

December 7, 1999

FIELD(name)
FIELD(title)
FIELD(organization)
FIELD(address)
FIELD(citystatezip)

Dear FIELD(salutation):

I am writing to confirm your participation as a reviewer for the upcoming U.S. Environmental Protection Agency's (EPA's) "**Peer Review of Hudson River PCBs Reassessment, Baseline Modeling Report.**" The information session will be held at the Holiday Inn Turf on Wolf Road in Albany, NY on Wednesday, January 12 and Thursday, January 13, 2000. The peer review meeting will be held on Monday, March 27 and Tuesday, March 28, 2000, at the Sheraton Saratoga Springs Hotel and Conference Center, Saratoga Springs, NY. Eastern Research Group, Inc. (ERG), under contract to EPA, is providing support for coordinating and conducting this meeting.

Please carefully review this letter and enclosures, which describe your responsibilities prior to, during, and after the meeting. This package includes the following:

- Preliminary list of reviewers
- Logistical fact sheet for the information session
- ERG's consulting agreement
- ERG's invoice form
- Request for reviewer's biography
- Address verification form
- Format guidelines for premeeting comments

The documents will be mailed to you with the charge in the beginning of January, 2000.

When making travel arrangements for the information session, please note that the meeting will run from approximately 8:00AM on Wednesday, January 12, until 4:30PM on Thursday, January 13, 2000. Please plan your travel so you can participate in the entire meeting.

Consultant Responsibilities

Review of Baseline Modeling Report and Supporting Documentation

- Review the document "Baseline Modeling Report" and the supporting documentation, referring to EPA's charge to the panelists and ERG's instructions for the review.

Premeeting Comments

- Submit premeeting comments to ERG in hard copy and on a diskette created in WordPerfect 6.1 for IBM compatible computers no later than **Friday, March 10, 2000**. Please see the enclosed format guidelines for additional information.
- Review premeeting comments submitted by other reviewers prior to the workshop. (ERG will compile all reviewers' premeeting comments and send them to each reviewer at least

one week prior to the meeting.)

Consultant Responsibilities (continued)

Onsite Participation

- Participate in a premeeting onsite discussion with ERG and EPA, if scheduled (usually the evening prior to the meeting to review the agenda, discussion format, and logistics).
- Participate in the entire 2-day meeting. Actively contribute your expertise during discussions.
- In accordance with the agenda, lead discussions of issues in your area of expertise, or as assigned by ERG and the chair. Verbally summarize comments in your area of expertise or as assigned.

Postmeeting

- Participate in the preparation and review of the draft and final meeting summary outlining modifications that the panel believes should be implemented in the document "Baseline Modeling Report."

Please make every effort to send us your premeeting comments by the deadline so that we may include your comments in the premeeting comment booklet that will be distributed to other reviewers before the meeting. Your comments will be used by the chair to organize discussion topics. Please note that your consulting agreement states that reimbursement is contingent upon meeting the required deadlines, ERG and EPA acceptance of your deliverables, and participation in the entire meeting. In a few isolated cases, ERG has not been permitted to pay consultants because of failure to adhere to these conditions or to deliverable deadlines. Please contact us with any questions or concerns.

Consulting Fee

ERG will remit payment of \$FIELD(Rate)/hr for 120 hours of work for a total of \$FIELD(Total) for this assignment. In addition, you will be reimbursed for related travel, hotel, and meal costs. Please note that the enclosed invoice details the maximum per diem allowed. ERG cannot reimburse you for amounts in excess of the allowable per diem nor for items such as alcoholic beverages, laundry, movies, etc. **RECEIPTS FOR ALL EXPENSES MUST ACCOMPANY YOUR INVOICE.** ERG will remit payment within 4 weeks of receipt of the invoice.

Travel Arrangements

Please make your travel arrangements through ERG's travel agent, American Express Travel, to obtain the lowest priced fully refundable airline ticket. Call **American Express Travel directly at 1-800-322-1013**. They will arrange for you to fly to Albany Airport, Albany, NY, and will send you prepaid tickets via Federal Express. Please refer to **Task #0089-03-012-001** when making travel arrangements and request a paper ticket, **not** an electronic ticket. In accordance with contractual regulations, ERG can authorize payment only for round-trip travel from your city of origin to Albany, NY. If you wish to make additional stops in your itinerary, you will be responsible for paying for that portion of the travel. **If for some reason you are unable to make travel arrangements through American Express Travel, you must contact ERG prior to securing an airfare rate through another source. If you do not contact ERG before securing an airfare rate other than through American Express Travel, ERG will only be able to reimburse you for the rate offered by American Express Travel.**

Hotel Accommodations

Please note that you are responsible for making your own hotel reservation and payment. ERG has arranged for a block of rooms to be held for meeting participants at the Holiday Inn Turf, Wolf Road, Albany, NY, for Tuesday, January 11, and Wednesday, January 12, 2000. The group rate for single occupancy is \$89.00/night, plus 11% tax. Make your room reservation by calling the hotel directly at 518-458-7250 and referencing the **"EPA PCB Workshop"** to ensure that you receive the special rate. Reservations must be made by **Tuesday, December 28, 1999**. After this date, reservations will be accepted on a space- and rate-

available basis only. The enclosed logistical fact sheet contains directions and other details pertaining to the hotel and meeting site.

Deliverables and Deadlines

December 15, 1999	Signed consulting agreement, address verification form, and W-9.
August 14, 1998	Cutoff date for making hotel reservations
January 12-13, 2000	Participate in informational meeting in Albany, NY
February 29, 2000	Brief biography due to ERG
March 10, 2000	Premeeting comments due to ERG
March 26, 2000	Evening logistical meeting with ERG
March 27-28, 2000	Meeting in Saratoga Springs, NY

We look forward to working with you on this task. If you have any questions regarding the meeting, the schedule, or your responsibilities, please contact me at 781-674-7324 or Lauren Lariviere at 781-674-7250.

Sincerely,

Kate Schalk
Conference Manager

Enclosures



Informational Meeting for the Peer Review of Hudson River PCBs Baseline Modeling Report

Sheraton Saratoga Springs
Saratoga Springs, New York
March 27-28, 2000

List of Reviewers

Dr. Ellen Bentzen
Research Scientist
Trent University, Environmental Studies
Environmental Modeling Center
Peterborough, Ontario CANADA K9J 7B8
705-749-9014 home
Fax: 705-748-1569
E-mail: ebentzen@trentu.ca

Dr. Steven Eisenreich
Professor
Rutgers University
Department of Environmental Science
14 College Farm Road
New Brunswick, NJ 08901
732-932-9588
Fax: 732-932-3562
Email: eisenreich@envsci.rutgers.edu

Dr. Per Larsson
Assistant Professor
Lund University
Ecotoxicology, Department of Ecology
Solveg 37
Lund, SWEDEN 22362
46-46-222-3779
Fax: 46-46-222-3790
E-mail: per.larsson@ecotox.lu.se

Dr. Grace Luk
Professor, Civil Engineering
Ryerson Polytechnic University
350 Victoria Street
Toronto, Ontario CANADA M5B 2K3
416-979-5000 ext. 6473
Fax: 416-979-5122
E-mail: gluk@acs.ryerson.ca

Dr. Wu-Seng Lung
Professor
University of Virginia
Department of Civil Engineering
D209 Thornton Hall
Charlottesville, VA 22903
804-924-3722
Fax: 804-982-2951
E-mail: wl@virginia.edu

Dr. Robert Nairn
Principal
W.F. Baird and Associates
627 Lyons Lane
Suite 200
Oakville, Ontario, CANADA L6J 5Z7
905-845-5385
Fax: 905-845-0698
E-mail: mairn@baird.com

Dr. Ross Norstrom
Principal
RJN Environmental
1481 Forest Valley Drive
Gloucester, Ontario, CANADA K1C 5P5
613-834-1445
Fax: 819-953-6612
E-mail: Ross.Norstrom@ec.gc.ca





Informational Meeting for the Peer Review of Hudson River PCBs Baseline Modeling Report

Holiday Inn Turf on Wolf Road
Albany, New York
January 12-13, 2000

Logistical Fact Sheet

Registration Information

Eastern Research Group, Inc.
110 Hartwell Avenue
Lexington, MA 02421-3136 781-674-7374

Hotel Arrangements

Holiday Inn Turf on Wolf Road
205 Wolf Road
Albany, NY 12205 518-458-7250
Fax: 518-458-737

Rooms have been reserved for consultants at the Holiday Inn Turf on Wolf Road for the dates stated in your consulting letter. Room and tax expenses for the nights reserved will be billed directly to ERG. If you wish to stay additional nights the special room rate is \$89.00 for single or double occupancy, plus 11% tax. Reservations must be made by Tuesday, **December 28, 1999** in order to receive the group rate. Please refer to the "EPA PCB Workshop" when making reservations.

Accessibility by Car

From the New York State Thruway:

Get off at Exit 24, Albany. After paying toll, follow signs to I-87 North (Adirondack Northway/Albany Airport/Montreal). Proceed to Exit 4 (Albany Airport/Wolf Road). At base of ramp, turn right onto Wolf Road. The hotel entrance is located approximately 200 yards on the left between the Wolf Road Diner (Ulinski Drive) and Pizza Hut.

From Massachusetts on I-90:

Exit at B-1 (Rensselaer I-90 West/Albany/Buffalo). After crossing the Hudson River, follow I-90 West to Exit 1-N. Signs say I-87 North (Adirondack Northway/Montreal). Once on the Northway, continue to Exit 4 (Albany Airport/Wolf Road). At base of ramp, turn right onto Wolf Road. The hotel entrance is located approximately 200 yards on the left between the Wolf Road Diner (Ulinski Drive) and Pizza Hut.

**Accessibility
by Car
(continued)**

Traveling South on I-87 - Adirondack Northway:

Take Exit 4 (Albany Airport/Wolf Road). Turn left at first traffic light. Go to second traffic light (Albany Shaker Road). Try to get in MIDDLE lane, and make a left turn under the overpass. You will be positioned to make a right turn at the immediate traffic light (Wolf Road). The hotel is located approximately 250 yards on the left, between Wolf Road Diner (Ulinski Drive) and Pizza Hut.

**Airport
Information**

The Holiday Inn Turf on Wolf Road is located approximately 10 minutes from the Albany County Airport, Albany, NY.

**Ground
Transportation**

Hotel Shuttle:

A complimentary hotel shuttle can be requested by using the courtesy phone located at the airport between the hours of 5:00AM and midnight.

Taxi:

Taxi service from Albany County Airport is approximately \$7 one-way.

**AMTRAK
Service**

AMTRAK
Albany-Rensselaer Station
East Street
Rensselaer, NY 12144

518-462-5763

The Albany-Rensselaer Station is 15 miles (25 minutes) from the hotel. Taxi service is available for approximately \$13 one-way.

Parking

Complimentary parking is available at the Holiday Inn Turf on Wolf Road.

**Onsite
Registration**

Onsite registration will take place outside the meeting room on Tuesday, January 12, 2000, beginning at 8:00 AM. Please stop by to pick up your nametag and handout materials. Refer to the hotel's "Daily Events Board" for meeting room name and location. The meeting will begin at 8:30 AM.

TWO-PARAGRAPH PANEL MEMBER BIOGRAPHY GUIDELINES

Hudson River PCB Baseline Modeling Report Peer Review Meeting

Due Date: Tuesday, February 29, 2000

The following are guidelines and a sample for your two-paragraph biography. Please include the following information:

- Name
- Degrees
- Work Experience
- Current Work
- Committees, Papers, etc.

Submit a hard copy of your biography to us along with a diskette, or e-mail an electronic version of your biography as an attachment. Your biography will be included in the meeting materials provided to all attendees on site. The printed copy should be ready to be reproduced and on 8½ x 11-inch paper, with a 1½-inch left-hand margin to allow for hole-punching. Electronic files can be submitted on diskette, or as an e-mail attachment, in Word Perfect 6.1, MS Word, or in ASCII format. We will primarily use the electronic files in preparing the meeting handouts, but we also request a printed copy for the sake of comparison in the event that file conversion discrepancies occur.

SAMPLE BIOGRAPHY

[NAME]

[NAME] has a B.S. in Chemical Engineering from the University of Massachusetts and an M.S. in Chemical Engineering from the University of Cincinnati **[DEGREES]**. He/she has worked as a chemical engineer and Commissioned Officer in the U.S. Public Health Service. He/she has 27 years of research experience in wastewater treatment in the U.S. Environmental Protection Agency (EPA) and its predecessor organization **[WORK EXPERIENCE]**.

[NAME] is currently employed by **[ORGANIZATION]** as a **[TITLE]**. He/she is working on the control of specific toxicants and toxicity in wastewater treatment. His/her branch is responsible for the development of the TRE methods for municipal treatment plants and for toxicant and toxicant treatability research **[CURRENT WORK]**. He/she has served on the New Jersey Task Force on Acid Rain and on committees for Standard Methods for the Examination of Water and Wastewater as well as being a National Science Foundation panelist **[COMMITTEES, PAPERS, ETC.]**

Please mail the printed copy and diskette of your two-paragraph biography by February 29 to Lauren Lariviere, Eastern Research Group, 110 Hartwell Avenue, Lexington, MA 02421-3136. If you have any questions, please contact Lauren at 781-674-7250 or e-mail to llarivie@erg.com

Hudson River PCB Baseline Modeling Report Peer Review Meeting

ADDRESS VERIFICATION FORM

Please take a moment to verify that the following information is correct. Indicate any changes that should be made and complete any blank lines. This information will be used to confirm the information we have at present and to create the final list of peer reviewers, which will be distributed to all who attend the meeting.

Name: FIELD(name)
Title: FIELD(title)
Branch/Division:
Organization/Affiliation: FIELD(organization)
Address: FIELD(address)
City/State/Zip: FIELD(citystatezip)
Telephone Number: FIELD(phone)
Fax Number: FIELD(fax)
E-mail Address: FIELD(email)

**Fax this form to Lauren Lariviere at 781-674-2906 by
Friday, December 15, 1999.**

DUE DATE and FORMAT GUIDELINES for PREMEETING COMMENTS

Peer Review of Hudson River PCBs Reassessment Baseline Modeling Report

Due Date: Friday, March 10, 2000

Approximately ten days before the meeting, ERG will mail peer reviewers a premeeting comment booklet for their review. For this booklet to be complete, ERG must receive your comments in advance. Additionally, the meeting chair and ERG need your comments to prepare for opening presentations and to organize issues for discussion. If you send a fax to meet the deadline, you must also express mail a hard copy and a copy on diskette to ERG.

Please send an electronic copy and reproducible hard copy to:

Eastern Research Group, Inc. (ERG)
110 Hartwell Avenue
Lexington, MA 02421-3136
Attn: Lauren Lariviere
E-mail: llarivie@erg.com

Thank you for your cooperation. Please feel free to contact Lauren Lariviere at 781-674-7250 with any questions or concerns.

Format Guidelines:

Your comments will be included in the comment booklet as received. Please prepare your comments referring to the charge to reviewers prepared by EPA and format them as follows:

TYPE SIZE: 11 point
PAPER SIZE: 8 ½" x 11"
SPACING: 1.5 line spacing
MARGINS: 1 ½" left-hand margin (for binding purposes)
 1" right-hand, top, and bottom margins

- Please use a header with your name in the upper right-hand corner of each page of your comments.
- Organize your comments by section as outlined in EPA's charge questions.
- Remember to spell out acronyms when first used.
- Avoid incomplete sentences, abbreviations, and terms that might confuse the reader.
- If illustrations or tables are included, be sure that they are suitable for reproduction.
- Submit comments on diskette, or as an e-mail attachment, created in WordPerfect 6.1 or MS Word for IBM compatible computers.
- Attach any relevant articles or research results you feel should be considered in revising the report.

**Hudson River PCBs Site Reassessment RI/FS
Baseline Modeling Report
Peer Review 3**

Charge for Peer Review 3

This is the third in a series of four peer reviews being conducted on scientific work products prepared for the Reassessment Remedial Investigation and Feasibility Study (Reassessment) for the Hudson River PCBs site. Previous peer reviews were conducted on the modeling approach and the Data Evaluation and Interpretation Report and Low Resolution Sediment Coring Report. Subsequent to this peer review the Human Health and Ecological Risk Assessments will be peer reviewed.

Members of this peer review are asked to determine whether the baseline modeling effort presented in the Revised Baseline Modeling Report (Revised BMR) is credible and whether the conclusions of the Revised BMR are valid. The reviewers are asked to determine whether the modeling work is technically adequate, competently performed, properly documented, satisfies established quality requirements, and yields scientifically credible conclusions. The peer reviewers are not being asked whether they would have conducted the work in a similar manner. In addition, the reviewers are asked to determine whether the models and the associated findings are appropriate to help answer the following three principal study questions that EPA will consider in its decision-making process for the site:

1. When will PCB levels in fish meet human health and ecological risk criteria under continued No Action? ⁽¹⁾
2. Can remedies other than No Action significantly shorten the time required to achieve acceptable risk levels? ⁽²⁾
3. Could a flood scour sediments, exposing and redistributing buried contamination?

⁽¹⁾ Appropriate levels to meet human health and ecological risk criteria will be evaluated in the upcoming Feasibility Study.

⁽²⁾ The Revised BMR represents a baseline modeling effort, and therefore does not include an evaluation of potential remedial scenarios. The modeling work presented in the Revised BMR will be used to develop potential remedial options in the Feasibility Study for the Reassessment.

The following documents will be provided to the peer reviewers:

Primary

Revised Baseline Modeling Report (Jan. 2000)

Responsiveness Summary to the Baseline Modeling Report (Jan. 2000)

Reference

Baseline Modeling Report (May 1999)

QEA/GE - PCBs in the Upper Hudson River (May 1999, amended July 1999)

Suggested charge questions from the public (Dec. 1999)

Hudson River Reassessment Database (August 1998)

Executive Summaries for other EPA Reassessment Reports

Peer Review Reports from first two peer reviews

The peer reviewers should base their assessments primarily on the Revised BMR, and on EPA's Responsiveness Summary for the Baseline Modeling Report, in which EPA responded to significant public comments received by the Agency on the May 1999 Baseline Modeling Report. These two documents are currently in preparation, and will be issued to the peer reviewers by the end of January 2000. The reference documents listed above are being provided to the reviewers as background information, and may be read at the discretion of the reviewers, as time allows, although the reviewers are not being asked to conduct a review of any of the background information. It should be noted that the Revised BMR to be issued in January 2000 will supersede the May 1999 Baseline Modeling Report.

For additional background information, please visit USEPA's web site on the Hudson River PCBs site, www.epa.gov/hudson.

Specific Questions

Fate and Transport (HUDTOX)

1. The HUDTOX model links components describing the mass balance of water, sediment, and PCBs in the Upper Hudson. Are the process representations of these three components compatible with one another, and appropriate and sufficient to help address the principal study questions?
2. The HUDTOX representation of the solids mass balance is derived from several sources, including long-term monitoring of tributary solids loads, short-term solids studies and the results of GE/QEA's SEDZL model. The finding of the solids balance for the Thompson Island Pool is that this reach is net depositional from 1977 to 1997. This finding has also been assumed to apply to the reaches below the Thompson Island Dam. Is this assumption reasonable? Are the burial rates utilized appropriate and supported by the

- data? Is the solids balance for the Upper Hudson sufficiently constrained for the purposes of the Reassessment?
3. HUDTOX represents the Upper Hudson River by segments of approximately 1000 meters in length in the Thompson Island Pool, and by segments averaging over 4000 meters (ranging from 1087 to 6597 meters) below the Thompson Island Dam. Is this spatial resolution appropriate given the available data? How does the spatial resolution of the model affect the quality of model predictions?
 4. Is the model calibration adequate? Does the model do a reasonable job in reproducing the data during the hindcast (calibration) runs? Are the calibration targets appropriate for the purposes of the study?
 5. HUDTOX employs an empirical sediment/water transfer coefficient to account for PCBs loads that are otherwise not addressed by any of the mechanisms in the model. Is the approach taken reasonable for model calibration? Comment on how this affects the uncertainty of forecast simulations, given that almost half of the PCB load to the water column may be attributable to this empirical coefficient.
 6. Are there factors not explicitly accounted for (*e.g.*, bank erosion, scour by ice or other debris, temperature gradients between the water column and sediments, etc.) that have the potential to change conclusions drawn from the models?
 7. Using the model in a forecast mode requires a number of assumptions regarding future flows, sediment loads, and upstream boundary concentrations of PCBs. Are the assumptions for the forecast reasonable? Is the construct of the hydrograph for forecast predictions reasonable? Should such a hydrograph include larger events?
 8. The 70-year model forecasts show substantial increases in PCB concentrations in surface sediments (top 4 cm) after several decades at some locations. These in turn lead to temporary increases in water-column PCB concentrations. The increases are due to relatively small amounts of predicted annual scour in specific model segments, and it is believed that these represent a real potential for scour to uncover peak PCB concentrations that are located from 4 to 10 cm below the initial sediment-water interface. Is this a reasonable conclusion in a system that is considered net depositional? After observing these results, the magnitude of the increases was reduced by using the 1991 GE sediment data for initial conditions for forecast runs. Is this appropriate? How do the peaks affect the ability of the models to help answer the Reassessment study questions?
 9. The timing of the long-term model response is dependent upon the rate of net deposition in cohesive and non-cohesive sediments, the rate and depth of vertical mixing in the cohesive and non-cohesive sediments and the empirical sediment-water exchange rate coefficient. Are these rates and coefficients sufficiently constrained for the purposes of the Reassessment?

10. The HUDTOX model uses three-phase equilibrium partitioning to describe the environmental behavior of PCBs. Is this representation appropriate? (Note that in a previous peer review on the Data Evaluation and Interpretation Report and the Low Resolution Sediment Coring Report, the panel found that the data are insufficient to adequately estimate three-phase partition coefficients.)
11. HUDTOX considers the Thompson Island Pool to be net depositional, which suggests that burial would sequester PCBs in the sediment. However, the geochemical investigations in the Low Resolution Sediment Coring Report (LRC) found that there was redistribution of PCBs out of the most highly contaminated areas (PCB inventories generally greater than 10 g/m²) in the Thompson Island Pool. Comment on whether these results suggest an inherent conflict between the modeling and the LRC conclusions, or whether the differences are attributable to the respective spatial scales of the two analyses.
12. The model forecasts that a 100-year flood event will not have a major impact on the long-term trends in PCB exposure concentrations in the Upper Hudson. Is this conclusion adequately supported by the modeling?

Bioaccumulation Models

1. Does the FISHRAND model capture important processes to reasonably predict long term trends in fish body burdens in response to changes in sediment and water exposure concentrations? Are the assumptions of input distributions incorporated in the FISHRAND model reasonable? Are the spatial and temporal scales adequate to help address the principal study questions?
2. Was the FISHRAND calibration procedure appropriately conducted? Are the calibration targets appropriate to the purposes of the study?
3. In addition to providing results for FISHRAND, the Revised BMR provides results for two simpler analyses of bioaccumulation (a bivariate BAF model and an empirical probabilistic food chain model). Do the results of these models support or conflict with the FISHRAND results? Would any discrepancies among the three models suggest that there may be potential problems with the FISHRAND results, or inversely, that the more mechanistic model is taking into account variables that the empirical models do not?
4. Sediment exposure was estimated assuming that fish spend 75% of the time exposed to cohesive sediment and 25% to non-cohesive sediment for the duration of the hindcasting

period. The FISHRAND model was calibrated by optimizing three key parameters and assuming the sediment and water exposure concentrations as given, rather than calibrating the model on the basis of what sediment averaging would have been required to optimize the fit between predicted and observed. Is the estimate of sediment exposures reasonable?

5. The FISHRAND model focuses on the fish populations of interest (*e.g.*, adult largemouth bass, juvenile pumpkinseed, etc.) which encompass several age-classes but for which key assumptions are the same (*e.g.*, all largemouth bass above a certain age will display the same foraging behavior). This was done primarily because it reflects the fish data available for the site. Is this a reasonable approach?

General Questions

1. What is the level of temporal accuracy that can be achieved by the models in predicting the time required for average tissue concentrations in a given species and river reach to recover to a specified value?
2. How well have the uncertainties in the models been addressed? How important are the model uncertainties to the ability of the models to help answer the principal study questions? How important are the model uncertainties to the use of model outputs as inputs to the human health and ecological risk assessments?
3. It is easy to get caught up with modeling details and miss the overall message of the models. Do you believe that the report appropriately captures the "big picture" from the information synthesized and generated by the models?
4. Please provide any other comments or concerns with the Revised Baseline Modeling Report not covered by the charge questions, above.

Recommendations

Based on your review of the information provided, please identify and submit an explanation of your overall recommendation for each (separately) the fate and transport and bioaccumulation models.

1. Acceptable as is
 2. Acceptable with minor revision (as indicated)
 3. Acceptable with major revision (as outlined)
 4. Not acceptable (under any circumstance)
-