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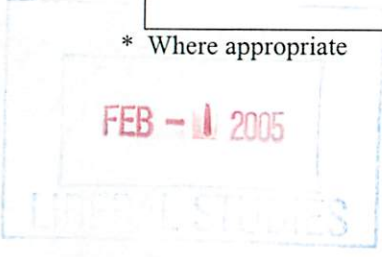
Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person Dr. John Engler	Email Address JME@iup.edu
Proposing Department/Unit Safety Sciences Department	Phone 7-3018

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)		
<input type="checkbox"/> New Course	<input type="checkbox"/> Course Prefix Change	<input type="checkbox"/> Course Deletion
<input checked="" type="checkbox"/> Course Revision	<input checked="" type="checkbox"/> Course Number and/or Title Change	<input type="checkbox"/> Catalog Description Change
SAFE 210 Environmental Safety & Health Regulations	SAFE 410 Environmental Safety & Health Regulations	
<i>Current Course prefix, number and full title</i>	<i>Proposed course prefix, number and full title, if changing</i>	
2. Additional Course Designations: check if appropriate		
<input type="checkbox"/> This course is also proposed as a Liberal Studies Course.	<input type="checkbox"/> Other: (e.g., Women's Studies,	
<input type="checkbox"/> This course is also proposed as an Honors College Course.	Pan-African)	
3. Program Proposals		
<input type="checkbox"/> New Degree Program	<input type="checkbox"/> Program Title Change	<input type="checkbox"/> Other
<input type="checkbox"/> New Minor Program	<input type="checkbox"/> New Track	
<i>Current program name</i>	<i>Proposed program name, if changing</i>	
4. Approvals		
Department Curriculum Committee Chair(s)	<i>San Teresita</i>	1/12/05
Department Chair(s)	<i>San Teresita</i>	1/21/05
College Curriculum Committee Chair	<i>Elizabeth Palmer</i>	1/28/05
College Dean	<i>Patricia G. Zoni</i>	2-1-05
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs		

* Where appropriate



Part II. Description of Curriculum Change

1. Syllabus of Record.

The revised syllabus is attached in Appendix A.

2. Summary of the Proposed Revisions

This course was revised to eliminate overlap in the area of hazardous materials with the proposed new course SAFE 220 Hazardous Materials. The objectives for the course were revised to be more behavioral based following Blooms Taxonomy and to remove objectives related to hazardous materials. Course content related to hazardous materials was removed because this is now being covered in the proposed new course SAFE 220 Hazardous Materials. The course number was changed to reflect this course being a senior level course and the catalog description was changed to reflect all these changes:

New Catalog Description

Provide a working knowledge of federal environmental legislation and their practical application in the work environment. Environmental laws covered include the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act and other related environmental laws.

Old Catalog Description

This course offers the student a practical approach to the understanding of, and compliance with, the various environmental regulations that impact on business. A thorough discussion of the definitions, categories, and evaluation of hazardous materials is included. Environmental laws covered include the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Occupational Safety and Health Act, and other related laws.

3. Justification/Rationale for the Revision

We had previously attempted to cover environmental safety and health regulations, emergency response and hazardous materials and control strategies in SAFE 210 Environmental Safety & Health Regulations but this has not worked. We were not able to adequately cover the regulations in the depth necessary to adequately prepare our students for their role as safety & health professionals. This was expressed by several students in graduate exit surveys who indicated that as sophomores they did not have a sufficient safety background to understand many of the requirements of the environmental regulations. Therefore, we split the content for the previous SAFE 210 course into two courses and expanded coverage into the much needed areas of hazardous materials and disaster response in the new course SAFE 220. We also revised the numbering of SAFE 210 to 410 so that senior level students would be taking this course. SAFE 220 would now be a required prerequisite for SAFE 410. Our advisory committee and alumni surveys identified the need to expand our coverage of environmental

safety & health regulations in our curriculum and coverage of environmental safety is also mandated by our accrediting body, see appendix D.

4. The Old Syllabus of Record

See Appendix B for the old syllabus of record.

5. Liberal Studies Course Approval Form and Checklist

Not applicable!

Part III. Letters of Support or Acknowledgement

This revised course may be an elective in the B.S. in Environmental Health and therefore a letter of support from this program is attached.

APPENDIX A: REVISED SYLLABUS OF RECORD

I. Catalog Description

SAFE 410 Environmental Safety and Health Regulations	3 class hours 0 lab hours 3 credits
Prerequisite: SAFE 220	(3c-01-3cr)

Provide a working knowledge of federal environmental legislation and their practical application in the work environment. Environmental laws covered include the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act and other related environmental laws.

II. Course Objectives

The students will be able to:

- A. demonstrate a fundamental working knowledge of federal environmental legislation.
- B. identify the causes and controls of drinking water and waste water pollution.
- C. identify the causes and controls of air pollution problems and provide appropriate control strategies.
- D. apply a basic knowledge of the environmental field of solid wastes including applicable disposable methods.
- E. communicate effectively.
- F. recognize contemporary and global environmental issues.

III. Course Outline

- A. Environmental Regulations (6 hours)
 1. Overview
 2. Trends
 3. Appropriateness of risk assessment
- B. Regulations Pertaining to Air Quality (12 hours)
 1. Basic issues
 2. Major sources of air pollution
 3. Extent of the air pollution problem
 4. The Clean Air Act and Amendments (CAAA)
 5. Evaluation and control strategies for air pollution
 6. Permitting

Midterm	(1 hour)
C. Regulations Pertaining to Water Quality	(12 hours)
1. Basic issues	
2. Major sources of water pollution	
3. Extent of the water pollution problem	
4. Clean Water Act (CWA)	
5. Safe Drinking Water Act (SDWA)	
6. Evaluation and control strategies for water pollution	
7. Permitting	
D. Regulations Pertaining to Soil Contamination	(8 hours)
1. Basic issues	
2. Major sources of solid waste	
3. Extent of the solid waste problem	
4. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	
5. Resource Conservation and Recovery Act (RCRA)	
6. Identification and control strategies for soil contamination	
7. Permitting	
E. Emerging Issues in Environmental Safety	(3 hours)
1. Ethics	
2. Regulatory	
3. Global	
Final Examination	(2 hours)

IV. Evaluation Methods

The faculty person assigned to teach this course could be one of several faculty within the Safety Sciences Department. What follows is an example of the evaluation methods and weighting used for this course:

Your final grade in this class will be a compilation of the following:

A. Examinations	30%
B. Quizzes	30%
C. Homework/Projects	35%
D. Class Participation	5%

Examinations and Quizzes: The examinations and quizzes will be short answer, multiple choice, true/false and matching with material coming from lecture notes, the text and handouts.

Homework/Projects: Homework and projects will be assigned based on the material covered in the specific unit, many of which are case studies and small group projects involving the recognition, evaluation and control of occupational health hazards.

Class Participation: This includes but is not limited to individual participation in whole class and small group discussions and other brief class presentations.

V. Example Grading Scale

In general, the following scale will be used in assigning letter grades, related to the evaluation of student performance based on a “percentage” grading scale:

A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = Below 60%

VI. Attendance Policy

The attendance policy for this course conforms to the University’s Undergraduate Course Attendance Policy; in that all students are expected to attend and participate in class to enhance their learning.

VII. Required Textbooks

National Safety Council. (2002). *Accident Prevention Manual: Environmental Management*, National Safety Council, Itasca, IL, 2nd edition.

VIII. Special Resource Requirements

None.

IX. Bibliography

Bodger, K. (2003). *Fundamentals of Environmental Sampling*, Government Institutes, Rockville, MD.

Hart, J. & McKiel, M. (2002). ISO 14000: Questions and Answers. National Safety Council, Itasca, IL, 6th edition.

National Safety Council. (2002). 7 Elements of a Successful Environmental Program. National Safety Council, Itasca, IL.

Owen, O. and Chiras, D. (2002). *Natural Resource Conservation, An Ecological Approach*, Macmillan Publishing Company, 8th edition.

Pichtel, J. (2000). *Fundamentals of Site Remediation*. Government Institutes, Rockville, MD.

Spellman, F. & Whiting, N. (1999). *Water Pollution Control Technology – Concepts and Applications*. Government Institutes, Rockville, MD.

Sullivan, T, Editor. (2003). Environmental Law Handbook, Government Institutes, Rockville, MD. 17th edition.

Voyles, James. (2002). *Managing Your Hazardous Wastes*, Government Institutes, Rockville, MD. 2nd edition.

Historical References:

Hallenbeck, W.H. (1993). Quantitative Risk Assessment for Environmental and Occupational Health, 2nd edition. Boca Raton, FL: CRC Press.

Harrison, L. (1995). Environmental, Health, and Safety Auditing Handbook, 2nd edition. New York: McGraw-Hill.

Howard, P.H. and Neal, M. (1992). Dictionary of Chemical Names and Synonyms. Boca Raton, FL: Lewis Publishers.

Appendix B: Old Syllabus of Record

I. Catalog Description

SAFE 210 Environmental Safety and Health Regulations 3 lecture hours
0 lab hours
3 credits
(3c-01-3cr)

Prerequisites: CHEM 102, SAFE 101, or instructor permission

Offers a practical approach to the understanding of, and compliance with, the various environmental regulations that impact on business. A thorough discussion of the definitions, categories, and evaluation of hazardous materials is included. Environmental laws covered include the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Occupational Safety and Health Act, and other related laws.

II. Course Objectives

As objectives for successful completion of this course, students will:

- A. Read and be prepared to discuss the major topics of the textbook(s) and other assigned readings.
- B. Read and be able to discuss the primary literature in various aspects of environmental safety and health.
- C. Demonstrate the ability to comprehend the fundamental meaning and implication of the various environmental regulations on manufacturing and other occupational activities.
- D. Investigate representative problems in environmental safety and health by properly designing, conducting, analyzing and summarizing appropriate studies.
- E. Be able to communicate their research, both in written and oral presentations.

III. Course Outline

- A. Introduction: Background: Historical Perspectives (4 hours)
 1. Interrelationships of matter, energy and environment
 2. Interactions between organisms and the environment
 3. Ecosystems and communities
- B. Hazardous Materials (4 hours)
 1. Categories of hazardous materials properties
 - a. Flammability
 - b. Reactivity/Instability
 - c. Toxicity
 - d. Other hazards
 2. Hazardous materials definitions
 3. Determination of properties of hazardous materials
- C. Environmental Transport Processes (3 hours) (3 hours)

- D. Environmental Regulations (3 hours)
 - 1. Overview
 - 2. Trends
 - 3. Appropriateness of risk assessment

- E. Regulations Pertaining to Air Quality (8 hours)
 - 1. Basic issues
 - 2. Major sources of air pollution
 - 3. Extent of the air pollution problem
 - 4. General methods for controlling emissions
 - 5. Air pollution case studies
 - 6. The Clean Air Act and Amendments (CAAA)
 - 7. Other major air quality regulations

- F. Regulations Pertaining to Water Quality (6 hours)
 - 1. Basic issues
 - 2. Major sources of water pollution
 - 3. Extent of the water pollution problem
 - 4. General methods for controlling pollution
 - 5. Clean Water Act (CWA)
 - 6. Safe Drinking Water Act (SDWA)
 - 7. Other major water quality regulations

- G. Regulations Pertaining to Soil Contamination (8 hours)
 - 1. Basic issues
 - 2. Major sources of solid waste
 - 3. Extent of the solid waste problem
 - 4. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
 - 5. Resource Conservation and Recovery Act (RCRA)
 - 6. Other solid waste regulations

- H. Related Regulations (3 hours)
 - 1. National Environmental Policy Act (NEPA)
 - 2. Emergency Planning and Community Right-to-Know Act (EPCRA)
 - 3. Toxic Substances Control Act (TSCA)
 - 4. Occupational Safety and Health Act (OSHA)
 - 5. Regulation of pesticides
 - 6. Regulations promulgated by Nuclear Regulatory Commission

- I. Environmental Safety and Health Program (3 hours)
 - 1. Administration of the program
 - 2. Environmental emergency planning
 - 3. Environmental audits

IV. Evaluation Methods

The faculty member assigned to teach this course could be any one of several faculty within the Safety Sciences Department. What follows is an example of the evaluation methods and weighting used by one of those faculty.

The final grade in this course will be determined by using a combination of at least four (4) of the following evaluation methods, within the range of weighting shown and totaling 100%, as determined by the individual faculty member.

- A. A minimum of two (2) written EXAMS, consisting of combinations of multiple choice, true/false, matching, completion, essay questions or other interactive exams. Make-up exams will be provided at the option and discretion of the instructor. (25%)

- B. Periodic QUIZZES, including unannounced quizzes at the discretion of the instructor. Make-up quizzes may be permitted at the option of the instructor. (20%)
- C. Periodic out-of-classroom, i.e., HOMEWORK assignments. (10%)
- D. Preparation of formal, technical PAPERS/PROJECTS on topics assigned and/or approved by the instructor. (20%)
- E. Presentation of an ORAL REPORT on topic assigned and/or approved by the instructor. (15%)
- F. CLASSROOM PARTICIPATION and relevant contribution to class discussions. (10%)

Extra credit can be assigned in any of the above evaluation areas at the discretion of the individual instructor. Work submitted after the due date in any of the above methods may have a penalty imposed at the discretion of the instructor.

In general, the following scale will be used in assigning letter grades, related to the evaluation of student performance based on a "percentage" grading scale:

A = 90-100%
 B = 80-89%
 C = 70-79%
 D = 60-69%
 F = Below 60%

At the discretion of the individual instructor, a grading curve that results in an appropriate distribution of grades may be used in place of the scale described above.

V. Required Text

A. The textbook(s) required for this course will be selected from the following list:

Ayers, et al. Environmental Science and Technology Handbook. Rockville, MD: Government Institutes, Inc. 1994.

McGregor, Gregor I. Environmental Law and Enforcement. Boca Raton, FL: CRC Press/Lewis Publishers. 1994.

Sullivan, Thomas F.P., Editor. Environmental Law Handbook, 13th edition. Rockville, MD: Government Institutes, Inc. 1995.

Woodside, G. Hazardous Materials and Hazardous Waste Management. New York: John Wiley & Sons. 1993.

B. Supplemental Readings: Additional, appropriate current, primary literature, readings and other course support materials will be provided by the instructor for use by the students during the course.

VI. Special Resource Requirements

This course requires no out-of-the-ordinary, student-supplied materials or equipment. No special fees are associated with this course.

VII. Bibliography

Confer, R. F. and Confer, T.R. Occupational Health and Safety: Terms, Definitions and Abbreviations. Boca Raton, FL: CRC Press. 1994.

Greenberg, H.R. and Cramer, J.J. Risk Assessment and Risk Management for the Chemical Process Industry. New York: Van Nostrand Reinhold. 1991.

Hallenbeck, W.H. Quantitative Risk Assessment for Environmental and Occupational Health, 2nd edition. Boca Raton, FL: CRC Press. 1993.

Harrison, L. Environmental, Health, and Safety Auditing Handbook, 2nd edition. New York: McGraw-Hill, 1995.

Howard, P.H. and Neal, M. Dictionary of Chemical Names and Synonyms. Boca Raton, FL: Lewis Publishers. 1992.

Lippman, M., ed. Environmental Toxicants: Human Exposures and their Health Effects. New York: Van Nostrand Reinhold. 1992.

Lowry, G.G. and Lowry, R.C. Handbook of Hazard Communication and OSHA Requirements. Chelsea, MI: Lewis Publishers. 1988.

Ott, W.R. Environmental Statistics and Data Analysis. Boca Raton, FL: CRC Press. 1995.

Pierce, D.F. Total Quality for Safety and Health Professionals. Rockville, MD: Government Institutes. 1995.

Vincoli, J.W. Basic Guide to Environmental Compliance. New York: Van Nostrand Reinhold. 1993.

West, G.A. and Michaud, R.W., eds. Principles of Environmental Health and Safety Management. Rockville, MD: Government Institutes. 1995.

Working Safety with Hazardous Materials in the Workplace: An Employee Handbook. New York: Genium Publishing. 1993.

VIII. General Course Outline

See Course Outline section above.

Appendix C Catalog Description

SAFE 410 Environmental Safety and Health Regulations

(3c-01-3cr)

Prerequisites: SAFE 220

Provide a working knowledge of federal environmental legislation and their practical application in the work environment. Environmental laws covered include the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act and other related environmental laws.

Appendix D

ACCREDITATION CRITERIA 2003 Criteria for Accrediting Applied Science Programs

PROGRAM CRITERIA FOR SAFETY AND SIMILARLY NAMED APPLIED SCIENCE PROGRAMS

Lead Society: American Society of Safety Engineers

These program criteria apply to safety, occupational safety, industrial safety and similarly named applied science programs.

I. PROGRAM CRITERIA FOR BACCALAUREATE LEVEL PROGRAMS

Students

The quality and performance of the students and graduates is an important consideration in the evaluation of an academic safety program. The institution must evaluate and monitor students and alumni to determine its success in meeting program objectives.

Program Educational Objectives

Each safety program for which an institution seeks accreditation or reaccreditation shall have in place:

- a. detailed published educational objectives that are consistent with the mission of the institution and these criteria.
- b. a process based on the needs of the program's various constituencies in which the objectives are determined and periodically evaluated.
- c. a curriculum and process that ensures the achievement of these objectives.
- d. a system of ongoing evaluation that demonstrates achievement of these objectives and uses the results to improve the effectiveness of the program.

Program Outcomes and Assessment

Safety programs shall demonstrate that their graduates have:

- a. an ability to apply knowledge of mathematics and science
- b. an ability to analyze and interpret data
- c. an ability to anticipate, identify, and evaluate hazardous conditions and practices
- d. an ability to develop hazard control designs, methods, procedures and programs.
- e. an ability to function on multi-disciplinary teams
- f. an understanding of ethical and professional responsibility
- g. knowledge of contemporary issues within a global and societal context.

Each program must have an assessment process with documented results. Evidence must be given that the results are applied to the further development and improvement of the program. The assessment process must demonstrate that the outcomes important to the mission of the institution and the objectives of the program, including those listed above, are being measured. Evidence that may be used includes, but is not limited to, the following: student portfolios, including design projects; nationally normed subject content examinations; alumni surveys that document professional accomplishments and career development activities, employer surveys; and placement data of graduates.

The institution must have and enforce policies for the acceptance of transfer students and for the validation of credit courses taken elsewhere. The institution must also have and enforce procedures to assure that all students meet all program requirements.

Curriculum

- a. Graduates shall demonstrate proficiency in college algebra and statistics.
- b. Graduates shall demonstrate proficiency in the application of chemistry (including organic), physics, physiology, and biology as it pertains to the practice of safety.
- c. Graduates shall demonstrate proficiency in written composition and oral communications.
- d. Graduates shall demonstrate knowledge of the techniques, skills, and modern behavioral tools necessary for the practice of safety.
- e. Safety graduates shall demonstrate knowledge of:
 1. safety and health fundamentals
 2. industrial hygiene including toxicology
 3. systems safety and associated analytical techniques
 4. legal aspects of safety, health and environmental practice
 5. environmental aspects of safety and health
 6. product safety
 7. fire prevention and protection
 8. construction safety
 9. industrial or manufacturing processes
 10. applied mechanics for safety
- f. Safety graduates shall demonstrate competency in:
 1. laboratory techniques associated with industrial hygiene and basic sciences
 2. safety and health program management
 3. ergonomics
 4. accident/incident investigation and analysis
 5. the performance of education and training for safety
 6. fundamental exposure measurement techniques
 7. measurement of safety performance
- g. Students should be given the opportunity to apply principles of safety and health in a non-academic setting through an intern or cooperative work experience.

Lon Ferguson

From: "Thomas Simmons" <tsimmons@iup.edu>
To: "Lon Ferguson" <ferguson@iup.edu>
Sent: Thursday, January 27, 2005 7:48 PM
Subject: Re: Revisions to Safety Sciences Curriculum

Dear Lon,

I did look over the hardcopy materials that you sent to me. They look like good changes for your program, and I see benefit for my ENVH Program as well. I will draft a letter of support. Thank you.

Sincerely,

Tom Simmons

On Thu, 27 Jan 2005 16:11:56 -0500

"Lon Ferguson" <ferguson@iup.edu> wrote:

> Hi Tom:

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> The Safety Sciences Curriculum proposal was recently approved by
 > the CUCC and they asked me to follow-up on previous requests for
 > letters of support for course changes, see memo below.

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> Your input would be appreciated!

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> To: Dr. Thomas Simmons, Assistant Chairperson, Biology
 > Department

>

> From: Dr. Lon Ferguson, Chairperson, Safety Sciences Department

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> Date: 1/20/2005

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> Re: Revisions to Safety Sciences Curriculum

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> As a member of the Safety Sciences Advisory Committee you are aware
 > of our recent meetings to review our B.S. Curriculum. This review
 > included liberal studies requirements, pre-requisite courses in math,
 > sciences and management as well as core safety courses. Following
 > the most recent meeting, the committee recommended the following
 > changes for department faculty consideration:

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> · Replace MATH 121 with MATH 105

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> · Add undergraduate 200 level courses in Hazardous Materials

>and Safety Management

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> · Revise SAFE 210 Environmental Safety to eliminate coverage
>of hazardous materials and make this a senior level course to better
>reflect course content.

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> · Replace ECON 122 with ACCT 200 Accounting Principles I.

>

> · Complete revision of Industrial Hygiene courses (SAFE 301,
>303, and 402) to include two four credit courses with a lab (SAFE 320
>and 420). In a nutshell these courses will no longer be divided into
>recognition, evaluation and control of health hazards but will be
>split based on chemical, biological and physical health hazards. As
>previously done, there was tremendous overlap in coverage and now the
>recognition, evaluation and control of the various hazards will be
>covered in the same course.

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> Based on these recommendations and a review of ABET accreditation
>criteria for safety programs, Department Faculty voted to change our
>B.S. Curriculum. We realize that Environmental Health Majors will be
>affected by the change from the revision of SAFE 210 to 410 but as
>you can see in the attached course proposals the major change was to
>simply remove coverage of hazardous materials and to make this a
>senior level course. We will as we have in the past waive all
>prerequisites for Environmental Health Majors. The other changes
>that will affect electives are the change from SAFE 301,303, and 402
>to SAFE 320 and 420. Hopefully, these courses can remain as elective
>courses for your majors.

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> Please see the attached curriculum and course proposals. As part of
>our curriculum proposal, would you please send a letter of support
>for this change, thank you!

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