

KY/B-264

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# PGDP

## PADUCAH GASEOUS DIFFUSION PLANT

**MARTIN MARIETTA**

AN INTERIM REPORT TO THE MANAGER  
OF THE PADUCAH GASEOUS DIFFUSION PLANT  
FROM THE  
PADUCAH ENVIRONMENTAL ADVISORY COMMITTEE

Paducah Environmental Advisory Committee  
Gary D. Jackson, Chairman

October 1987

OPERATED BY  
MARTIN MARIETTA ENERGY SYSTEMS, INC.  
FOR THE UNITED STATES  
DEPARTMENT OF ENERGY

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AN INTERIM REPORT TO THE MANAGER  
OF THE PADUCAH GASEOUS DIFFUSION PLANT  
FROM THE  
PADUCAH ENVIRONMENTAL ADVISORY COMMITTEE

Dr. Gary Boggess, Murray State University  
Mrs. Laverne Brown, Western Baptist Hospital  
Mr. Leonard Grief, Past President, McCracken Farm Bureau  
Dr. C. K. Henry, Principal, Paducah Tilghman High School  
Mr. Gary Jackson, Local Resident, Adjacent to Plant  
Dr. Charles G. Smith, Murray State University

Report Prepared at the Request of  
Martin Marietta Energy Systems, Inc.  
Paducah Gaseous Diffusion Plant

by

Paducah Environmental Advisory Committee  
Gary D. Jackson, Chairman

Prepared by the  
Paducah Gaseous Diffusion Plant  
Paducah, Kentucky 42001  
operated by  
MARTIN MARIETTA ENERGY SYSTEMS, INCORPORATED  
for the  
U.S. DEPARTMENT OF ENERGY  
Under Contract No. DE-AC05-84OR21400

**MASTER**

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## BACKGROUND

The Paducah gaseous Diffusion Plant Environmental Advisory Committee (PEAC) to Martin Marietta Energy Systems, Inc., met for the first time in Paducah, Kentucky, on May 20, 1986. The Paducah Environmental Advisory Committee was formed as:

1. An outgrowth of other Environmental Advisory Committees already in existence at Oak Ridge and other Martin Marietta Energy Systems plants;
2. A result of public concern following significant nuclear incidents at Bhopal and Chernobyl;
3. A result of the new direction and commitment of the management of the Paducah Gaseous Diffusion Plant following contract acquisition by Martin Marietta Energy Systems; and
4. A means of reducing and/or preventing local and/or public concern regarding the activities of and potential risks created by PGDP.

## COMMITTEE CHARTER

## A SUMMARY

As the Paducah Gaseous Diffusion Plant is at minimal risk for nuclear criticality or other potential catastrophic or long-term occurrences, it was determined that the makeup of the committee would represent a cross section of consumers, scientists, educators, health professionals, and businessmen rather than being restricted to the scientific peer review groups primarily involved at other sites.

At the initial meeting of the PEAC, Ken Jarmolow, President, Martin Marietta Energy Systems, Inc., charged the committee with the following responsibilities:

1. Review the sources of environmental pollutants, the control systems, the surveillance activities associated with the operation of PGDP and the recommendations for modifications thereto;
2. Evaluate plans for remedial activities, studies to correct, enlarge or close waste management facilities, and provide recommendations for appropriate changes in strategy or direction;
3. Assess the long-term fate and health effects of trace quantities of uranium, other radionuclides, and other pollutants of concern in PGDP environs (including determining what levels are below that of concern);
4. Advise on both scientific and community concern aspects of environmental and health issues to PGDP plant manager or Director, Office of Environment, Safety, and Health, Martin Marietta Energy Systems;
5. Advise on appropriate methods and form of reporting environmental and health data to the general public.

The operation of the PEAC is expected to be continuing in nature until current needs are assessed and problems are resolved. The committee was instructed to meet at least quarterly for the first year and, thereafter, as

frequently as necessary. The findings of the committee, as well as unclassified information upon which those findings are based, will be open to the public. These findings will not be vetoed, suppressed, or materially rewritten by either Martin Marietta Energy Systems or the Department of Energy.

#### DATA SOURCES

To address the major components of the committee's charter, management exposed the PEAC to a broad spectrum of reports and presentations. Information and statistical data from a variety of sources included, but was not limited to:

- . . . Martin Marietta Energy Systems and Department of Energy management and staff presentations
- . . . Site inspections and tours
- . . . Meetings with union representatives
- . . . Governmental regulatory summaries and reports
- . . . Presentations by regional representatives of the Kentucky Division of Air Pollution Control and the Kentucky Division of Water
- . . . Summary and review of other regulatory agency reports and recommendations
- . . . Confidential unsolicited discussions with hourly employees
- . . . Informal discussions with area residents



## PROCEEDINGS

Throughout the first year, the committee has felt that PGDP management and staff have been totally cooperative in assisting the PEAC in their investigative efforts. At each meeting, plant managers and staff presented requested data in an open, professional, and organized manner. Following is a brief summary of each meeting. (See Appendix for meeting minutes.)

## MEETING 1

At the May 20, 1986 meeting of the Paducah Environmental Advisory Committee, plant managers asserted their commitment to the short- and long-term health and safety of PGDP employees and surrounding community residents. A broad overview of governmental regulations under which Martin Marietta plants must function was presented. Following a general orientation to the operations of the plant, plans for the handling of hazardous waste and hazardous waste spills were presented.

## MEETING 2

The June 10, 1986 meeting concentrated on air and water compliance concerns. Presentations were made, upon request of the PEAC, by representatives of the Kentucky Division of Air Pollution Control and the Kentucky Division of Water. Following a presentation regarding PGDP's permit status with the Kentucky Pollutant Discharge Elimination System, a variety of options for dealing with areas of noncompliance was discussed.

## MEETING 3

On August 19, 1986, discussions centered around long-range tails storage plans, closure of the C-404 burial ground, clean-up progress of TCE and PCB spills, and employee health monitoring. Committee members met in private session with union officials to discuss health and environmental concerns from the workers' viewpoints.

## MEETING 4

The September 16, 1986 committee meeting was structured to allow for follow-up discussion of issues related to TCE and PCB cleanup, KPDES permit status and activities, and NUS audit results related to groundwater wells and construction of a new meteorological tower.

## MEETING 5

The November 6th meeting focused, primarily, on groundwater concerns, specific methods by which plant employees are provided with safety information, safety standards and programs for subcontractors and their employees, concerns regarding the dosimetry badge monitoring of employees and others, and the status of the KPDES permit.

## MEETING 6

At the January 8, 1987 meeting, the group toured KPDES monitoring locations and the Big Bayou monitoring station. Biological monitoring versus separation and piping of storm and process waters was discussed. Federal regulations regarding asbestos handling and exposure were reviewed.

## MEETING 7

The April 28, 1987 meeting centered on nuclear criticality, growing concerns regarding the presence, removal, and handling of asbestos on the plant site, and the health physics program of the Paducah Gaseous Diffusion Plant.

## ISSUES/CONCERNS AND RECOMMENDATIONS

While there is no indication that a significant health risk or likelihood of a major nuclear or hazardous material accident may occur at the Paducah Gaseous Diffusion Plant, several major issues and concerns have been

identified by the Paducah Environmental Advisory Committee. The issues and concerns listed below are not necessarily in order of importance to the Paducah Environmental Advisory Committee. Each concern should be given equal attention by the reader.

#### GROUNDWATER MONITORING

It is the committee's impression that groundwater monitoring is not adequate in terms of the frequency of monitoring or the numbers and locations of testing wells. The PEAC recommends increased perimeter monitoring as well as more equally distributed placement of monitoring wells. There should be continued efforts to characterize the hydrogeology of the plant site and its surrounding area. Additionally, efforts should be made to better characterize contaminants of groundwaters; and there should be regular periodic sampling of drinking water wells or springs near the plant to determine if off-site migration of pollutants has occurred.

#### LONG-RANGE TAILS STORAGE

Concern exists regarding the 25,000+  $UF_6$  cylinders stored on site at PGDP. Residents of the area appear to be more concerned about the inherent risks associated with weather damage and/or disaster damage (i.e. earthquake) than does the scientific community. The committee recommends that more aggressive, continuing efforts be made on the part of plant managers to discover other markets for the materials and/or to find methods of separating out remaining uranium in order to eliminate or reduce the cylinder inventories.

#### C-404, SCRAP YARDS, AND PCB AND TCE CLEANUP

Issues of primary concern continue to be the characterization and handling of hazardous wastes at C-404 and the scrap yards. Also of concern are the still

unresolved problems related to PCB and TCE clean-up efforts. While the PEAC recognizes that Martin Marietta has made significant efforts to deal with this pressing concern since their operation of the plant, the lack of workable solutions and a long-range plan is evident. Because of the committee's lack of knowledge and expertise in this area, no formal recommendations are being made at this time.

#### NUCLEAR CRITICALITY PLAN AND ALARM SYSTEM

With the anticipated influx of more highly enriched uranium into PGDP, the potential risk of a criticality incident will increase, proportionately. For this reason, it is the recommendation of the committee that there be extensive education and more frequent disaster drills for both supervisory and hourly employees, as mandated by DOE 5480.5 and DOE 5480.5, Section 10. Increased efforts should be made to provide adequate experience and expertise in the area of nuclear criticality safety and to develop stronger short- and long-term plans for preventing incidents.

#### DOCUMENTATION OF HISTORICAL DATA REGARDING HAZARDOUS WASTE BURIAL GROUNDS AND OTHER PREVIOUS WASTE DISPOSAL METHODS

The committee continues to feel concern about the lack of adequate documentation during the formative and early years of operation of PGDP. Most historical data have been transmitted only through verbal communication from managers who were employed at the plant since its inception. Verbal communication creates the risk of multiple interpretations of what is said; it also does not allow for that information to be transmitted forward with assurance of accuracy when changes in management occur.

Because of these concerns, the committee recommends that Martin Marietta utilize Mr. Richard Baker and others who possess vast historical knowledge to prepare an extensive, written information bank regarding the handling and disposition of hazardous waste materials during the early years of the plant's operations. This would help to avert problems that might continue to arise due to lack of knowledge or multiple, possibly inaccurate, individual interpretations of verbally exchanged information.

## DOSIMETER BADGES

Considerable concern has been expressed by both union officials and hourly employees regarding the effectiveness of dosimeter badge testing. Frequency and accuracy of the current method of badge analysis is questionable and appears to be inadequate. High badge readings are often dealt with in a manner that implies lack of interest and concern for the well-being of the employees. High readings are too often attributed to "faulty badges" - an approach that is not reassuring to the employee. The PEAC recommends that each time a high badge reading is obtained following an incident, internal dosimetry testing by urinalysis should be done within 24 hours. The badges of employees who work in identified "high risk" areas should be badge-tested monthly, rather than quarterly; urinalysis should be done quarterly on these employees. Results and dates of all testing should be documented as a part of the overall quality assurance program of PGDP.

## SUBCONTRACTOR ORIENTATION

While there appears to have been adequate orientation of subcontractors at the time contracts are let, there is serious concern that this information is not being communicated to the hourly workers on a consistent basis. This was brought to the attention of the PEAC when it was reported by plant employees that cleanup crews during recent PCB and TCE spills were sitting on contaminant and leaving the plant covered with contaminated materials. It was also of concern that dosimeter badges are not routinely assigned to subcontractors and their employees. It is recommended that Martin Marietta personnel be responsible for the initial orientation of all supervisors of the subcontractor regarding the potential hazards, safety requirements, and other information necessary to safely perform the job. Each supervisor should be required to sign a written statement that he/she assumes total responsibility for conveying this information to all persons working on the project. These measures should significantly reduce potential liability for Martin Marietta management. It is further recommended that dosimeter badges be issued to all on-site subcontractor employees who are either working with hazardous materials or in high risk areas of the plant.

## LACK OF ADEQUATE COMMUNICATION BETWEEN DEPARTMENTS

While individual division managers appear to be very knowledgeable and capable of dealing with their departments in a highly competent manner, there does not appear to be adequate communication between departments to assure that there is continuity and cohesiveness in the total plant program. The committee recommends that the plant manager, or his designee, assure that regular, frequent meetings be held with all division managers for the purpose of developing a higher degree of coordination and long-range planning. This should help to build a more proactive, rather than reactive, or crisis-oriented management team.

It is the committee's impression that there is a breakdown in communication at the mid-management level. There is little evidence that there is regular, meaningful, ongoing education and training of supervisors to assist them in developing effective communication skills, yet it is left to the skill of the supervisor to pass information on from the mid-managers to the hourly plant employees. This concern becomes increasingly important in view of the current right-to-know legislation and a general increase in public and worker awareness of their right to accurate and timely information.

## LACK OF CONFIDENTIALITY REGARDING REFERRALS FOR MENTAL/EMOTIONAL/ADDICTION PROBLEMS

There is concern on the part of employees regarding the accuracy of drug testing methods selected by Martin Marietta. There is special concern that the hourly employees' supervisors may not/do not maintain the privacy of their workers when workers test positive for drugs, emotional problems, or mental illness. While PGDP is to be commended for making an Employee Assistance Program available to its workers, there is reluctance on the part of employees to use the program because it is located on-site. The PEAC recommends that great effort be made to educate all employees regarding the purposes and accuracy of the drug testing program adopted. It is suggested that consideration be given to continuing to offer the Employee Assistance Program on-site, but that an option be added that allows for confidential self-referral and counseling at an off-site location as well.

## HEALTH PHYSICS STAFF

While it is evident that effort has been expended and reasonable accomplishment has been made by this department, there is need for additional qualified personnel in this department. In view of the critical nature of the work of this department, it is recommended that immediate measures be taken to recruit experienced health physicists, that significant programs be offered in the near future that will expand the knowledge base of existing staff (i.e. bringing in nationally known experts in the field for extensive seminars, workshops, etc., of a highly practical nature), and that health physics personnel work in a concentrated effort to develop a long-range quality assurance plan for the department.

## ASBESTOS HANDLING AND REMOVAL

A significant problem exists in relation to the amounts and locations of asbestos on-site at PGDP. While the committee recognizes the financial impact of asbestos removal, continued efforts should be made toward the removal of asbestos in worker concentrated areas of the plant, especially if that asbestos exists in an unstable state.

Immediate measures should be taken to provide meaningful educational programs for employees related to the relative risks and safe management of asbestos handling and removal.

## BIOLOGICAL MONITORING

Finally, the committee strongly recommends the development of a comprehensive biological monitoring program for PGDP.

**APPENDIX A**



PADUCAH GASEOUS DIFFUSION PLANT  
ENVIRONMENTAL ADVISORY COMMITTEE  
ADDRESS LIST

Dr. Gary Boggess  
Dean, College of Science  
Murray State University  
Murray, Kentucky 42071

Mrs. Laverne Brown  
Vice President, Western Baptist Hospital  
2501 Kentucky Avenue  
Paducah, Kentucky 42001

Mr. Leonard Grief  
4805 Contest Road  
Paducah, Kentucky 42001

Mr. C. K. Henry  
815 Tennessee Street  
Paducah, Kentucky 42001

Mr. Gary D. Jackson\*  
Route 4, Box 184-A  
Kevil, Kentucky 42053

Dr. Charles G. Smith  
Professor of Biology  
Murray State University  
Murray, Kentucky 42071

\*Committee Chairman

## APPENDIX B

**NAME:** Gary W. Boggess

**ASSOCIATION:** Murray State University  
Dean, College of Science  
Professor of Chemistry

**EXPERIENCE:** 30 years  
Pittsburgh Metallurgical Company  
Calvert City, Kentucky

Murray High School  
Murray, Kentucky

Murray State University  
Murray, Kentucky

**EDUCATION:** B.S., Chemistry and Mathematics, Murray State  
M.S., Chemistry, Purdue University  
Ph.D., Chemistry, The University of Tennessee

**OTHER:** Member, American Chemical Society  
Member Association for the Advancement of Science  
Past President, Kentucky Academy of Science  
Member, Sigma Xi  
Member, Executive Committee of the Purchase Area Environmental Forum

**NAME:** Laverne Kindred Brown

**ASSOCIATION:** Western Baptist Hospital  
Vice President

**EXPERIENCE:** 25 years  
Western Baptist Hospital  
Director, School of Practical Nursing  
Interim Director of Nursing  
  
Paducah Community College  
Associate Professor  
Director, Associate Degree Program of Nursing  
  
Private Practice, Price & Kim, PSC, Nurse Practitioner

**EDUCATION:** Diploma, Owensboro-Daviess County Hospital School of Nursing,  
Owensboro, Kentucky  
  
B.S.N.-Murray State University  
  
M.S.N.-University of Alabama-Birmingham

**OTHER:** Kentucky Woman of Distinction, 1986  
  
National Organization for Female Executives  
  
Sigma Theta Tau-Honor Society for Nurses  
  
Who's Who in American Women, 1986  
  
Delta Kappa Gamma - Honor Society for Women Educators

**NAME:** Leonard P. Grief

**ASSOCIATION:** Past President, McCracken Farm Bureau

**EXPERIENCE:** 43 years  
Soil Conservation Service

Active Farmer - 1945-Present

Director of McCracken County Farm Bureau

**OTHER:** Member of the Southern States Co-Op Advisory Committee  
Member of the Farm Home Administration Advisory Committee  
Director of the Western Dark Fired Tobacco Association  
Past President of the McCracken County Farm Bureau

**NAME:** Charles K. Henry

**ASSOCIATION:** Principal, Paducah Tilghman High School

**EXPERIENCE:** 25 years

**EDUCATION:** B.A. - University of Wittenburg-Springfield, Ohio

M.A. - Murray State University

Doctorate of Theology - East Tennessee School of Religion -  
Chattanooga, Tennessee

**OTHER:** Member, National Association for Secondary Principals

Member, Kentucky Association of Secondary Principals

Member, West Kentucky Association of Secondary Principals

Director, Senior Citizens Committee

Chairman, Ministerial Candidate Group

Member, Joint Conference Board - Law Making Body of the  
Methodist Church

Chairman, Joint Board of the Kentucky Methodist Conference

**NAME:** Gary D. Jackson

**ASSOCIATION:** Local Resident, Adjacent to plant  
General Construction-Iron Worker  
Lone Star Industries  
Sales Representative  
Associated General Contractors  
West Kentucky Construction Association

**EXPERIENCE:** A.D. - Paducah Junior College  
B.S. - Murray State University

**OTHER:** Vice-Chairman, McCracken County Board of Education  
Board of Directors, Lakeland Wesley Village  
Past president, Jackson Purchase Rural Electric Cooperative  
Member, Advisory Committee, College of Industry and Technology,  
Murray State University  
President, West McCracken Lions Club

**NAME:** Charles G. Smith

**ASSOCIATION:** Murray State University  
Professor of Biological Sciences

**EXPERIENCE:** Paducah Community College  
Professor of Science  
  
Southern Illinois University  
  
Murray State University

**EDUCATION:** B.S. - Southern Illinois University  
M.S. - University of Oregon and SIU  
Ph.D. - Southern Illinois University

**OTHER:** President, Purchase Area Chapter, Audubon Society  
Board Member, Rural Kentucky Medical Scholarship Fund  
Member, Kentucky Education Association  
Member, Sigma Xi  
Member, Kentucky Cardiology Fellowship Affiliate Committee



**APPENDIX C**

PGDP ENVIRONMENTAL ADVISORY COMMITTEE AGENDAMAY 20, 1986, 8:30 A.M.PLANT MANAGER'S CONFERENCE ROOM

8:30	Welcome and Introduction of DOE and Martin Marietta Personnel	R. G. Donnelly
8:40	Introduction of Committee Members	W. E. Thompson
8:45	DOE Perspective	P. W. Kaspar/ R. L. Egli
9:00	Martin Marietta's Commitment	K. Jarmolow K. W. Sommerfeld
9:15	Committee Charter & Administrative Assistance	W. E. Thompson
9:25	Historical Overview of Plant Operations	R. C. Baker/ W. E. Sykes
9:40	Summary of Environmental Laws, Regulations and Compliance Status	S. L. Shell
10:00	Plant Tour	Staff
11:30	Lunch in Plant Cafeteria	
12:30	PGDP Pollution Sources, Controls & Effluents. Potential Releases and Emergency Response	S. L. Shell
12:50	Current Waste Disposal Practices & Facilities - Waste Quantities	J. L. Williams
1:00	Waste Disposal Coordination & Records	R. G. Kuehn
1:10	CERCLA Site Evaluation	R. Dierolf
1:25	PCBs Inventory, Handling, Disposal and Cleanup	R. J. Keeling
1:40	Environmental Monitoring Program & Annual Report	D. L. Ashburn
1:55	Environmental Long-Range Plan	V. Jones
2:00	Break	
2:10	Impacts, Issues & Concerns - PGDP Perspective	R. C. Baker

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PGDP ENVIRONMENTAL ADVISORY COMMITTEE  
MEETING NO. 2  
JUNE 10, 1986  
OUTSIDE CONFERENCE ROOM, PGDP

9:00	Introduction of W. F. Furth and Dr. David O. Marsh	R. G. Donnelly
9:05	Lessons learned by Oak Ridge EAC	Dr. Marsh
10:00	Regulators' Perspective of PGDP Permitting and Permit Compliance Problems for Air and Water	Linda Byerly and Marvin Stegman
10:45	Break	
11:00	Committee Discussion and Questions for Kentucky Environmental Protection Personnel	
11:30-		
12:30	Lunch in Cafeteria Dining Room	
12:30	KPDES Permit Status	D. L. Ashburn
1:00	Potential Air Permit Changes	S. L. Shell
1:30	Air and Water Concerns	Committee Discussion
2:00	Hazardous Waste Compliance Inspection of PGDP Facilities	S. L. Shell
2:15	The C-404 LLW Facility Status	R. J. Keeling
2:30	PGDP Hazardous Waste Concerns	R. K. Dierolf
3:00	Adjournment	

## PGDP ENVIRONMENTAL ADVISORY COMMITTEE

## THIRD MEETING

August 19, 1986

9:00 A.M. - 3:30 P.M.

- \* Long-Range Tails Storage Plans (Mason) . . . . . 9:15 - 9:35
- \* C-404 NOV, Closure Activities, and TCE Cleanup  
(Dierolf) . . . . . 9:35 - 9:55
- \* NUS Audit Followup (Shell) . . . . . 9:55 - 10:10
- \* PCB Inventory (Keeling) . . . . . 10:10 - 10:30

## BREAK

10:30 - 10:45

- \* KPDES Permit Activities (Ashburn) . . . . . 10:45 - 11:00
- \* Raw Water-Water Treatment (Lang) . . . . . 11:00 - 11:15
- \* Tour - Storage Yards, C-611, C-404 . . . . . 11:15 - 12:30

## LUNCH

12:30 - 1:15

Special Guests: J. William Bennett, Director, Office of Operations  
and Facility Reliability, DOE Headquarters

John R. Longenecker, Deputy Assistant Secretary for  
Uranium Enrichment, Office of Nuclear Energy

- \* PGDP Update (videotape) . . . . . 1:15 - 1:30
- \* Discussion with Dr. Rucker . . . . . 1:30 - 2:00
- \* Thomas Report on Major Risks (Payne) . . . . . 2:00 - 2:15
- \* Discussion with Union Officials . . . . . 2:15 - 2:45
- \* Executive Session . . . . . 2:45 - 3:15
- \* Wrap-up - Questions - Comments . . . . . 3:15 - 3:30

**PGDP ENVIRONMENTAL ADVISORY COMMITTEE AGENDA**  
**September 16, 1986**

**C-100 Training Room**

9:00	Executive Session . . . . .	G. D. Jackson
10:00	Break	
10:15	NUS Audit Follow-Up . . . . .	S. L. Shell
10:30	KPDES Permit Activities . . . . .	D. L. Ashburn
10:00	Thomas Report on Major Risks . . . . .	L. D. Payne
11:15	Update on TCE Cleanup . . . . .	R. K. Dierolf
11:30	Update on PCB Cleanup . . . . .	R. J. Keeling
11:45	Summary of Meeting of EAC Chairmen . . . . .	G. D. Jackson
12:00	Wrap Up Questions/Comments . . . . .	G. D. Jackson
12:30	Adjourn	

## PGDP ENVIRONMENTAL ADVISORY COMMITTEE

## AGENDA

November 6, 1986

Plant Manager's Conference Room

9:00	How Do We Communicate Workplace Hazards . . .	M. A. Cox L. D. Payne
9:45	Break	
10:00	Groundwater Data . . . . .	D. L. Ashburn
10:45	C-310 Sampling Program . . . . .	D. L. Ashburn
11:15	Lunch	
12:00	Site Visit - C-746 Burial Area . . . . .	S. L. Shell
1:00	Site Visit - C-310 Product Withdrawal. . . . .	D. E. Page
2:00	Radiation from the PGDP in Perspective . . . . .	D. L. Ashburn
2:30	TLD System/Program . . . . .	J. A. O'Bryan
3:15	Executive Session . . . . .	G. D. Jackson

## PGDP ENVIRONMENTAL ADVISORY COMMITTEE

MINUTES OF MEETING OF NOVEMBER 6, 1986

The meeting was called to order by Plant Manager Ralph Donnelly. Present were: Gary Jackson, Chairman, Gary Boggess, Laverne Brown, C. K. Henry, Leonard Grief, and Charles Smith, representing the Committee; Ralph Donnelly, David Ashburn, Larry Payne, Steve Shell, Steve Seltzer, Bill Thompson, Debbie Wattier, and Brenda Rice, Secretary, representing Martin Marietta, Paducah; and Mike Mitchell and Gordon Jones from Martin Marietta Central Staff in Oak Ridge. Mr. Mitchell, Director of Environment, Safety, and Health for Energy Systems, offered his help in obtaining any information regarding company policy or additional help not provided by PGDP employees. He also introduced Mr. Jones as the liaison between the Oak Ridge Advisory Committee and Martin Marietta Energy Systems.

It was announced that R. C. Baker, who has served as the Paducah Plant liaison and has been with the company for 42 years, will be retiring at the end of the year; and Steve Seltzer will be assuming Mr. Baker's duties.

Mike Cox, Head of the Industrial Safety Department, gave the first presentation entitled, "How Do We Communicate Workplace Hazards," which was an outline of the basic safety program provided Paducah Plant employees and subcontractors. He began his presentation by stressing that Martin Marietta is committed to employee safety. The chain of safety reminders which are given to employees covers supervision, the Employee Protection Manual, staff safety meetings, hazard communication standard, training, the work permit systems, the safety library, and one-on-one contacts.

The hazard communication standard, which concerns the employee's right to know about hazardous materials with which he is working, is implemented by the hazard communication program which includes both identifying to the employee the hazardous material and providing training in handling this material. Material Safety Data Sheets are supplied for each hazardous material purchased by the Paducah Plant. A sample of a Material Safety Data Sheet (MSDS) was distributed, and concern was voiced by the Committee that the sheet contained technical language unfamiliar to employees. Larry Payne of Industrial Hygiene explained that his department, as well as the employee's immediate supervisor, was available to answer any questions employees might have regarding the MSDS's.

A very important part of the safety program is the work permit system, which consists of electrical, hazardous, and excavation permits. A work permit lists the type of safety equipment required to work on the particular job. The permit procedure was reviewed from the time the permit is turned in through completion and sign-off. It was emphasized that job sites are audited often by nonusers of the work permit system to insure that safety rules are adhered to.

Many tools are used to promote safety: orientation for new employees, distribution of the Safety and Health Handbook, use of safety and health bulletins and posters, a series of monthly safety meetings beginning with the Plant Manager's Safety Meeting, down through the departmental safety meetings. The Union-Management monthly safety meeting is composed of three representatives appointed by the union (currently Bill Harrison, Tommy Campbell, and Marshall Pullen) and three from management (Mike Cox, Bill Sykes - Operations Division Manager, and J. M. Collins - Maintenance Division Manager). This meeting provides a valuable channel to finding safety suggestions and problem areas. Any time there is a disabling on-the-job injury, it is reviewed by this committee.

The safety suggestion system also aids in resolving safety problems. Any employee can submit a safety suggestion directly to the Safety Department and receive a response within three to five days. There have been 35 suggestions submitted this year.

The safety program for subcontractors utilizes safety standards, subcontract documents, federal standards, basic safety orientation pamphlet for subcontractors, work permit system, preconstruction conferences, field change instructions, and Construction Engineering. Generally, subcontractors receive the same safety orientation and a portion of the same training as employees. Additionally, Construction Engineering acts as the liaison between the subcontractor and the company. They oversee the construction site and are responsible for seeing that safety precautions are carried out. Before a job is bid, a meeting is held with the bidders; and any hazards and required permits are discussed. After the bid is let, a preconstruction meeting is held in which these are covered in more detail. If a job becomes hazardous, field change instructions are written. Where necessary, Industrial Hygiene could become involved and would train subcontractors if hazards were encountered on a job (i.e., respirator fit testing, etc).

Safety Standard 5 for Subcontractors and the pamphlet on Basic Safety Orientation for Subcontractor Employees were given to the Committee. They also received the recent Energy Systems Survey results, which includes a 90% response from Paducah Plant employees.

Bill Thompson told the Committee that we deal with rumors through the Paducah Plant Update, where Mr. Donnelly is available to answer questions from anyone within the plant; through the Feedback publication, where employees can write questions asking for a written response, and the plant Hotline, which is an information service provided by Energy Systems in Oak Ridge.

It was also emphasized that the committee might want to hold a forum inviting members of the local business community, the press, and others, as appropriate, to provide more information about the plant and answer questions concerning the plant. One of the reasons for the Advisory Committee is to provide liaison with the community.



Gordon Jones suggested that the Committee be placed on the mailing list for the Energy Systems News.

Information on the C-310 Sampling Program was supplied by Gene Ernstberger of the Analytical Department. The C-310 building is the product withdrawal building, and the stack outside C-310 emits light gases to the atmosphere. He pointed out that uranium emissions from both areas are reduced by traps which hold the airborne emissions to very low levels. Normal emissions are <1 ppb uranium and approximately 500 ppm fluoride. He also illustrated through overheads and explanation the scrubbers contained within the C-310 building, check valves, etc. He gave an explanation of the monitoring devices on the stack; insight on the sample flow; and told how the monitoring results were calculated. The few times excessive uranium emission have occurred are due to interruptions on the product system such as taking a cell off line. The fluoride emission limit for the Paducah Plant is 100 pounds/day. The uranium limit is related to dose; therefore, there is no set limit for uranium emissions. The last large release, approximately 2500 grams (5 pounds), occurred in 1985; and there was a press release covering the incident. It was pointed out that several hundred pounds/month emissions were common in the past (monitoring records were present only back to 1980) and existed until sodium fluoride and alumina traps were put in service. The material from the alumina traps, when replaced, is presently stored onsite; and it has not been decided how it will be disposed of. There are several options available.

The Committee then adjourned for lunch, followed by a visit to the C-746-F Burial Area and the C-310 Product Withdrawal area.

David Ashburn presented a talk on groundwater data. A drawing of the monitoring wells site plan was distributed, which showed the location and depth of all monitoring wells on the plant site. Environmental Monitoring Reports for 1985 were given to the Committee, as well as an action plan for evaluating the monitoring wells. Steve Shell pointed out that a number of firms have looked at individual areas associated with the plant, installed wells in these areas, and written reports covering these sites. All this information will be combined into one overall plant program accomplished by this action plan. Dr. Boggess suggested that we might want to consider drilling wells at the perimeter fence - that data gained from monitoring these wells might provide a better public image than data gained from near burial sites, even though perimeter wells are not required under RCRA.

David Ashburn also presented "Radiation from the PGDP in Perspective." A question sheet was distributed which reflected doses received from a number of items. David then explained what radiation is, how we avoid it, how it affects us. Low doses of radiation cannot be detected, as such. Generally, a dose of 100,000 mrem within a short time is required to generate mild symptoms. Statistics of deaths caused by heart attacks and cancer were given, along with dose risks.

Dennis Frazee of Health Physics presented a program on the thermoluminescent dosimeter (TLD) system, which is the system used to monitor radiation for individual employees in the Paducah Plant. He began by explaining the types of radiation which we encounter - beta, gamma, and x-ray. He pointed out that the picture badges worn by employees contain a device for collecting radiation; that the TLD is changed quarterly for some workers (a total of 45) because of the high exposure in certain work areas. All other badges are changed annually. Dennis used a graph and a table to illustrate the decline of radiation exposure from 1960 through 1981. He pointed out that annually we provide a bulletin to all employees showing the radiation protection standards and measured exposure (this bulletin covers both gamma and beta-gamma radiation). TLDs are analyzed in Oak Ridge and results sent back to us. If a worker thinks he has received an unusually large exposure, he will be able to have his badge checked immediately. Additional badges are provided where necessary.

Many times, we pull badges from personnel in the plant and have them analyzed. If a person is exposed to greater than 10% of the Radiation Protection Standard, we are required to notify that individual of the exposure. We have never had an employee exceed the gamma standard. There have been two over the limit in beta, who are still being monitored even though they are no longer employed at the plant. If a person receives over 10% of the annual guide during a quarter, he is investigated.

Steve Shell then updated the Committee on the status of the KPDES permit. The permit requirements are much more stringent than those of the old permit because they are based on Warm Water Aquatic Habitat Criteria, the most stringent base the State could have used. Major problem areas are with the metals limits. Water taken from the Ohio River exceeds the limits required for our effluents. When we told the State we could not meet the metals limits, they suggested a pipeline to the river as one option. The State recommended a separation of process water and stream water - projected cost, \$100 million. This would require Congressional approval, which could require as long as six years for completion.

A drawback to the pipeline proposal is that rainwater runoff may not meet iron and other metals limits. Separation of process and storm water, which could be piped to the Ohio River, would be cost prohibitive.

The State Cabinet suggested that we:

1. Conduct preliminary bioassay screening
2. Conduct study for process/storm water separation
3. Reach an agreement with State on new limits.

It appears we now have working relationship with State to come up with permit we can both live with.

The Committee then held an Executive Session followed by adjournment.

## PGDP ENVIRONMENTAL ADVISORY COMMITTEE

## AGENDA

January 8, 1987

Plant Manager's Conference Room

9:00	KPDES Status Update . . . . .	D. L. Ashburn
9:30	Plans for Biological Monitoring . . . . .	J. Loar/C. W. Gehrs
10:15	Tour - KPDES Sampling Locations and Big Bayou Monitoring Station . . . . .	D. L. Ashburn
11:15	PGDP Environmental Cost Projections . . . . .	V. W. Jones
11:45	Lunch	
12:30	DOL/OSHA Asbestos Standards and Impact on PGDP Construction Activities . . . . .	L. D. Payne
1:00	Discussion with Union Officials . . . . .	Union Representatives
2:00	Future Direction of Committee . . . . . (Possible Plans for Public Meeting)	Discussion
2:45	Executive Session . . . . .	G. D. Jackson
2:45	Wrap Up/Questions/Comments	
3:00	Adjourn	

## PGDP ENVIRONMENTAL ADVISORY COMMITTEE

MINUTES OF MEETING OF JANUARY 8, 1987

The meeting was called to order by Chairman Gary Jackson. Present were: committee members Gary Boggess, Laverne Brown, C. K. Henry, Leonard Grief, and Charles Smith; David Ashburn, Steve Shell, Steve Seltzer, and Brenda Rice, Secretary, from the Paducah Plant; and Dr. Carl Gehrs from Oak Ridge National Laboratories. Steve Seltzer informed the Committee of the new on-site DOE representative, David R. Allen.

David Ashburn began the program with an update on KPDES status. Because requirements for the proposed KPDES permit were too stringent to be met, Martin Marietta rejected the permit and filed for adjudication. After meeting with the State, it was determined that the two options available to us were:

1. Biological monitoring to prove a lack of toxicity, or
2. Separation of process and storm water and piping process water to the river.

We opted for biological monitoring.

Dr. Carl Gehrs, who heads the Aquatic Ecology Section of the Environmental Sciences Division, Oak Ridge National Laboratory, explained the biological monitoring program in place at Oak Ridge. He used the example of East Fork Poplar Creek, which runs through the City of Oak Ridge. By studying the biological systems which lived in East Fork Poplar Creek, a determination was made as to whether materials entering the creek were harming the environment.

Because East Fork Poplar Creek could not meet Clean Water Act (CWA) limits, the concept of biological monitoring was used. Dr. Gehrs emphasized compliance might be gained through the following:

1. Toxicity Studies - Set up tests that utilize standard systems.
2. Bioaccumulation Studies - These tests determine if materials are accumulating in the food chain in concentrations that could be hazardous to human health. They include collecting sediments and fish from creeks; and determining concentrations of materials in each. Dr. Gehrs emphasized that concentrations in organisms may not be reduced, even if materials in the effluents are reduced.
3. In-Stream Sampling of Biota - ORNL conducted the first large-scale biological monitoring program using these studies to meet CWA requirements. He emphasized that these types of studies are not off-the-shelf and require much scientific interpretation.

Dr. Gehrs pointed out that before a strategy was decided upon, effluents should be studied to determine their condition so that it would be known whether improvements are being made. Within a year of sampling, one should have a good qualitative idea of the environs.

The Committee then took a tour of KPDES sampling locations and the monitoring station at Big Bayou Creek.

Vicki Jones then reviewed projected costs through FY-93 associated with the Plant maintaining compliance with all applicable and anticipated regulations. Cost breakdown by project covered the following programs:

1. Air Pollution Control
2. Water Pollution Control
3. Waste Management
4. Remedial Action
5. Environmental Monitoring

A presentation on DOL/OSHA asbestos standards and impact on PGDP construction activities was given by Larry Payne. A handout entitled "Asbestos at PGDP" was distributed. He gave a brief history of asbestos, covered its characteristics, and then told of the EPA regulation and the OSHA standard for asbestos. An example was given of asbestos removal from a cooling tower here at the Paducah Plant and the required employee protection. He also discussed our action plan for compliance with the new standard.

After holding a closed door session with union officials, the Committee then reconvened with Martin Marietta representatives.

The idea of holding a public forum was discussed at length. At the request of Gary Jackson, Steve Seltzer promised to bring this idea before plant management. Seltzer saw no need for a town meeting, such as those held in Oak Ridge, since our situation differs from theirs greatly.

Before the next meeting of the Committee, Jackson requested:

1. an update on the biological monitoring,
2. assessment of the Committee's future function should be,
3. further information on Legionnaire's Disease, i.e., how it is transmitted and the safeguards provided with plant air conditioning system, etc., and
4. steps being taken in the area of emergency preparedness in the case of an earthquake or tornado.

It was suggested that the next meeting be planned for mid-April (either 14th or 16th). A possible agenda item could be the upcoming appraisal. It was also suggested that the notices for the next meeting be sent out earlier.

## PGDP ENVIRONMENTAL ADVISORY COMMITTEE

## AGENDA

April 28, 1987

## Outside Conference Room

9:00 Introduction to Nuclear Criticality Safety . . . . . K. L. Dhaese  
9:30 Overview of Health Physics Program . . . . . D. L. Chumbler  
9:45 Technical Safety Appraisal Overview . . . . . M. A. Cox  
10:30 Preparedness for Natural Disasters . . . . . Operations  
11:00 C-404 Closure Status . . . . . R. K. Dierolf  
11:10 EDGe Groundwater Strategy . . . . . D. L. Ashburn  
11:30 Lunch  
12:15 Tour (C-404 Landfill, Emergency Equipment)  
1:00 Remedial Action Planning . . . . . B. J. Montgomery  
1:30 Asbestos Sampling Update (Cooling Towers) . . . . . L. S. Chaney  
1:45 Committee Function and Future Direction . . . . . S. F. Seltzer  
2:00 Executive Session  
2:30 Wrap-up  
2:45 Adjourn



## ENVIRONMENTAL ADVISORY COMMITTEE

MINUTES OF MEETING OF APRIL 28, 1987

PRESENT: Dr. Gary Boggess, Ms. Laverne Brown, Mr. Leonard Grief,  
Dr. C. K. Henry, Mr. Gary Jackson, Dr. Charles G. Smith

Don Chumbler, Pat Lipford, Steve Shell, Steve Seltzer,  
Debbie Wattier, JoAnn Pharis, Secretary.

Chairman Gary Jackson began the meeting with an open forum for questions not listed on the agenda.

In the absence of Kevin Dhaese, PGDP Nuclear Criticality Engineer, Steve Shell presented a nuclear criticality videotape, which is used to train supervisors and union employees. He stated that if the committee felt it necessary, Mr. Dhaese would be invited to attend the next committee meeting.

Don Chumbler gave an overview of the Health Physics (HP) program. He emphasized the increased use of Quality Assurance in the HP area, gave a brief description of his past and present job assignments, and the objectives of the HP Department. Two types of monitoring performed by Health Physics - TLD and urinalysis - were discussed. It was emphasized that DOE standards are very stringent.

The increase in urinalysis submissions from 61% to 93% over the past three years was stressed. PGDP managers have strongly encouraged this. Although drug testing is not mandatory for all employees, anyone transferring to the security inspector position from within the plant is required to take the drug test. Before an employee is tested, he must sign two forms granting approval.

Mike Cox stated that if we perceive a problem within a work area, we have the authority to stop work. However, we encourage the field staff to take responsibility for conditions and resolve problems whenever possible. The size of the HP staff was discussed along with the problem of no certified Health Physicist in the plant. The Technical Safety Audit (TSA) indicated a need for nine people certified in Health Physics and a change in the way we do business.

Mike Cox then presented an overview of the TSA, which is a special, one-shot examination effort put forth by the DOE. He pointed out that 13 performance areas were reviewed at Paducah by 14 auditors, with 3 coordinators, and 1 technical editor. There were 89 performance objectives with 4 to 25 criteria listed for each. A response was given, and a check will be made to insure that the responses have been implemented. The TSA revealed two "noteworthy practices" at PGDP: the Plant Improvement Program and Division Hazard Communication Coordinator.

Following a break, Norm Windt of Operations Division, told of our Preparedness for Natural Disasters. Ten people on each shift from Operations and Maintenance are members of the Plant Emergency Squad; three fire drivers per shift are EMTs; there is a definite procedure followed when spills are reported.

Ron Dierolf then updated the committee on the status of the C-404 burial ground. In May 1986, hazardous waste was discovered in this area. A closure plan was developed and negotiated. Within a few weeks, the closure plan will be announced in the Paducah Sun according to state regulation. Following closure (which is targeted for July 31, 1987), this burial ground will be monitored for 30 years.

David Ashburn briefed the committee on a groundwater study prepared by the consulting firm, EDGE. He explained that the land where PGDP is located was once a river bed; therefore, it is difficult to determine the flow and direction of groundwater.

Cost figures for Remedial Action planning through the year 2000 were given by Brad Montgomery. These included groundwater monitoring.

Lisa Chaney updated the committee on asbestos sampling at the cooling towers. Various places where asbestos was used during construction were named.

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