting similar types of information are arranged together to facilitate review of pertinent records and completion of the questionnaire. EPA will be providing a helpline to answer questions respondents might have when completing the questionnaire.

5.d) Collection Schedule

Based on a maximum of 30 days for OMB review, the schedule for the questionnaire distribution, response receipt, and data collection activities following OMB approval is as follows:

Action	Approximate Number of Calendar Days After OMB Approval
Draw industry sample and conduct meetings and teleconferences for respondents	15
Mail questionnaire	30
Receive questionnaire responses	90
Complete questionnaire review follow-up	180
Complete data entry of response data in database and data verification	210
Analyze questionnaire responses	211-365

6. ESTIMATING THE BURDEN AND COST OF THE COLLECTION

6.a) Estimating Respondent Burden

The EPA burden estimate is based on the number of entities receiving the questionnaire. To reduce the survey burden, EPA intends to select a statistical random sample of entities within the CBM industry. The resulting sample will minimize both the burden to respondents in completing the questionnaire and to the Agency in managing and effectively utilizing the data and information supplied by respondents.

EPA is soliciting comments on its assumptions for the burden estimate and its approach to selecting entities for the survey. EPA is primarily interested in collecting information from "projects" but has used state data on CBM wells for developing the burden estimates. For purposes of the data collection, EPA is defining a CBM project to be comprised of a well, group of wells, lease, group of leases, or recognized unit operated as an economic unit when making production decisions. (EPA recognizes that industry has multiple definitions for the term "project.") One reason that EPA is most interested in economic and technical data at the project-level, in addition to well-specific data, is because EPA has observed that most projects handle the produced water in a single water management system. EPA also is interested in information about the operator of each project. The operator is the firm or division (if a profit center) that is responsible for management and the day-to-day operation of a project. This operator is generally a working-interest owner or a company under contract to the working interest owner(s). The working-interest owner bears the costs of exploration, development, and operation of the property and, in return, is entitled to a share of the mineral production from the property or to a share of the proceeds there from.

Although EPA's primary interest is about projects and operators, this notice assumes that wells are the "entities" because complete lists of wells are readily available. Complete lists are essential in statistically selecting random samples of populations. EPA considers its current list of wells to be relatively complete. It has used licensed database information on historic well production from HPDI, Inc. HPDI, Inc. compiles information from nearly all of the oil and gas producing states and provides detailed data in a consistent format to clients accessed through a web-based query system. This information includes well identification information (such as API number, lease name and number, well name and number, operator name, location, basin designation, field, and reservoir/producing formation), historic production information (including summary information on first production, last production, cumulative production, and last 12 months production as well as detailed information on year-by-year production), status information (active/inactive), and operator contact information (where available). EPA has supplemented this information with information publicly available from states. From these sources, EPA estimates that approximately 400 operators maintain over 43,000 wells that were active CBM producers in the U.S. as of mid-2007.

In estimating the burden, EPA has assumed that each operator would answer certain questions only once, regardless of the number of its wells in the sample. For purposes of estimating the burden, EPA also assumed that each well is equivalent to a single project;

however, operators will only be required to respond to the project-level questions once per project, regardless of the number of wells selected from the project. EPA's burden estimate assumes that the statistical selection of the wells will result in approximately 400 operators to be selected. EPA further estimates that the operators will be required to provide information for approximately 2,000 projects.

For the purpose of estimating the burden of completing the questionnaire, EPA divided the respondents into groups based on the estimated number of economic projects and produced water management systems they will need to provide responses for. This section provides details about EPA's burden calculation.

(i) Respondent Burden

EPA assigned burden estimates for all sections of the questionnaire, as shown in Table 61 below. EPA identified labor categories associated with all respondent activities necessary to complete the questionnaire: operator/environmental engineer, junior accountant, clerical support, engineering manager, financial manager, and legal. The Agency estimated the required response time for each labor category per section.

Table 6-1. Respondent Hours Burden per Section of Questionnaire

Respondent Activity	Hours by Job Category						
	Operator/ Environmental Engineer	Junior Accountant	Clerical Support	Engineering Manager	Financial Manager	Legal	Total Burden per Activity (Hours)
Introduction (time per operator)							
Read Instructions	1	1	0	1	1	1	5
Part A (time per operator)							
Read Instructions	0.25	0	0	0.25	0.25	0.25	1
Complete questions and sign certification	0	0	0	1	0	0	1
Total for Part A	0.25	0	0	1.25	0.25	0.25	2
Part B, Section 1 (time per operator)							
Read instructions	0	0	0	0.25	0.25	0	0.5
Complete questions	0	0	0.5	0.25	0.25	0	1
Total for Section Part B, Section 1	0	0	0.5	0.5	0.5	1	1.5
Part B, Section 2 (time per operator)							
Read instructions	0	0.5	0	0.25	0.5	0.5	1.75
Complete questions	0	4	0	0.25	2	3	9.25
Total for Part B, Section 2	0	4.5	0	0.5	2.5	3.5	11
Part B Section 3							
Read instructions	0	0	0	0.5	0	0	0.5
Part B, Section 3 (time per economic project)							
Complete general project questions	1	0	0.5	0	0	0.25	1.75
Complete project history questions	2	0	0.5	0.5	0	0.5	3.5

Table 6-1. Respondent Hours Burden per Section of Questionnaire

Complete 2007 operations questions	3	0	0.5	0.5	0	0.5	4.5
Complete future cost questions	1	0	0.5	1	0	0.5	3
Total for Part B, Section 3	7	0	2	2.5	0	1.75	13.25
Part C							
Read instructions	1	0	0	1	0	1	3
Part C (time per produced water management system)							
Provide contact information	0	0	0	0.25	0	0	0.25
Generate/reproduce block diagram	2	0	0.5	0.25	0	0.5	3.25
Complete general produced water management system questions	2	0	0.5	1	0	0.5	4
Complete detailed questions	2	0	0.5	1	0	0.5	4
Provide produced water quality data	2	0	1	1	0	0.5	4.5
Total for Part C	9	0	2.5	4.5	0	3	19

Because operators may have multiple economic projects or produced water management systems which will require separate survey responses, EPA estimated the burden for three groups of operators. Table 6-2 shows the operator groupings and EPA's assumptions for how many economic projects and produced water management systems they operate.

Table 6-2. Questionnaire Types

Operator Group	Number of Operators	Number of Wells Identified by EPA for Each Respondent	Estimated Number of Economic Projects (Copies of Part B, Section 3)	Estimated Number of Produced Water Management Systems (Copies of Part C)
1	100	10	10	10
2	100	6	6	6
3	200	2	2	2

(ii) Total Estimated Respondent Burden

EPA calculated the total estimated respondent burden using the estimated response time per section shown in Table 6-1 and the operating groupings shown in Table 6-2 to calculate a total respondent burden of 65,100 hours.

6.b) Estimating Respondent Costs

(i) Estimating Labor Costs

The direct labor cost to respondents to complete the questionnaire equals the time required to read and understand the questionnaire, gather the information, compile and review the information, and complete the questionnaire form. Non-labor costs each respondent will

incur include photocopying and postage and are discussed in Section 6(b)(iii). Labor costs will comprise the majority of the financial burden imposed on the industry.

Table 6-3 presents earnings data from the Bureau of Labor Statistics, National Occupational Employment and Wage Estimates for the oil and gas extraction industry for 2006 (latest year for which data are available).

Table 6-3. 2006 Labor Rate Data

Job Category	Operator/ Environmental Engineer	Junior Accountant	Clerical Support	Engineering Manager	Financial Manager	Legal
Median Hourly Earnings (base year 2006)	$38.69	$27.50	$15.46	$59.33	$51.07	$64.79

EPA calculated the estimated respondent burden using the estimated response time per section shown in Table 6-1, the operating groupings shown in Table 6-2, and the labor rates shown in Table 6-3 to calculate a total cost of $2,815,000.

(ii) Estimating Capital and Operations and Maintenance (O&M) Costs

Because EPA will not require questionnaire respondents to purchase any goods, including equipment or machinery, to respond to the questionnaire, the Agency does not expect capital costs to result from the administration of this data collection questionnaire. Operation and maintenance costs include only photocopying and postage for the completed questionnaires.

(iii) Capital/Start-up Operating and Maintenance Costs

EPA estimates there will be no capital or start up costs associated with responding to the questionnaire. Operating and maintenance costs include only photocopying and postage. EPA assumes the respondents will incur a photocopying rate of $0.10 per page and that they will return the completed questionnaire via Federal Express or a comparable delivery carrier that requires a signature to acknowledge receipt.

EPA estimates a cost of $50 per operator to photocopy 500 pages of the questionnaire.

EPA estimates the Federal Express Saver rate at an average of $10 for a 1-lb package to return the questionnaire.

(iv) Annualizing Capital Costs

EPA estimates that there will be no capital costs associated with responding to the questionnaire.

6.c) Estimating Agency Burden and Costs

Table 6-4 presents an estimate of the burden and labor costs that EPA will incur to administer the questionnaire. The table identifies the collection administration tasks to be

performed by Agency employees and contractors, with the associated hours required for each grouping of related tasks. EPA determined Agency labor costs by multiplying Agency burden figures by the hourly Agency labor rate of $80. EPA determined contractor labor costs by multiplying contractor burden figures by an average contract labor rate of $80 per hour. This rate is consistent with current Agency contracts.

Table 6-4. Estimated Agency Burden and Labor Costs

Activities	Burden (hours)			Labor Cost		
	Agency	Contractor	Total Hours	Agency	Contractor	Total Cost
Develop the questionnaire instrument; meet with trade association representatives; publish notice of anticipated ICR in Federal Register.	1000	1500	2500	$80000	$120000	$200000
Respond to all comments received.	200	0	200	$16000	$0	$16000
Revise questionnaire instrument based on comments.	50	400	450	$4000	$32000	$36000
Design electronic distribution method, including associated database development.	100	400	500	$8000	$32000	$40000
Design and develop a mailing list database; develop a system to track mailing and receipt activities; mail questionnaire instruments.	0	100	100	$0	$8000	$8000
Develop and maintain helpline.	0	200	200	$0	$16000	$16000
Totals	**1350**	**2600**	**3950**	**$108000**	**$208000**	**$316000**

6.d) Estimating the Respondents Universe and Total Burden Costs

EPA expects to receive 400 completed questionnaires. EPA estimates a total burden of 65,100 hours and a total labor and O&M cost of $2,815,000 for all respondents.

6.e) Bottom Line Burden Hours and Costs

Tables 6-5 and 6-6 summarize the total costs that the CBM industry and the Agency will incur as a result of the information collection.

Table 6-5. Total Estimated Respondent Burden and Cost Summary

Number of Respondents	Total Burden (Hours)	Total Labor Cost	Total O&M Cost	Total Cost
400	65100	$2815000	$24000	$2839000

Table 6-6. Total Estimated Agency Burden and Cost Summary

Total Burden (Hours)	Total Labor Cost	Total O&M Cost	Total Cost
3950	$316000	-	$316000

6.f) Burden Statement

EPA estimates that the total burden to the 400 CBM operators for responding to the questionnaire will be approximately 65,100 hours, or $2,839,000 (including labor and O&M costs). EPA estimates that there will be no start-up or capital costs associated with completing and returning the questionnaire.

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 to collect, validate, and verify information, process and maintain information, and disclose and provide information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the 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. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondents burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID No. OW-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. 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 through the Federal Data Management System (FDMS) at http://www.regulations.gov. Use FDMS to view and submit 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. Once in the system, select “Advanced Search,” then key in the Docket ID number identified above. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, D.C. 20503, Attention: Desk Officer for EPA. Please include the EPA Docket ID No. (OW-HQ-OW-2006-0771) and OMB control number (XXXX-XXXX) in any correspondence.

7. References

BLS. 2006d. Bureau of Labor Statistics. Employer Costs for Employee Compensation—June 2006. Released September 22, 2006. http://www.bls.gov/news.release/archives/ecec_09222006.pdf accessed October 3, *2006.*