July 14, 1998

Mr. William H. Timbers
President and CEO
United States Enrichment Corporation
Two Democracy Center
6903 Rockledge Drive
Bethesda, MD 20817

SUBJECT: SUMMARY OF JUNE 26, 1998, MANAGEMENT MEETING ON CHILLING EFFECTS

Dear Mr. Timbers:

A publicly noticed meeting between the United States Enrichment Corporation (USEC) and the U. S. Nuclear Regulatory Commission (NRC) was held on June 26, 1998. The purpose of the meeting was to discuss the results of your Nuclear Safety Culture assessment, conducted by SYNERGY Corporation, in response to our December 8, 1997, correspondence regarding the NRC's concern about the potential for a "chilled environment" at your gaseous diffusion plants.

We appreciate the information you provided during the meeting regarding your assessment of the Nuclear Safety Culture at your plants. We will review the information you have provided and respond to your June 1, 1998, letter (GDP 98-0114) by separate correspondence. The June 26, 1998, meeting presentation slides and the meeting attendance sheet are enclosed.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Please contact Mr. Patrick Hiland, Chief, Fuel Cycle Branch, at (630) 829-9603 if you or your staff have any questions. We appreciate your cooperation in this matter.

Sincerely,

Original Signed by

Cynthia D. Pederson, Director
Division of Nuclear Materials Safety

Docket Nos. 70-7001; 70-7002
Certificate Nos. GDP-1; GDP-2

Enclosures: As stated

200079

See Attached Distribution

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MEETING OF U.S. NUCLEAR REGULATORY COMMISSION
AND UNITED STATES ENRICHMENT CORPORATION

June 29, 1998

Topic: Chilling Effects

Name	Affiliation	Phone
Carl Paperiello	NRC/RIII	630/829-9657
Cindy Pederson	NRC/RIII	630/829-9800
Patrick Hiland	NRC/RIII	630/829-9603
Malcolm Knapp	NRC/NMSS	301/415-6641
Don Cool	NRC/NMSS	301/415-7179
Bill Brach	NRC/NMSS/FCSS	301/415-7213
Bob Pierson	NRC/NMSS/FCSS	301/415-7192
Yawar Faraz	NRC/NMSS/FCSS	301/415-8113
Merri Horn	NRC/NMSS/FCSS	301/415-8126
Susan Greene	NRC/NMSS/IMNS	301/415-7843
Ed Baker	NRC/NRR	301/415-8529
Jim Miller	USEC	301/564-3309
George Rifakes	USEC	301/564-3301
Dennis Scott	USEC	301/564-3352
Ed Vilade	USEC	301/564-3345
Morris Brown	USEC/LMUS	740/897-2101
Howard Pulley	USEC/LMUS	502/441-6301
Howard Levin	SYNERGY	703/450-6383
John Guibert	SYNERGY	919/968-9440

United States Enrichment Corporation

Nuclear Safety Culture Assessment

NRC Briefing
June 29, 1998

SYNERGY
CONSULTING SERVICES CORPORATION

Chapel Hill, NC
Great Falls, VA
Richmond, VA

PRESENTATION OUTLINE

- Introduction
- Summary of Conclusions
- Assessment Scope
- Assessment Methodology
- Summary of Assessment Results
- Recommendations

INTRODUCTION

- USEC commissioned SYNERGY to conduct an independent assessment of the Nuclear Safety Culture at its Paducah and Portsmouth gaseous diffusion plants (GDPs).

- Over the last several years, SYNERGY has led more than 50 assessments and related performance improvement programs addressing the Nuclear Safety Culture, General Culture and Work Environment, applied Leadership, Management & Supervisory skills and performance, Employee Concerns Programs, operational readiness and technical reviews.

  - Cross-section of approx. 1/3 of U.S. nuclear power plants.
  - Other critical energy production, defense and government-owned facilities.

SUMMARY OF CONCLUSIONS

- The cultures at the Paducah & Portsmouth sites are similar.

- The Nuclear Safety Culture (NSC) was found to be in the acceptable range and improving.

- A significant majority of employees feel a responsibility to identify potential nuclear safety issues and would feel supported by their supervision for having done so.

  - Significant improvement in the identification & resolution of potential nuclear safety issues through the Problem Reporting (PR) process.
  - Opportunities to improve effectiveness of resolution through issue prioritization, investigation of root causes and timeliness of action.

- The Employee Concerns Program (ECP) warrants attention to assure it is a viable alternative path for resolution of potential nuclear safety issues.

- There are opportunities to enhance other technical programs & processes, e.g. Nuclear Criticality Safety Assessment, procedures, configuration management, sharing of best-practices and work management & control.

- A significant majority of employees are not concerned about harassment, intimidation or discrimination for pursuing potential nuclear safety issues.

  - Localized pockets of concerns about the work environment within some organizations.

- Low and slightly declining job satisfaction and morale represents a potential challenge to further improvement in the NSC.

ASSESSMENT SCOPE

- Characteristic cultural values, behaviors and practices that have shaped and self-reinforced the organization's capabilities, infrastructure and environment for nuclear safety performance,

- Employee attitudes and perceptions of the effectiveness of the Employee Concerns Programs (ECP) and related processes,

- Other general cultural, environmental or programmatic areas that may have an interdependent relationship with the Nuclear Safety Culture.

ASSESSMENT METHODOLOGY

Process:

- Interviews with a representative cross-section of approximately 60 employees from each site and a dozen employees at USEC's Bethesda offices.
  - Preliminary characterization of the culture.
  - Opportunity to probe specific cause-effect relationships interactively.
  - Input for structuring a comprehensive questionnaire.
- Questionnaire-based survey of the site employees.
  - All employees were offered the opportunity to provide input.
  - Taken anonymously during group meetings.
  - Forms mailed directly to SYNERGY.
  - Multiple-choice format and an opportunity for write-in comments.
  - Various demographic data and organizational affiliation were requested, but not required.
- Interview process and questionnaire were complementary in establishing a high degree of confidence that important issues were identified and probed as these apply to specific sub-organizations, either site or the entire Company.

Cultural Models:

Nuclear Safety Culture©

(Five Dimensions with Abridged Attributes)

VALUES & PRIORITIES - widely held core beliefs, attitudes and institutions; e.g. nuclear safety the first and over-riding priority; continuous improvement through proactive self-assessment, etc.

BEHAVIORS - aggregate of commonly desired actions, reactions and interactions; e.g. self-critical and questioning attitudes; conservative and well balanced decision-making, etc.

PRACTICES & PERFORMANCE - established methods of doing business; e.g. effective alignment and allocation of resources in proportion to significance and needs; effective work processes and programmatic elements including the corrective action program, self-assessment, work control, operating experience, incorporation of industry best-practices, safety analysis and review, configuration control; operations, maintenance and modifications in accordance with licensing and design bases, etc.

WILLINGNESS TO PURSUE NUCLEAR SAFETY CONCERNS- the overall climate and effectiveness in addressing potential nuclear safety concerns; e.g. absence of barriers that impact the ability to identify and pursue resolution; strong management and supervisory support, sensitivity and responsiveness, etc.

EMPLOYEE CONCERNS PROCESS - employee confidence in alternative avenues for concerns resolution; e.g. visibility and cultural acceptance; seamless, user-friendly program; track record of responsiveness and effective solutions, etc.

General Culture & Work Environment©

(Four Dimensions with Abridged Attributes)

VALUES & PRIORITIES - widely held core beliefs, attitudes and institutions; e.g., Attention to details, strive to improve performance, focus on meeting general business objectives, promoting workforce involvement, etc.

BEHAVIORS - aggregate of commonly desired actions, reactions and interactions; e.g., Teamwork, communications and feedback, professionalism, etc.

PRACTICES & PERFORMANCE - established methods of doing business; e.g., Management of priorities and resource allocation; work management and control; technical training, investment to develop enhanced capabilities and tools, etc.

WORK ENVIRONMENT - the overall climate within the workplace; e.g., General supervisory-employee relations; safe physical environment, overall job satisfaction and morale, etc.

Leadership, Management & Supervision©

(Three Dimensions with Abridged Attributes)

LEADERSHIP PERFORMANCE - establishing direction, aligning people and resources, motivating and inspiring; e.g.,

Establishing, communicating and reinforcing Vision, standards and expectations and priorities; walking-the-talk, etc.

BUSINESS MANAGEMENT PERFORMANCE - aggregate of activities focused on orderly and efficient management of the business; e.g.,

Planning, managing change, budgeting, staffing, control and problem-solving, etc.

PERSONNEL MANAGEMENT & DEVELOPMENT PERFORMANCE - establishing the environment and incorporating appropriate developmental methods to attract, retain and develop human resources that are motivated and capable; e.g.,

Establishing an environment of mutual respect and trust; coaching and mentoring; empowerment; personnel performance management, etc.

Survey Response scales:

- Asymmetric and anchored about a numerical mid-point of "3"

Fully agree (5) Strongly agree (4) Generally agree (3) Disagree (2) Strongly disagree (1)

and…

Excellent (5) Very good (4) Adequate (3) Less-than-adequate (2) Inadequate (1)

Analytical Techniques:

- Response distributions, means and standard deviations by location, functional units, organizations, employee categories, employee positions and years of service for each question and for the set of questions that make up each of the Cultural Dimensions.

  -Means greater than or equal to 3.00 representing either a "positive or adequate" response/rating

  -Means less than 3.00 representing either a "negative or less-than-adequate/inadequate" response/rating.

  -"Pockets" defined as a population sector with > 20% negative response or ~30% negative variance from either the site or USEC composites.

- ***Six "areas of inquiry"*** (derived from the Survey and/or interviews)

  -Provide trending and benchmarking capability with other nuclear utilities.
  -Data are weighted and combined within an Integrated Nuclear Safety Culture Performance Indicator that has been correlated (as a leading indicator) to future performance trends.

SUMMARY OF ASSESSMENT RESULTS

Response to the Survey:

- ~2,500 respondents, representing ~55% of employees

Location	Total No. Employees	No. Employees Responding	Employee Response Rate
Paducah	1,917	986	51.4 %
Portsmouth	2,610	1,519	58.2 %
	4,527	2,505	55.3 %

> Non-designated Organizational Affiliation:

- Paducah 24.1 %
- Portsmouth 25.4%

> Organizational Response Rates:

- High 95.6 %
- Low 7.5 %

> Additional validation may be desirable with Organizational Units having low response rates (~ 20-25% or less).

Most Highly Positive Responses to the Survey:

1. Employees feel a responsibility to identify potential nuclear safety concerns and write Problem Reports, inform their supervision and would feel supported by supervision for having done so.
2. Employees believe that minimizing personnel contamination is necessary and prudent.
3. Employees believe there is strict adherence to radiation safety and criticality safety requirements.
4. Employees perceive their work groups strive to improve performance and they feel held accountable for performance by their supervision.
5. Employees feel their peers are generally quality conscious and pay attention to details and are self-critical and have questioning attitudes.

Least Highly Positive Responses to the Survey:

1. Employees are not satisfied with the quantity and quality of communications on future plans for the GDPs, the competitive business environment, on priorities as used in decisions and resource allocation, on plant performance compared to goals and objectives and general openness and feedback at the site-wide level.

2. Employees perceive opportunities to enhance certain human resources development, management functions and behaviors, i.e. performance appraisal process, coaching and mentoring, investing in developing enhanced capabilities and tools, involvement and empowerment, linkage of performance and compensation, implementation of employee discipline policies, management/supervisory willingness to make decisions, professionalism, mutual respect and trust and technical/functional training.

3. Employees perceive opportunities to improve the management and control of work, removing work barriers, planning and implementing changes in the way business is done, effective resolution of Problem Reports, configuration management and balancing safety, production and cost priorities.

4. Employees lack sufficient confidence in the Employee Concerns Program due to factors such as the results it produces, the perceived degree of management support, its visibility and cultural acceptance and perceptions about the integrity with which the program is run.

5. Employees have declining job satisfaction and morale.

Identification of General Trends:

- Nuclear Safety Culture Trends & Industry Comparison

The USEC composite mean for the Nuclear Safety Culture (~3.23) is in the "adequate" range, providing an overall positive indication of the general health of the Nuclear Safety Culture.

Location	Integrated NSC PI	Industry Percentile	Estimated Change '97→'98
Paducah	3.26	24th	+9.8 %
Portsmouth	3.22	21st	+12.2 %

- Cultural Dimension Trends

Nuclear Safety Culture:

Table III.3
NSC Dimension Trends

Dimension	USEC Composite	Paducah	Portsmouth
Values & Priorities	3.51	3.51	3.52
Behaviors	3.55	3.55	3.55
Practices & Performance	3.29	3.33	3.41
Willingness	3.48	3.48	3.48
Employee Concerns Program	2.88	2.97	2.82
Composite Cultural Indicator	3.40	3.41	3.40

Key Insights Related to Employee Willingness To Report & Pursue Resolution of Potential Nuclear Safety Issues

Question No.	*Subject*	*Positive Response Percentages*		
		Paducah	Ports	USEC Composite
23a	Overall Environment	87	87	87
	Supervision			
13a	Support when reporting	93	91	91
11c	Approachability	84	81	82
12a	Responsiveness	85	85	85
11n	Tolerance for mistakes	87	85	86
20a	Work Environment- group	83	83	83
	Management			
	Support when reporting:			
13b	Own mgmt chain	85	81	83
13c,d,e	Sr mgmt	76	73	75
6b	Value workers who "identify"	76	65	69
24a, 25a	Walk-the-talk on NS	78	79	78
12e	Harass/intimid/discrim (NS)	87	86	86
	Work Environment:			
20b	Functional org	78	78	78
20c	Site-wide	75	73	74
6u	Tolerance for mistakes	65	67	66
	Barriers			
	PR system:			
12b	Responsiveness	81	82	82
8e	Effective resolution	62	61	61
	Impact of workload:			
12c	Willingness to ident/resolve	79	83	81
7a	Ability to ident/resolve	70	71	71
12f	NRC's reaction	85	85	85
	Employee Concerns Program			
26a	Overall confidence	70	61	65
14	Assistance with NS concerns	76	71	73
16c	Integrity	72	63	67
16d	Results	65	58	61

General Culture & Work Environment:

The corresponding Dimension means for the GCWE are lower than similar Dimensions applicable to the NSC and are driven by the higher levels of negative attitudes and perceptions (approximately a factor of 1.5 higher). This result is typical to that of other Assessments conducted by SYNERGY.

Table III.4
GCWE Dimension Trends

Dimension	USEC Composite	Paducah	Portsmouth
Values & Priorities	3.48	3.49	3.48
Behaviors	3.13	3.16	3.12
Practices & Performance	2.68	2.73	2.65
Work Environment	3.14	3.15	3.13
Composite Cultural Indicator	3.13	3.15	3.12

Leadership, Management & Supervision:

Table III.5
LMS Dimension Trends

Dimension	USEC Composite	Paducah	Portsmouth
Leadership	3.04	3.12	3.00
Business Management	3.31	3.34	3.34
Personnel Management	2.94	2.97	2.93
Composite Cultural Indicator	3.11	3.14	3.09

- Demographic Trends

Employee Categories:

Monthly (salaried) personnel provided more favorable responses than hourly personnel.

At Portsmouth the differences between these two groups is more pronounced - a quartile above and below the site median, respectively. Notably, the GCWE mean for the hourly personnel was below 3.00 with approximately a 34% negative response rate.

Contractors: There were too few contractors responding at Paducah to draw conclusions, but for Portsmouth, the contractors provided responses essentially identical to hourly personnel for the NSC; however, the contractors aligned more closely with the monthly personnel for the GCWE.

Employee Positions:

Managers…First Line Managers…Support Staff…Technical Staff…Craft
(most-to-least favorable)

Years of Service:

Those with the fewest years of service generally provided less favorable responses than employees with more longevity

- Organizational Trends

Methodology: Cultural Dimensions were utilized to investigate relative organizational strengths and weaknesses by incorporating three complementary analytical techniques:

Dimensional Means - were computed for each Organizational Unit and compared with the respective site composite means to determine relative differences, or the degree to which that Unit departs from the "norm."

Dimensional Negative Response - represents that fraction of an Organizational Unit providing "negative" ratings.

Composite Cultural Indicators - represent weighted averages of the Dimensions comprising each of SYNERGY's NSC, GCWE and LMS cultural models.

Priorities for Action: Considering the above parameters, Organizational Units were identified for potential follow-up actions as follows:

Table III.6
Priorities for Validation, Intervention or Remediation

Priority	Status of Cultural Indicators
1	Low NSC and GCWE or LMS
2	Low NSC, but acceptable GCWE and LMS
3	Acceptable NSC, but low GCWE or LMS
4	Acceptable NSC, GCWE and LMS, but have selected pockets

RECOMMENDATIONS

SYNERGY offers the following general recommendations for USEC's consideration:

- Nuclear Safety Performance Expectations and Standards

  Improve understanding of the nuclear safety value system, and establish and maintain a proper balance among nuclear safety, production and cost.

  - Communicate and reinforce expectations for managers, supervisors and workers.
  - Provide bases / "whys" behind decisions, regulatory requirements & commitments.

  Identify and assess any areas of either over-commitment to the NRC or where implementation of existing commitments can be improved to reduce unnecessary burden.

- Employee Concerns Program

  Restructure and vitalize the ECP as a viable alternative path for the resolution of potential nuclear safety concerns.

  - Improve visibility, understanding and credibility.
  - Increase senior management involvement and commitment.
  - Improve responsiveness and overall effectiveness.

- Nuclear Criticality Safety Program

  Restore the credibility and improve the effectiveness of the NCS program with internal and external customers.

  - Quality and consistency of NCSAs and implementing procedures.
  - Realistic assumptions and bases.
  - Education of workforce.
  - Provide adequate staffing.

- Safety Conscious Work Environment

Systematically address perceived or actual circumstances that could potentially involve or be construed as harassment, intimidation or retaliation against employees for raising concerns regarding nuclear safety.

- Take local remedial action (as necessary and appropriate).
- Initiate a campaign of management communication of values/standards/expectations…with consistent actions and accountability of line management.
- Provide sensitivity / Section 211 training, and augment the leadership-supervisory development program, etc.
- Reinforce the role and authority of the ECP.

Positively emphasize and demonstrate the organization's desire to obtain input, feedback, ideas, concerns, questions or issues that could potentially affect nuclear safety.

- Improve openness and receptivity.
- Objective evaluation of issues.
- Reward / recognize resolvers and identifiers.

- Corrective Action Program

Improve the effectiveness of the Problem Reporting system.

- Enhance screening and prioritization to improve responsiveness, consistent with safety significance and business priorities.
- Develop a trending program to identify precursors and to evaluate the effectiveness of actions to prevent recurrence.
- Reduce backlogs.

- Procedures

  Establish meaningful and effective changes in the quality of procedures (in eyes of users) and speed up the procedure revision process.

- Leadership Skills and Performance

  Take affirmative action to improve effectiveness in the following areas:

  - "People orientation" of management and supervision.
  - Developing personnel through training and coaching.
  - Engaging and empowering the work force.
  - Planning and implementing changes in the way business is conducted, i.e., effective change management.
  - Investment to develop enhanced capabilities and tools.
  - Establishing an environment of mutual respect and trust.

- Workload, Work Management & Resource Allocation

  Address areas where workload is perceived to be adversely impacting the ability to be proactive, e.g. identifying potential nuclear safety issues, maintaining material condition and housekeeping, impacting the quality of work, transfer of best practices, and the "quality of life."

  Address any perceived or actual "mis-matches" between workload and the allocation of available resources.

  Increase involvement of the management and supervisory team in removing perceived or actual work barriers and in making associated decisions.

  Increase management attention on implementation of the work management and control process to improve its effectiveness.

- Declining Employee Job Satisfaction and Morale

Communications: Improve the quality and quantity of communications with employees, with particular emphasis on:

- Future plans for the site.
- The competitive business environment and its implications.
- Priorities, as used in making decisions and allocating resources.
- Goals and performance objectives.
- Bases for nuclear safety-related requirements and practices, i.e. NCSAs, procedural requirements, etc.

Performance Evaluation & Personnel Practices: Address employee perceptions (and/or realities) that:

- Performance evaluations are not sufficiently utilized in support of compensation, promotion, and personnel development.
- There is a need for a better, clearer linkage between individual performance & accomplishment and individual compensation & opportunity for advancement.
- There is insufficient opportunity for advancement.
- There is inconsistent implementation of discipline policies.
- There is a perceived low tolerance for errors.

Recognition and Reward: Improve sensitivity and effectiveness of programs and day-to-day practices to recognize sufficiently and appropriately the performance and accomplishments of employees.

Nuclear Safety Culture Assessment - May, 1998