

Process Safety Institute

A Division of ABS Consulting

January 17, 2002

BUSINESS CONFIDENTIAL

Mr Ben Drone
Engineering Manager
Georgia-Gulf Corporation
P O Box 91
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PHA LEADER AND PHA REVALIDATION TRAINING COURSE PROPOSAL

PROP-128C-02

Ben, based on your discussion with Mr Mark Taylor, the Process Safety Institute (PSI) division of ABSG Consulting Inc , operating as ABS Consulting, is pleased to submit this proposal to provide process hazard analysis (PHA) leader and PHA revalidation training to Georgia-Gulf Corporation (GGC) personnel at the Aberdeen, Mississippi, facility. These training services will include (1) in-class instruction by an experienced trainer, (2) notebook material describing how to organize and lead hazard and operability (HAZOP) analyses, what-if/checklist analyses, and PHA revalidations, (3) practical, process-oriented workshop problems, and (4) a copy of *A Manager's Guide to Reducing Human Error*. We use a hands-on approach to training — several practice sessions throughout each course will provide course attendees with experience in leading and documenting a PHA. This proposal includes course descriptions, instructor information, references, information on both the class size/schedule and opportunities to obtain PHA leader and/or PHA revalidator certification, course options and costs, and statements concerning liability and work acceptance.

COURSE DESCRIPTIONS

PHA Leader Training Course

As outlined in Attachment 1, the PSI training course for PHA leaders incorporates two proven teaching techniques: (1) lectures on the mechanics of performing an analysis and (2) workshops in which attendees lead and document HAZOP and what-if/checklist analyses. In the lecture portions of the course, our instructor will describe the following:

- 1 The concepts of risk assessment and process safety management (PSM)
- 2 How to organize a PHA
- 3 How to prepare for a PHA, including
 - Collecting information
 - Selecting team members
 - Scheduling
 - Dividing a process system into sections (nodes) for analysis
- 4 How to lead a PHA, including
 - Assigning team member responsibilities
 - Using the HAZOP analysis technique
 - Using the what-if/checklist analysis technique



- Addressing facility/stationary source siting
 - Addressing prior incidents
 - Addressing human factors
 - Conducting a qualitative consequence assessment
 - Expediting an analysis
 - Handling common meeting problems
- 5 How to document a PHA, including
- Describing elements of a PHA report
 - Resolving action items

Our training will address all of the OSHA requirements for PHAs described in paragraph (e) of 29 CFR 1910.119 and the EPA requirements described in 40 CFR 68, and we can modify it to include any GGC corporate requirements. Some topics, such as facility/stationary source siting, are more suited to what-if/checklist analysis than to HAZOP analysis. What-if/checklist analysis is also very effective in addressing process changes (for management of change) and in addressing the hazards of simpler, less hazardous systems (such as auxiliary process systems) during PHAs. Therefore, we offer to teach your prospective leaders both the HAZOP and what-if/checklist techniques so they can optimize their PHA process.

Our training includes several ways that human factors can be considered during PHAs. Most companies find this training extremely useful because many of their accidents/incidents involve human error, particularly during startup and shutdown procedures. We explain how to use the HAZOP and what-if/checklist analyses techniques to identify potential human errors during batch and nonroutine operations and to eliminate their causes.

In the workshop portions of this course, attendees will lead what-if/checklist and HAZOP analyses of process systems. Our instructor first describes the process to be analyzed (our first problem is usually a chlorine unloading system), then begins the meeting. The instructor initially acts as the team leader and assigns the scribe's duties (i.e., taking extensive notes of the meeting) to one of the team members. The duties of leader and scribe are then rotated periodically to give each attendee experience in performing these functions.

As an alternative to our example problems, we invite GGC to supply information on two or three processes familiar to your personnel. The class can perform reviews on these processes as part of the course. We have found this training approach to be very effective because the attendees (1) generally know the system quite well and require little class time to learn the process and (2) are accomplishing productive work for GGC while learning the various techniques. This approach also demonstrates how the analysis techniques can uncover process weaknesses in designs that have already undergone standard review by the company. (When PSI's example problems are used, students sometimes rationalize that the error would have been caught by their company's standard review process, thereby failing to fully appreciate the value of PHAs.) If GGC elects to provide in-house processes for review, we will need information on the processes no later than 5 working days before the course begins.



PHA Revalidation Training Course

As outlined in Attachment 2, the PSI training course for PHA revalidation incorporates two proven teaching techniques (1) lectures on the mechanics of performing a revalidation and (2) workshops in which attendees practice their newly learned skills. In the lecture portions of the course, our instructor will describe the following:

- Information necessary to gather and evaluate for a PHA revalidation
- Factors to consider when determining an appropriate approach for PHA revalidations
- How to effectively address previous PHA deficiencies and process modifications
- Steps necessary to prepare for, conduct, and document PHA revalidations

Our training will address all of the OSHA PSM requirements for PHA revalidations described in paragraph (e) of 29 CFR 1910.119 and the EPA risk management program (RMP) requirements described in 40 CFR 68. We recommend that the participants in this course should have already been trained in leading PHAs (such as our basic PHA course described previously, or another similar course).

INSTRUCTORS

Our instructors are internationally recognized experts in process safety management and process hazard analysis. They are among the very best in the field because they combine complete theoretical understanding of hazard evaluation techniques with the experience necessary to discriminate between techniques that work only in theory and techniques that work in practice. They also have well-documented industry experience; in fact, our instructors wrote the following two books for AIChE's Center for Chemical Process Safety: *Guidelines for Hazard Evaluation Procedures, Second Edition with Worked Examples* (referenced in 29 CFR 1910.119) and the authoritative book on how to revalidate PHAs, entitled *Revalidating Process Hazard Analyses*. If more than one instructor is required, the lead instructor will be assisted by other experienced PHA leaders in the workshop sessions. We can provide you with résumés of the proposed instructor(s) once you have selected course dates.

REFERENCES

Our students and technical contacts repeatedly tell us that we offer the best PHA and revalidation training available. Please contact any of the following persons who will attest to the value and quality of our services. **(Note: Many of these clients worked with us as JBF Associates, Inc.; the Risk & Reliability Division of ABS Group Inc.; and/or EQE International, Inc.)**

Mr. Kerry Ifill
PSM Coordinator
PCS Nitrogen Trinidad Ltd
(868) 636-2205

Mr. Bill Ralph
Process Hazard Management
BP Amoco Oil Company
(409) 945-1588

Mr. Andy Wiles
Engineering Manager
Georgia-Gulf Corporation
(405) 670-0231

Mr. Robert Hammann
PSM Manager
BP Chemicals Company
(630) 961-7763



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Mr Pete Aguila
Engineering System Manager
Georgia-Gulf Corporation
(225) 298-2701

Ms Janice Minga
Management System Coordinator
Georgia-Gulf Corporation
(662) 369-3603

Mr R J Frame
Process Safety Compliance Manger
BOC Gases, Inc
(630) 221-0520

Mr Dusty Ferrell
PSM Manager
Georgia-Pacific Corporation
(404) 652-4790

CLASS SIZE AND SCHEDULE

PSI has taught many PHA courses at both public and client sites. Based on our experience, we recommend a student/teacher ratio of no greater than 7:1. In the lectures during the morning of the first day, we can easily handle a much larger group (up to 35 students, including prospective team members) in a standard classroom arrangement, however, for the training to be effective, the PHA leader and revalidation workshops require smaller roundtable groups. We propose to provide the lead instructor, who will be assisted in the workshop sessions by an additional PSI instructor(s) for larger classes.

We can schedule this training at a mutually convenient time. *To ensure you get the dates you want, please select some tentative dates as soon as possible. We will hold your tentative dates open as long as we can, but course scheduling is confirmed only after we receive written authorization from you (see Acceptance Agreement on page 7).*

CERTIFICATION

In recent workshops, OSHA representatives stated that, to satisfy the requirements of 29 CFR 1910.119, "knowledgeable" PHA leaders must have been trained by recognized PHA experts and must have demonstrated understanding of the PHA technique(s). PSI offers a PHA leader and PHA revalidator certification program for graduates of our courses (please refer to the enclosed flyer, Attachment 3, for information on the certification program). The cost of the certification examination is included in the course fee, but a \$200-per-student certification fee is due when a student submits an application for either certification. If you would like to prepay the student certification fees as part of the course contract, the cost is \$160 per student, per certification.

COURSE OPTIONS AND COSTS

We propose classroom training services on a fixed-price basis, plus actual, reasonable travel costs.

PHA Leader Training Course

The price of the standard 4-day course for new PHA leaders is \$21,000, plus actual travel expenses for one instructor, for up to seven participants. For 8 to 14 participants, the cost is \$30,000, plus actual travel expenses for 2 instructors, and for 15 to 21 participants, the cost is \$39,000, plus actual travel expenses for 3 instructors (the co-instructor[s] is present on the second, third, and fourth days only).



To lessen costs, some of the course lectures and workshops can be reduced or eliminated and the course condensed into a 3-day format (see Attachment 4) The price of the 3-day course for new PHA leaders is \$16,000, plus actual travel expenses for one instructor, for up to seven participants For 8 to 14 participants, the cost is \$22,000, plus actual travel expenses for 2 instructors, and for 15 to 21 participants, the cost is \$28,000, plus actual travel expenses for 3 instructors (the co-instructor[s] is present on the second and third days only) Also, GGC may provide the experienced co-instructors(s) to work with our lead instructor, which would reduce the cost for large classes

The fixed price includes course notebooks and workshop materials up to the specified student/instructor ratios If GGC provides the co-instructor(s) for larger groups, there is a materials fee of \$100 for each additional student

PHA Revalidation Training Course

If purchased separately, the price of the 2-day course for PHA revalidation is \$11,000, plus actual travel expenses for one instructor However, if purchased in combination with the PHA leadership course (e g , 3-day PHA leadership and 2-day PHA revalidation), the additional cost is \$10,000, plus incremental travel expenses The fixed price includes copies of the course notebook, copies of the recently published AIChE CCPS book, *Revalidating Process Hazard Analyses*, and workshop materials for up to 15 students

We ask that you provide a suitable classroom, a color electronic projection device (e g , a Proxima or In Focus), an overhead projector, a screen, a VHS videotape player, a television, and other course amenities (snacks, drinks, etc) *If you do not have a color electronic projection device, please let us know as soon as possible so we can make other arrangements*

We believe it is very important for newly trained leaders to practice their skills as soon as possible on real problems To ensure a successful transition from the classroom to the real world, our instructors are available to provide one-on-one coaching and short-term assistance to new leaders during their first reviews Such supplemental training and review services are performed on a labor-rate basis of \$2,500 per day We also provide audits of PHA meeting quality on a similar basis

To minimize travel expenses charged to GGC, PSI would like to schedule any travel in advance in order to take advantage of discount airfares (as available) However, if the project is canceled, changed, or postponed by GGC after PSI receives written authorization from GGC to begin work, all expenses incurred by PSI to date (including travel cancellation and change penalties) will be the sole responsibility of GGC

Attachment 5 lists our commercial terms and conditions We require a purchase order or a signed Acceptance Agreement (with a billing reference number — see page 7) from you before traveling to your site Our payment terms for all training services are NET 30 days We will send you an invoice upon completion of the course Payment should be made to ABS Consulting, P O Box 846377, Dallas, TX 75284-6377 All other correspondence (e g , purchase orders, contracts, letters) should be sent to Process Safety Institute, 10301 Technology Drive, Knoxville, TN 37932-3392 This proposal is valid for 90 days



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LIABILITY

The training materials and lectures prepared by PSI/ABS Consulting will help prepare GGC employees to lead and revalidate PHAs. However, PSI/ABS Consulting and its employees or other assigns cannot, individually or collectively, predict what will happen in the future. Even when GGC personnel become proficient in the techniques taught in these courses, and even if all of the techniques taught in these courses are used in GGC's internal safety program, accidents may still occur at GGC facilities. Furthermore, neither PSI/ABS Consulting, nor any of its employees, subcontractors, consultants, or other assigns, make any warranty, express or implied, assume any liability or responsibility for any use, or the results of such use, of any information, product, or process disclosed in these training courses, or represent that using this material will not infringe upon privately owned rights. Also, the process safety management/risk management program regulations are subject to interpretation by OSHA/EPA. Therefore, PSI/ABS Consulting accepts no liability for any regulatory impact that may occur at any GGC facility.

Thank you for your interest in our training courses. We look forward to working with you. Please call me at (865) 671-5842 if you have any questions.

Sincerely,



Donald K. Lorenzo
Executive Director of Training Services

DKL kje

Enclosures



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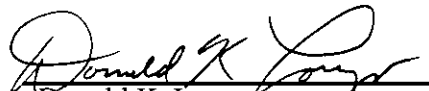
ACCEPTANCE AGREEMENT

To authorize us to proceed, please ask the appropriate GGC representative to sign and return the enclosed copy of this proposal. Signing this Agreement certifies that the representative is authorized to (1) sign on behalf of GGC and (2) bind GGC to the terms and conditions attached. This Agreement may be amended only by a written addendum signed by both parties.

Approved for
PROCESS SAFETY INSTITUTE

Accepted for
GEORGIA-GULF CORPORATION

BY


Donald K. Lorenzo

BY

TITLE

Executive Director

TITLE

DATE

January 17, 2002

DATE

BILLING REF NO

Number of Students

OPTIONS (check/fill in as appropriate)

4-day PHA Leader course

☐

3-day PHA Leader course

☐

2-day PHA Revalidation course

☐

PHA Leader Certification (@ \$160)

☐

How many? _____

PHA Revalidator Certification (@ \$160)

☐

How many? _____

Additional PHA leader course notebooks

(@ \$100)

☐

How many? _____

Authorization to purchase penalty tickets

☐