

TAYLOR, PORTER, BROOKS & PHILLIPS

—L.L.P.—

ATTORNEYS AT LAW

Founded 1912

POST OFFICE BOX 2471
BATON ROUGE, LOUISIANA 70821
8TH FLOOR BANK ONE CENTRE
451 FLORIDA STREET (70801)

TELEPHONE (225) 387-3221
FACSIMILE (225) 346-8049

www.taylorporter.com

WILLIAM SHELBY MCKENZIE
JOHN S. CAMPBELL, JR.
JOHN R. THARP
W. LUTHER WILSON
GERALD L. WALTER, JR.
J. CLAYTON JOHNSON
G. MICHAEL PHARIS
EUGENE R. GROVES
A. MICHAEL DUFILHO
W. ARTHUR ABERCROMBIE, JR.
FREDRICK R. TULLEY
VERNON P. MIDDLETON
JAMES LEEPER ELLIS
JOHN MICHAEL PARKER
NANCY C. DOUGHERTY
MARY E. THARP
JOHN ASHLEY MOORE
EDWIN W. FLESHMAN
VICKI M. CROCHET

HARRY J. PHILIPS, JR.
LLOYD J. LUNCEFORD
THOMAS R. PEAK
C. MICHAEL HART
JOHN F. McDERMOTT ^{1,2}
BRETT P. FURR
M. LENORE FEENEY
KATHLEEN C. MASON
MARC S. WHITFIELD ¹
JOHN H. RUNNELS ⁴
GREGORY E. BODIN
JAMES C. CARVER
MARGARET L. TOOKE
DEBORAH E. LAMB
T. MacDOUGALL WOMACK
DAVID M. BIENVENU, JR.
DAVID J. SHELBY II
ERICK Y. MIYAGI
ANNE J. CROCHET

ROBERT W. BARTON
PRESTON J. CASTILLE, JR.
JOHN STEWART THARP ⁶
JOHN S. CAMPBELL, III
JOHN P. MURRILL
BONNIE J. DAVIS ⁴
MARY L. DOUGHERTY ^{2,3}
ANDRÉE MATHERNE CULLENS
BRANDON K. BLACK
AMY GROVES LOWE
TIMOTHY J. FOCHÉ
MICHAEL A. CRAWFORD
JOHN B. NOLAND, JR.
PHILLIP E. FOCO
TODD S. MANUEL
JOHN ALLAIN VIATOR
TRACY AVERETT MORGANTI
ANDRÉ J. PORTER ^{4,5}
MICHELLE MARNEY HOWARD
JENNIFER M. SIGLER

RYAN N. OURS
ELISABETH QUINN ZELDEN
EDYTHE L. KOONCE
ERINN W. NEYREY
LESLIE E. AYRES ⁷
ALLISON R. HAYDEN
VALERIE E. LEGÉ
RUSSELL L. MOSELY
JASON M. DeCUIR
KATHLEEN G. TRASCHER

SPECIAL COUNSEL
H. EVANS SCOBEE

OF COUNSEL
TOM E. PHILLIPS
FRANK M. COATES, JR.
WILLIAM H. McCLENDON III
WILLIAM A. NORFOLK
ROBERT H. HODGES
JOHN L. GLOVER

¹ L.L.M. IN TAXATION
² BOARD CERTIFIED TAX SPECIALIST
³ BOARD CERTIFIED ESTATE SPECIALIST
⁴ REGISTERED PATENT ATTORNEY
⁵ L.L.M. IN INTELLECTUAL PROPERTY
⁶ LICENSED IN MISSISSIPPI
⁷ LICENSED IN TEXAS

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WRITER'S DIRECT DIAL NUMBER
(225) 381-0249

e-mail address: anne.crochet@taylorporter.com

Information Quality Guidelines Staff
United States Environmental Protection Agency
Mail Code 281 1R
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

RE: **Request for Correction** re Combined Quality Assurance Project Plan and General Work Plan:
Potential Ground-Water Flow Directions and Contaminant Fate and Transport in the Plaquemine
Aquifer of Iberville Parish and West Baton Rouge Parish, Louisiana.

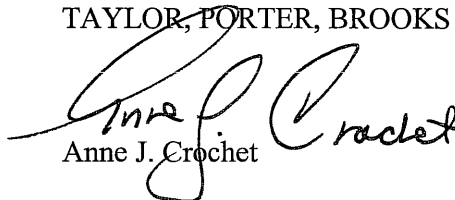
Dear Sir or Madam:

On behalf of our client, The Dow Chemical Company, we hereby submit for filing a Request for Correction in accordance with EPA's Information Quality Act Guidelines. We appreciate your consideration of this request and look forward to your response within the 90-day delay contemplated by EPA's guidelines. As stated in the attached petition, due to the magnitude of the errors and omissions related to the captioned computer modeling project, we respectfully suggest that the Project Manager be prohibited from disseminating the model and/or any outputs from the model until this Request for Correction has been carefully considered and acted on by EPA.

Thank you.

Sincerely,

TAYLOR, PORTER, BROOKS & PHILLIPS, L.L.P.



Anne J. Crochet

ENVIRONMENTAL PROTECTION AGENCY
INFORMATION QUALITY ACT GUIDELINES

REQUEST FOR CORRECTION

OF THE

COMBINED QUALITY ASSURANCE PROJECT PLAN AND GENERAL WORK PLAN:

POTENTIAL GROUND-WATER FLOW DIRECTIONS

AND CONTAMINANT FATE AND TRANSPORT

IN THE PLAQUEMINE AQUIFER

OF IBERVILLE PARISH AND WEST BATON ROUGE PARISH, LOUISIANA

Comes now, THE DOW CHEMICAL COMPANY (“Dow”) appearing before the UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (“EPA”) for the purpose of requesting that corrective action be taken regarding the Combined Quality Assurance Project Plan and General Work Plan, referenced above, as follows:

INTRODUCTION

1.

In section 515(a) of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554; H.R. 5658), Congress directed the Office of Management and Budget (OMB) to issue government-wide guidelines to provide policy and procedural guidance to federal agencies to ensure the quality, objectivity, utility, and integrity of information disseminated by them. In response, OMB developed Quality Guidelines (final form in Federal Register, Volume 2, No. 67 at 8452).

Under section 515(a), also referred to as the “Data Quality Act” or “Information Quality Act,” each agency to which the OMB guidelines apply was mandated to issue its own guidelines,

consistent with OMB's guidance, to establish administrative mechanisms allowing affected persons to seek and obtain correction of information maintained and disseminated by the agency in noncompliance with the guidelines, and to report to the Director of the agency the number and nature of complaints received regarding inaccuracy of information and how they were handled. Accordingly, EPA developed "Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency," (EPA's "Information Quality Act Guidelines," sometimes referred to herein as the "Guidelines").

2.

Under EPA's Information Quality Act Guidelines, all "information" disseminated to the public by EPA is subject to the following performance goals:

- a. Disseminated information should adhere to a basic standard of quality, including objectivity, utility, and integrity.
- b. The principles of information quality should be integrated into each step of EPA's development of information, including creation, collection, maintenance, and dissemination.
- c. Administrative mechanisms for correction should be flexible, appropriate to the nature and timeliness of the disseminated information, and incorporated into EPA's information resources and management and administrative practices.

(Guidelines, § 1.)

3.

"Information," as defined by the Guidelines, "includes any communication or representation of knowledge such as facts or data, in any medium or form." Preliminary information EPA disseminates to the public also is considered "information" for purposes of the Guidelines. (Guidelines, § 5.3.)

4.

Information is “disseminated” when EPA “initiates or sponsors the distribution of information to the public.” (Guidelines, § 5.3.)

5.

On August 15, 2003, EPA published the “Combined Quality Assurance Project Plan and General Work Plan: Potential Ground-water Flow Directions and Contaminant Fate and Transport in the Plaquemine Aquifer of Iberville Parish and West Baton Rouge Parish, Louisiana,” prepared by Scott Ellinger, Multimedia Planning and Permitting Division, EPA Region 6. The plan qualifies as “information” that has been “disseminated” to the public; thus, the Guidelines apply. For ease of reference, a copy of the “Combined Plan” is attached to this Request for Correction.

6.

Although the title of the plan suggests that it is both a quality assurance plan and a work plan, it contains very little information about an actual work plan to simulate the Plaquemine Aquifer. Therefore, Dow sometimes refers to the plan as the “Combined Plan,” but more often refers to that portion of the plan that is the Quality Assurance Project Plan or “QAPP.”

7.

The Guidelines recognize a higher standard of quality for “influential scientific, financial, or statistical information” that is disseminated to the general public. The higher standard applies in this case because the information to be disseminated is scientific: a vital component of the planned computer modeling project is the generation of environmental data. More significantly, the information is influential. “Influential” means that EPA “can reasonably determine that

dissemination of the information will have or does have a clear and substantial impact (i.e., potential change or effect) on important public policies or private sector decisions.” (Guidelines, § 6.2.) The subjects purported to be addressed by the Plaquemine Aquifer computer model as contemplated in the attached QAPP, *i.e.*, potential groundwater flow and contaminant fate and transport, are issues in major litigation. The alleged contamination of the geographically expansive aquifer is the subject of multiple lawsuits in state and federal court, two of which are purported class action suits with over 3000 potential plaintiffs and thousands more potential putative class members, involving claims for damages for alleged personal injury (including medical monitoring, loss of income, and loss of enjoyment of life), property value diminution, storage of hazardous substances, trespass, remediation and restoration of the aquifer, and punitive damages. (*See, Robichaux, et al. v. State of Louisiana through the Department of Health and Hospitals, et al.*, 18th Judicial District Court, Parish of Iberville, State of Louisiana, Suit No. 56,803-A; *Thomas, et al. vs. A. Wilbert & Sons, L.L.C., et al.*, 18th Judicial District Court, Parish of Iberville, State of Louisiana, Suit No. 55,127-B; and *Anderson, et al. v. The Dow Chemical Company*, United States District Court, Middle District of Louisiana, Civil Action 02-12-C-M1.) Additionally, the model potentially could be used by EPA and/or the Louisiana Department of Environmental Quality (“LDEQ”) in enforcement or other administrative actions.

A heightened standard of quality is required, also, because EPA mandates any party generating data from a model to implement procedures to ensure that the precision, accuracy, completeness, sensitivity, comparability, and representativeness of its data are known and documented. Further, under EPA Guidance for Quality Assurance Project Plans for Modeling (EPA QA/G-5M), the intended use of a model, which is indicative of the seriousness of potential

consequences or effects that might occur due to quality problems, determines the required level of quality assurance to be employed in developing the model. (EPA QA/G-5M, p. 4.) EPA QA/G-5M, Table 2 indicates that where model-generated information is the subject of litigation, the very highest level of quality assurance scrutiny should be employed to ensure the legal defensibility of the data sources.

8.

Each party generating data from a model must prepare a QAPP for each environmental data collection effort. The Project Manager, EPA Region 6 Multimedia Planning and Permitting Division, prepared the attached QAPP ostensibly to support the development of a ground-water model to represent a portion of the Plaquemine Aquifer in Iberville and West Baton Rouge parishes. The QAPP contains errors and omissions that cause it to be grossly incorrect and in noncompliance with the Office of Management and Budget (“OMB”) and EPA Information Quality Guidelines as discussed more specifically below.

EXPLANATION OF INFORMATION THAT DOES NOT COMPLY
WITH OMB/EPA INFORMATION QUALITY GUIDELINES

9.

Generally, the QAPP’s deficiencies include its generic versus specific nature and its lack of detail, which make it impossible for the public or any other reviewer to assess whether a model completed under it would meet the data quality objectives of the modeling effort as stated therein: to “provide quality, reliable data enabling MODFLOW, MODPATH and MT3D/RT3D computer codes to be employed to determine generalized net ground-water flow directions and contaminant fate and transport in the Plaquemine Aquifer” that can be used to assist “with

making observations and conclusions about short-term flow, long-term flow, and net flow within the flow system for the Plaquemine Aquifer,” to “help evaluate the effects of pumping wells (public, private, industrial, etc.) on ground-water flow;” and to “evaluate the likelihood of possible contaminant source locations, and whether multiple source locations are possible.” (QAPP, p. 18.) The evaluation of the “likelihood of possible contaminant source locations” is ambiguous and confusing. Further, no process for the evaluation of the “likelihood of possible contaminant source locations” is provided. Additionally, the QAPP abuses the term “data” by confusing data measurement and data analysis. The QAPP’s generic nature and lack of specificity will result in the development of an unreliable computer model.

10.

Although the title of the Combined Plan indicates that it is both a quality assurance plan and a work plan for modeling groundwater flow and contaminant fate and transport in the Plaquemine Aquifer, most of the text relates to general modeling projects. It does not include information specific to the Plaquemine project area nor does it address particular aspects of the Plaquemine system that could preclude the Project Manager from meeting the plan’s objectives. The Combined Plan should be amended to include information specific to the Plaquemine Aquifer and surrounding project area.

11.

Further, the modeling objectives stated in the Combined Plan are vague, unclear, and/or inappropriate. (QAPP, p. 14.) For example, the first objective refers to “potential” directions of ground-water flow. The Project Manager erred in not clearly stating whether flow directions are potential because they may occur in the future, or whether flow directions are potential due to the

uncertainty of distribution of sources and sinks and hydraulic properties. The second objective is in error because it suggests that the model, once developed, will lead to an understanding of the interaction between the Mississippi River and ground-water flow system. In fact, in order to develop a reliable model, the modeler must understand the interaction between these two entities before developing the model.

12.

The project schedule set forth in the QAPP suggests that the drafters have grossly underestimated the time that should be devoted to quality assurance activities. (QAPP, p. 17.) The QAPP does not address whether the model will be subjected to outside peer review, *i.e.*, peer review that is external to EPA, or at what points in the development of the model peer review will take place. Other offices within EPA do not constitute external peer review. LDEQ, for which EPA is providing consultation and advice, is not an external peer.

13.

The QAPP does not describe the conceptual model, the specification of boundaries, the identification of the conditions that will be selected or that will prevail along such boundaries, how calibration will be tested, or how available data will be incorporated or rejected from the calibration effort, all of which are of tantamount importance to a reliable modeling effort.

14.

Section A6 (Project/Task Description and Schedule) of the QAPP fails to meet the standards of EPA QA/G-5M because it address neither how the conceptual model of the site will be developed nor how the data will be acquired for model development, calibration and testing. (EPA QA/G-5M, § 4.1.6, p. 32.) In the case of this proposed model of the Plaquemine Aquifer,

it is critically important for EPA modelers to state with specificity where they intend to acquire the data for calibration as representatives of EPA have indicated in a preliminary meeting with Dow that they question the integrity of water level measurements collected by Dow (a suggestion Dow strongly denies). No other entity is known to have measured groundwater elevations in the area that is the subject of the proposed model. If EPA modelers plan to use measurements other than those made by Dow, the QAPP needs to identify the sources of data so that they may be scrutinized.

15.

Section A7 (Quality Objectives and Criteria for Model Inputs/Outputs) of the QAPP is deficient, also, as it fails to define the statistical criteria (*e.g.*, limits on decision error) to be used in the model-building process, the desired limits placed on the probability of making a certain type of decision error due to uncertainty, or to state how the parameter, input, calibration and test data necessary for this project will be acquired and evaluated for use in the model's development. To ensure the integrity of the model, the QAPP should define these criteria and limits and should state how data will be acquired and evaluated.

16.

EPA Guidance for Section B7 states that a QAPP should include “[a]n overview of each model or model component requiring calibration . . . along with the various components of the calibration procedure . . .” Additionally, a QAPP should include “[d]etails on specific methods to be used to perform the calibration, for each portion of the model and at each stage of the procedure” as well as “[t]he resources necessary to conduct the model calibration.” (EPA QA/G-5M, § 4.2.1, p. 43.) The QAPP for the Plaquemine Aquifer modeling project contains none of

this information. Its lack of detail with respect to calibration is particularly problematic due to the nature of groundwater level fluctuations and gradients at the Plaquemine site where groundwater elevations are controlled by elevations of the Mississippi River, which vary significantly in a typical year. Reliance upon a plot of observed versus measured groundwater elevations, a commonly used approach to demonstrate calibration of models that works well where seasonal water level fluctuations are small, would likely result in an error of magnitude so great as to strongly distort the direction of groundwater flow in a model of the Plaquemine Aquifer.

By contrast, another approach to demonstrate calibration of a model in an environment such as that found in the Plaquemine Aquifer adjacent to the Mississippi River is a plot of residuals (the difference between measured and modeled groundwater elevation) in map view, which would show whether a bias exists in the residuals to distort the direction of groundwater flow. Also, hydrographs of residuals to demonstrate no temporal bias can be useful tools. However, the QAPP is silent as to the choices among calibration tools and the applicability of each approach to the specific modeling project proposed, although EPA Guidelines require such a discussion in the plan.

17.

The EPA Guidelines state that Section B9 (Non-direct Measurements) of the QAPP should address “the expected sources of . . . data,” “the method of determining the underlying quality of the data,” and “the criteria established for determining whether the level of quality for a given set of data is acceptable for use on the project.” (EPA QA/G-5M, § 4.2.2, pp. 45-46.) The QAPP for the Plaquemine model addresses none of these issues. This is of particular

concern for this model because EPA has already questioned the utility of water level measurements collected by Dow. Unless EPA provides the specific criteria for determining the quality of data, the modeler will be free to compromise the integrity of the model by rejecting data that do not fit the model's premise while selectively accepting data supporting its premise. This approach combined with the dangers of an unspecified calibration approach, renders the modeling approach suspect and unacceptable.

18.

Section B10 (Data Management and Hardware/Software Configuration) of the QAPP indicates possible data processing programs to be used in connection with the modeling project are Visual Modflow and/or Ground-water Modeling System. Both are proprietary software products that may differ from the versions published by the United States Geological Survey. All of the differences should be subjected to a high level of scrutiny including outside peer review. Further, the modeling program should be able to run on the official USGS version of MODFLOW, not just on the proprietary version.

RECOMMENDATIONS FOR CORRECTIVE ACTION

19.

Dow recommends that corrective action be taken as suggested above. Specifically, the Project Manager should be required to amend the QAPP to provide for outside peer review, external to EPA.

20.

The Project Manager should be required to amend the QAPP to address how the conceptual model of the site will be developed, how boundaries will be specified, the

identification of conditions that will be selected or will prevail along those boundaries, and how actual, measured data will be acquired for model development, calibration and testing.

21.

The Project Manager should be required to amend the QAPP to define the statistical criteria to be used in the model-building process; to define the desired limits placed on the probability of making a certain type of decision error due to uncertainty; and to state how the parameter, input, calibration and test data necessary for this project will be acquired and evaluated for use in the model's development.

22.

The Project Manager should be required to amend the QAPP to include an overview of each model or model component requiring calibration along with the various components of the calibration procedure. Additionally, the Project Manager should include details about the specific methods to be used to perform the calibration for each portion of the model and at each stage of the procedure, and identify the resources necessary to conduct the model calibration.

23.

The Project Manager should be required to amend the QAPP to address the expected sources of data, the method of determining the underlying quality of data, and the criteria established for determining whether the level of quality for a given set of data is acceptable for use on the project.

24.

The Project Manager should be required to amend the QAPP to provide more specific information about the modeling and data processing programs to be employed, and if there are

differences between those programs and the software published by the USGS, then the Project Manager should be required to subject those differences to outside peer review.

25.

Finally, due to the magnitude of the errors and omissions related to this proposed modeling project, the Project Manager should be prohibited from disseminating the model and/or any outputs from the model until this Request for Correction has been carefully considered and acted on by EPA.

EFFECTS OF THE ERROR/ BENEFITS OF A CORRECTION

26.

Dow submits that the EPA and/or Project Manager has erred in preparing a QAPP devoid of vital details and information. Unless the QAPP is corrected to include necessary information required by EPA QA/G-5M, Dow may likely be adversely affected in pending litigation in state and federal court and in actions that potentially may be instituted by EPA or LDEQ. As currently drafted, the QAPP lacks information to ensure the model's integrity. If corrective action is not taken at this step of the modeling process, Dow will be forced to expend significant resources to demonstrate the fallibility of the model, and may very well be prejudiced in defense of the cases against it if a faulty model is used in litigation or in enforcement or other administrative actions. Likewise, if corrective action is not taken now, EPA may expend significant resources in developing a model that ultimately may be rejected or that may require extensive revision requiring the expenditure of additional resources.

CONCLUSION

27.

The QAPP as currently drafted and disseminated is in noncompliance with OMB and EPA Guidelines. Its deficiencies render it erroneous and will lead to the development of an unreliable model. Dow considers this matter to be of fundamental importance to Dow, EPA, LDEQ and to residents of the area surrounding or adjacent to the Plaquemine Aquifer. Therefore, Dow respectfully requests EPA's timely and serious consideration of this request for correction. Dow looks forward to EPA's response in accordance with the Guidelines.

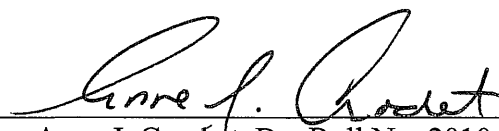
CONTACT INFORMATION

28.

Dow may be contacted through undersigned counsel, Anne J. Crochet, Taylor Porter Brooks & Phillips, L.L.P., Post Office Box 2471, Baton Rouge, Louisiana 70821 or 451 Florida Street, 8th Floor, Baton Rouge, Louisiana 70801. Phone number: (225) 387-3221. Facsimile number: (225) 214-0461. E-mail: anne.crochet@taylorporter.com.

Respectfully Submitted,

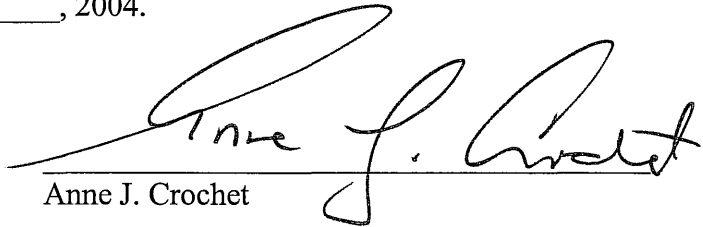
TAYLOR, PORTER, BROOKS & PHILLIPS, L.L.P.

By: 
Anne J. Crochet, Bar Roll No. 2010
Deborah E. Lamb, Bar Roll No. 18991
451 Florida Street, 8th Floor (70801)
Post Office Box 2471
Baton Rouge, Louisiana 70821
Telephone: (225) 387-3221
Facsimile: (225) 346-8049
E-mail: anne.crochet@taylorporter.com

– CERTIFICATE –

I hereby certify that this Request for Correction was submitted to the United States Environmental Protection Agency on this date by e-mail to quality@epa.gov and by mail to Information Quality Guidelines Staff (Mail Code 281 1R), U. S. EPA, 1200 Pennsylvania Ave., N.W., Washington, D.C. 20460.

This 14th day of June, 2004.


Anne J. Crochet