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July 27, 2001

David B. Matthews, Director
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Mail Stop 0-12E5
Rockville, MD 20852

50-186

RE: NRC Concerns About Chilling Effect at the University of Missouri-Columbia
Research Reactor

Dear Mr. Matthews:

In a letter dated March 5, 2001, the NRC requested the University of Missouri-Columbia campus (MU) to provide to the NRC (under oath or affirmation):

1. An assessment by the University of the freedom of MURR employees to report problems without fear of retaliation. The basis for your assessment may be an independent review by a person or persons whose normal responsibilities do not involve the reactor facility.
2. An assessment by the University of the continuing effectiveness of corrective actions taken to address the past chilling effect at the reactor facility. If the results of the assessment show that the continuing effectiveness of the past corrective actions is in doubt, present your plans to address this issue.

Consistent with this NRC request, MU provides herein, the above-requested information. These documents were recently received by MU from the independent team. Although we currently are reviewing the reports, we determined that for expediency and efficiency, it would be appropriate to provide you with these reports at this time. MU is currently determining appropriate corrective actions in light of these reports. We anticipate providing these actions and our comments on the report to the NRC within fourteen days from the date of this letter.

MU sincerely believes that it is making progress in improving the environment at the University of Missouri Research Reactor. We will continue to reassess our policies, our personnel, and our practices regarding making MURR a good place to work from a regulatory and personal perspective. If you have any questions, please do not hesitate to contact me.

Sincerely yours,

Richard L. Wallace
Chancellor

Enclosures

RLW:bd

Dated this 30th day of July, 2001.

Richard L. Wallace

R. L. Wallace

Chancellor, University of Missouri-Columbia

STATE OF MISSOURI)
)ss.
COUNTY OF BOONE)

On this 30th day of July, 2001, before me personally appeared Richard L. Wallace, to me personally known, who, being first duly sworn, did say that he is the Chancellor of the University of Missouri-Columbia, and the said Chancellor acknowledged said document to be the free act and deed of said University of Missouri-Columbia.

In TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in Columbia, Missouri, the day and year first above written.

My commission expires: August 7, 2001

Rhonda D. Turner
Notary Public

RHONDA D TURNER
Notary Public - Notary Seal
STATE OF MISSOURI
BOONE COUNTY
MY COMMISSION EXP. AUG. 7, 2001

**Assessment of the Continuing Effectiveness of
Corrective Actions Taken to Address Past
Chilling Effects at the University of Missouri -
Columbia Campus**

July 25, 2001

~~CONFIDENTIAL~~

Prepared for the University of Missouri by:

Thomas Poindexter (Winston & Strawn)
Kathryn Sutton (Winston & Strawn)
John Thies (Time Solutions, Inc.)

Executive Summary

This report has been prepared in response to a March 5, 2001, request by the United States Nuclear Regulatory Commission (NRC). In summary, the NRC requested an assessment of the "continuing effectiveness of corrective actions taken to address the past chilling effect" at the University of Missouri-Columbia Research Reactor (MURR). The NRC advised that, if the results of the assessment show that the continuing effectiveness of past corrective actions is in doubt, then the University should present its plans to address the issue.

The University commissioned an independent team to conduct the assessment. The assessment team (AT) employed the following four-step methodology to reach its conclusion regarding the ongoing effectiveness of past corrective actions related to safety conscious work environment (SCWE):

1. Identification of relevant safety conscious work environment-related commitments made by the University of Missouri and MURR (*i.e.*, those associated with a September 1994 chilling finding by the NRC).
2. Identification of corresponding corrective actions implemented as part of the above-described commitments.
3. Assessment of the continuing effectiveness of past corrective actions, using the following criteria:
 - continuous existence and implementation of SCWE-related corrective actions;
 - flexibility;
 - clarity/focus;
 - utility/"user friendliness"; and
 - results.
4. Observations regarding the implementation of SCWE-related corrective actions at MURR.

Based on the information discovered and reviewed as part of this assessment, the AT concludes that the corrective actions implemented at MURR to address the past chilling effect have been generally effective on an ongoing basis. Not only have such corrective actions been comprehensive in nature (as demonstrated by the enclosed matrix of commitments and corrective actions), but they also have been in continual existence since 1994. More importantly, the AT found that the corrective actions have produced the necessary and desired results, as they have repeatedly been proven to be effective via direct employee feedback — first in numerous MURR-issued questionnaires and, second, via Part I of this Assessment Report.

Nevertheless, while the corrective actions have been effective, the AT believes there is room for further improvement. The observations set forth in Section VI of this report center around MURR management's understanding of NRC expectations regarding SCWE. Most importantly, management and site personnel must understand that an NRC-licensed institution can never "drop" or "close" SCWE-related efforts. Additional training likely would instill this understanding in MURR personnel, and preclude a results-driven de-emphasis on SCWE activities that may otherwise occur over time.

I. Background

In a letter dated March 5, 2001, from the U.S. Nuclear Regulatory Commission (NRC) to the Chancellor of the University of Missouri-Columbia, the NRC Office of Nuclear Reactor Regulation (NRR) expressed concerns about a chilling effect at the University of Missouri-Columbia Research Reactor (MURR).¹ The concerns stem from an NRC Office of Investigations (OI) report addressing allegations of employment discrimination and a work environment where employees may be reluctant to identify safety concerns at MURR. When the investigation was completed on October 24, 2000, OI identified no violations of NRC requirements. Nevertheless, OI "substantiated that MURR staff were reluctant to raise safety concerns to management for fear of retaliation."² As noted by the NRC, this is commonly referred to as a "chilling effect" or "chilled work environment."

The NRC noted in its March 5, 2001, letter that a chilling effect previously existed at MURR in September 1994. Specifically, on September 12, 1994, the NRC issued a Notice of Violation (NOV) and Proposed Imposition of Civil Penalties (\$8,000), and a Demand for Information regarding Department of Labor Case Numbers 94-ERA-034 and 94-ERA-036.³ In both cases, the Department of Labor (DOL) concluded that a research scientist and his former supervisor were protected employees who engaged in protected activities as defined in the Energy Reorganization Act and that they were retaliated against for their protected activity conduct. A subsequent investigation sponsored by MURR, but performed by independent personnel, concluded that fear of retaliation had a chilling effect on MURR employees. This conclusion, coupled with the DOL findings led the University of Missouri to implement numerous corrective actions that were intended to improve the ability of employees to raise concerns without fear of retaliation.

The corrective actions, which were recognized in the NRC cover letter for the NOV, included: (1) using outside consultants to assess any potential "chilling effect" of personnel actions or any real or perceived reluctance to report safety issues; (2) revising annual radiation indoctrination training to reinforce the importance of raising safety concerns and how that can be done internally and externally; and (3) requiring written records of personnel actions such as warnings and negative reviews.

¹ Letter from D.B. Matthews (NRC NRR) to Dr. R.L. Wallace (Chancellor, University of Missouri-Columbia), "NRC Concerns About Chilling Effect at the University of Missouri-Columbia Research Reactor (Office of Investigations Report No. 4-2000-029), dated March 5, 2001.

² *Id.*

³ Notice of Violation and Proposed Imposition of Civil Penalties - \$8,000 from John B. Martin, then-Regional Administrator to Dr. John McCormick, then-Interim Vice Provost for Research and Dean of the Graduate School; dated September 12, 1994.

Notwithstanding these acknowledgements, the NRC has concluded as a result of the October 2000 OI investigation that the long-term effectiveness of previous MURR corrective actions is in question. Thus, NRC requested the following:

[a]n assessment by the University of the continuing effectiveness of corrective actions taken to address the past chilling effect at the reactor facility. If the results of the assessment show that the continuing effectiveness of the past corrective actions is in doubt, present your plans to address this issue.⁴

II. Purpose and Methodology

This assessment report constitutes the second part of a two-part NRC request.⁵ It responds to the NRC's March 5, 2001, request for an evaluation of the continuing effectiveness of past MURR corrective actions stemming from the September 1994 NOV. As explained in the Chancellor's letter to the NRC dated April 16, 2001, the University of Missouri implemented an extensive and comprehensive effort to identify and evaluate all actions taken by MURR during and subsequent to the 1994 chilling finding.⁶ The Assessment Team (AT) responsible for this part of the assessment report was led by outside consultants knowledgeable about NRC regulatory requirements and expectations regarding protected activity and chilling effect — and familiar with the MURR facility, its personnel, and processes. The AT leaders were drawn from both Winston & Strawn⁷ and Time Solutions Corporation.⁸

The team's assessment methodology entailed the following major steps:

1. Identification of the safety conscious work environment-related commitments made by the University of Missouri and MURR associated with the September 1994 chilling finding.

⁴ March 5, 2001, letter at 2; *see supra* note 1.

⁵ Part I of the Assessment Report "Freedom of MURR Employees to Report Problems Without Fear of Retaliation," was prepared independent of this report.

⁶ Letter from R.L. Wallace (Chancellor, University of Missouri-Columbia) to D.B. Matthews (NRC NRR), "NRC Concerns About Chilling Effect at the University of Missouri-Columbia Research Reactor (Office of Investigations Report No. 4-2000-029)," dated April 16, 2001.

⁷ Two groups of Winston & Strawn (W&S) attorneys worked on Parts I and II of the Assessment Report — respectively. The two W&S assessment teams worked independently and exclusively on the assigned assessment objectives in order to produce unbiased, independent responses to NRC requests.

⁸ John Thies, a principal with Time Solutions Corporation, has been involved in other assessments of MURR performance.

2. Identification of corresponding corrective actions implemented as part of the above-described commitments.
3. Assessment of the continuing effectiveness of past corrective actions, using the following criteria:
 - continuous existence and implementation of SCWE-related corrective actions;
 - flexibility;
 - clarity/focus;
 - utility/"user friendliness"; and
 - results.
4. Observations regarding the implementation of SCWE-related corrective actions at MURR, and the need for additional corrective actions.

The results of steps 1 and 2, as set forth in the enclosed matrix of SCWE-related commitments and corrective actions taken in response to the 1994 NOV, are discussed in Section IV. Section V discusses the AT's assessment of corrective action effectiveness — as set forth in step 3 of the methodology. Finally, the AT's observations are set forth in Section VI. The discussion immediately below in Section III, however, describes an important backdrop to the entirety of the AT's remaining findings and analysis; *i.e.*, the stark contrast between the commercial and academic nuclear environments.

III. Commercial Nuclear Utilities vs. the Academic Nuclear Community — A Study in Contrast

The AT could not help but notice that there is a clear difference in the way that personnel in the commercial nuclear industry view roles and responsibilities when compared to personnel working at a nuclear facility in an academic environment. This observation places the discussion of corrective activities in proper context. The key area of difference involves the motivational distinctions between individuals working in academia versus industry, and how that distinction could reasonably be misinterpreted as a chilled environment or retaliatory conduct.

While it is clear that in the nuclear industry there exists senior managers who are focused on their own advancement, this AT generally observes that nuclear plants that have excelled the most in the area of regulatory performance, cost control, and efficiency have generally operated in an environment that has a significant emphasis on teamwork. Consistent with that approach is a tendency to focus on organizational successes instead of individual accomplishments. These industry-based characteristics appear to be reversed in the academic nuclear community at MURR, and the AT conjectures, generally speaking in any academic-based reactor facility. For example, the team observed that many researchers are focused on individual success. They appear to believe that their personal success is the pathway to university success. This

could be described psychologically as a focus on "me." Teamwork may be considered a useful tool, but only to the degree that it enhances "me."⁹

For many university academics, tenure is the ultimate professional objective due to its status and concomitant long-term stability. As set forth in University Rules and Regulations, "tenured faculty have proven their ability to contribute significantly in their discipline and to work independently and productively in their field."¹⁰ The appointments of this select group of faculty are protected, by procedure and regulation. For instance, tenured faculty are subject to dismissal only for cause; a very high standard that includes such causes as "conviction of a felony," "professional incompetence," "severe research misconduct," and "willful misrepresentation of material matters."¹¹

With this mindset in place, it is not surprising to the AT that changes in direction by the MURR facility have been interpreted by personnel as being a personal affront on the individual, that is, creating an inability for "me" to succeed. The AT provides this information not to judge or challenge past complaints that have been made against MURR management regarding a safety conscious work environment. To the contrary, the AT provides this information as a backdrop to underlying motives that may exist as corrective actions have been proposed or implemented by individuals at the MURR facility. This theme of University changes in research direction being viewed as a personal affront is found in past labor issues described herein and certainly is a characteristic of ongoing regulatory investigations into whether certain present and/or past researchers have been the target of retaliation for raising safety concerns. This perspective on academic life is confirmed in subsequent discussions addressing past changes in MURR focus areas.

MURR Historical Perspectives

As a precursor to assessing the continuing effectiveness of corrective actions previously taken by MURR, the AT attempted to place these actions in the context of events that were occurring at the time. As an aid to that effort, the following discussion of MURR history is useful.

The University of Missouri Research Reactor (commonly called "MURR") started-up in 1966. From 1966 until approximately 1994, the University "system" was responsible for maintaining the reactor and determining its purpose and objectives. The University "system" served as an administrative coordinating body, with no specific responsibilities for academic programs residing at the reactor. The reactor had been research and

⁹ This attitude is fostered by the push at the university level for individuals being published as part of their performance assessment. The failure to publish represents a potentially insurmountable obstacle to obtaining tenure.

¹⁰ *Collected Rules and Regulations of the University of Missouri*, "Academic Tenure Regulations," Rule No. 310.015.B.

¹¹ *Id.*, Rule No. 310.020.D.

service oriented (including providing commercial services, such as topaz irradiation) while under the University "system." In approximately 1994, the University of Missouri-Columbia campus (MU) became responsible for the research reactor. When MU took responsibility for the reactor, it was assigned to the Office of Research, reporting to the Vice-Provost for Research, who reports to the Provost of the University. With this change, MU administrators determined that MURR should be more of an academic-focused entity.

Dr. Steve Morris was the interim Director of MURR from 1989 until 1990. Dr. Morris' area of specialty was life sciences.¹² It is not surprising, therefore, that during his management, the focus of the facility was not on materials sciences areas.¹³ In 1990, Jim Rhyne was appointed to be the MURR Director. Dr. Rhyne's focus was on materials sciences. The transition from Dr. Morris to Dr. Rhyne marked the first significant shift in MURR focus and research priorities. As discussed below, accompanying that shift was a claim that the Director had retaliated against the researchers working in the prior focus area.

Dr. Rhyne's tasks included enhancing ties between the reactor and the campus, upgrading reactor staff, emphasizing research, and de-emphasizing project or service-oriented activities. One of the first steps taken by the new Director, was to expand the number of then-existing research groups. The campus was integrated into this effort by appointing four of the group leaders from MURR. This was the first time that faculty members had been incorporated into the administrative structure of reactor activities. Based on our review of documents in that era, this decision appears to have met resistance by existing reactor staff. Some of these individuals believed that pre-existing reactor staff who could not attain a joint appointment,¹⁴ would be second- or perhaps, third-class "citizens."¹⁵

¹² *In re Morris v. University of Missouri*, 93 ERA 36 (1994), p. 3.

¹³ A report titled, "MURR Independent Safety Assessment Team (ISAT) Report on Management"; by Gary Hughes, Dale Klein, and Forrest Remick; October 1994 (p. 3) notes that there was a "Perception that with the interim Director there was a change in research focus towards the life sciences and then a refocus to neutron scattering with the Then-Director."

¹⁴ In June 1996, the number of tenured faculty employed fully by MURR was one — Jim Rhyne, the Director MURR. At that time, three individual had joint MURR-faculty appointments that were on tenure track (Aaron Krawitz, Kattesh Katti, and Andrew Winholtz). Thirteen individual at that time either were research scientists or senior research scientists at MURR and were exempt (not candidates for tenure) staff members even though they may have held adjunct faculty appointments in other academic departments. Presently, there are a few personnel at MURR with joint status.

¹⁵ It is the AT's understanding that tension existed among reactor scientists because of the feeling that the academic faculty had an advantage over MURR staff. Very few reactor personnel were tenured. In addition, there had been a long-standing split between scientists in the life science area and others in the material sciences. This latter issue is discussed in more detail later in this report.

The MURR Reactor Advisory Committee (RAC) believed that the two-tier arrangement had several serious drawbacks in this university setting.¹⁶ They noted a view that evaluation, reward, and promotion systems were better defined for faculty positions. The nature of the appointments for research scientists, coupled with the location and special requirements for work in radiation environments for these individuals, isolated them from faculty more than the RAC believed was desired. They also believed that these conditions have tended to create hostile situations and fostered attitudes of "we" (insiders) versus "them" (faculty and students).¹⁷

The discord that existed between scientists in the life science area and others in the material sciences appears to have contributed to the filing of allegations of discriminatory practices by two researchers in the life science area and MURR administrators.¹⁸ Material science activities at MURR included the irradiation of topaz (to change its color to blue) and the irradiation of silicon for electronic devices. Formerly, these were MURR's primary activities, based in part, on the generation of a significant portion of the reactor-related income.¹⁹ Life sciences activities included irradiation of isotopes for medical purposes.

A July 24, 1996, report from the Reactor Advisory Committee (RAC)²⁰ made the following recommendation:

The mission of MURR should be modified with increased emphasis on research and education relative to income producing activities. The mission and overall goals of MURR research and educational programs should be defined. RAC Recommendation 4 states, 'The MU administration should reduce the dependence of MURR on commercial revenue and help stabilize its funding by increasing financial support to approximately 50% of the annual operating budget.'

The reference by the RAC to commercial revenue represented an indirect way of challenging topaz-related activities in the neutron scattering area. The report further

¹⁶ Reactor Advisory Committee Report, transmitted by E.P. Sheridan (Provost) via internal memorandum dated July 24, 1996.

¹⁷ *Id.* at 5.

¹⁸ *In the Matter of Zinn v. University of Missouri*, 93 ERA 34 (1994) and *Morris v. University of Missouri*, 93 ERA 36 (1994). Dr. Zinn was a life sciences-based researcher focusing on nutrition and radiopharmaceutical development.

¹⁹ In a 1991 document prepared by the then-MURR Director, it was stated that "It is clear that MU desperately needs an increased presence in materials science and materials engineering. The Reactor and its neutron beams for scattering research present a unique opportunity to capitalize on this important field." See MURR Priority Planning Document; Jim Rhyne, then-Director MURR; p. 7; dated December 17, 1991.

²⁰ See *supra* note 13.

recommends that the fundamental mission of MURR be modified to increase emphasis on research and education relative to generation of revenue from commercial activities. The RAC believed that the change was necessary to make it clear that revenue-generating activity, and to a lesser extent, research services, exist to support the research and educational missions and activities of MURR. The RAC also noted the MURR Director's responsibility for evaluating the desirability of various commercial activities with regard to their potential for generating significant income, their cost-to-income ratio, and their potential risk, among other considerations. This report clearly indicated that a shift in the direction of MURR, from materials science activities to life sciences, was in the making. With respect to the "me" perspective, commensurate with this change was a decrease in teamwork between researchers whose livelihoods were anchored in materials sciences, and researchers who had life sciences backgrounds.

The transition to a life sciences focus circa 1997 was confirmed with the hiring of Dr. Edward Deutsch as the new MURR Director in 1997.²¹ Dr. Deutsch's background is in the life sciences area.²² As such, the University wasted no time in announcing a de-emphasis on material sciences. While the University did not appear to target the demise of the materials sciences activities, it appears that those efforts did not receive as much financial support as they did in the past and that, as a result, certain business ventures such as topaz processing were, in effect, discouraged.²³

An example of researchers' reactions to the change in direction is found in a March 15, 1999, grievance filed by Dr. William B. Yelon, then-Group Leader of Neutron Scattering. The grievance states that Dr. Deutsch "violated his academic freedom, demanded control and credit of his creative activities, discriminated against him in the evaluation of his job performance, applied conflict of interest rules to him in a discriminatory fashion, deprived him of appropriate financial rewards for his creative efforts, damaged his

²¹ Dr. Deutsch resigned his position as the Director of MURR on July 19, 2001.

²² Dr. Ed Deutsch was the former Vice-President, Imaging Research & Development, for Mallinckrodt Medical, Inc. in St. Louis. In that capacity, research interests included the chemistry of technetium and rhenium for use in nuclear medicine; multi-modality imaging of oncological and cardiovascular diseases; new medical imaging techniques, especially near-infrared imaging; therapeutic nuclear medicine; chemistry of Group III metals for use in medical diagnosis and therapy; and bioinorganic chemistry.

²³ In a February 28, 2000, letter from Chancellor Richard Wallace in response to a report by a grievance committee (see next footnote), the Chancellor notes, "It is clear however, that the economic viability of MURR was threatened in the early 1990s.... When presented with the choice of shutting down the reactor or shifting the focus of its activities, a legitimate determination was made by university management to shift the focus of its activities. The approach decided upon was one that focused on collaborative relationships with other UM academic units involved in newly developing initiatives primarily in the fields of life and physical sciences that could be enhanced and supported by the reactor. It was this decision that prompted conflict between grievants and respondents."

reputation, and possibly libeled him."²⁴ The grievance committee that assessed Dr. Yelon's issue states:

It is our opinion that these allegations stem primarily from a difference of opinion between Dr. Deutsch and Drs. Berliner and Yelon concerning the roles of MURR scientists in relation to the nature of their participation in basic research. Drs. Berliner and Yelon interpreted their roles and responsibilities based on their history as employees at MURR since the mid-1970s and the guidelines in the MURR Policy and Procedures manual. During this time period, they were accustomed to developing state-of-the-art neutron scattering technology for dissemination to other research reactor centers....

See January 28, 2000, grievance letter at 1. When Dr. Deutsch became Director of the MURR, he sought to modify the emphasis of research activities of Senior Scientists and these changes came into direct conflict with the historic missions of Drs. Berliner and Yelon. The AT believes that differences in research priorities, along with escalating frustration and negative interactions between the then-Director and the grievants, significantly contributed to the impasse formalized in this grievance.

With this background in mind, the discussion that follows tracks each of the four major steps in the AT's methodology. Section IV, immediately below, begins with the first two steps: (1) the identification of SCWE-related commitments made by the University associated with the September 1994, chilling finding; and (2) the identification of responsive corrective actions.

IV. SCWE-Related Commitments and Corrective Actions Taken in Response to the 1994 NOV

A comprehensive listing of key SCWE-related commitments and corresponding corrective actions is provided as an enclosure to this report.²⁵ The AT compiled the information contained in the enclosure based on documentary reviews and interviews with MURR personnel. In the interest of being conservative in approach and all encompassing, the AT defined "commitments" in this area broadly, erring on the side of over-, as opposed to under-, inclusion. This approach is being taken because MURR did not distinguish whether recommended actions and anticipated actions were commitments to the NRC from a regulatory perspective.

As evidenced by the matrix of identified commitments and corrective actions, the University and MURR implemented an extensive series of corrective actions aimed at

²⁴ Letter from the Grievance Committee to Chancellor Richard Wallace re grievances of Dr. William B. Yelon and Dr. Ronald R. Berliner, dated January 28, 2000.

²⁵ The AT has compiled copies of all documents referenced in the matrix included in the enclosure. They are available for inspection at MURR.

addressing SCWE-related issues in late 1994. These actions were precipitated by the September 12, 1994, NOV and Demand for Information, as well as the underlying claims by two employees that MURR management had taken retaliatory action against them for raising safety issues. The genesis of the actions listed in the matrix is the September 1994, Independent Safety Assessment Team (ISAT) report. In summary, MURR management requested that an independent team of three individuals (Drs. Gary A. Hughes, Dale E. Klein, and Forrest J. Remick) assess the "climate for safety at MURR and the willingness of employees to identify, report, and correct safety issues."²⁶ The ISAT report contains a series of overarching findings and recommendations regarding the "climate for safety" and "chilling effect and fear of retaliation."

On September 23, 1994, the ISAT report was provided to all MURR staff, students, and research investigators for comment.²⁷ In the transmittal memorandum, the then-Director of MURR encouraged the recipients to provide comments on "any related issues" (*i.e.*, they are "definitely welcome") and to devote "special attention" to the suggested recommendations for improving the safety culture at MURR. Shortly thereafter, MURR also provided a copy of the ISAT report to the NRC.²⁸

Various groups within MURR provided feedback on the ISAT report and related issues, in response to the above-described September 23 invitation. Relying on this feedback, MURR developed its response to the ISAT report findings and recommendations — providing it to the NRC on October 28, 1994.²⁹ In providing the NRC with this information, MURR included not only the Center-wide implementation plan but also the comments/recommendations developed by each of the responsive MURR groups. The AT concludes that the inclusion of all corrective action perspectives and consequences to the NRC, combined with a failure internally to determine which of the actions should be pursued, led to unclear focus, as well as poor accountability and consistency, in efforts to improve the safety conscious work environment.

Ultimately, the AT identified over 80 SCWE-related commitments at MURR originating during September and October 1994. A review of the commitments — and corresponding corrective actions — set forth in the enclosure reveals that many are cross-cutting and closely related, given the various group-level responses to the ISAT

²⁶ ISAT Report, September 1994, at 1.

²⁷ Intra-Department Correspondence from J. Rhyne to MURR Staff, Students, and Research Investigators re: "MURR Independent Safety Assessment Team (ISAT) Report," September 23, 1994 [Bates No. 00263].

²⁸ See letter from J.J. Rhyne and J.C. McKibben (University of Missouri) to H.J. Miller (NRC, Region III), dated October 28, 1994, and referencing the October 7, 1994, letter from the University to the NRC transmitting the ISAT Report.

²⁹ Letter from J.J. Rhyne (Director, University of Missouri Research Reactor Center) and J.C. McKibben (Associate Director) to H.J. Miller (Deputy Administrator, NRC Region III) and C.D. Pederson (Chief, Reactor Support Programs Branch, NRC Region III), dated October 28, 1994 [Bates No. 00381].

report. When reviewed by the AT *in toto*, these various responses to the ISAT report present a wide spectrum of SCWE-related commitments and corrective actions. Stepping back and reviewing the activities as a whole, however, the AT believes they are best grouped into the following major subject-related categories:

- *Communications*: Dissemination of University and MURR-level messages encouraging openness to safety concerns.
- *Policies and Procedures*: Development of formal, written, easily-accessible policies and procedures governing the identification, prioritization, correction, and tracking of safety issues (e.g., reporting procedures, formal root cause analysis program).
- *Organizations*: Creation of administrative organizations to review and disposition actual or potential safety concerns.
- *Issue Identification*: Implementation of both attributable and anonymous means of safety issue identification and reporting.
- *Cultural Change*: Fostering an environment that welcomes the identification of safety issues.
- *Training*: Evaluation of SCWE training needs, and implementation of appropriate training programs (e.g., annual indoctrination, "whistleblower" protection).
- *Industrial Safety*: Establishment of formal industrial safety policies, procedures, and administrative organizations.
- *Checks and Balances*: Ensuring consideration of outside perspectives in safety issue analysis and resolution through cross-group interaction and dialogue.

Initially, highest priority was placed on implementation of certain key ISAT recommendations, including:³⁰

- implementation of a Center-wide safety concern reporting and tracking system that provides for an evaluation of concerns, assigns them a priority, provides feedback to personnel until the issue is closed, and allows for anonymous reporting.

³⁰ University of Missouri-Columbia, "Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information," dated October 28, 1994, at 7 [Bates No. 00371].

- issuance of the policy and procedure manual then under development. The manual included a section on safety reporting policies.
- development of a policy to improve access to information concerning the Center, including correspondence with regulatory agencies, project priorities and long-term goals.

The AT found that extensive corrective actions eventually were launched and completed at MURR in each of the commitment categories described above. Again, the enclosed matrix draws the nexus between each of the identified commitments and corresponding corrective actions. Summarized below are the important organizational and programmatic SCWE-related activities.

- *MURR Safety Oversight Committee:* The MURR Safety Oversight Committee (MSOC), which was formed in the winter of 1994, consisted of a first-tier Safety Concern Subcommittee (SCS) and a second-tier MSOC. The first tier operated on a group and program level to resolve most concerns as close to the action as possible. The MSOC primarily addressed issues that affected multiple groups and programs, required significant resources, or issues that were not resolved at the first level. Anonymous reports could be submitted to either level through the use of "boxes" or directly to a MSOC member.

Seven SCSs were established across all of the reactor facility staff divisions with each SCS electing a local representative who also served as a general member on the MSOC — Service Applications, Facility Operations, Reactor Operations, Neutron Materials Science Program, Biomedical Program, Nuclear Analysis Program, and "the CHIND Committee."³¹ New employees were informed about how to use the MSOC through the MURR newsletter and during initial MURR indoctrination. This included a review by MURR facility employees of the purpose and workings of the MSOC process. Forms used to submit concerns to the MSOC were displayed at various locations at the MURR facility. These forms could be submitted anonymously in a drop box or in person to any MURR administrator.

- *MURR Policy and Procedure Manual:* The MURR Policy and Procedure Manual was issued, at least in part, in April 1995. MURR Policies C4:-015, "Safety," and C4:-016, "Safety Concern Reporting and Tracking," are two of the relevant SCWE-related policies set forth in the manual. The latter appears to have been issued in November 1995.

³¹ MURR Newsletter; Volume 1, Issue 7; dated January 4, 1995. "CHIND" is the acronym for the Computer Development, Health Physics, Instrument Development, Nuclear Engineering, Director's Office.

- *Service Incident Review (SIR) Committee:* In November 1994, the SIR process was developed in an attempt to resolve safety issues, incident reports, and external reviews of the Service Applications organization.³²
- *Indoctrination Program:* In terms of training, the Indoctrination Program at MURR addresses a wide range of topics. For instance, it provides MURR personnel with information on security, emergency procedures, and health physics. With respect to SCWE-related issues, the Indoctrination Program not only emphasizes the importance of reporting safety concerns, but informs personnel as to the various routes by which to do so (*i.e.*, supervisors, Reactor Control Room staff, Health Physics staff, MURR management, University administration, and the NRC).

V. Assessment of Corrective Action Effectiveness

Having identified the relevant SCWE-related commitments and corresponding corrective actions at MURR, the AT next assessed the continuing effectiveness of the latter subsequent to their implementation at MURR. As noted in Section IV above, the corrective actions at issue were initially implemented in late 1994 and early 1995. Thus, our assessment of their continuing effectiveness is chronological in nature.

As a preliminary matter, the AT notes that the substantive nature of the corrective actions at issue appears to be adequate. The core categories of corrective actions — identified above in Section IV — are sufficiently broad in scope to encompass the issues raised in late 1994. As demonstrated in the enclosed matrix, the AT concludes, based on its experience and understanding of the underlying issues, that the corrective actions are substantively comprehensive.

Thus, corrective action *implementation* — as opposed to *substance* — is the central focus of our effectiveness determination. Beginning in late 1994, MURR implemented expansive corrective actions to address SCWE-related issues at the facility. Their continued effectiveness, however, is a product not only of their existence, but also their flexibility, clarity/focus, utility/"user friendliness," and results. As demonstrated by the chronology that follows, implementation activities have been in continual existence since 1994.³³

9/94: Independent Safety Assessment Team Report

³² The SIR committee was made up of the Manager of Service Applications; Section Leaders of Gemstones, Isotopes, Shipping, and Silicon; an elected member of the above groups; and a member of the Administration group who functioned as secretary.

³³ The AT notes that, in preparing this chronology, it has done so in a summary manner and has not included every relevant data point discovered as part of our assessment. Rather, we have reviewed the information and distilled those items germane to our determination regarding the effectiveness of SCWE-related corrective actions at MURR.

- 10/6/94: Safety Assessment Meeting — Mandatory meeting for all Service Applications personnel to discuss the ISAT.
- 10/10/94: Formation of Service Incident Review (SIR) Committee. At this time, the SIR Charter was provided to all Service Application personnel.
- 10/19/94: MURR Reactor Advisory Committee (RAC) special meeting to discuss implementation of the ISAT recommendations.
- 10/21/94: Memorandum from RAC to MURR staff, investigators and scientists communicating support for ISAT findings and recommendations, implementation approach, and future monitoring of recommendation implementation.
- 10/26/94: Memorandum from S. Gunn to all Service Applications staff and students assuring recipients that they "will not be retaliated against" should they report a safety issue. The memorandum, which is responsive to the ISAT findings, listed confidential and non-confidential contacts for reporting safety issues at MURR.
- 11/14/94: MURR ISAT Report on Management provided to all MURR staff, students, and research investigators for review and comment. Among other findings, the report notes the lack of direct feedback on concerns raised by MURR personnel and changes in the regulatory environment related to "whistle blower concerns."
- 12/5/94: Initial reviews by MURR managers of draft MURR policy and procedures governing safety concern reporting, tracking, and resolution.
- 12/8/94: First MSOC meeting.
- 12/14/94: MSOC meeting to discuss draft MURR policy and procedures governing safety concern reporting, tracking, and resolution. Encouragement to all MURR personnel to raise safety concerns.
- 12/28/94: MSOC drop box installed at MURR to facilitate anonymous reporting of safety concerns.
- 1/4/95: MURR newsletter containing article entitled, "What is This MSOC?"
- 2/8/95: Memorandum from J. McCormick, Interim Vice Provost for Research and Dean of the Graduate School, to all MURR personnel entitled, "Open Climate for Raising Issues." Dr. McCormick stated: "I want to assure all of you that institutional policy encourages personnel to

raise any issues concerned with conforming to University, State, and federal policy, regulations and law. Safety issues are of particular importance at the Reactor Center."

- 2/10/95: Memorandum from C.A. Kiesler, Chancellor, to all MURR personnel communicating the institutional policy on safety and reporting. The stated purpose of the communication is "to dispel any uncertainty and to assure you about, and commitment to, an open and safe environment and freedom of expression on such matters."
- 6/21/95: Memorandum to all CHIND personnel regarding the CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure.
- 7/14/95: MSOC meeting minutes noting NRC feedback that MSOC role in addressing chilling and discrimination issues is in need of development.
- 7/24/95: NRC Inspection Report, including review of implementation and adequacy of MSOC to process safety related concerns. In pertinent part, the NRC inspectors

followed up on the completed corrective actions and initiatives that were committed [to] by the university to promote an environment that would encourage the raising of safety issues and to ensure that corrective actions related to chilling effects were implemented by the university in a timely manner.

Based on their review, the inspectors generally concluded that

the MSOC process was adequately implemented to provide MURR facility employees a program to address concerns while preventing potential retaliation against employees (the willingness of employees to use the MSOC was not assessed). There was a management commitment to maintain a strong MSOC and actively support the MSOC process. The MSOC appeared to have sufficient authority and resources to review and disposition employee concerns. Good controls were in place to inform employees of the availability of the MSOC as one method for them to report safety concerns.

They further noted one exception to their general conclusion, however; *i.e.*,

potential employee concerns about discrimination and complaints related to protected activities sent to the MSOC would not be processed similar to other identified safety concerns in accordance with MURR management expectations and the MURR policy for safety concern reporting, tracking, and resolution. The MSOC representatives stated this difference in processing existed because they felt that discrimination was not specifically defined as a safety concern in the MURR safety concern policy nor was there a procedure in place specifically providing guidance in addressing discrimination issues. In addition, they felt training was insufficient to properly sensitize the MSOC representatives in the recognition of discrimination issues (protected activities) and related chilling effects raised by MURR facility employees.

Noting the MSOC's "plan to continue strengthening [the] MSOC process by providing training to all MSOC representatives in order for them to clearly recognize and address discrimination issues (protected activities) raised by MURR center employees" the NRC did not cite the University for a violation of NRC regulations, nor did it request a response to its findings.

- 9/29/95: Progress report from MURR management to ISAT; notes that MURR had implemented "a major portion" of the ISAT recommendations and was continuing to "work on the remainder."
- 11/15/95: Issuance of MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution."
- 2/21/96: Identification of new RAC members, possessing a heightened level of experience with NRC regulation of nuclear facilities.
- 8/23/96: MSOC meeting agenda, noting discussion of MSOC training needs and MSOC effectiveness. The latter discussion topic was linked to a perceived "discrepancy between the ISAT report and concerns received."
- 10/31/96: NRC OI Report regarding alleged discrimination by the University against senior research laboratory scientists; allegations not substantiated. *See also* 3/7/97 entry below.
- 11/21/96: Memorandum from J. Ernst and W. Meyer to MSOC entitled, "Safety Reporting Environment." Citing the ISAT report and subsequent corrective actions, expresses interest in exploring the effectiveness of

- efforts to date; *i.e.*, "We are interested in finding out if these efforts have had an impact on the climate for safety at MURR." Suggests distribution of questionnaire to all MURR staff (a copy of which was attached to the memorandum). The question posed: "Is there an avenue available to you within the Center for reporting a safety concern without fear of intimidation or retaliation?"
- 12/2/96: Transmittal to MURR Staff of NRC guidance for reporting safety concerns.
- 3/7/97: NRC Report, EA 94-121, "Alleged Discrimination Against an Employee for Having Engaged in Protected Activity" — OI investigation determined that corrective actions were adequate to ensure employee safety concerns are handled appropriately and that employees feel free to raise concerns openly and without fear of retaliation. Concluded no further action was necessary.
- 3/14/97: MSOC Meeting Agenda — Notes discussion of SCWE questionnaire results.
- 3/16/97: MURR Newsletter — Contains article summarizing MSOC questionnaire results. In pertinent part, it notes that 104 questionnaires were distributed, 81 of which were completed by MURR staff. In response to the stated question (*see* 11/21/96 entry above), 74 respondents answered in the affirmative, 3 responded in the negative, and 4 responses were mixed (*i.e.*, yes for some issues, no for others). The article closed by noting that a more comprehensive survey would be distributed in the future.
- 5/30/97: MSOC Meeting Agenda — Notes discussion of new questionnaire regarding discrimination and chilling effect.
- 6/20/97: MSOC Meeting Agenda — Notes discussion of new questionnaire results.
- 9/25/97: Memorandum from MSOC to C. McKibben, W. Meyer, and J. Ernst, "Discrimination and Chilling Effect Questionnaire" — Attached to memorandum is a summary of the new questionnaire results. Based on the results, MSOC concluded that "the MURR Students and the majority of MURR Staff would report safety issues without the fear of retaliation." On this basis, MSOC "agreed to close this matter."
- 9/26/97: MSOC Meeting Agenda — Notes discussion of MSOC agreement to "drop" the issue of discrimination and chilling effect.

- 12/4/97: MURR Newsletter — Announces that Dr. Deutsch became the Director of MURR on 12/1/97.
- 2/18/98: SIR Memorandum to W. Meyer, "SIR Participation" — Expresses concern with lack of personnel participation in the SIR process. Notes that "MURR employees cannot be expected to view the solution of safety issues as part of the job when management shows no formal recognition of its importance."
- 7/1/98: Revisions to MURR Policy and Procedure Manual — § C1:051, MSOC and subcommittee materials now available to Staff in the lobby, as well as correspondence from regulatory agencies; and § C4:015, reporting safety concerns to the NRC.
- 11/11/98: Memorandum from Dr. E. Deutsch to Dr. J. Burns noting that MURR is in a "sensitive position with regard to the 'chilling effect'; we must make every effort to maintain open communications with employees at all levels, especially in the area of 'safety.'"
- 12/23/98: New IGO Incident Review Committee membership drive: SIR undergoing reorganization which will split it into two entities: a management team and non-management team. New incidents will go to the management team for resolution (IGORC). Once management team arrives at a resolution, the non-management committee will determine whether resolution was sufficient and either suggest further action or vote to close the incident. Soliciting membership.
- 10-11/99: MURR Management Assessment: Includes questions regarding safety in the workplace. Approximately 27 personnel included in survey. All but 5 had no safety concerns.

While the summary chronology confirms the continued existence of SCWE-related corrective actions since 1994, the AT now turns the remainder of its assessment upon the above-defined effectiveness criteria: flexibility, clarity/focus, utility/"user friendliness," and results.

Flexibility

Overall, the SCWE-related corrective actions implemented by MURR in 1994 have remained in place — largely unchanged — to the present time. While this consistency in overall approach and direction is beneficial, there is little evidence of ongoing flexibility in the administrative measures employed to ensure that the working environment does not become chilled. The one exception is the institution of "drop boxes" to facilitate anonymous reporting of safety concerns in approximately December 1994.

For instance, MSOC and SIR have continued to meet on a frequent and scheduled basis since 1994. In 1997 and 1998, however, there were internal signals that both organizations needed to re-focus on the SCWE-related aspects of their charters. In September 1997, MSOC decided to "drop" the issue of discrimination and chilling effect. In February 1998, SIR was concerned about a lack of employee interest in, and management support of, SCWE-related issues. Despite these signs of complacency, the AT found no evidence of MURR management inquiry into its underlying reasons — nor, more importantly, means by which to combat this type of organizational stagnation over the course of time.

Clarity/Focus

A review of the SCWE-related corrective actions implemented at MURR since 1994 reveals a sweeping, broad-based effort to address the underlying issues. At times, the effort's breadth and scope appears to be rather undefined, apparently in an attempt to be inclusive of all points of view across the MURR workplace. This observation is most acutely reflected in the MURR response to the ISAT report, submitted to the NRC on October 28, 1994. The document includes not only the "MURR Response," but also a host of group responses. The result is a litany of closely-related and cross-cutting commitments, as set forth in the enclosed matrix.

The end-product of this group-approach to resolution of the SCWE-related issues at MURR is a collection of Center-wide initiatives, superimposed on several group-specific efforts. The AT concludes that there may have been so many efforts underway, which reflected the preferences of different organizations (and conversely indicated an unwillingness on behalf of several groups to reach a consensus), that the workforce at large may not have possessed a uniform understanding of procedural hierarchy and, thus, how to report safety concerns at MURR. On this front, the AT notes that MURR Policy and Procedure Manual Section C4:016, "Safety Concern Reporting, Tracking and Resolution," apparently was not issued until November 1995.

Utility/"User Friendliness"

Another important measure of corrective action effectiveness is their utility at the site or "user friendly" nature. Apart from the possible lack of clarity regarding the governing reporting procedure at MURR, it is evident to the AT that efforts were made at MURR to make their SCWE-related processes user friendly and useful. The drop boxes are one indicia of this finding. In addition, the SIR Committee frequently solicited new members. The MURR Newsletter was frequently used as a vehicle by which to explain the nature of SCWE-related organizations (e.g., MSOC).

Results

The most important measure of SCWE-related corrective action effectiveness, in the estimation of the AT, is the results achieved at the site. In this regard, MURR made

consistent efforts to gauge corrective action effectiveness (through the use of numerous questionnaires) and received additional NRC feedback confirming the effectiveness of its corrective actions. These data points are included in the summary chronology provided above.

VI. Observations

In closing, the AT concludes that the corrective actions taken at MURR to address the past chilling effect have been generally effective on an ongoing basis. Not only have such corrective actions continued in existence since 1994, but they also have produced reasonable results and have been proven to be repeatedly effective via direct employee feedback in numerous MURR-issued questionnaires.

Nevertheless, despite the ongoing effectiveness of the underlying corrective actions, the AT believes there are lessons to be learned and further improvements to be made in this area at MURR. We have summarized our observations below.

Observation 1: MURR management's understanding of NRC expectations regarding SCWE needs to be periodically refreshed. Most importantly on this front, management and site personnel must understand that an NRC-licensed institution can never "drop" or "close" discrimination and SCWE-related topics. The MSOC effort to do so should not have occurred in the opinion of the AT.

Observation 2: MURR management, at bottom, seems to be inordinately results-driven in the SCWE arena, allowing favorable employee and regulatory feedback to lead it to relax its efforts in this area. The MSOC decision to "drop" discrimination and SCWE-related topics exemplifies this observation. The MSOC appeared to erroneously believe that the fact that it was not receiving any concerns in the SCWE area meant that the environment was satisfactory. Without judging whether or not the environment was adequate, the AT notes that the absence of submitted employee issues also could be indicative of a "chilled" environment. Therefore, the suggested termination of MSOC's focus on SCWE reflects an incomplete understanding of SCWE expectations and a results-driven organization.

Observation 3: Although the situation seems to have improved over time, MURR was highly factionalized in late 1994. This resulted in an unfocused initial approach to SCWE-related issues at the facility and likely contributed to a lack of clarity regarding issue-reporting procedures.

Observation 4: Despite commitments to improve SCWE training, and MSOC requests for such training, the AT found little evidence on this front. The only identified evidence of training was found in the annual requalification process. Additional training for managers may be appropriate.

**MURR CORRECTIVE ACTION MATRIX
SAFETY CONSCIOUS WORK ENVIRONMENT ISSUES**

Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
1.	9/94	MURR management must continuously communicate, demonstrate, and encourage openness for employees to report safety issues.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 1 [00263]	<ul style="list-style-type: none"> • Formation of Service Incident Review Committee (SIR): Intra-departmental correspondence to Service Applications informing personnel of formation meeting and elected membership. Includes SIR Charter. [04216, 04266] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • SIR process implemented by Service Applications. [00032] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • MURR Safety Oversight Committee Minutes: Notes encouragement to all to raise safety concerns. [00318] • Installation of drop boxes [00323] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution [00612-00617] • Safety Reporting Environment: Distribution of questionnaire. [02800] 	10/10/94 11/16/94 11/29/94 11/29/94 12/12/94 12/28/94 11/15/95 11/21/96
2.	9/94	University Administration should clearly communicate its desire and expectation that employees will raise safety issues, if discovered, with a commitment that there will be no retaliation for raising such issues.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 1 [00263]	<ul style="list-style-type: none"> • Service Applications Incident Review Form (Event No. SA-95-027), ISAT Finding Number One: File materials attached and indication of item being closed on 8/30/96. [04582, 04583, 03336-03357] • Formation of Service Incident Review Committee (SIR): Intra-departmental correspondence to Service Applications informing personnel of formation meeting and elected membership. Includes SIR Charter. [04216, 04266] • MURR Policy on Safety Concern Reporting, Tracking and Resolution. [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • Letter to Research Reactor Center Personnel from J. McCormick, Interim Vice Provost for Research and Dean of the Graduate School, "Open Climate for Raising Issues" [00347] • Memorandum from Charles A. Keisler, Chancellor, to Research Reactor Personnel, "institutional Policy on Safety and Reporting. [00346] • Annual Training conducted which notes that employees may go to the NRC at any time. [02057] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] • Indoctrination programs include a discussion of reporting of safety concerns. [02014, 05602] 	9/23/94 10/10/94 11/16/94 11/29/94 2/8/95 2/10/95 10/95 11/15/95 10/96
3.	9/94	Center management and cognizant University personnel should take immediate proactive actions when actual or potential safety or regulatory concerns or violations become evident. MURR and the University personnel should not await outside advice or NRC action before undertaking a response to mitigate and	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 2 [00263]	<ul style="list-style-type: none"> • Service Applications Incident Review Form (Event No. SA-95-028), ISAT Finding Number Two: File materials attached and indication of item being closed on 8/30/96. [04584, 04585, 03483-03509] • Formation of Service Incident Review Committee (SIR): Intra-departmental correspondence to Service Applications informing personnel of formation meeting and elected membership. Includes SIR Charter. [04216, 04266] • MURR Policy on Safety Concern Reporting, Tracking and Resolution. [00047] 	9/23/94 10/10/94 11/16/94

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
		correct such concerns or violations.		<ul style="list-style-type: none"> MURR Policy on Safety Concern Reporting, Tracking and Resolution, Draft [00051] MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/29/94 11/15/95
4.	9/94	Develop a safety policy and procedure manual on a timely basis with staff input and participation.	MURR Independent Safety Assessment Team Report - Climate for Safety Recommendation 3 [00263]	<ul style="list-style-type: none"> Service Applications Incident Review Form (Event No. SA-95-029), ISAT Finding Number Three: File materials attached. [04586, 03307-03335] MURR Policy on Safety Concern Reporting, Tracking and Resolution. [00047] MURR Policy on Safety Concern Reporting, Tracking and Resolution, Draft [00051] MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] MURR Policy and Procedures Manual: § C1:051; Notes materials made available in the front lobby, including MSOC and Subcommittee activities; correspondence from regulatory agencies, recent letters between MURR and regulatory agencies, and policies and procedures (some posted on bulletin board); § P1:011 discusses "Protection from Discrimination for Protected Activity"; § C4:015 also discusses reporting safety concerns to the NRC. [01558, 00569] 	9/23/94 11/16/94 11/29/94 11/15/95 7/1/98
5.	9/94	Develop a Center-wide policy for prioritizing, correcting, and tracking identified safety issues and ensuring that feedback is provided to the individual that raised the issue.	MURR Independent Safety Assessment Team Report - Climate for Safety Recommendation 4 [00263]	<ul style="list-style-type: none"> Service Applications Incident Review Form (Event No. SA-95-030), ISAT Finding Number Three: File materials attached. [04587, 03287-03306] Response to ISAT Report prepared by W.B. Yelon. [00527, 04121] Memo to MURR Staff, Investigators, and Students from Reactor Advisory Committee (RAC): RAC review of ISAT report. [00284, 04107, 04130] MURR Safety Program in Response to ISAT Finding Number Three; Proposed implementation date of 1/1/95. [00362, 04149] MURR Policy on Safety Concern Reporting, Tracking and Resolution. [00047] MURR Policy on Safety Concern Reporting, Tracking and Resolution, Draft [00051] A MURR Safety Concern Reporting and Tracking System drafted by J.W. Farmer and W.B. Yelon was approved. [0081] The Facilities Operations department implemented a two part system for reporting, tracking, record keeping, and accessibility of its staff regarding safety issues. Safety concern reports were separated from equipment discrepancy reports. [00043] The CHIND Safety Concern Reporting, Tracking, and Resolution Procedure was issued to all staff and students in the Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Offices. [00111] MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	9/23/94 10/17/94 10/21/94 11/10/94 11/16/94 11/29/94 12/1/94 12/14/94 5/30/95 11/15/95

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
6.	9/94	While encouraging a climate where individuals feel free to openly identify safety issues, a mechanism should be provided for those individuals that might prefer to remain anonymous.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 4 [00263]	<ul style="list-style-type: none"> • Service Incident Review Committee formed. [04216] • Response of MURR's Nuclear Archaeology and Geochemistry Group to the ISAT Report: In general support of ISAT recommendations; do not accept Director's assignment to develop an implementation methodology as such action would compromise anonymity [04126] • Area Responsible Person (ARP) Charter issued to assist MURR employees to have contacts at different levels of service application. [04559] • November 3 SIR Committee Meeting: Packet of information preparatory to 11/3/94 SIR Committee meeting. Encourages members to raise issues [04285] • MURR Safety Program in Response to Commitment, "Implement a Center-Wide Safety Concern Reporting and Tracking System that Provides for an Evaluation of the Concern, Assigns a Priority, Provides Feedback to Personnel Until the Issue is closed, and allows for anonymous Reporting; Proposed Implementation Date, January 1, 1995 [00362, 04149] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • Draft Safety Concerns Program Procedure -- purpose is to establish a program for reporting, tracking, and resolving safety concerns of all employees and students in the Biomedical Program, including the Radiopharmaceuticals Group RPDG) at MURR and the Center for Radiological Research (CRR) in the Allton Building [00038] • MSOC drop boxes were purchased in December 1994 and instructions on how to use the drop boxes and how to process concerns issued in MSOC meeting minutes. [00320] • Notes installation of drop boxes. [00323] • MURR Policy and Procedure Manual, Section C4-016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	<p>10/10/94 10/17/94</p> <p>11/94</p> <p>11/2/94</p> <p>11/10/94</p> <p>11/16/94</p> <p>11/29/94</p> <p>12/8/94</p> <p>12/21/94</p> <p>12/28/94 11/15/95</p>
7.	9/94	Develop and implement a formal root-cause analysis program, of scope appropriate for the activities conducted at MURR, for significant problems that have been identified.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 5 [00263]	<ul style="list-style-type: none"> • Service Applications Incident Review Form (Event No. SA-95-031), ISAT Finding Number Five: Reported by ISAT; "There is no formal root cause program. . . ." Attached reports discuss resolution, but do not specifically state that the issue was closed, unlike Findings 1 and 2. [04588-04598] • A letter was issued by Chancellor Charles A. Keisler to Research Reactor Personnel, "Institutional Policy on Safety and Reporting." [00346] • Safety and Quality Event Report System, Rev. 4, IGO-SAQ0 (Procedure -- Signed Cover Sheet): Procedure establishes requirements for identification, documentation, reporting, corrective action, root cause determination, and resolution of all Incidents or Quality Events at MURR IGO. Last signature dated 2/3/99 [04169] • Safety or Quality Event Report, Rev. 1, IGO-SAQ1 (Procedure -- Signed Cover Sheet): Provides guidance for resolving Safety or Quality Event Reports. Last signature dated 2/3/99. [04173] 	<p>9/23/94</p> <p>2/10/95</p> <p>9/22/98</p> <p>9/22/98</p>

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
8.	9/94	Develop a check and balance structure for areas in which single, independent authority exists. For example, strong consideration should be given to moving all (i.e., LLW, HLW and target) shipping functions to Reactor Operations where there exists a culture for compliance with regulatory requirements and procedure adherence.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 6 [00263]	<ul style="list-style-type: none"> Service Applications Incident Review Form (Event No. SA-95-032), ISAT Finding Number Six: Reported by ISAT; "Considerable independent authority resides in Services Applications such that pressures to meet service requirements might override safety and ALARA considerations . . ." <u>No</u> attached report indicating that incident was closed -- unlike Findings 1 and 2. See packet of materials regarding this issue -- appear to be file materials. [04599, 03283-03286] Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] 	9/23/94 6/21/95
9.	9/94	Evaluate the training needs in all areas of the Center, including the need for a Center-wide training coordinator. Develop and implement training programs where appropriate.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 7 [00263]	<ul style="list-style-type: none"> Service Applications Incident Review Form (Event No. SA-95-033), ISAT Finding Number Seven: Reported by ISAT; "Training programs appear weak in certain areas. . . ." <u>No</u> attached report indicating that incident was closed -- unlike Findings 1 and 2. See packet of materials regarding this issue -- appear to be file materials. [04600, 03260-03282] Annual Training conducted which notes that employees may go to the NRC at any time. [02057] Indoctrination programs include a discussion of reporting of safety concerns 	9/23/94 10/95 circa 9/94 [00308]
10.	9/94	Enhance the communication of management's expectation of and insistence on adherence to safety rules and practices by strengthening periodic training and supervisory involvement.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 8 [00263]	<ul style="list-style-type: none"> Service Applications Incident Review Form (Event No. SA-95-034), ISAT Finding Number Eight: Reported by ISAT; "There is a need to reinforce the importance of adhering to safety rules and practices. . . ." <u>No</u> attached report indicating that incident was closed -- unlike Findings 1 and 2. See packet of materials regarding this issue -- appear to be file materials. [04601, 03535-03553] 	9/23/94
11.	9/94	Establish a permanent industrial safety advisory group that includes Center, UMC personnel, and outside industrial experts to evaluate the current practices at the Center and provide recommendations for improvement, as appropriate.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 9 [00263]	<ul style="list-style-type: none"> Service Applications Incident Review Form (Event No. SA-95-035), ISAT Finding Number Nine: Reported by ISAT; "There is a need for improvement in the general area of industrial safety. . . ." <u>No</u> attached report indicating that incident was closed -- unlike Findings 1 and 2. See packet of materials regarding this issue -- appear to be file materials. [04602, 03463-03482] The MURR Safety Oversight Committee MSOC was formed in December 1994 and first met on 12/8/94. An External Safety Review Committee was formed and issued a report in early 1996. The team was composed of Tawfik Raby (NIST), David Rorer (BNL), and Marcus Voth (PSU). [00152] 	9/23/94 circa 1995 7/19/96
12.	9/94	Implement a procedure to identify, to respond in a timely manner, and to track safety issues raised by outside review groups as well as by the RAC.	MURR Independent Safety Assessment Team Report – Climate for Safety Recommendation 10 [00263]	<ul style="list-style-type: none"> Service Applications Incident Review Form (Event No. SA-95-036), ISAT Finding Number Ten: Reported by ISAT; "There is no formal process to capture and/or address safety concerns from outside review groups or regulatory bodies. . . ." Note attached reports regarding resulting actions. [04603-04611] MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] MURR Policy and Procedure Manual, Section C4.016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	9/23/94 11/16/94 11/29/94 11/15/95
13.	9/94	On a regular schedule, reinforce communication of	MURR Independent Safety Assessment Team Report –	<ul style="list-style-type: none"> Service Applications Incident Review Form (Event No. SA-95-037), ISAT Finding Number Eleven: Reported 	9/23/94

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
		MURR management's expectation that safety issues will be reported and its commitment that those making the reports need not fear retaliation. This should be conveyed verbally and in writing.	Chilling Effect and Fear of Retaliation Recommendation 1 [00263]	<p>by ISAT, "Our assessment is that there is a significant chilling effect and a fear of retaliation. . . ." <u>✓</u> attached report indicating that incident was closed -- unlike Findings 1 and 2. See packet of materials regarding this issue -- appear to be file materials. [04612, 04613, 03433-03462]</p> <ul style="list-style-type: none"> • Service Applications Incident Review Form (Event No. SA-95-038), ISAT Finding Number Twelve: Reported by ISAT; "All individuals interviewed indicated that they were aware of the recent claims of retaliation for raising safety issues. . . ." Note stating incident closed on 8/30/96. See packet of materials regarding this issue - - appear to be file materials. [04614, 03510-03534] • Response to ISAT by Barry Bezenek and Staff noting why people do not raise safety concerns. [00509] • Analytical-QA Response to the ISAT Report: Strongly agrees that a very serious chilling effect exists at MURR. [04138] • Memo to Service Applications Staff and Students from Steve Gunn re: ISAT Findings: Assuring recipients they will not be retaliated against if they report safety issues. [04148] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [000047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • MURR Safety Oversight Committee Minutes, notes encouragement of all to raise safety concerns. [00318] • MURR Newsletter defining, "What is This MSOC" [00259] • Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, "providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] • Safety Reporting Environment document; distribution of questionnaire. [02800] 	<p>9/23/94</p> <p>10/8/94</p> <p>10/26/94</p> <p>10/26/94</p> <p>11/16/94</p> <p>11/29/94</p> <p>12/12/94</p> <p>1/4/95</p> <p>6/21/95</p> <p>11/15/95</p> <p>11/21/96</p>
14.	9/94	Clarify the expectations of the UMC Chancellor regarding raising safety issues so that it is clear that there will be no retaliation against employees who raise safety issues.	MURR Independent Safety Assessment Team Report - Chilling Effect and Fear of Retaliation Recommendation 1 [00263]	<ul style="list-style-type: none"> • Memo to Service Applications Staff and Students from Steve Gunn re: ISAT Findings: Assuring recipients they will not be retaliated against if they report safety issues. [04148] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • Memorandum From Charles A. Keisler, Chancellor, To Research Reactor Personnel, "Institutional Policy On Safety And Reporting" [00346] 	<p>10/26/94</p> <p>11/16/94</p> <p>2/10/95</p>
15.	9/94	While staff may be "at-will" employees from the University's employment perspective, the University should indicate the importance of MURR staff in enabling the Center to reach its goals.	MURR Independent Safety Assessment Team Report - Chilling Effect and Fear of Retaliation Recommendation 1 [00263]	<ul style="list-style-type: none"> • Letter to Research Reactor Center Personnel from J. McCormick, Interim Vice Provost for Research and Dean of the Graduate School, "Open Climate for Raising Issues" [00347] • Memorandum from Charles A. Keisler, Chancellor, to Research Reactor Personnel, "institutional Policy on Safety and Reporting. [00346] 	<p>2/8/95</p> <p>2/10/95</p>
16.	9/94	Post the procedures for reporting safety issues so it is extremely clear to whom safety issues should be reported.	MURR Independent Safety Assessment Team Report - Chilling Effect and Fear of Retaliation Recommendation 2 [00263]	<ul style="list-style-type: none"> • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Tracking System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For 	<p>11/10/94</p>

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
				<p>Anonymous Reporting; Proposed Implementation Date, January 1, 1995." [00362,04149]</p> <ul style="list-style-type: none"> • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	<p>11/16/94</p> <p>6/21/95</p> <p>11/15/95</p>
17.	9/94	This procedure should also articulate the process to follow if the safety issue has not been sufficiently addressed from the reporting individual's perspective.	MURR Independent Safety Assessment Team Report – Chilling Effect and Fear of Retaliation Recommendation 2 [00263]	<ul style="list-style-type: none"> • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Trackign System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995." [00362,04149] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00051] • Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	<p>11/10/94</p> <p>11/16/94</p> <p>11/29/94</p> <p>6/21/95</p> <p>11/15/95</p>
18.	9/94	Because of the apparent lack of familiarity at many levels within the University, the continuing uncertainty amongst some Center and University personnel about the "Whistleblower" protection afforded by the Energy Reorganization Act of 1974 and the changes made as part of the Comprehensive National Energy Policy Act of 1992, as well as the separate and distinct implementation responsibilities of the Department of Labor and the NRC, consideration should be given to further training in the provisions of the Act and its implementation at various levels at the University.	MURR Independent Safety Assessment Team Report – Chilling Effect and Fear of Retaliation Recommendation 3 [00263]	<ul style="list-style-type: none"> • Service Applications Incident Review Form (Event No. SA-95-033), ISAT Finding Number Seven: Reported by ISAT; "Training programs appear weak in certain areas. ... No attached report indicating that incident was closed -- unlike Findings 1 and 2. See packet of materials regarding this issue -- appear to be file materials. [04600, 03260-03282] • Memorandum From Charles A. Keisler, Chancellor, To Research Reactor Pesonnel, "Institutional Policy On Safety And Reporting" [00346] • Remarks by John McCormick, Interim Vice Provost for Research and Dean of the Graduate School, "Open Climate for Raising Issues," notes comments delivered during NRC enforcement conference [00256] • Transmittal of NRC guidance for reporting safety concerns (to MURR staff). [02804] 	<p>9/23/94</p> <p>2/10/95</p> <p>2/28/95</p> <p>12/2/96</p>
19.	10/28/94	The annual indoctrination package has been revised to increase emphasis on the importance of safety and the individual's responsibility to report safety concerns. The revision included an outline of how to report these concerns	<p>MURR Response to ISAT Report - Safety Culture and Reduce the Chilling Effect - Recommendation 1</p> <p>Report on Progress on Recommendations of the Independent Safety</p>	<ul style="list-style-type: none"> • Indoctrination Program with reporting safety concerns discussion on p. 14. [02014, 05602] 	10/96

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		within the MURR management structure as well as the options outside MURR. Questions have been added to the indoctrination questionnaire to test understanding of the reporting options.	Assessment Team [05101]		
20.	10/28/94	To facilitate reporting of safety concerns a mechanism has been established that encourages submission of written suggestions if the individual wishes to remain anonymous.	Report on Progress on Recommendations of the Independent Safety Assessment Team [05101]	<ul style="list-style-type: none"> • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Trackign System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995." [00362,04149] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] • Draft Safety Concerns Program Procedure -- purpose is to establish a program for reporting, tracking, and resolving safety concerns of all employees and students in the Biomedical Program, including the Radiopharmaceuticals Group (RPDG) at MURR and the Center for Radiological Research (CRR) in the Allton Building [00038] • Notes installation of drop boxes. [00323] • Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	<p>11/10/94</p> <p>11/16/94</p> <p>11/29/94</p> <p>12/7/94</p> <p>12/8/94</p> <p>12/28/94 6/21/95</p> <p>11/15/95</p>
21.	10/28/94	Implement a Center-wide safety concern reporting and tracking system that provides for an evaluation of the concern, assigns a priority, and provides feed back to personnel until the issue is closed.	<p>MURR Response to ISAT Report - Long Range Plan - Recommendation 2</p> <p>MURR Reply to NOV, dated 10/28/94 [04995]</p>	<ul style="list-style-type: none"> • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Trackign System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995." [00362,04149] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] • Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	<p>11/10/94</p> <p>11/16/94</p> <p>11/29/94</p> <p>12/7/94</p> <p>6/21/95</p> <p>11/15/95</p>
22.	10/28/94	Issue the policy and procedure	MURR Reply to NOV,	<ul style="list-style-type: none"> • MURR Policy on Safety Concern Reporting, Tracking, 	11/16/94

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
		manual that is currently under development. The manual will include a section on safety reporting policies.	dated 10/28/94 [04995]	<ul style="list-style-type: none"> and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] • MURR Policy and Procedures Manual; p. 1, § C1.051; Notes materials made available in the front lobby, including MSOC and Subcommittee activities; correspondence from regulatory agencies, recent letters between MURR and regulatory agencies, and policies and procedures (some posted on the bulletin board); § P1:011 discusses "Protection from Discrimination for Protected activity; C4:015 also discusses reporting safety concerns to the NRC. [01558, 00569] 	11/29/94 11/15/95 7/1/98
23.	10/28/94	MURR management will develop a policy to improve access to information concerning the Center, including, correspondence with regulatory agencies, current project priorities and long term goals.	MURR Response to ISAT Report - Long Range Plan - Recommendation 4 MURR Reply to NOV, dated 10/28/94 [04995]	<ul style="list-style-type: none"> • MURR Independent Safety Assessment Team Report on Management [00285, 05893] • Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, " providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] 	11/14/94 6/21/95
24.	10/28/94	Provide the various levels of University and MURR management a written definition of their responsibilities for understanding of 10 CFR 50.7 requirements that prohibit retaliation for reporting safety concerns.	MURR Response to ISAT Report - Long Range Plan - Recommendation 5 MURR Reply to NOV, dated 10/28/94 [04995]	<ul style="list-style-type: none"> • Indoctrination Program, University of Missouri Research Reactor Center (MURR)[00582-83] • MURR Independent Safety Assessment Team Report on Management [00285, 05893] • MURR Policy and Procedure Manual, Section P1:010, "Notice of Nondiscrimination" [00725] • MURR Policy and Procedure Manual, Section P1:011, "Protection from Discrimination for Protected Action" [00726] 	9/94 11/14/94 11/15/95 11/15/95
25.	10/28/94	Documentation of progress as well as the responses provided by groups and individuals will be kept on file and are considered an inspectable document. MURR will provide the Independent Safety Assessment Team with a six month progress report which will be available to the NRC if desired.	MURR Reply to NOV, dated 10/28/94 [04995]	<ul style="list-style-type: none"> • "Report of Progress," from J.J. Rhyne and J.C. McKibben to ISAT members [05101] • Safety Reporting Environment document; distribution of questionnaire. [02800] 	9/29/95 11/21/96
26.	10/28/94	The procedure and basis for promotions will be included in the new MURR Policy and Procedure manual. This will make this information more readily available to the staff to avoid future misunderstandings about the basis on which promotion decisions are made.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Corrective steps that will be taken to avoid further violations MURR Reply to NOV, dated 10/28/94 [04995]	<ul style="list-style-type: none"> • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy and Procedure Manual, Section P7:010, "Performance Reviews" [00756] • MURR Policy and Procedures Manual; p. 1, § C1:051; Notes materials made available in the front lobby, including MSOC and Subcommittee activities; correspondence from regulatory agencies, recent letters between MURR and regulatory agencies, and policies and procedures (some posted on the bulletin board); § P1:011 discusses "Protection from Discrimination for Protected activity; C4:015 also discusses reporting safety concerns to the NRC. [01558, 00569] 	11/16/94 4/15/95 7/1/98
27.	10/28/94	In the event of any subsequent allegations of discrimination related to protected activities of which MURR management becomes aware, a written communication will be sent to	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Corrective steps that will be taken to avoid further	<ul style="list-style-type: none"> • [Follow-up with MURR Personnel] 	

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		all employees of MURR advising them 1) an allegation has been made, 2) that the filing of such allegations is a right under federal law, 3) that federal law prohibits retaliatory actions against an individual exercising such right, and 4) that any retaliatory action in violation of such federal law will subject the retaliator to disciplinary action.	violations MURR Reply to NOV, dated 10/28/94 [04995]		
28.	10/28/94	In August 1994, we revised our annual radiation indoctrination training to increase the emphasis on the importance of raising safety concerns and how this can be done both internally and externally.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 6) MURR Reply to NOV, dated 10/28/94 [04995]	<ul style="list-style-type: none"> • Indoctrination Program with reporting safety concerns discussion on p. 14. [02014, 05602] 	10/96
29.	10/28/94	To reinforce this and to ensure that personnel with access to MURR understand these provisions, our indoctrination questionnaire has been expanded to include a question on both the internal and external ways to address unsafe concerns.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 6) MURR Reply to NOV, dated 10/28/94 [04995]	<ul style="list-style-type: none"> • Indoctrination Program with reporting safety concerns discussion on p. 14. [02014, 05602] • Safety Reporting Environment document; distribution of questionnaire. [02800] 	10/96 11/21/96
30.	10/28/94	To facilitate reporting of safety concerns, a mechanism has been established that encourages submission of written suggestions if the individual wishes to remain anonymous.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 6) MURR Reply to NOV, dated 10/28/94 [04995]	<ul style="list-style-type: none"> • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Trackign System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995." [00362,04149] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] • Draft Safety Concerns Program Procedure -- purpose is to establish a program for reporting, tracking, and resolving safety concerns of all employees and students in the Biomedical Program, including the Radiopharmaceuticals Group (RPDG) at MURR and the Center for Radiological Research (CRR) in the Allton Building [00038] • Notes installation of drop boxes. [00323] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/10/94 11/16/94 11/29/94 12/7/94 12/8/94 12/28/94 11/15/95
31.	10/28/94	To assess the current safety environment at the Reactor Center, three individuals whose credentials are impressive and complementary were asked to form an Independent Safety Assessment Team (ISAT) and perform a review.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 6) [00298, 04995, 05006]	<ul style="list-style-type: none"> • MURR Independent Safety Assessment Team (ISAT) Report: Final ISAT report assessing safety climate. This report was provided to MURR Staff, Students and Research Investigators for comment. The memo transmitting the report to the latter indicates that the team will "soon be holding discussions and asking for suggestions for implementing" the recommendations set forth in the report. [05906, 04086, 04964] • MURR Independent Safety Assessment Team Report on Management [00285, 05893] 	9/23/94 11/14/94 11/28/94

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
				• MURR submittal of ISAT report {00381}	

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32.	10/28/94	Each group has been asked to propose its own strategy for implementing the ISAT recommendations. From these, a Center-wide implementation plan will be developed. This approach attempts to eliminate any concerns in raising safety issues.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 7) [00298]	<ul style="list-style-type: none"> • Safety Assessment Meeting (10/6/94): Mandatory meeting for all Service Applications personnel regarding the MURR safety evaluation and ISAT report distributed on 9/28/94. [04265] • Meeting of Biomedical Program/Radiopharmaceuticals Group, addressing issue of "lack of proactive response," which seemed to be based largely on management's hesitation in reassuring personnel that they should come forward with safety concerns without fear of retaliation... Traditional culture and experience of openness had perhaps caused management to consider immediate actions unnecessary. Notes that non-FEO training meetings provided an informative approach and assured personnel of their rights, responsibilities and protection under the regulations was a good step and should be continued. [00497] • Response to ISAT by Barry Bezenek and Staff noting why people do not raise safety concerns. [00509] • Response of MURR's Nuclear Archaeology and Geochemistry Group to the ISAT Report: In general support of ISAT recommendations; do not accept Director's assignment to develop an implementation methodology as such action would compromise anonymity [04126] • SIR Committee Meeting Minutes: Discussion of ISAT findings [04273] • Draft Response to ISAT Report (Group Leaders and Managers): 13 group and individual responses submitted for consideration; significant differences in perspective; common strategies regarding certain issues; list of action items for high priority issues. [04156] • MURR submittal of ISAT report [00381] • MURR Safety Concern Reporting and Tracking System Draft; by J.W. Farmer and W.B. Yelon; Marked "Approved NMSP." 12/2/94 [00081] • Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] 	<p>10/5/94</p> <p>10/6/94</p> <p>10/8/94</p> <p>10/17/94</p> <p>10/20/94</p> <p>10/24/94</p> <p>11/28/94</p> <p>12/1/94</p> <p>6/21/95</p>
33.	10/28/94	Implement a Center-wide safety concern reporting and tracking system that provides for an evaluation of the concern, assigns a priority, provides feed back to personnel until the issue is closed, and allows for anonymous reporting. Proposed implementation dated: January 1, 1995.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 7) [00298]	<ul style="list-style-type: none"> • Draft MURR ISAT Review Committee notification that Service Applications will handle "safety items, incident reports and external reviews through a Service Incident Review System (SIR). [02265, 04131, 04137, 04215] • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Trackign System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995." [00362,04149] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] • Draft Safety Concerns Program Procedure -- purpose is to establish a program for reporting, tracking, and resolving safety concerns of all employees and students in the Biomedical Program, including the 	<p>10/20/94</p> <p>11/10/94</p> <p>11/16/94</p> <p>11/29/94</p> <p>12/7/94</p> <p>12/8/94</p>

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				<p>Radiopharmaceuticals Group (RPDG) at MURR and the Center for Radiological Research (CRR) in the Allton Building [00038]</p> <ul style="list-style-type: none"> • Notes installation of drop boxes. [00323] • Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	<p>12/28/94 6/21/95</p> <p>11/15/95</p>
34.	10/28/94	Issue the policy and procedure manual that is currently under development. The manual will include a section on safety reporting policies. Proposed implementation date: December 1, 1994.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 7) [00298]	<ul style="list-style-type: none"> • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] • MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] • MURR Policy and Procedures Manual; p. 1, § C1:051; Notes materials made available in the front lobby, including MSOC and Subcommittee activities; correspondence from regulatory agencies, recent letters between MURR and regulatory agencies, and policies and procedures (some posted on the bulletin board); § P1:011 discusses "Protection from Discrimination for Protected activity"; C4:015 also discusses reporting safety concerns to the NRC. [01558, 00569] 	<p>11/16/94</p> <p>11/29/94</p> <p>12/7/94</p> <p>11/15/95</p> <p>7/1/98</p>
35.	10/28/94	MURR management will develop a policy to improve access to information concerning the Center, including correspondence with regulatory agencies, current project priorities and long-term goals. Proposed implementation date: December 1, 1994.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 7) [00298]	<ul style="list-style-type: none"> • MURR Independent Safety Assessment Team Report on Management [00285, 05893] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • MURR Policy and Procedure Manual, Section C1:051, "Staff Access to Information" [00606] 	<p>11/14/94</p> <p>11/29/94</p> <p>7/1/98</p>
36.	10/28/94	MURR will provide the Independent Safety Assessment Team with a six-month progress report.	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - Maintenance of a Safety Culture at MURR (p. 8) [00298]	<ul style="list-style-type: none"> • Report on Progress on Recommendations of the ISAT [5101] 	9/29/95

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
37.	10/28/94	I have approved the recommendation by Director Rhyne that all MURR employees receive a written communication that informs them of their rights to report safety concerns; that federal statutes and regulations prohibit retaliation for such reports; that the University is committed to complying with such federal statutes and regulations; that such prohibited retaliation, if substantiated by the University, may subject an employee to disciplinary action, and that any perceived retaliatory action may be reported directly to me for investigation and action, if appropriate. In addition to the initial distribution of such communication, I have requested that Director Rhyne assure that such communication is redistributed as soon as practicable if there is any future filing of a discrimination complaint pursuant to 10 CFR 50.7	Reply to a Notice of Violation in Accordance with 10 CFR 2.201 and Demand for Information - The steps you have taken to ensure that all managers and supervisors of MURR fully understand their responsibilities regarding the right of individuals to raise safety concerns without fear of retaliation or discrimination. (p. 9) [00298]	<ul style="list-style-type: none"> • MURR Independent Safety Assessment Team Report on Management [00285.05893] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy and Procedure Manual, Section C4.016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/14/94 11/16/94 11/15/95
38.	10/94	The Center management should strive to provide enhanced opportunities for open discussion of views on issues and to provide more effective feedback on the status of resolution of concerns or issues, as appropriate. Middle management support and involvement in these communication efforts is needed to keep their personnel effectively informed and to provide opportunities for input. Establish a program for management training and development.	MURR Independent Management Assessment Report - Communication - Recommendations 1A and 1B [00284].	<ul style="list-style-type: none"> • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Tracking System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting," Proposed Implementation Date, January 1, 1995. [00362, 04149] • MURR Independent Safety Assessment Team Report on Management [00285, 05893] • Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] • Draft Safety Concerns Program Procedure -- purpose is to establish a program for reporting, tracking, and resolving safety concerns of all employees and students in the Biomedical Program, including the Radiopharmaceuticals Group (RPDG) at MURR and the Center for Radiological Research (CRR) in the Allton Building. [00038] • MSOC minutes proving processes for routing safety concerns placed in drop box, "When a subcommittee has a resolved safety concern to be reviewed by MSOC the group representative will route a copy of the resolved concern report to all members (RO representative -- Shift Supervisors c/o Becky Brooks). If any member has a concern regarding a resolved issue, he/she may call a meeting to discuss it or wait to raise the concern at the next meeting. A meeting may be called by any member if a large backlog of resolved concerns (i.e., 10 or more) is awaiting review. If no specific meeting is called, concerns resolved by subcommittees may be reviewed and discussed as an agenda item at any meeting. [00325] 	11/10/94 11/14/94 12/7/94 12/8/94 1/4/95
39.	10/94	Develop a Center-wide policy for prioritizing, correcting, and tracking issues that have been identified, and ensure that	MURR Independent Management Assessment Report - Priorities and Tracking- Recommendation	<ul style="list-style-type: none"> • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Trackign System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback 	11/10/94

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		feedback is provided to the individual(s) who raised the issues. When establishing this Center-wide policy, the Director should solicit staff input. Management should provide overall guidance for prioritizing and tracking issues. While encouraging a climate where individuals feel free to openly identify issues, a mechanism should be provided for those individuals who might prefer to remain anonymous.	4A [00284]	To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995." [00362, 04149] <ul style="list-style-type: none"> MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] MSOC minutes note purchase of drop boxes (2). [00320] SIR Committee Meeting Agenda [04322] Notes installation of drop boxes. [00323] MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/16/94 11/29/94 12/7/94 12/21/94 12/28/94 12/28/94 11/15/95
40.	10/94	Develop a strategic plan for the Center with input from the staff which describes the mission, goals, and objectives.	MURR Independent Management Assessment Report - Priorities and Tracking - Recommendation 4B [00284]	<ul style="list-style-type: none"> MURR Mission Statement: Incorporates feedback from University community; establishes priorities and is meant to guide activities over next several years. [05326] 	6/30/98
41.	10/94	Concerted effort should be made to achieve a team approach in addressing Center activities. (The current effort of encouraging all Center personnel to participate in an action plan in response to the Assessment Team's safety report, as well as the encouragement for all to assume "ownership" of all aspects of safety are laudable examples of encouraging a team approach to problem solving.)	MURR Independent Management Assessment Report - Morale - Recommendation 5A [00284]	<ul style="list-style-type: none"> MURR Safety Concern Reporting and Tracking System Draft; by J.W. Farmer and W.B. Yelon; Marked "Approved NMSR," 12/2/94 [00081] Memorandum inviting McKibben, Errante, Dinger, Bonney, Montague, Briscoe, Paradis, Kutikkad from Reilly, "DO/HP/CK/ID/NE Safety Procedure" notes the personnel from cc Organizations are invited and urged to attend also (Berliner, Ernst, and Mowm were the "cc" organization listees. [00124] Draft Safety Concerns Program Procedure -- purpose is to establish a program for reporting, tracking, and resolving safety concerns of all employees and students in the Biomedical Program, including the Radiopharmaceuticals Group (RPDG) at MURR and the Center for Radiological Research (CRR) in the Allton Building. [00038] 	12/1/94 12/5/94 12/8/94
42.	10/94	The MURR staff should keep abreast of current NRC concerns and the changing regulatory climate by maintaining active and open communications with Region III of the NRC. Periodic trips to Region III to discuss MURR's approach, philosophy, concerns, etc., is encouraged.	MURR Independent Management Assessment Report - Regulatory Awareness - Recommendation 6A [00284]	<ul style="list-style-type: none"> Transmittal of NRC guidance for reporting safety concerns (to MURR Staff). [02804] 	12/2/96
43.	10/94	A formal root-cause analysis program should be developed for significant problems that have been identified and of scope appropriate for the activities conducted at MURR.	MURR Independent Management Assessment Report - Regulatory Awareness - Recommendation 6B [00284]	<ul style="list-style-type: none"> Safety and Quality Event Report System, Rev. 4, IGO-SAQ0 (Procedure -- Signed Cover Sheet): Procedure establishes requirements for identification, documentation, reporting, corrective action, root cause determination, and resolution of all Incidents or Quality Events at MURR IGO. Last signature dated 2/3/99. [04169] Safety or Quality Event Report, Rev. 1, IGO-SAQ1 (Procedure -- Signed Cover Sheet): Provides guidance for resolving Safety or Quality Event Reports. Last signature dated 2/3/99. [04173] 	9/22/98 9/22/98
44.	10/94	Evaluate the training needs in all areas of the Center, including the need for a Center-wide training coordinator. Develop and implement training programs where appropriate.	MURR Independent Management Assessment Report - Employee Training [00284]	<ul style="list-style-type: none"> Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02157] 	9/6/95 10/95

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				<ul style="list-style-type: none"> Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	6/21/96
45.	10/94	A formal system of training and documentation regarding safety concerns	W.B. Yelon response to ISAT Report (October 17, 1994) [00527]	<ul style="list-style-type: none"> Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02157] Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	9/6/95 10/95 6/21/96
46.	10/94	A safety manual which includes both general training (radioactivity, housekeeping, industrial safety) and training specific to the areas in which the student or staff member participates	W.B. Yelon response to ISAT Report (10/17/94) [00527]	<ul style="list-style-type: none"> Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02157] Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	9/6/95 10/95 6/21/96
47.	10/94	A regular reporting and tracking system for safety concerns, including feedback to the reporting individual.	<p>MURR Safety Concern Reporting and Tracking System Draft; by J.W. Farmer and W.B. Yelon (12/1/94)</p> <p>W.B. Yelon Response to ISAT Report (10/17/94) [00527]</p>	<ul style="list-style-type: none"> MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Trackign System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting;" Proposed Implementation Date, January 1, 1995. [00362, 04149] Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] Service Applications Incident Review Form: Blank form. [04230] MSOC minutes proving processes for routing safety concerns placed in drop box, "When a subcommittee has a resolved safety concern to be reviewed by MSOC< the group representative will route a copy of the resolved concern report to all members (RO representative -- Shift Supervisors c/o Becky Brooks). If any member has a concern regarding a resolved issue, he/she may call a meeting to discuss it or wait to raise the concern at the next meeting. A meeting may be called by any member if a large backlog of resolved concerns (i.e., 10 or more) is awaiting review. If no specific meeting is called, concerns resolved by subcommittees may be reviewed and discussed as an agenda item at any meeting. [00325] MURR Policy and Procedure Manual, Section C4.016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/10/94 12/7/94 12/29/94 1/4/95 11/15/95
48.	10/94	Input, both in the form of identification of potential hazards, and in the form of the requisite training should be solicited from all levels, both in the initial phase of establishing the training instruments and on an ongoing basis in order to improve and where possible to simplify the procedures.	W.B. Yelon response to ISAT Report (10/17/94) [00527]	<ul style="list-style-type: none"> Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02057] Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	9/6/95 10/95 6/21/96
49.	10/94	Maintain open lines of communication.	W.B. Yelon response to ISAT Report (10/17/94) [00527]	<ul style="list-style-type: none"> Safety Reporting Environment document; distribution of questionnaire. [02800] 	11/21/96

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50	10/94	Identifying, receiving, responding to safety concerns: Promote open communication and anonymous submission of concerns.	W.B. Yelon response to ISAT Report (10/17/94) [00527]	<ul style="list-style-type: none"> MSOC minutes note purchase of drop boxes (2). [00320] Notes installation of drop boxes. [00323] MSOC minutes proving processes for routing safety concerns placed in drop box, "When a subcommittee has a resolved safety concern to be reviewed by MSOC< the group representative will route a copy of the resolved concern report to all members (RO representative -- Shift Supervisors c/o Becky Brooks). If any member has a concern regarding a resolved issue, he/she may call a meeting to discuss it or wait to raise the concern at the next meeting. A meeting may be called by any member if a large backlog of resolved concerns (i.e., 10 or more) is awaiting review. If no specific meeting is called, concerns resolved by subcommittees may be reviewed and discussed as an agenda item at any meeting. [00325] Safety Reporting Environment document; distribution of questionnaire. [02800] 	12/21/94 12/28/94 1/4/95 11/21/96
51.	10/94	Create a standard form to report safety concerns and act as a standard checklist for investigation and feedback; create a safety concerns clearing house that would provide overview—including the training coordinator.	W.B. Yelon response to ISAT Report (10/17/94) [00527]	<ul style="list-style-type: none"> MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] Service Applications Incident Review Form: Blank form. [04230] Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/16/94 12/7/94 12/29/94 6/21/95 11/15/95
52.	10/94	Safety policy and procedure manual: Create and integrated safety policy and procedure manual (including a 3-fold flyer similar to that distributed by the EAP to be sent out annually)	W.B. Yelon response to ISAT Report (10/17/94) [00527]	<ul style="list-style-type: none"> MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] MURR Policy and Procedures Manual, p. 1, § C1:051; Notes materials made available in the front lobby, including MSOC and Subcommittee activities; correspondence from regulatory agencies, recent letters between MURR and regulatory agencies, and policies and procedures (some posted on the bulletin board); § P1:011 discusses "Protection from Discrimination for Protected activity"; C4:015 also discusses reporting safety concerns to the NRC. [01558, 00569] 	11/16/94 11/15/95 7/1/98
53.	10/94	Checks and Balance: Cross-group checking to consider outside perspectives.	W.B. Yelon response to ISAT Report (10/17/94) [00527]	<ul style="list-style-type: none"> MSOC minutes proving processes for routing safety concerns placed in drop box, "When a subcommittee has a resolved safety concern to be reviewed by MSOC< the group representative will route a copy of the resolved concern report to all members (RO representative -- Shift Supervisors c/o Becky Brooks). If any member has a concern regarding a resolved issue, he/she may call a meeting to discuss it or wait to raise the concern at the next meeting. A meeting may be called by any member if a large backlog of resolved concerns (i.e., 10 or more) is awaiting review. If no specific meeting is called, concerns resolved by subcommittees may be reviewed and discussed as an agenda item at any meeting. [00325] 	1/4/95

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54	10/94	Chilling effect/fear of retaliation: In terms of communications, make a center wide appeal to the chancellor for a letter to University staff affirming the University's commitment to openness to reporting safety issues.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Memorandum From Charles A. Keisler, Chancellor, To Research Reactor Personnel, "Institutional Policy On Safety And Reporting" [00346] 	2/10/95
55	10/94	Proactive actions regarding actual and potential safety or regulatory concerns: The ISAT management report should be made available to MURR staff.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> MURR submittal of ISAT report [00381] 	11/28/94
56	10/94	Safety Policy and Procedures Manual: Each group should develop a safety policies and procedures manual addressing particular safety concerns of the group, including required training. Master manuals should be housed in a central library within MURR that combine materials from all groups as well as MURR management expectations, policies, procedures, and pertinent NRC information. A subset of the master manual should be issued to all MURR employees (covering such issues as MURR safety)	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Draft Safety Concerns Program Procedure -- purpose is to establish a program for reporting, tracking, and resolving safety concerns of all employees and students in the Biomedical Program, including the Radiopharmaceuticals Group (RPDG) at MURR and the Center for Radiological Research (CRR) in the Allton Building. [00038] Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] MURR Policy and Procedure Manual, Section C4.016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] SIR Committee Agenda Item: Attached SAQ-00002 (Service Applications: Incident Report, Rev. 2) [04361] MURR Policy and Procedures Manual; p. 1, § C1.051; Notes materials made available in the front lobby, including MSOC and Subcommittee activities; correspondence from regulatory agencies, recent letters between MURR and regulatory agencies, and policies and procedures (some posted on the bulletin board); § P1.011 discusses "Protection from Discrimination for Protected activity"; C4.015 also discusses reporting safety concerns to the NRC. [01558, 00569] 	12/8/94 6/21/95 11/15/95 12/2/96 7/1/98
57	10/94	Incident Reporting and Feedback: Safety incidents should be tracked in writing, comments solicited, and time limits set for accomplishing corrective actions. Review the incident reporting, tracking, and feedback process. Disseminate feedback from incident reports to all concerned and interested staff.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Service Applications Incident Review Form: Blank form. [04230] Memo to All Staff and Students in Computer Development, Health Physics, Instrument Development, Reactor Nuclear Engineering and Director's Office, providing the "CHIND Safety Concern, Reporting, Tracking and Resolution Policy and Procedure" CHIND means (Computer Development, Health Physics, Instrument Development, Nuclear Engineering, and Director's Office). [00096] MURR Policy and Procedure Manual, Section C4.016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/29/94 6/21/95 11/15/95

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58.	10/94	Root Cause Analysis: A root cause analysis committee should be appointed and its members should receive root cause analysis training.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> • Safety and Quality Event Report System, Rev. 4, IGO-SAQ0 (Procedure -- Signed Cover Sheet): Procedure establishes requirements for identification, documentation, reporting, corrective action, root cause determination, and resolution of all Incidents or Quality Events at MURR IGO. Last signature dated 2/3/99. [04169] • Safety or Quality Event Report, Rev. 1, IGO-SAQ1 (Procedure -- Signed Cover Sheet): Provides guidance for resolving Safety or Quality Event Reports. Last signature dated 2/3/99. [04173] 	9/22/98 9/22/98
59.	10/94	Training Program: A training coordinator should be appointed; all specialized training should occur within groups by qualified personnel; trainers should provide information to the training coordinate	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> • Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] • Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02057] • Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	9/6/95 10/95 6/21/96
60.	10/94	Initiate a program of safety training.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> • Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] • Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02057] • Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	9/6/95 10/95 6/21/96
61.	10/94	Initiate a regular schedule of safety retraining sessions.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> • Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] • Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02057] • Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	9/6/95 10/95 6/21/96
62.	10/94	The Safety Committee should be responsible for formalizing methods whereby safety concerns can be submitted by the MURR staff. The procedure should be MURR-wide and encompass anonymous submissions and the general notification of staff of safety concern resolution.		<ul style="list-style-type: none"> • MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Tracking System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995." [00362, 04149] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] • MURR Policy on Safety Concern Reporting, Tracking, and Resolution, Draft [00051] • Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] • MSOC minutes proving processes for routing safety concerns placed in drop box, "When a subcommittee has a resolved safety concern to be reviewed by MSOC< the group representative will route a copy of the resolved concern report to all members (RO representative -- Shift Supervisors c/o Becky Brooks). If any member has a concern regarding a resolved issue, he/she may call a meeting to discuss it or wait to raise the concern at the next meeting. A meeting may be called by any member if a large backlog of resolved concerns (i.e., 10 or more) 	11/10/94 11/16/94 11/29/94 12/7/94 1/4/95

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				is awaiting review. If no specific meeting is called, concerns resolved by subcommittees may be reviewed and discussed as an agenda item at any meeting. [00325] <ul style="list-style-type: none"> MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/15/95
63.	10/94	A greater emphasis on safety by the Director's Office including a proactive emphasis on safety issues, as well as prominent signs/memos/notifications	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Safety Reporting Environment document; distribution of questionnaire. [02800] 	11/21/96
64.	10/94	All Group responses to the ISAT Report should be submitted to the NRC along with the ISAT Report as appendices to the Center's response.	Analytic Epidemiology, Biochemistry, and Immunology Group, and QA Group Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> MURR response to ISAT Report [00263] 	9/23/94
65.	10/94	Create a MURR policy manual which contains basic radiation safety information and relevant NRC information.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> MURR Policy and Procedure Manual, "MURR Radiation Protection Program Manual," Section C4:017 [00618] Transmittal of NRC guidance for reporting safety concerns (to MURR Staff). [02804] 	3/15/96 12/2/96
66.	10/94	Establish a center-wide incident reporting system.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Trackign System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995. [00362, 04149] MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] Service Applications Incident Review Form: Blank form. [04230] MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] 	11/10/94 11/16/94 12/7/94 12/29/94 11/15/95
67.	10/94	Where appropriate, root cause analyses should be part of incident report responses.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Safety and Quality Event Report System, Rev. 4, IGO-SAQ0 (Procedure -- Signed Cover Sheet): Procedure establishes requirements for identification, documentation, reporting, corrective action, root cause determination, and resolution of all Incidents or Quality Events at MURR IGO. Last signature dated 2/3/99. [04169] Safety or Quality Event Report, Rev. 1, IGO-SAQ1 (Procedure -- Signed Cover Sheet): Provides guidance for resolving Safety or Quality Event Reports. Last signature dated 2/3/99. [04173] 	9/22/98 9/22/98
68.	10/94	Improve training programs.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02057] Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	9/6/95 10/95 6/21/96

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
69.	10/94	Implement a management report that is integrated with the incident reporting system, oversight committees, NRC and other inspections, and other activities which generate safety or license-related open items. Track the status of all open items and report to MURR staff, MU management, and NRC on a monthly basis.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Draft CHIND Safety Concern Reporting, Tracking and Resolution Procedure [00118] 	12/7/94
70.	10/94	Conduct a formal annual evaluation, by MURR staff, of MURR management including the Director. Report results to appropriate MU administrators	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> MURR Independent Safety Assessment Team Report on Management [00285, 05893] 	11/14/94
71.	10/94	FO develop reporting, follow-up and action response	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Facility Operations Safety Reporting Procedure -- FO will handle and address the reporting, tracking, record keeping, and accessibility of our staff by incorporating two systems. [00043] 	12/14/94
72.	10/94	We should keep a diary of safety issues. Who reported, what, response, date, etc.	Recommendation #2: Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> MSOC minutes proving processes for routing safety concerns placed in drop box, "When a subcommittee has a resolved safety concern to be reviewed by MSOC< the group representative will route a copy of the resolved concern report to all members (RO representative -- Shift Supervisors c/o Becky Brooks). If any member has a concern regarding a resolved issue, he/she may call a meeting to discuss it or wait to raise the concern at the next meeting. A meeting may be called by any member if a large backlog of resolved concerns (i.e., 10 or more) is awaiting review. If no specific meeting is called, concerns resolved by subcommittees may be reviewed and discussed as an agenda item at any meeting. [00325] 	1/4/95
73.	10/94	Set these safety items up as a separate priority in pecking order. These items would be a subset of FO responsibilities that MURR wants us to do.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Facility Operations Safety Reporting Procedure -- FO will handle and address the reporting, tracking, record keeping, and accessibility of our staff by incorporating two systems. [00043] 	12/14/94
74.	10/94	Develop a policy and procedure manual of "How to" report safety issues for the FO group.	Recommendation #3: Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> MURR Policy on Safety Concern Reporting, Tracking, and Resolution [00047] Facility Operations Safety Reporting Procedure -- FO will handle and address the reporting, tracking, record keeping, and accessibility of our staff by incorporating two systems. [00043] MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617] MURR Policy and Procedures Manual, p. 1, § C1:051; Notes materials made available in the front lobby, including MSOC and Subcommittee activities; correspondence from regulatory agencies, recent letters between MURR and regulatory agencies, and policies and procedures (some posted on the bulletin board); § P1:011 discusses "Protection from Discrimination for Protected activity"; C4:015 also discusses reporting safety concerns to the NRC. [01558, 00569] 	11/16/94 12/14/94 11/15/95 7/1/98
75.	10/94	Submit for the SOP what FO needs to respond to safety issues, who to contact and expected follow-up.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> Facility Operations Safety Reporting Procedure -- FO will handle and address the reporting, tracking, record keeping, and accessibility of our staff by incorporating two systems. [00043] 	12/14/94
76.	10/94	Consolidate all P/PM into one manual for MURR.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to	<ul style="list-style-type: none"> MURR Policy and Procedure Manual, Section C4:016, "Safety Concern Reporting, Tracking and Resolution" 	11/15/95

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
			H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	[00612-00617] • MURR Policy and Procedures Manual, p. 1, § C1.051; Notes materials made available in the front lobby, including MSOC and Subcommittee activities; correspondence from regulatory agencies, recent letters between MURR and regulatory agencies, and policies and procedures (some posted on the bulletin board); § P1.011 discusses "Protection from Discrimination for Protected activity"; C4.015 also discusses reporting safety concerns to the NRC. [01558, 00569]	7/1/98
77.	10/94	Communicates with individual who raised the issues as to action to be taken.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	• MSOC minutes proving processes for routing safety concerns placed in drop box, "When a subcommittee has a resolved safety concern to be reviewed by MSOC the group representative will route a copy of the resolved concern report to all members (RO representative -- Shift Supervisors c/o Becky Brooks). If any member has a concern regarding a resolved issue, he/she may call a meeting to discuss it or wait to raise the concern at the next meeting. A meeting may be called by any member if a large backlog of resolved concerns (i.e., 10 or more) is awaiting review. If no specific meeting is called, concerns resolved by subcommittees may be reviewed and discussed as an agenda item at any meeting. [00325] • MURR Policy and Procedure Manual, Section C4.016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617]	1/4/95 11/15/95
78.	10/94	Drop boxes, notification of contact person, i.e., chair of GSC.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	• MSOC minutes note purchase of drop boxes (2). [00320] • Notes installation of drop boxes. [00323]	12/21/94 12/28/94
79.	10/94	Develop generic training for: General safety; general laboratory practices; orientation and indoctrination; radiation safety; regulations; fire/fire permits; housekeeping; Emergency response; Computer/Ethernet; Organization of MURR; hazardous materials; tag procedures; medical emergencies.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	• Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] • Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02057] • Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809]	9/6/95 10/95 6/21/96
80.	10/94	Develop and teach specialized training: Sample preparation; shipping; HP practices; Beam research; forklift; Reactor operations; Crane/elevators/MS practices.	Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	• Per agenda, MSOC discusses chilling effect; discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] • Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02057] • Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809]	9/6/95 10/95 6/21/96
81.	10/94	Outline how to report safety issues.	Chilling Effects Recommendation #1: Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	• MURR Safety Program In Response To Commitment, "Implement A Center-Wide Safety Concern Reporting And Tracking System That Provides For An Evaluation Of The Concern, Assigns A Priority, Provides Feedback To Personnel Until The Issue Is Closed, And Allows For Anonymous Reporting; Proposed Implementation Date, January 1, 1995. [00362, 04149] • MURR Policy and Procedure Manual, Section C4.016, "Safety Concern Reporting, Tracking and Resolution" [00612-00617]	11/10/94 11/15/95
82.	10/94	Recommend that the	Letter from J.J. Rhyne and	• Memorandum From Charles A. Keisler, Chancellor, To	2/10/95

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Item	Commit. Date	Commitment	Commitment Source	Responsive Corrective Actions	Corr. Action Date(s)
		Chancellor clarify his position. Draft possible language for his consideration.	J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	Research Reactor Personnel, "Institutional Policy On Safety And Reporting" [00346]	
83.	10/94	Training on the act and training on process, procedures, what constitutes a safety question, etc. protective procedures and processed in place.	Recommendation #3: Letter from J.J. Rhyne and J.C. McKibben, MURR, to H.J. Miller and C.D. Peterson, USNRC (10/28/84) [00381]	<ul style="list-style-type: none"> • Per agenda, MSOC discusses chilling effect, discuss NRC Policy Statement and Herwig draft questionnaire, and additional training. [00812] • Annual Training 95 Alpha, which addresses on Bates # 02092 the reporting of safety concerns and notes that employees may go to the NRC at any point of time. [02057] • Per agenda, MSOC discusses chilling effect; notes Herwig is preparing staff memo on proactive training. [00809] 	9/6/95 10/95 6/21/96

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**Assessment Report
Review of the Freedom of MURR Employees to
Report Problems Without Fear of Retaliation**

July 25, 2001

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Donn Meindersma, Winston & Strawn

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I. OBJECTIVE

By letter dated March 5, 2001, the NRC advised the University's Chancellor of the results of an NRC investigation completed in October 2000. The investigation did not reveal any violations of NRC requirements. According to the letter, however, the investigation:

substantiated that MURR staff were reluctant to raise safety concerns to management for fear of retaliation. This is commonly referred to as a "chilling effect" or "chilled work environment."

In the March 5 letter, the NRC stated that it is "important for the NRC to understand what MURR is doing to ensure that employees feel free to raise safety concerns without fear of retribution and that their concerns are appropriately prioritized, investigated, and resolved with feedback to employees." The NRC formally requested:

An assessment by the University of the freedom of MURR employees to report problems without fear of retaliation.

An assessment by the University of the continuing effectiveness of corrective actions taken to address the past chilling effect at the reactor facility.

The University retained Winston & Strawn to conduct both assessments. In turn, independent teams of Winston & Strawn attorneys separately conducted the two assessments. This Report (Part I) constitutes the first of these two requested assessments. (The separate team of attorneys assigned to the second assessment have prepared Part 2 and did not participate in conducting the assessment contained in this Part 1.)

The objective of this assessment was to obtain data providing a "snapshot" of the work environment at MURR in early 2001 regarding the willingness of employees to raise nuclear safety concerns. This Report summarizes our findings and analysis of this issue.

II. EXECUTIVE SUMMARY AND FINDINGS

Our assessment included on-site visits to MURR, interviews with MURR management, interviews with a sampling of MURR staff, review of relevant documents, and analysis of the responses to a 60-question survey distributed to all MURR employees (as well as to students and certain campus workers with access to MURR).

Our findings, based on our assessment, can be summarized as follows:

- ▶ MURR workers are well aware of their responsibility to report nuclear safety concerns and of the multiple avenues that they have within MURR to raise such concerns. They understand that they are free, without precondition, to contact the NRC at any time to discuss such concerns. Indoctrination and training have been effective in communicating the multiple resolution paths to MURR staff.
- ▶ MURR workers nearly uniformly indicated that if they were to identify a nuclear safety concern, they would raise that concern within the MURR organization. Such concerns seem to arise at MURR only rarely, and many workers have not had occasion to identify such concerns in the past. This indication that employees will report nuclear safety concerns, in conjunction with the fact that workers understand the multiple avenues they have for doing so, provides a high level of confidence that nuclear safety concerns identified by MURR workers will be reported.
- ▶ The vast majority of MURR workers have favorable views of management's attitude toward safety and safety concerns. This majority believes that MURR management views safety as the top priority in the operation of the reactor facility; that MURR management wants employees to report nuclear safety concerns; that supervisors and management have made clear the expectation that workers will report safety concerns that are identified; that if they report a nuclear safety concern, MURR management will support them in seeking a resolution; that concerns that are raised will receive prompt attention; and that potential problems generally are effectively resolved by management. Some anecdotal information denoted a lack of consistency in the prompt resolution of concerns and in providing feedback to employees on resolution, and there is indication that a sizeable number of workers believe that problems are not always effectively resolved on the first attempt.
- ▶ A large majority of workers feel free to raise nuclear safety concerns. This majority feels free to discuss concerns with their immediate supervisor; to approach MURR managers with nuclear safety concerns; and to escalate a nuclear safety concern up the management chain of command if not satisfied by the resolution to the issue provided by their supervisor. Some employees stated that they feared they may be retaliated against, although this fear of retaliation appears to be related not so much to the raising of a nuclear safety (or other safety) concern,

but rather to a reluctance to dissent from management philosophies and decisions. A significant minority of employees indicated that they would not feel comfortable challenging a decision concerning safety that management had already made.

- ▶ This expressed fear of retaliation predominantly impacts the Research Department, where there is a history of controversy over management decisions and actions beginning in 1998 that have adversely affected certain researchers. The continued hostilities in this work group appear to be focused on the current Director, and the expressed fear of retaliation appears to be a byproduct of these hostilities. Some workers expressed the opinion that the chilling allegations have not been made in good faith (although it was not a purpose of the assessment to gauge the veracity of those who expressed a fear of retaliation). We did not find any significant chilling effect outside of the Research Department. As to the small number of workers outside that department who indicated a hesitancy to report concerns, anecdotal information suggests that managers may occasionally have created a perception through isolated statements or actions that concerns were not welcome. On the other hand, there is ample evidence that management has been proactive in communicating that safety concerns are welcome and should be raised.

- ▶ Areas of MURR worker dissatisfaction and concern exist and should be addressed. Worker perceptions as to whether MURR management is open and honest in its communications with the staff varied widely, with a substantial number (yet a minority) of employees disagreeing with the proposition that management is honest and open. A substantial number of employees perceive that management does not obtain employee input to the extent management (in their view) should. Indications were also provided that feedback on the resolution of concerns raised is not consistently adequate and that MURR departments may not always adequately communicate with each other, including on the resolution of issues.

Findings and an analysis are provided below.

III. BACKGROUND

A. The NRC's Substantiation of a Potential Chilling Effect

The NRC's March 5, 2001 letter included a Synopsis of the results of the report of the investigation at MURR by the NRC's Office of Investigations (OI). The Synopsis

concluded that [an] anonymous allegation that MURR management created a potential chilling effect was substantiated.

We obtained the OI Report through a FOIA request dated March 7, 2001. The OI Report indicated that the NRC had received an anonymous facsimile that requested an independent review of whether a chilling effect existed at MURR. The OI Report further indicated that OI, as part of its investigation, had interviewed eleven individuals, eight of whom were not management employees. The OI Report does not indicate how employees were selected to be interviewed, nor whether those interviewed were intended to be representative of the various MURR departments.

According to the OI Report, six of the eight nonmanagement employees "had concerns regarding raising safety issues to management" (Report at 28). Also according to the OI Report, four of these employees, all Research Department employees, reported a chilling effect and fear of retaliation for reporting safety issues. Based in part on the "fact that 50 percent [of the eight nonmanagement employees] reported a fear of retaliation" (*id.*), the OI Report found that "the potential for a significant chilling effect at MURR was present" (Report at 28-29). Based on a review of the information obtained during the interviews, the OI Report concludes that in the opinion of four workers "there was a potential chilling effect at MURR."

While finding a potential chilling effect "at MURR," the OI Report notes that the number of employees interviewed "was relatively small" (Report at 28) and suggests that the problem is focused among research scientists. The OI Report found that 80% of "present and former neutron scattering research scientists" interviewed felt they would be retaliated against if they reported a concern, while no other employees interviewed felt that way (Report at 29). The OI Report offered that changes in research priorities and the at-will employment status of research scientists may have contributed to the stated reluctance of Research Department employees to raise safety concerns.

B. Background on NRC Expectations

The NRC's long-stated expectation is that employees at licensed facilities are not "chilled" from raising concerns about those facilities that fall within the NRC's jurisdiction (generically, nuclear safety concerns). While the NRC has not promulgated any regulation that either prohibits licensees, including MURR, from having a chilled environment, or which provides for the imposition of sanctions against licensees that exhibit chilled environments, the NRC in 1996 published a policy statement stating an expectation that all licensees maintain an "environment in which employees feel free to raise concerns both to their own management and the NRC without fear of retaliation." NRC Statement of Policy, Freedom of Employees in the Nuclear Industry to Raise Safety Concerns without Fear of Retaliation, 61 Fed. Reg. 24,336 (1996).

Typically, chilling effect concerns arise in conjunction with allegations that an employee was discriminated against because the employee raised a nuclear safety concern. A definition of "chilling effect" by the NRC ties that concept directly to discrimination: the NRC has said that a chilling effect is a condition which, "because of perceiving that an employee has been harassed for raising concerns, that employee or other concerned employees are inhibited from raising further concerns." Report of the Review Team for Reassessment of the NRC's Program for Protecting Allegers Against Retaliation, NUREG-1499 (1994), at I.A-2. The NRC's authority to investigate discrimination claims, in turn, flows in part from the potential that a chilling effect may result from such claims. Union Electric Co. (Callaway Plant, Units 1 and 2), ALAB-527, 9 NRC 126, 134 (1979). According to the Appeal Board's opinion in the Callaway case, "[c]ommon sense tells us that a retaliatory discharge of an employee for 'whistleblowing' is likely to discourage others from coming forward with information about safety discrepancies." Id.

The NRC's interest in assuring that licensee work environments are not chilled derives from the agency's interest in assuring that potential nuclear safety problems are not left undetected and, thus, unresolved. "The potential inhibition against raising concerns, whether widespread or restricted, is of concern to the NRC because it directly impacts the workplace quality consciousness which is important to both the licensee and the NRC for ensuring safe operation of a nuclear facility." Report of Review Team, at I.A-8.

In this case, based on the NRC's March 5, 2001 letter to MURR, the NRC's present concern is based on representations made to investigators by certain MURR employees during the above-mentioned NRC investigation into an anonymous letter concerning a potential chilled environment. The NRC has not suggested that its concern for a chilled environment relates to any discrimination or harassment against MURR employees.

Beyond the general expectation set forth in the 1996 Policy Statement that licensees foster work environments in which employees feel free to raise safety concerns, the NRC has not assigned fixed indicators as to when a chilling effect (or conversely, a safety conscious work environment) exists. Instead, the NRC has evidenced an interest in reviewing the totality of indications to determine if the safety consciousness of a work environment appears to be deteriorating. Notice, Safety Conscious Work Environment, Withdrawal of Proposal, 63 Fed. Reg. 6235, 6326 n.4 (1998). The NRC as a matter of practice does not take intrusive regulatory measures absent "egregious circumstances related to a site's safety culture," such as validated claims of discrimination. Director's Decision, 64 Fed. Reg. 13,552 (1999).

In particular—and although with regard to MURR the NRC has substantiated that a potential chilling effect exists at MURR based on perceptions expressed by some of those interviewed during the OI investigation last year—the NRC has not attempted to set particular parameters to determine whether a chilling effect exists when one or a small number of workers express a fear of potential retaliation. Based on our experience, unless very small sample sizes are involved, work environment surveys at other licensed facilities typically determine that some percentage of employees do not feel fully free to raise safety concerns. For example, two years ago the NRC denied a petition which asked for NRC intervention into a site's safety culture. The NRC based its decision in part on the fact that the licensee had already taken steps to assure a SCWE. The data in that matter reflected that not all employees felt free to raise concerns to supervisors and managers, some 10% indicated they would not elevate a safety concern further up the management chain if not satisfied with the initial response, and employees' level of trust and confidence in management was lower than desired (Director's Decision). (A later survey at this site found that 79% of respondents believed their management to be receptive to workers who raise potential nuclear safety concerns; 21% apparently did not.)

The NRC's Policy Statement notes that, "even in a generally good environment, some employees may not always be comfortable in raising concerns through the normal channels." 61 Fed. Reg. at 24,338. The NRC has expressed concern that "when the perception of retaliation for raising safety concerns is widespread, a licensee may find it exceedingly difficult to obtain cooperation from [its] employees in identifying and eliminating problems." 63 Fed. Reg. at 6326 n.5 (1998) (emphasis added).

Accordingly, the NRC has not declared that a safety conscious work environment is lacking based on the fact that some limited percentage of employees have expressed the opinion that they do not feel entirely free to raise concerns. However, both the NRC and licensees have an interest in assuring that such perceptions do not become widespread. The NRC's concern about the MURR environment can be seen as an invitation to MURR to determine the breadth of the asserted chilling effect and whether deliberate steps need to be taken to improve any adverse atmosphere. Where problems regarding the work environment are identified, the NRC expects that prompt corrective action will be taken (61 Fed. Reg. at 24,338).

IV. ASSESSMENT METHOD

A. Assessment Team

The Assessment Team for this Report was composed of three attorneys from Winston & Strawn. (As noted above, an independent team of Winston & Strawn attorneys prepared a separate assessment, Part 2.) Donn Meindersma headed the Assessment Team and was assisted by James Petro and Brooke Poole.¹ Although Winston & Strawn represents the MURR facility regarding matters before the NRC, the assessment's independence was assured by MURR's agreement to the following conditions:

- ▶ The Report would be researched and developed with its content being at the full discretion of Winston & Strawn;
- ▶ The Report would be factual in content and absent of advocacy content;
- ▶ Attorneys preparing this report would not be directed by other Winston & Strawn attorneys advocating on behalf of MURR before the NRC;
- ▶ MURR will not have any veto rights regarding the content of the Report.

The Team gathered information as described below and conducted two site visits in conjunction with the assessment.

B. Management Interviews

As one tool for conducting the assessment, the Assessment Team interviewed nearly all the current managers at MURR. (An organizational chart, dated March 6, 2001, is provided as Appendix A). These interviews provided helpful perceptions of the culture at MURR, particularly regarding changes in recent years in MURR (1) operations, (2) focus and philosophy, and (3) management. The interviews also provided a sense of management's perspective on employee willingness to report problems and any circumstances or other barriers that might influence or impede employee willingness to raise concerns.

C. Employee Interviews

The Assessment Team also interviewed numerous employees at MURR. When the management interviews and interviews of other employees are combined, the Assessment Team interviewed a total of 41 MURR staff members.

Interviewees were selected to ensure that employees from all or most of the MURR departments would be interviewed. Most interviewees were selected at random from the March 6 organizational chart. However, the Assessment Team specifically selected some individuals for interviews because they were thought to have knowledge or experiences at MURR that might relate to the potential chilling effect substantiated by the NRC.

The interviewees were informed that their individual input into the assessment process through the interviews would not be attributed to them and that the interviews were confidential, with the understanding that the information collected would be assembled

¹ Mr. Petro left the firm before this Report was finalized.

into this Report which, in turn, would be shared with the University, MURR Management, and the NRC. All interviewees acknowledged this understanding, and all freely consented to the interviews with that understanding. The interviews were conducted in a location near, but not within, the MURR facility, to help assure candid responses.

D. Document Review

The Assessment Team also reviewed documents relating to MURR's policies and process for the reporting of safety concerns, including, for example, the section on employee rights and responsibilities included in the orientation training.

E. Surveys

An important component of the assessment was a survey instrument developed by the Assessment Team. The instrument, entitled Nuclear Safety Work Environment Survey, was designed to obtain candid input from employees and others associated with MURR regarding the safety consciousness of the MURR work environment, particularly in regard to the willingness of employees to report nuclear safety concerns without fear of retaliation. A copy of the survey instrument is provided as Appendix B.

To assure candid results, the survey was designed to be completed and submitted anonymously. The instrument did not require or invite respondents to identify themselves, except to indicate the manner in which they are affiliated with MURR, as discussed in the next section. (Due to the relatively small size of MURR and the fact that individual departments tend to have few workers, the survey did not require respondents to identify their department.) Respondents were permitted to complete the surveys wherever they wished, and were instructed in the survey instrument to provide individual responses, rather than completing the survey in conjunction with other workers. To assure anonymity, respondents were assured that individual completed survey instruments would not be shared with MURR management. To further assure confidentiality, respondents were provided self-addressed envelopes by which the surveys could be returned to a post office box in Washington, D.C.

1. Recipient Selection

The surveys were distributed to three groups of potential respondents: employees of MURR; students (including graduate students) who perform research at MURR; and certain other University workers who, although not on the MURR staff, have provided services at the MURR facility.

All MURR employees and student users of MURR were selected to receive surveys. These employees, as well as students who use the facility for research or other purposes, were identified using a MURR personnel list dated April 5, 2001. From this list, the Assessment Team identified 132 MURR staff and 57 students to receive the survey.

The third group of potential respondents, campus facilities employees, were identified from a report of recent visits by facilities workers to perform work at MURR. The facilities workers who actually received surveys were chosen based on the nature of the work described in the report and the number of visits during the first quarter of CY 2001. The Assessment Team attempted to select workers who had made at least two visits to

MURR, and had a work description that indicated some substantive connection with MURR operations. (For example, facilities workers who simply provided telecommunications services were not selected to receive the survey.) We identified 42 facilities workers to receive surveys. Accordingly, 231 potential respondents were selected to receive the survey.

2. Survey Response Rate

Of the 132 MURR staff identified to receive surveys, 5 were either temporarily absent from MURR or no longer employees. 127 surveys were distributed, and 85 of those surveys were completed and returned, for a response rate of approximately 66%. Of the 57 students identified to receive surveys, 15 were either temporarily absent from MURR or no longer performed work at the facility. 42 surveys were distributed, and 21 were completed and returned, for a response rate of 50%. 42 surveys were distributed to the identified facilities workers, with 19 of those completed and returned, for a response rate of approximately 45%. Three surveys were returned without an affiliation. In sum, 211 surveys were successfully distributed; 128 of the 211 surveys were returned, for an overall response rate of approximately 60%.²

3. Survey Structure

The survey was designed to solicit worker responses regarding principal components of a Safety Conscious Work Environment ("SCWE")—*i.e.*, willingness of workers to report concerns; effectiveness of resolution processes; capacity and ability to address and correct problems; and communications. Some survey questions addressed other aspects of a SCWE, such as the perceived readiness of supervisors to admit error.

Given that the assessment was requested by the NRC, which generally speaking has jurisdiction over nuclear safety, the survey instrument focused on the willingness of employees to report nuclear safety concerns. The survey supplied a broad definition of "nuclear safety concerns." That definition, in turn, was based on the NRC's May 1996 Policy Statement on employee freedom to report safety concerns (*e.g.*, 61 Fed. Reg. at 24,336 n.1). Although the survey focused on nuclear safety concerns, some questions encompassed other types of concerns, and the interviews discussed above included questions that sought specifically to differentiate between employee willingness to raise safety, versus non-safety, concerns, to determine whether any chilling effect related more so to non-safety versus safety concerns (or vice versa).

The survey presented 60 statements, to which respondents were given the following options: agree (4), agree somewhat (3), disagree somewhat (2), or disagree (1). Respondents could also indicate that they lacked sufficient information on which to provide a rating (0). Where the favorable response (*i.e.*, a response consistent with a SCWE) was agreement with a statement, ratings of (3) and (4) were deemed "positive" responses; where the favorable response was disagreement with the statement, ratings of (1) and (2) were deemed "positive" responses. Respondents were given the option to disagree or agree "somewhat" in light of the fact that, for any particular statement, an employee might consider some unique set of events or a unique circumstance in which

² "A response rate of 50 to 60 percent can be considered satisfactory for purposes of analysis and reporting of findings." Louis M. Rea & Richard A. Parker, Designing and Conducting Survey Research: A Comprehensive Guide 69 (2d ed. 1997).

agreement or disagreement might not be universally true, but still was generally true. Where the ratio between the number of “agree” and “agree somewhat” responses is relatively high (thus suggesting strong agreement) or relatively low (suggesting less strong agreement), we make note of that below. The same is true for “disagree” and “disagree somewhat” responses.

V. INTERVIEW FINDINGS

As referenced above, the assessment included face-to-face interviews with 41 MURR staff members (including various supervisors and most managers). The interviews provided an opportunity for the interviewees to discuss in greater detail their willingness to raise safety concerns and any factors at MURR that might color their feelings about their freedom to do so.

The first set of questions posed to the non-management MURR employees interviewed concerned the channels used at MURR for reporting nuclear safety concerns.³ Every interviewee stated that he or she understood the avenues that are available at MURR for reporting problems. When asked which avenues they considered to be "preferred" or "normal" avenues for reporting safety concerns, the majority of interviewees responded that they would speak to their supervisors first, and proceed through the "chain of command." Several interviewees named multiple avenues for reporting safety concerns in response to this question, including contacting the following persons at MURR: John Ernst or another member of the Health Physics staff, a member of MSOC, a reactor operator, or a shift supervisor. A number of interviewees stated that workers could submit concerns anonymously, by using the "box" maintained by MSOC. Interviewees also mentioned that concerns could be reported to the Safety Coordinator.

Several interviewees stated that, if their concerns were not resolved through MURR channels, multiple avenues exist outside of the MURR organization: employees can contact a member of the University staff outside of MURR, up to and including the Chancellor. However, interviewees were clear that a person with a concern need not go through the "chain of command" before seeking assistance outside MURR.

When asked about their understanding of the ability to report to the NRC, all interviewees responded that they understood they could go to the NRC to report a safety

³ Through discussions with members of management prior to the commencement of interviews, we identified that several avenues for reporting safety concerns exist at MURR. First, employees have the option of talking to their immediate supervisors, or any other member of MURR staff, and proceeding through the "chain of command." Another avenue through which concerns may be formally presented is the MURR Safety Oversight Committee ("MSOC"). MSOC provides a "Safety Concern Report Form" via an Intranet site to MURR employees. That form, whether signed by the initiator or submitted anonymously, may be submitted to MSOC in person to one of the members, through the MURR internal mail system, via a "drop box" in the hallway leading to the containment building, the MSOC mailbox in the MURR mail room, via electronic transmission to a member of MSOC, or through the US mail. Use of the form, though recommended, is not required. MSOC reviews and tracks all safety concerns submitted directly to it, and posts updates on the staff bulletin board for the benefit of anonymous initiators. The MSOC procedure provides that resolutions that are unacceptable to the initiator may be appealed directly to the MURR Director's Office or University Administration. The University's Grievance Procedure (UM Personnel Policy Manual PE105) is another route available for appeal. Although it is viewed as normal for individuals to work through internal channels prior to approaching the MU administration, management made clear to us that this avenue is available to MURR workers at any time—not just under the MSOC appeals process. MURR recently established a new position within the organization, Safety Coordinator. Although the position is chiefly concerned with non-nuclear workplace safety issues, management indicated this was another individual to whom workers could report nuclear safety concerns. Finally, an individual may report a nuclear safety concern to the NRC at any time.

concern without any preconditions or limitations. Several interviewees mentioned that there was a toll-free number that could be utilized, and/or directly cited NRC Form 3, which several recalled being shown during "indoctrination training" for new employees. Some interviewees noted, however, that they would prefer to attempt to resolve their concerns through MURR channels before going to the NRC, even though there are no restrictions on contacting the NRC.

Interviewees were also asked whether they had received written guidance or training on these avenues; interviewees uniformly responded that they had. Nearly all interviewees referred to "indoctrination training" and yearly "reindoctrination" training, at which time the avenues for reporting are addressed. "Indoctrination training" was identified as a video and a handout. Several interviewees noted that, in addition to training, they were consistently reminded of a "safety first" focus in meetings and day-to-day contacts with MURR management.

Each interviewee was asked whether he or she believed the MURR Director sincerely desires that employees will raise safety concerns. Interviewees overwhelmingly stated that they believed the Director was committed to employees raising safety concerns. Many had seen evidence of the Director's commitment to safety (e.g., in meetings where safety was emphasized). One provided an example where he had expressed a non-nuclear safety concern, and the next day the Director solicited his involvement on a team to address the issue—a response that highly impressed the employee. Some interviewees who had little or no personal contact with the Director qualified their statements accordingly. For example, they stated they had "no evidence" of his commitment, but had no reason to believe he did not desire employees to raise safety concerns, or that he "seems to, because the management team does." Others voiced their perception that the Director might not change his mind if a decision had been made on an issue. While a small number of interviewees did not agree that the Director desired employees to raise safety concerns, overall, the reaction to this question was highly positive.

Related questions addressed interviewees' perceptions on whether managers and supervisors convey an attitude that encourages employees to raise safety concerns. The responses again were very positive. One said his chain of command "constantly" conveys such an attitude; other comments: "in my chain of command, they all encourage raising concerns"; "God, yes, we are more conscious about safety than we had been"; "[I've] always had confidence" in management; management "bends over backwards in trying to encourage employees to raise safety concerns." Another employee commented that the atmosphere at MURR is "awesome"; that "people are straightforward"; and that "everyone is upbeat."

A few interviewees had negative comments on this question. It is notable (for purposes of later discussion in this Report) that most negative responses were from MURR employees in the Research Department, and some of their perceptions admittedly relate to having been (as one MURR researcher described it) "demoralized" by the changes made to research priorities in recent years. One interviewee opined that the expressed commitment of management to safety was mere "lip service," betrayed sometimes by management's actions. Another expressed the opinion that "sometimes, management's walk is different than their talk," although this interviewee could not think of any specific supporting examples. Another similarly stated that "sometimes management says one thing and does another," adding that while management "seriously wants safety issues

raised," its actions might confuse employees (e.g., a continual focus on meeting deadlines could lead to the impression that schedules take priority over safety). In another instance, an employee felt his comments were "cut off" and, therefore, not welcomed at a meeting. More than one interviewee mentioned that management's credibility was diminished due to the way in which management responded to a particular recent incident (specifically, by assigning an employee who made a safety-related error to investigate the cause of the error).

Interviewees were also asked whether they feared retaliation for reporting nuclear safety concerns. As noted in the Analysis portion of this Report, all employees interviewed said that they would raise a safety concern internally. Almost all stated that they do not fear retaliation (e.g., "I would never be afraid to raise safety concerns"). One employee who has worked at MURR for decades said that he has had no reason ever to question whether he should raise a concern. Another stated: "I can't even envision that raising a safety issue might be held against you." Several stated that raising safety concerns would advance their careers at MURR.

Some observed that, at any place of employment, employees would naturally feel some reluctance to "buck the system"; or that even in a "model organization," as a matter of probability, a few people will always feel that they might create a "problem for themselves" if they were to raise a concern. Others expressed the opinion that employees in departments where programs have been "de-emphasized" might feel that their jobs are threatened and so might "hesitate" to raise a concern.

Employees stating that they feared retaliation were likely to work in the Research Department. However, the interviewees who stated this fear typically qualified their statements. Generally, they stated they feared retaliation from the Director, not from coworkers or other managers. One employee qualified the stated fear by saying that the employee would fear retaliation if the concern "challenged" an order the Director had already issued and was contrary to the Director's "agenda." Another interviewee said that the employee would be wary of "oppos[ing] an idea of" the Director. Other interviewees, in contrast, specifically pointed to the Director as having made the MURR work environment more conducive to raising safety concerns. One, for example, said that since the current Director joined MURR, the environment "has been much more conducive to raising safety concerns." Another said that "safety only became important under the new Director."

When asked whether concerns that have been identified are addressed, the responses of the interviewees again were very positive. Almost all agreed that potential safety concerns, or at least those in their department of which they were aware, are given appropriate attention and promptly resolved. One interviewee stated that he had "raised questions to management and [has] always gotten questions answered." Another stated he was "completely confident" that if he had a concern it would be addressed. Even the employees who stated a fear of potential retaliation nevertheless generally indicated that when safety concerns are identified, they are appropriately assessed and promptly resolved. Some noted the obvious points that complex issues might take longer to resolve or that insignificant issues might not receive immediate resolution. One perceived that management might be "less active" in responding to non-safety issues. One interviewee suggested that problems that could be "ignored" might not get addressed "for a while." One employee stated that an issue he raised some time ago still had not been addressed.

VI. SURVEY FINDINGS

The following findings are based on the tabulation of responses, as well as comments, provided by respondents to the Nuclear Safety Work Environment Survey.

A. Definitions

As used in these Findings, the following terms have the indicated definitions:

Comments	Written comments received by Respondents on the survey instrument.
Employees	MURR employees who submitted survey responses; a very small number of those responding to surveys did not indicate if they were employees or were instead affiliated with MURR in a different capacity; these unidentified respondents were not counted as Employees due to the lack of information.
Respondents	All survey respondents. When specific questions are discussed, the total number of "Respondents" is the number of respondents who supplied a rating of 1-4 to that specific question. The number of "Respondents" varies from question to question because "0" ratings (not enough information to evaluate) are excluded and because some respondents occasionally failed to supply ratings for certain questions.
Students	Students who submitted survey responses.
Facilities Workers	Facilities workers who submitted survey responses.
NSC	Nuclear safety concern.

B. Tabulations

A chart depicting the tabulations for each of the survey statements is provided as Appendix C. An assessment of the findings based on these tabulations is provided in the discussion below, which includes specific commentary on the tabulations for most of the individual survey statements.

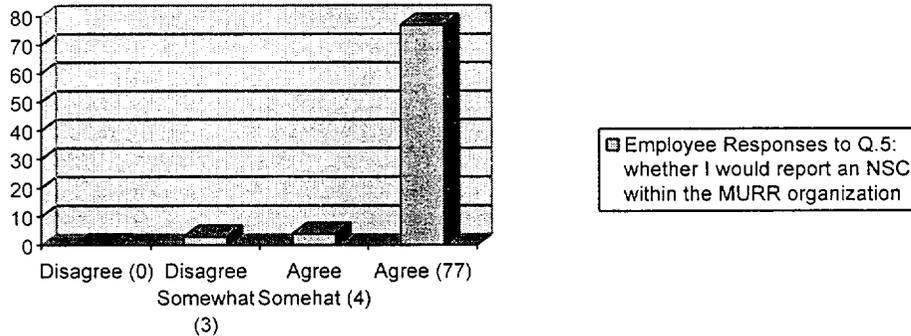
C. SCWE Attributes

1. Willingness To Report Nuclear Safety Concerns

The survey was designed to gauge aspects of the willingness of MURR workers to raise concerns, including to whom workers might be most likely to raise concerns and factors that might inhibit their willingness to do so, including fear of potential retaliation.

When asked whether they would, if they had an NSC, "report it to someone in the MURR organization" [Q.5], approximately 91.3% of Respondents evaluating the question

"agreed" without any reservation (116/127);⁴ another 7 "agreed somewhat" that they would report an NSC, indicating a total positive response of nearly 97% (123/127) of Respondents. The ratio between "agree" and "agree somewhat" responses was high (19:1), indicating a strongly positive response. No Employee "disagreed" fully; only 3 Employees "disagreed somewhat" and only one Respondent (a Facilities Worker) "disagreed."⁵ The response to this question was one of the most positive of all the questions in the survey.



Various survey comments support the positive numerical response. For example: "I would not hesitate to raise a concern about safety." "I will never hesitate. We are all encouraged to raise safety issues!!" "We are not doing our job if we don't raise concerns." One Respondent commented that, not only was the individual not hesitant to raise safety concerns, "I feel challenged to do the opposite — i.e., to find potential risks and seek to eliminate them."

This finding of worker willingness to report NSCs is confirmed in part by the fact that Respondents clearly understand that they have a responsibility to report NSCs at MURR that they might identify. The survey results show that just one Employee—and no other Respondents—disagreed with the statement, "I have a responsibility to report nuclear safety issues at MURR of which I become aware" [Q.2].

⁴ As noted in the definitions above, the number of Respondents for any particular question is the number of surveys where the individual completing the survey provided a rating of 1-4. Accordingly, while 128 surveys were returned, one person provided a "0" response indicating he had insufficient information to evaluate the question; so for this question, the number of Respondents is 127.

⁵ Although the surveys did not identify any Employees who "disagreed" with the statement that they would raise an NSC, the NRC's OI Report indicates in a table (Report at 29) that two employees indicated (to OI) that they would not raise safety concerns. (The OI Report does not suggest that any safety concerns have gone unreported at MURR because of the chilling effect.) The notes of the interviews with these two workers, however, suggest that they would raise concerns, and OI's findings are therefore not inconsistent with the survey responses. One of the two acknowledged that, while he "would not be comfortable raising nuclear safety-related concerns to management," he had used other avenues to report concerns. The other stated that he "would not hesitate to voice a concern" except that he might be hesitant to raise issues concerning "policy" to the Director. He also indicated that "in almost each and every case, he would report" a nuclear safety concern; that in other cases—limited to issues that would put him in conflict with the Director—he would carefully consider the issue.

Employees also are confident that, if they asked their supervisor to help report an NSC to management, the supervisor would do so [Q. 42]. Only 6 Employees and just 2 other Respondents indicated that they disagreed or disagreed somewhat with this proposition; 92.6% of Employees (75/81) agreed or agreed somewhat.

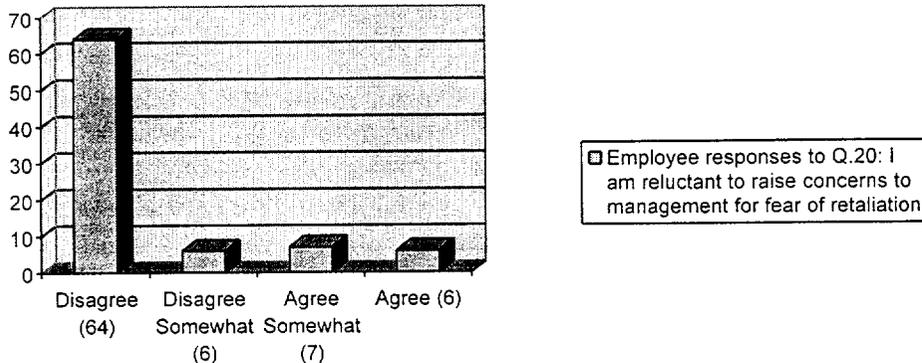
A large majority of Employees also indicated that they would prefer to report an NSC in the first instance to their immediate supervisor [Q.17]. Only 5 of 84 responding Employees fully agreed that they would prefer to raise concerns to someone else. (Note that those whose response indicated they did not agree that they would prefer to report a nuclear safety concern to an immediate supervisor may not be suggesting that they would fear doing so or believe that doing so might be ineffective. Interviews with MURR employees indicated that some of them might prefer to discuss nuclear safety concerns with Health Physics or others not because of a concern for the way in which their supervisor might respond, but because Health Physics or others might be more knowledgeable about, and perhaps be in a better position to respond to, the particular concern. As noted above (Interview Findings), employees are well aware of the multiple avenues that exist for the resolution of concerns.)

The vast majority of Employees likewise indicated that if they were to raise an NSC to their supervisor and were not satisfied with the response, they would escalate the NSC up the chain of command [Q.22]. Of 84 Employees, 66 (approximately 79%) fully "agreed" with this statement. Approximately 89% (75/84) agreed fully or somewhat. Only 9 of 84 Employees and 11 of 123 Respondents expressed disagreement (disagree or disagree somewhat).

A large majority of Employees indicated that they "feel free to approach MURR management" regarding any NSCs they may have [Q.47]. Of Employees, 83% (71/85) agreed or agreed somewhat with this statement; 6 disagreed, and 8 disagreed somewhat. 84.7% of Employees (72/85), and 85.7% of Respondents (108/126) agreed, or agreed somewhat, that "MURR management views safety as the top priority in nuclear operations" [Q.25]. Five of 85 Employees (5.8%) "disagreed" with this statement. Survey comments support the data that the vast majority of Employees perceive that management views safety as the top priority in nuclear operations, including the following: "Safety issues have been drilled into my head from day 1." "Safety is top priority at MURR – with employees, managers, supervisors, and the director. It is ALWAYS emphasized in discussions and meetings and with the use of training, instructions, and procedures." "Safety is our #1 priority. It is my belief that everyone at MURR understands this."

Survey results were more negative regarding the level of comfort individuals would have in challenging decisions about safety that have already been made by MURR management but that might be viewed as non-conservative. Slightly more than a quarter of Respondents (33/116, or 28%) and approximately 27% of Employees (22/82), when asked if they agreed that they would "feel comfortable challenging" management in such a situation, disagreed to some extent [Q.7]. A few survey comments evidence this view. For example: "I would hesitate before raising any concern that managers might not be happy with." "[M]anagement at MURR has made it clear that certain decisions they make are not to be challenged or questioned." A total of 12 Employees "disagreed" with the proposition (*i.e.*, that they would "feel comfortable" challenging decisions already made by MURR management).

The survey also attempted to gauge the extent to which any reluctance to report NSCs might be caused by a concern for potential retaliation for doing so. 70 of 83 responding Employees (84%) disagreed or disagreed somewhat with the statement, "I am reluctant to raise concerns about nuclear safety to MURR management because I believe I will be retaliated against for doing so" [Q.20]; 64 Employees (77%) fully disagreed with that statement, while 6 (7%) fully agreed with it. A greater number of Respondents thought others might fear retaliation than the number who actually did express such a fear: approximately 34% (38/112) of Respondents indicated that they had reason to believe that other MURR workers fear retaliation if they raised nuclear safety concerns internally [Q.12].



When asked whether a worker who raises an NSC is "likely to be harassed or ridiculed in some way by co-workers for doing so" [Q.45], 68 of the 78 responding Employees (87%) disagreed fully or somewhat. Just two Employees (and one other Respondent) were in full agreement that workers are likely to harass or ridicule a fellow worker for raising an NSC.

Based on survey responses, Respondents generally are not reluctant to raise NSCs either because doing so might get another employee in trouble, because the NSC might take substantial time or money to address, or because reporting the NSC might cause more work for the respondent or co-workers [Qs. 27, 32, 37]. One Respondent commented, "I believe it is my responsibility as a radiation worker to raise any concern about safety to MURR management even if it should reflect poorly on me or any other MURR employee."

Of Employees, 84% (57/68) indicated that they are not less willing to report concerns now than in the past [Q.57]. However, 11 of 68 agreed (fully or somewhat) with the statement, as did 8 other Respondents.

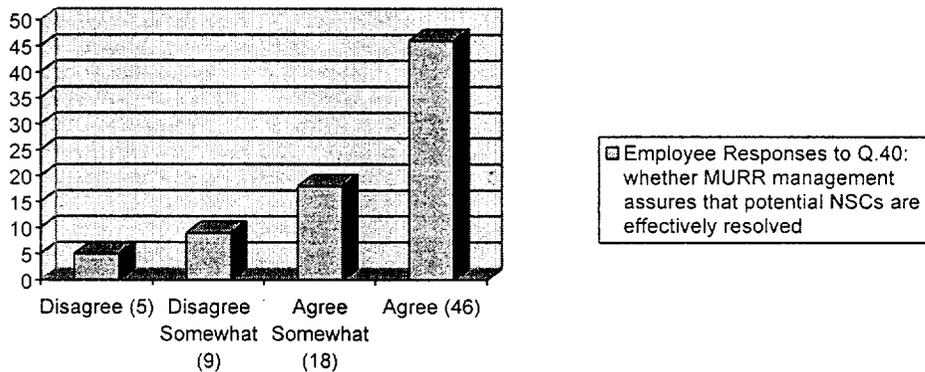
2. Effectiveness of Concern Resolution

Perceptions of the promptness and effectiveness with which concerns expressed by employees are addressed and resolved can impact perceptions regarding whether concerns are truly welcomed or are worth raising. The survey captured the views of respondents on the effectiveness of NSC resolution at MURR.

The vast majority of both Employees (71/84) and Respondents as a whole (98/115) agreed, or agreed somewhat, that MURR workers who report NSCs within the

organization "can be confident that their concern will receive prompt attention" [Q.1]. Only 4 Employees (and one Student) fully disagreed with this statement. When this question was narrowed to the respondent's personal experience in satisfaction with the response to NSCs they had raised, 26 Employees indicated that they lacked sufficient information to evaluate, suggesting that they had not raised such concerns. Six Employees fully disagreed with the statement that when they raised NSCs in the past, the NSC received "appropriate attention . . . as quickly as I expected" [Q.6], but 46 of the 59 Employees responding agreed fully or somewhat.

A large majority of Employees—82% (70/85)—also agreed fully or somewhat that if they reported an NSC, the employee would be "confident that my management chain would support me in seeking a resolution" [Q.11]. One Respondent commented, "I believe that management is committed to safety at MURR and would welcome and respond to all employee concerns." Far more respondents gave a positive than negative response to the question whether "MURR management ensures that potential nuclear safety problems are effectively resolved" [Q.40], with 82% of responding Employees (64/78) agreeing or agreeing somewhat; just 5 Employees (and one other Respondent) fully disagreed with this statement.



Regarding immediate supervisors, 77 of 84 responding Employees (91.6%) agreed, or agreed somewhat, with the statement: "I feel confident that if I reported a nuclear safety concern to my MURR supervisor, he/she would take the time to listen to my concern" [Q.21]. Only one person (a Student) fully disagreed with that statement, while 102 Respondents fully agreed with it. Most Employees fully agreed that their supervisor has the "training and skills necessary to enable him/her to resolve" NSCs that might be raised in their department [Q.46]. Ten Employees disagreed, or disagreed somewhat, with this statement. (Note that not all supervisors, e.g., administrative, would necessarily be expected to be equipped to resolve NSCs.) Finally, just three Employees disagreed, and just three others disagreed somewhat, with the statement: "When [an NSC] is reported to my MURR supervisor, he/she focuses on resolving the problem rather than blaming someone for the problem" [Q.60]. Nearly all responding Employees (65/71) agreed or agreed somewhat with this statement.

When asked [Q.26] whether, based on past personal experience, the person to whom the respondent brought an NSC had spent sufficient time on the resolution, half of the responding Employees (43/85) lacked a basis to evaluate the question, suggesting that

April 6, 2001

Nuclear Safety Work Environment Survey

Missouri University Research Reactor

We need to hear from you!

The management of the Missouri University Research Reactor center has arranged for an independent assessment of how well we're doing at fostering a work environment in which employees and others associated with MURR are willing to report problems or potential problems regarding nuclear safety. This survey is an important part of that assessment, and you have received a copy because of your affiliation with MURR.

Your response is required and the information you provide will be very valuable to MURR management. The survey is relatively brief, but take as much time as you need to fully respond. The survey consists of a series of short questions and then provides an opportunity for written comments and you should complete both sections. **Please note that completed surveys must be mailed in the envelope provided no later than Friday, April 13, 2001.**

Please be assured that your response is entirely anonymous, and your confidentiality is protected. Responses will be sent directly to the third party conducting the assessment. Only cumulative survey responses will be provided to management in conjunction with the assessment; individual completed surveys will not be disclosed to management.

The survey asks for your assessments based on your experiences as a MURR employee. There are no "right" or "wrong" answers. We are interested in your individual input, and you should complete your survey on your own, not in conjunction with other members of the MURR staff. We ask that you answer each question candidly and fairly.

Please complete and return this survey promptly. We thank you in advance for your open and candid responses and comments.

Instructions

This questionnaire is designed to obtain information concerning the freedom that MURR employees feel to report problems relating to nuclear safety. Nuclear safety problems are potential or actual issues that those relate to the design, operation and maintenance of the research reactor, radiological releases, radiation protection, handling of radioactive materials, reactor equipment, security and safeguards issues, and compliance with MURR procedures and Nuclear Regulatory Commission regulations and guidance.

For each statement, please give a response that best reflects your level of agreement with the statement. Use the following scale.

- | | | |
|---|---|--------------------------------------|
| 0 | = | Insufficient information to evaluate |
| 1 | = | I disagree |
| 2 | = | I disagree somewhat |
| 3 | = | I agree somewhat |
| 4 | = | I agree |

<p>Return completed survey in envelope provided to: Work Environment Survey P.O. Box 34495 Washington, D.C. 20043-4495</p>

0 = Insufficient information to evaluate	1 = I disagree	2 = I disagree somewhat	3 = I agree somewhat	4 = I agree
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Rating

- _____ 1. MURR workers who report nuclear safety concerns within the organization can be confident that their concern will receive prompt attention.
- _____ 2. I have a responsibility to report nuclear safety issues at MURR of which I become aware.
- _____ 3. Due to the nature of my responsibilities at MURR, I rarely have concerns about nuclear safety.
- _____ 4. MURR management has made clear to me that they want me to report nuclear safety problems I encounter.
- _____ 5. If I had a nuclear safety concern, I would report it to someone in the MURR organization.
- _____ 6. When I have raised concerns about nuclear safety in the past, my concerns received appropriate attention from my supervisor or management at MURR as quickly as I expected.
- _____ 7. If MURR management made a non-conservative decision concerning the safety of operations, I would feel comfortable challenging that decision.
- _____ 8. In past conversations with my immediate supervisor at MURR, I have shared nuclear safety concerns.
- _____ 9. My immediate supervisor at MURR has clearly stated his/her expectation that I will report nuclear safety concerns.
- _____ 10. If my supervisor at MURR makes mistakes, he/she readily admits them.
- _____ 11. If I reported a nuclear safety concern, I am confident that my management chain would support me in seeking a resolution.
- _____ 12. I have reason to believe that other MURR workers fear they may be retaliated against if they raise concerns about nuclear safety to their supervision or management.
- _____ 13. I am not clear on the best way for me to raise concerns within MURR about nuclear safety.
- _____ 14. I have adequate opportunities for face-to-face communications with my MURR supervisor.
- _____ 15. Senior MURR management would take me seriously if I reported that I felt I was being harassed for raising a nuclear safety concern.

0 = Insufficient information to evaluate	1 = I disagree	2 = I disagree somewhat	3 = I agree somewhat	4 = I agree
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Rating

- _____ 16. The ways in which I am able to raise concerns about nuclear safety at MURR have been clearly explained to me.
- _____ 17. I would prefer to raise any nuclear safety concern I might have to someone other than my immediate MURR supervisor.
- _____ 18. At MURR, we have several different ways in which we are able to report concerns about the safety of nuclear operations.
- _____ 19. MURR management has clearly expressed that safety is the most important priority in nuclear operations.
- _____ 20. I am reluctant to raise concerns about nuclear safety to MURR management because I believe I will be retaliated against for doing so.
- _____ 21. I feel confident that if I reported a nuclear safety concern to my MURR supervisor, he/she would take the time to listen to my concern.
- _____ 22. If I raised a nuclear safety concern to my MURR supervisor, but was not satisfied with the response, I would report the concern to the next higher level supervisor or manager at MURR.
- _____ 23. Ordinarily, if I developed a concern about nuclear safety, I would have sufficient time to gather any further information about the concern that I felt I needed in order to report it.
- _____ 24. On past occasions when I have raised nuclear safety concerns, I received adequate information on how MURR management resolved the concern.
- _____ 25. I believe that MURR management views safety as the top priority in nuclear operations.
- _____ 26. On past occasions when I have raised nuclear safety concerns, the person(s) responsible for addressing the concern spent sufficient time on the resolution.
- _____ 27. I would report a nuclear safety concern even if I thought it might get another employee in trouble.
- _____ 28. It is sometimes hard for me to determine if an issue concerning nuclear safety is significant enough that I should report it to someone.
- _____ 29. When decisions are made by others that affect the way I do my job, my input is sought in advance.
- _____ 30. MURR employees take responsibility to address nuclear safety issues that arise in their department.

0 = Insufficient information to evaluate	1 = I disagree	2 = I disagree somewhat	3 = I agree somewhat	4 = I agree
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Rating

- ___ 31. It would be more effective for me to report a nuclear safety concern to the Nuclear Regulatory Commission than to try to resolve the concern through the MURR organization.
- ___ 32. I would report a nuclear safety concern even if the issue might cost a lot of money or time to fix.
- ___ 33. My duties make it difficult for me to find time to worry about nuclear safety issues.
- ___ 34. Senior management at MURR is honest and open in its communications with workers.
- ___ 35. If a nuclear safety concern arose in my department, we would discuss it openly and honestly.
- ___ 36. I believe the MURR Director is sincerely interested in assuring that nuclear safety issues concerning MURR are properly and promptly resolved.
- ___ 37. I would report a nuclear safety concern even if I thought it could result in more work for me or my co-workers.
- ___ 38. I have sufficient time during my workday to do my job in a safe manner.
- ___ 39. I clearly understand the mission of MURR.
- ___ 40. MURR management ensures that potential nuclear safety problems are effectively resolved.
- ___ 41. We have an effective "open door" policy at MURR that enables me to raise issues with any supervisor or manager I choose.
- ___ 42. If I asked my MURR supervisor to help me report a concern about nuclear safety to management, he/she would do so.
- ___ 43. Workers at MURR have received adequate direction on how to identify potential nuclear safety problems.
- ___ 44. The various departments within the MURR organization effectively communicate with each other about nuclear safety issues.
- ___ 45. A worker who raises a nuclear safety concern about MURR is likely to be harassed or ridiculed in some way by co-workers for doing so.
- ___ 46. I am confident that my MURR supervisor has the training and skills necessary to enable him/her to resolve nuclear safety concerns that are raised in our department.

0 = Insufficient information to evaluate	1 = I disagree	2 = I disagree somewhat	3 = I agree somewhat	4 = I agree
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Rating

- _____ 47. I feel free to approach MURR management regarding any nuclear safety concern I might have.
- _____ 48. My MURR supervisor occasionally asks me if I have any nuclear safety concerns.
- _____ 49. My MURR supervisor encourages me to speak up about work issues that are on my mind.
- _____ 50. My MURR supervisor is committed to improving the performance of our department.
- _____ 51. When I raise safety concerns, I do not need to raise the same concern a second time because the concern is adequately resolved the first time.
- _____ 52. If I raise a safety concern, I am expected to present a proposed resolution for the problem as well.
- _____ 53. Employees involved in nuclear operations at MURR are qualified to identify potential nuclear safety issues.
- _____ 54. I believe that MURR management wants me to report nuclear safety concerns.
- _____ 55. I am generally satisfied with my job.
- _____ 56. At MURR, we are becoming less effective at resolving nuclear safety issues than we have been in the past.
- _____ 57. I am less willing to report concerns about nuclear safety now than I have been in the past.
- _____ 58. I have enough time and resources to get my work done at MURR in a safe manner.
- _____ 59. My MURR supervisor adequately communicates the expectations he/she has for my work priorities.
- _____ 60. When a nuclear safety concern is reported to my MURR supervisor, he/she focuses on resolving the problem rather than blaming someone for the problem.

Please check one: My primary affiliation with MURR is as:

- a MURR employee/researcher a student a worker with access to the reactor facility

continued ⇒

April 6, 2001

Comments

Your comments relating to the matters covered in this survey will be helpful to our assessment. Please answer each of the following questions:

A. *Do you believe that the processes in place at MURR for addressing nuclear safety concerns are effective and are responsive to employees who raise concerns? Explain.*

B. *Is there any reason you would hesitate to raise a concern about the safety of MURR operations? Explain.*

C. *At MURR, do you believe there are adequate lines of communication (1) between you and your supervisor, (2) among MURR departments, (3) between supervisors and managers? Explain.*

D. *In your view, has the work environment at MURR been becoming more, or less, conducive to employees reporting nuclear safety problems, or has it remained the same? If you have noticed a change, please describe the change and when you noticed it.*

E. *Do you have any other comments about matters in this survey?*

THANK YOU! Your input is extremely valuable.

Please mail completed survey no later than Friday, April 13, 2001.

they had not raised an NSC in recent memory.⁶ 32 of the remaining 42 responding Employees agreed or agreed somewhat; just 2 Employees (and 2 other Respondents) fully disagreed.

When asked whether workers believe that if they raise concerns, they will be "adequately resolved the first time," so that the worker would not need to raise the same concern a second time, results were mixed [Q.51]. Approximately 30% of Employees had no basis for evaluating the question. More Employees (44/60, or 73%) provided a positive response than a negative one (16/60), but approximately the same number agreed "somewhat" (20) as agreed fully (24) (resulting in a relatively low ratio of 1.2:1), and 16 Employees disagreed fully or somewhat.

Respondent comments on this issue were also mixed. One Respondent stated, "I have always had prompt and effective responses (to any problems I have encountered) from health physics and reactor control/engineering." Another stated, "When issues are raised, they are addressed." On the other hand, one Respondent stated, "I believe that the processes are generally effective, but that many are frustrated with their 'red tape.'" Another stated, "I personally feel that management makes an honest effort to fix problems but that it is hindered by poor communication, lack of training, and problem solving efforts that tend to be uneven and sporadic." 95 out of 112 Respondents disagreed, or disagreed somewhat, with the proposition that it would be more effective for the worker to report an NSC to the NRC, rather than try to resolve the NSC internally [Q.31]. However, 6 Employees fully agreed with this statement, and another 5 agreed somewhat.

Of those who evaluated the question, the great majority of both Employees (70/82, or 85%) and Respondents (102/117, or 87%) agreed, or agreed somewhat, with the statement that they believe that the MURR Director "is sincerely interested in assuring" that NSCs are properly and promptly resolved [Q.36]. Comments reflected this general view. For example: "Dr. Deutsch is very emphatic about coming to him with safety concerns." "I do believe that upper management is sincere about wanting people to voice their concerns." However, 7 Employees fully disagreed with that statement.

When asked about the effectiveness of MURR's "open door" policy, the response was generally favorable but a fair number of Employees have apparent reservations or lack of information about such a policy: 17 Employees disagreed (10) or disagreed somewhat (7) that MURR has an effective open door policy that enables the worker to "raise issues with any supervisor or manager I choose" [Q.41]. More than 79% agreed or agreed somewhat with this statement. Some comments reflected reservations about the open-door policy. For example, one Respondent stated, "I would not go directly to the Director." Another stated, "I have been personally told that when I have a problem, I am only to speak to my supervisor, not upper management. We have an elitist upper

⁶ Another reason why respondents might indicate that they lacked sufficient information to provide a rating could be that, if they raised NSCs, they nonetheless were not aware how much time the person(s) responding to the NSC spent on the issue or whether the time spent was sufficient to resolve the issue. We do not find this rationale as plausible, however, based on responses to other survey questions, such as the response to Q.24—where a similar proportion (one-half) of the Respondents indicated they lacked sufficient information to evaluate whether they received sufficient feedback on concerns they had raised, which suggests that this proportion had not raised NSCs.

management here, which is not conducive to being able to approach them with a problem.”

As for any trend in the effectiveness of NSC resolution, many Respondents indicated they had insufficient information to evaluate the question. Of the responding Employees, 50 of 63 disagreed or disagreed somewhat that MURR is “becoming less effective at resolving” NSCs than it had been in the past [Q.56]. Seven Employees fully agreed with that statement.

3. Capacity to Identify and Report Issues

The survey also measured respondents’ perceptions concerning their capacity, or ability, to identify and report nuclear safety issues. First, a fair number of Respondents agreed with the statement that, due to the nature of their MURR activities or responsibilities, they rarely develop any concerns about nuclear safety [Q.3]. 46% of Respondents (58/125), including 37% of Employees (31/84), agreed or agreed somewhat with that statement. Of Employees (95%, or 76/80) agreed or agreed somewhat that workers involved in nuclear operations at MURR are qualified to identify NSCs [Q.53]. Somewhat fewer (82%, or 64/78) agreed or somewhat agreed that workers at MURR receive adequate direction on how to identify potential NSCs [Q.43]. Note, however, that the ratio between “agree” and “agree somewhat” responses was relatively low (1.37:1), indicating that a substantial number of Employees who provided a positive response nonetheless had some degree of reservation.

When presented with the statement, “In past conversations with my immediate supervisor at MURR, I have shared nuclear safety concerns” [Q.8], more than a quarter of Employees said they had insufficient information to answer the question. 53 Employees agreed or agreed somewhat with this statement.

The above-referenced interviews demonstrated a clear understanding among Employees of their options for reporting safety concerns. In the survey, only one Respondent disagreed (and three disagreed somewhat) that there are several different ways at MURR to report NSCs [Q.18]. Only 5 Employees fully agreed that they were “not clear” on the best way to raise concerns [Q.13]. When asked whether the ways in which employees are able to raise NSCs have been clearly explained to them, no one fully disagreed; 83 of 85 Employees (and 126 of 128 Respondents, or nearly 98.5%) agreed or agreed somewhat [Q.16].

Employees generally reported that they had sufficient time and information to conduct their activities in a safe manner and to report NSCs. Nearly 93% (78/84) of Employees agreed or agreed somewhat that they had sufficient time and resources to do their work safely [Q.58]. Only 3 Employees “agreed” that they were too busy to worry about NSCs (while another 9 agreed somewhat) [Q.33]. Just 2 Employees disagreed with the statement that, ordinarily, if he encountered an NSC, he would have sufficient time and resources to gather whatever information he might need to report it, while another 4 disagreed somewhat [Q.23].

Only 27 of the 77 Employees evaluating the question agreed that their supervisors occasionally ask if they have NSCs [Q.48]. Another 21 agreed somewhat with this statement, so that the response overall was more positive than negative, but the ratio between “agree” responses and “agree somewhat” responses was relatively low

(1.29:1). Approximately 37% of Employees (29/77), and 40% of Respondents (44/109), disagreed or disagreed somewhat with this statement. (There may be situations in which it would not be expected for a supervisor to ask an employee if he or she had any NSCs, such as where a worker had no job responsibilities involving nuclear safety.) When asked more broadly if they are encouraged by supervisors to speak up on "work issues" (not limited to NSCs), the results were more positive, with just 13 Employees providing a negative (disagree or disagree somewhat) response [Q.49].

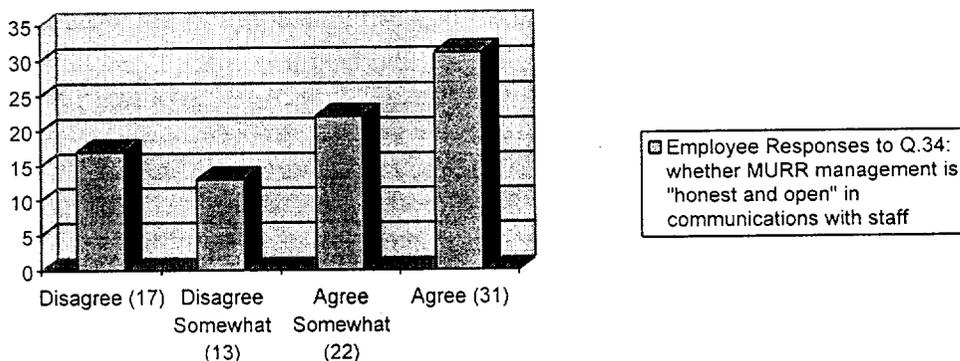
4. Communications

Because of the significance of effective channels of communication to the reporting and resolution of NSCs, the survey also asked for respondents' perceptions on the adequacy of communications at MURR.

When asked if MURR management has communicated clearly to workers it wants them to report NSCs, only one Employee disagreed, while six other Employees disagreed somewhat. 104 Respondents squarely agreed that management had made this expectation known [Q.4]. 114 of 124 Respondents, or nearly 92%, said that they agreed or agreed somewhat that management "wants me to report" NSCs [Q.54]. Several comments buttress this positive result; for example: "People are encouraged to report concerns." "MURR management expects employees to raise safety and quality issues." "[T]ime and time again, MURR management stated the available avenues for reporting nuclear safety concerns." Five Employees indicated that they thought management did not want them to report NSCs. One Respondent stated, "I believe [management] might retaliate against me." Another stated, "I have thought that if safety concerns were raised, management might halt our area of research because it is not crucial to the mission of MURR, or at least not viewed as crucial." The vast majority of Employees (78/85) and Respondents (118/127) agreed or agreed somewhat that MURR management "has clearly expressed that safety is the most important priority" in MURR nuclear operations [Q.19]. The ratio between "agree" and "agree somewhat" responses was high, indicating a strongly positive overall response (8.75:1).

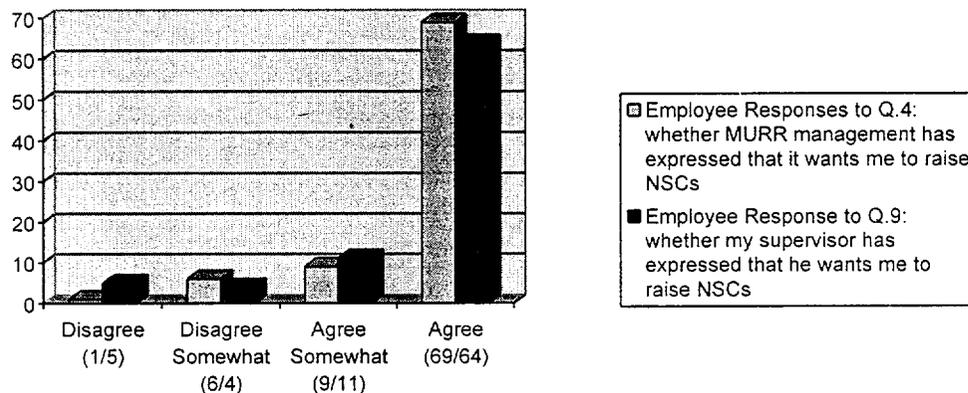
Survey results indicate that, generally, management has adequately communicated the mission of MURR. Just 2 Employees disagreed (and 7 disagreed somewhat) with the statement that they understand the mission of MURR [Q.39].

When asked if senior management is "honest and open" in communications with MURR workers [Q.34], the responses were fairly evenly distributed over the ratings scale, although overall more positive than negative:



The ratio of “agree” to “agree somewhat” responses of Employees was fairly low (1.41:1), and 17 Employees flatly disagreed and another 13 disagreed somewhat. Comments indicate that this issue touches several aspects of the work environment at MURR. Specifically: “Event reviews are behind closed doors, problems and root cause recommendations are not expressed/shown to all MURR staff.” “I really feel that middle management here ‘circles the wagons’ so to speak when one of them are [sic] on the hot seat. For they all take a ‘blue wall of silence’ type of attitude.” More generally: “Decisions are made by the Director and other senior management without adequate review.” “MURR is trying to provide better control and guidance, but management is not sharing [the] big picture.” 38 of 112 (34%) Respondents disagreed or disagreed somewhat with the statement that senior management is “honest and open” in communications with MURR workers, while 74 (66%) agreed or agreed somewhat with that statement. (Note that this question was not limited to communications regarding NSCs but was posed as a general proposition.)

Compared to whether management had made its expectations for raising concerns clear, a similar number agreed that their immediate supervisor had “clearly” made this expectation known to the worker. Eleven Respondents disagreed or disagreed somewhat that the supervisor had made this expectation clear [Q.9]. Ten Employees (and three other Respondents) disagreed or disagreed somewhat that they have “adequate opportunities for face-to-face communications” with their supervisor [Q.14]; 102 of 122 Respondents agreed or agreed somewhat that their supervisor adequately communicates his/her expectations for the worker’s job priorities [Q.59].



When asked [Q.24] whether they had received adequate feedback regarding the resolution of NSCs they had raised on prior occasions, one-half [64/128] of respondents indicated that they lacked sufficient information to evaluate this question, suggesting that they had not raised such issues in the past. For those who apparently have raised NSCs, there is evidence of lack of consistent feedback to concern originators. One Respondent commented, “I believe that [the processes for reporting NSCs] are effective. However, I do not believe that there is any adequate or prompt response to the concern initiator.” Twelve of the 49 Employees—nearly a quarter—who did evaluate this question disagreed or disagreed somewhat they had received adequate information, and three times as many Employees fully “disagreed” as those who “disagreed somewhat.” Facilities Workers were less satisfied with feedback, with none of them fully agreeing that feedback was adequate; four of seven Facilities Workers evaluating the answer disagreed or disagreed somewhat that feedback was adequate. One Respondent

stated, "There is some perception not so much that reporting problems might result in retaliation, but that issues might just get swept under the rug" (emphasis in original).

There was a strong negative response to a question that did not relate directly to NSCs: whether workers believe they have the opportunity to provide input in advance to decisions made by others that affect the way in which they do their job [Q.29]. More Employees disagreed fully or somewhat (44/82) than agreed or agreed somewhat (38/82) that their input was sought, although the responses were fairly evenly distributed over the ratings scale.

A fair number, although not a majority, of Respondents perceive that the various MURR departments do not effectively communicate with each other about nuclear safety issues. Of Respondents, 68 of 99 agreed or agreed somewhat that effective inter-departmental communications exist, while 31 disagreed (16) or disagreed somewhat (15) [Q. 44]. Moreover, the ratio between "agree" and "agree somewhat" responses of Employees was low (1.14:1); which indicates that the strength with which respondents agreed is somewhat qualified. A large number of responses to survey question (c), regarding communications, indicates that communications is an area of concern. For example: "Communications between departments could be improved." "The line of communication among MURR departments is fairly weak." "Some MURR departments [are] very isolated." "I don't feel like different departments are aware of each other's activities." In contrast, it should be noted that several other commenters found interdepartmental communication to be adequate and/or improving; for example: "Most communication is effective." "I believe that MURR management has established numerous lines of communication available to help internal communication."

5. Other Survey Tabulations

When asked: "If my supervisor at MURR makes mistakes, he/she readily admits them," 66 out of 79 responding Employees agreed or agreed somewhat [Q.10].

65 out of 79 responding Employees believed (agreed or agreed somewhat) that senior management would take them seriously if they reported that they felt they were being harassed for raising an NSC [Q.15].

63 of 75 Employees agreed or agreed somewhat that MURR employees "take responsibility to address nuclear safety issues that arise in their department" [Q.30]. Twenty-one Respondents indicated they did not have sufficient information to evaluate this question.

Nearly all (74/83) responding Employees agreed or agreed somewhat that if an NSC arose in their department, the department "would discuss it openly and honestly [Q.35]. Just one Respondent fully disagreed with this statement. The response was strongly positive, as the ratio between "agree" and "agree somewhat" responses of Employees was high (9.4:1).

75 of 84 responding Employees agreed or agreed somewhat that their supervisor "is committed to improving the performance of our department" [Q.50].

Most Employees fully agreed that they are generally satisfied with their job, but ten disagreed or disagreed somewhat [Q.55]. Five Employees fully disagreed.

VII. ANALYSIS

A. Introduction

The Assessment Team's objective was to prepare an assessment of the freedom of MURR employees to report safety concerns without fear of retaliation. This Report provides such an assessment of the current MURR culture. During the assessment, however, it became clear that there have been significant changes at MURR in recent years, some of which, we conclude, have had a bearing on employees' perceptions concerning the freedom they have to raise nuclear safety concerns. We begin the Analysis by addressing these changes.

B. Change at MURR

We reviewed the cultural context of MURR, considering factors that might influence employee perceptions regarding their freedom to report safety concerns and perceptions regarding potential retribution for doing so.

Our assessment revealed that employee perceptions regarding: (1) the freedom they feel to report safety concerns, and (2) potential retribution for reporting problems have been influenced by changes at MURR that have occurred in the past few years. Generally speaking, these changes have affected the "closeness" that MURR staff feel with one another, which in turn can impact the effectiveness of communications and the degree of trust that workers at MURR have in each other. More directly, our assessment efforts indicated that some of the changes have specifically (and negatively) impacted the workers who expressed to the NRC a reluctance to report concerns to MURR management.

The assessment focused on the current work environment, but we considered as context the period beginning with the arrival of the current MURR Director on December 1, 1997. Since then, the MURR organization has undergone significant change. To summarize:

- ▶ As a general matter, the University shifted its focus from emphasis on the physical sciences to an emphasis on the life sciences. To effectively support the new mission of the University, MURR management has changed its own mission. The current mission of MURR is clearly to "service" the University. This new mission entailed the transformation of MURR from an independent, stand-alone research-based organization to an organization focused on supporting the research needs of the campus. With the current Director's arrival, MURR's focus shifted from material sciences and neutron scattering to life sciences and health care.

- ▶ Investment decisions also fell in line with the new mission; for example, the new Director (in contrast to his predecessor) decided that MURR would not invest in additional neutron scattering equipment which may have supported independent research activities but which would not have best supported the new service focus.

- ▶ The current Director is a self-described "tough manager" who found MURR in "disarray" organizationally and financially when he arrived and has actively addressed these problems.
- ▶ Since his arrival, the current Director has installed new managers. For example, the current Associate Director of Research joined MURR in October 2000, and three new directors work under her. In line with the current mission of MURR to function as a service organization, MURR management has focused on interdisciplinary research and development programs, which includes a partnering relationship between MURR and other University departments. The Associate Director has the responsibility to integrate MURR with the other colleges at the University.
- ▶ New reactor operations managers were brought in within the last year. This new management has been actively involved in the development and implementation of revamped operating procedures.
- ▶ The change in MURR's mission to a service-based support organization resulted in changes to MURR's employment model. The new model implemented by the current Director emphasizes MURR staff supporting the life science research efforts of professors and researchers throughout the University system, rather than individual research efforts pursued through outside contracts. The new employment model focuses on MURR having a "home" in other academic departments. Accordingly, some of the new managers are dedicated to MURR 50% of their time and devote the remaining 50% of their time to an academic department. These "50/50" managers thus may hold tenured positions. Other MURR staff members, however, do not have tenure and are employed at will.
- ▶ At the time the current Director assumed his responsibilities at MURR, the facility was faced with large debts and an unsatisfactory accounting system. This challenge forced a change in how MURR conducted its business. MURR management set out to eliminate the substantial debt that had accumulated, but did so largely without cutting spending. Necessarily, revenues needed to increase, and accordingly Income Generating Operations became an important aspect of MURR. The financial position of MURR has improved dramatically under the new Director.
- ▶ In conjunction with this more fiscally responsible direction, MURR management reflects a more "corporate" structure. MURR hired a financial analyst (who has stayed on as an Assistant Director in the Income Generating Operations Department) and, in August 2000, hired a new COO.
- ▶ MURR management has recently implemented significant changes in its internal policies and procedures. For example, as noted above, management is in the process of devising and implementing new procedures for reactor operations, an effort that intensified as a result of

events that occurred at the reactor in the Spring and Summer of 2000, and which the relatively new COO has attempted to advance through the hiring of a contractor who is involved in the procedure revisions. In addition, new programs, and improvements to existing programs, have been implemented at MURR. For example, the corrective action program was recently partially revised and implemented. An overall procedure upgrade program is under development that involves significant changes to maintenance and operations procedures.

- ▶ The above changes have had secondary impacts on employment. Workers most significantly impacted were those whose work responsibilities did not align with the new focus on service and income generating activities. Some of these workers have left MURR to pursue other opportunities. Others elected to take advantage of early retirement opportunities offered by the University. Others are still on staff at MURR.

C. Safety Consciousness Focus During Changes

The above described changes were not implemented or experienced without regard for employee willingness to raise concerns. Instead, our assessment revealed that MURR management's assurances that (1) safety would never be compromised, and (2) employees should feel free to report safety concerns, have been clearly expressed under the current Director.

In conjunction with the re-focusing of MURR's mission as a service facility, the Director stressed that safety was his top priority. Our assessment found that the current Director, from the beginning of his tenure and frequently since, has been proactive in expressing that message. The Director has also been proactive in encouraging employees to discuss issues with him and to report concerns. His efforts over the years have included holding open office hours, establishing a communications committee, conducting "walkarounds," and specifically asking employees if they had any safety concerns.

According to a long-time MURR manager, there "has never been a MURR staff meeting where safety was not one of the first topics [the Director] discussed. He's never failed in public meetings to reiterate that." Another manager who has served under a number of different MURR directors stated that the current Director "has always promoted ... the utmost value of safety." Currently, MURR management holds a "plan of the day" meeting most mornings in which representatives from each work group discuss the day's activities; the meeting begins with a specific opportunity to discuss any safety concerns.⁷

The Director also commissioned an independent review in early 2000 that focused on "the effectiveness of changes in the MURR organization and the impacts of new initiatives, including increased emphasis on health related research and radioisotope production." MURR Independent Review Executive Summary (March 31, 2000), at i.

⁷ Although not encompassed by this Assessment, we are aware that certain initiatives directed toward employee freedom to raise safety issues were undertaken in the mid-1990's, prior to the current Director's arrival. Some additional initiatives have been implemented since the current Director's arrival, including the above-noted informal efforts to encourage communications (including raise concerns), the hiring of a Safety Coordinator, and the development of an anonymous concern submittal form.

We found no indication that employees perceive that management fails to make appropriate investments in safety-related resources. For example, after an industrial accident occurred due to a problem with manipulators in the main hot cell, MURR management chose not to repair the manipulators, but to invest a substantial sum of money in purchasing new manipulators to ensure that the equipment was safe. Some employees suggested, however, that the decision to replace the manipulators was made only after several incidents highlighted the problems, and that action could have been taken sooner.

Our assessment accordingly concludes that MURR management, under the current Director, generally has been sensitive to the importance of safety and to the freedom employees feel to discuss safety concerns throughout the implementation of the above-noted changes. Moreover, while as noted below, certain isolated actions or actions by managers may have been perceived by employees as indications that their concerns were not fully welcome, no employee pointed to any specific management action that did, or reasonably could be thought to, cause employees to believe that raising safety concerns is likely to result in retribution.

D. Likelihood that Employees Will Report Safety Concerns

Our assessment concludes that MURR employees are highly likely to report nuclear safety concerns that they might encounter. The data gathered demonstrates that the overwhelming majority of employees both understand their responsibility to report concerns and would raise such concerns within the organization. The vast majority of employees also would elect to raise concerns to their immediate supervisor in the first instance and further believe that their supervisor would assist them in reporting a nuclear safety concern to management if such action were warranted. Finally, the vast majority of employees would escalate a nuclear safety concern up the "chain of command" if not satisfied with the initial response or resolution.

The likelihood that employees would raise nuclear safety concerns is also reinforced by (1) the frequently expressed message of management that employees should, and are welcome to, raise safety concerns; (2) a variety of avenues for raising safety concerns (including nuclear safety concerns), which permits employees to approach the level of management, or the MURR department, that they feel most comfortable dealing with or that they feel is best equipped to address the concern; (3) MURR workers' fluency in the available avenues; and (as addressed below) (4) the fact that most workers do not fear retaliation.

Our assessment reveals no basis for concluding that there may be safety problems at MURR the existence of which has not been brought to the attention of management or the NRC due to a fear of retaliation. Moreover, there is no substantial evidence that such problems might arise in the future and not be brought through some available avenue to the attention of MURR management.

E. Feelings of Freedom to Raise Safety Concerns

Our assessment also indicates that employees generally feel free to raise nuclear safety concerns at MURR.⁸ First, the above finding that employees would raise nuclear safety concerns provides supporting evidence that they feel free to do so and general assurance that they would do so.

Information gathered regarding employee perceptions and experiences regarding management responses to concerns also indicates that employees should and do feel free to raise concerns. As an initial observation, due to the limited size and operational scope of the MURR facility, nuclear safety concerns are infrequent (relative, for example, to a commercial power reactor facility). No employee or other respondent to the survey provided any examples of a pattern of management unresponsiveness to NSCs. To the contrary, such concerns only occasionally surface at MURR. The responses to survey Q.3 indicate that about a third of Employees rarely develop concerns about nuclear safety. (See also, survey responses to Q. 26 (half of employees lacked a basis to evaluate whether sufficient time was spent in addressing a nuclear safety concern raised by the Employee); responses to survey Q.6, and Q. 8). Yet, when they do surface, the vast majority of Employees agree that the concerns receive prompt and appropriate attention, as noted in the discussion on Survey Findings above.

Another indicator of freedom to raise nuclear safety concerns is employee acknowledgment that they are clearly encouraged to do so. The vast majority of respondents to the survey agreed that management has clearly communicated this, and a similar majority agreed that management, in fact, encourages Employees to raise concerns.

In addition, our assessment indicates that most workers at MURR do not fear retaliation for raising NSCs and thus do not feel chilled. The majority of employees indicated that they are not reluctant to raise concerns about nuclear safety because they do not believe they will be retaliated against for doing so.

However, the assessment reveals that some employees expressed a fear of retaliation for raising safety concerns. We reviewed the depth (the extent to which the organization is affected) and nature of this expressed fear. Below, we also address factors that may have contributed to this expressed fear.

As to depth, the expressed fear of retaliation for raising safety concerns appears, from the results of interviews, to be concentrated in the Research Department. Some employees in that department seemed hostile regarding changes that have occurred at MURR, and most of the interviewees who stated that they fear retaliation for raising safety concerns work in that department.

⁸ Although our assessment should not be construed as verifying the "truth" of expressed "feelings" of employees regarding their freedom were to raise safety concerns, the assessment sought to ensure that the opinions solicited were truthful, such as through the use of anonymous survey forms, the effort to capture widespread feedback from MURR employees, and confidential interviews that permitted the Assessment Team to explore employee opinions.

This finding correlates with the OI Report, which apparently observed that 80% of research scientists interviewed by OI expressed a fear of retaliation. No other NRC interviewees, apparently, expressed such a fear.

The origins of an expressed fear of retaliation among certain employees in the Research Department are not entirely clear. These expressions seem to be born not of any indifference or hostility on the part of MURR management to the expression or resolution of employee concerns, but rather to reactions of the employees to the shift in MURR's mission. We observe, first, that this friction seems to have developed during the implementation of changes in MURR's mission and priorities, before the current chilling effect concerns were expressed. Not long after the Director began implementing these changes, one of the researchers filed an internal grievance against him. The conflict was determined to have resulted in part from differing opinions on research priorities. This friction lingered. The above-referenced March 2000 Independent Review, which included interviews with staff members, observed (at 7) that:

There is . . . an obvious difference of opinion between individuals engaged in neutron and materials research and those engaged in radiopharmaceutical research and isotope production. The difference of opinion goes well beyond normal friendly professional rivalry between different fields of science and is detracting from focus on MURR's research and operational initiatives.

The Assessment Team's interviews with researchers in the former neutron analysis group suggest that the expressed fear of retaliation amongst workers in the Research Department is directly related to hostility to MURR management decisions on policy and facility direction. For example, when responding to questions regarding the willingness to raise nuclear safety concerns, several researchers focused on their unwillingness to challenge the Director's decisions because of their belief that he had already "made up his mind," or that his viewpoint was all that mattered to him. Examples of such decisions provided by interviewees related to issues such as attendance at mandatory training sessions or organizational changes. None of the researchers interviewed suggested that the Director, or any managers, had been hostile to any actual safety concerns. A further indication that lack of responsiveness to safety concerns does not seem to have contributed to the expressed fears of retaliation, is that those who expressed such fear generally agreed that concerns are nonetheless properly assessed and resolved once identified.

We do not conclude, however, that only employees in the Research Department might fear retaliation for raising safety concerns. Six Employee survey respondents fully "agreed" with the statement that they fear retaliation for raising nuclear safety concerns to management, and there is no basis to infer that all of them worked in the Research Department. In addition, the survey results indicate that while 64 of 83 responding employees "disagreed" that they are reluctant to raise concerns about nuclear safety to MURR management "because I believe I will be retaliated against for doing so," six employees "disagreed somewhat," seven "agreed somewhat," and, as just noted, six "agreed." A few employees also agreed that co-workers are likely to harass or ridicule a fellow worker for raising a nuclear safety concern. Three employees interviewed who are not in the Research Department indicated that they fear retaliation for raising concerns. Note, however, that all employees interviewed said that they would raise an NSC internally and almost all stated that they do not fear retaliation.

In general, interviewees indicated that they had a clear understanding of the difference between NSCs and non-safety, or administrative, concerns, such as those regarding pay and hours of work. Two interviewees were of the view, however, that some employees could confuse being critical of safety and critical in general, and may have difficulties in determining whether to raise a concern. One interviewee suggested that, while employees do understand the difference between safety and non-safety concerns, some employees may "use" a safety concern as a vehicle to air other grievances, since safety issues are certain to receive regulatory attention. When asked whether there was any indication that employees might be hesitant to raise such administrative, or non-safety, concerns, most interviewees said there were no such indications; that such issues were "aired." For example, one interviewee stated, "I've raised questions to managers and have always gotten [them] answered, whether via reference to policy or otherwise." A few interviewees stated the view that some employees may be reluctant to raise administrative issues. A few others stated that administrative issues may not receive attention as quickly as safety-related concerns, or that management is not as active in addressing them.

With regard to the nature of the expressed fear, we did not identify a significant difference between employee willingness to report nuclear safety concerns to immediate supervision and willingness to report to higher levels of the organization. As noted, the vast majority of employees indicated that they would raise nuclear concerns in the first instance to their immediate supervisors (86.9% disagreed or disagreed somewhat that they would prefer to raise the concern to someone else [Q.17]). But the percentage of employees (83.5%) agreeing or agreeing somewhat that they would feel free to approach management regarding a nuclear safety concern [Q.47] was only slightly lower. Similarly, 82% of Employees agreed fully or somewhat that if they reported a nuclear safety concern, the employee would be "confident that my management chain would support me in seeking a resolution" [Q.11]. And roughly 89% of employees indicated that if they raised a nuclear safety concern to their supervisor but remained unsatisfied, they would report the concern to the next higher level [Q.22].⁹ These findings fail to indicate a perception that upper management would be less responsive to safety issues, or more likely to react in an unfavorable manner, than immediate supervisors might be.

This is not to say that some workers do not find upper management less approachable than supervisors. As noted above, survey results suggest that about a quarter of employees disagreed to some extent that with the proposition that MURR maintains an "effective open door policy" that enables employees to raise issues at any level of management. In addition, some survey comments and interview observations directly indicated a reluctance by some workers to bring concerns to the Director or upper management, due to the perceived "elitist" nature of management or other factors.

A related aspect of the expressed fear is the substance of the problem to be reported itself. Specifically, we conclude that concerns that contradict management positions are the type that workers who fear retaliation generally may be reluctant to raise. When asked in the survey if they would "feel comfortable challenging" a decision management had made, the results were noticeably less positive (about 73% agreeing to some extent

⁹ The response to this question was also more heavily weighted toward "fully agree" responses than questions 11, 17, and 47.

that they would feel comfortable) than those dealing with, for example, the willingness to escalate concerns to management (89%), the willingness simply to raise "any" nuclear safety concern to management (83.5%), and confidence that the management chain would support resolution of a nuclear safety concern (82%). In our interviews, one employee who stated that he feared retaliation indicated that he would fear retaliation if the concern he raised contradicted the Director's agenda or ideas for MURR. Accordingly, this worker's fear appeared to be not that he might suffer retribution for pointing out, for example, a violation of reactor operating procedures, but that he might suffer retribution if he disagreed with the Director's decision to focus on life sciences projects rather than on independent research projects. One survey comment (as noted above) was that "management at MURR has made it clear that certain decisions they make are not to be challenged or questioned" (emphasis added). Other information gathered in our interviews also suggested that any fear of retaliation was more likely to be related to contradicting management decisions or philosophies, rather than the reporting of technical or substantive safety issues.

Some of the interviews described in the NRC OI report support this conclusion. One interview summary (at 22) notes that the interviewee "did not have a problem reporting concerns but might be careful in criticizing [the Director]." Another (at 23) notes that the worker would not hesitate to voice concerns, although for concerns "having policy implications or that [might] be perceived to reflect on . . . leadership," the worker "might be hesitant."

This is not to say that some employees do not fear raising nuclear safety concerns that do not relate to the overall policy or direction of MURR and that do not contradict decisions already made by management. Our assessment identified some evidence that some employees might be reluctant to express general nuclear safety concerns. The interview summaries provided in the NRC OI report also provide information that certain employees fear retaliation for raising "nuclear-safety related concerns" (e.g., OI Report at 21).

As a final note, while we do not conclude that some of the employees who state they fear retaliation lack candor, there clearly are a number of MURR staff members who see the chilling allegations as a manipulative and dishonest effort to retaliate against the Director for management decisions he has made concerning MURR.

F. Factors Potentially Contributing to Expressed Fear of Retaliation

From an objective viewpoint, our assessment identified no specific reason why a "reasonable MURR employee" should fear retaliation for raising nuclear safety concerns. There have been no recent findings of retaliation in specific cases and certainly no pattern of evident retaliation against employees for raising concerns. (One interviewee claimed he himself has been the victim of retaliation, as evidenced by low pay. He contends that this has been going on for 10 years.)¹⁰ One researcher interviewed by

¹⁰ We note that in the NRC OI Report (at 21), one interviewee expressed a perception that the Director released certain employees, in conjunction with the change in MURR focus to a service facility, and in doing so "chose the most argumentative or disagreeable employees to release first." The redacted OI Report does not indicate whether these individuals were perceived as argumentative or disagreeable because they expressed opinions on safety concerns, or were just disagreeable people. To the extent that this interviewee perceived

NRC OI, for example, who stated that he would not be comfortable raising concerns indicated that he “had no direct knowledge of any retaliation against MURR employees for raising safety concerns.” NRC OI Report at 21.

In our interviews, we questioned whether the discrimination allegations asserted by two recently departed researchers might have influenced employee willingness to raise concerns. The interview responses did not suggest or confirm that employees have been chilled from raising safety concerns due to those discrimination allegations.

Some staff members offered the opinion that the chilling allegations were not sincere. In the view of these staff members, some employees who are dissatisfied with the new MURR philosophy and focus on service projects and pharmaceutical research have falsely asserted that they fear retaliation; the asserted motive is to retaliate against MURR management by drawing regulatory attention. As noted above, we do not question the veracity of those who express a fear of retaliation, and we likewise find it unnecessary to this assessment to determine whether the opinions of those who perceive the chilling allegations to be abusive are correct.

Based on data gathered, a number of factors may be influencing current Employee perceptions about potential retaliation for reporting safety problems. Although the purpose of this Report is not to provide a general critique of MURR management, nor to comment on the wisdom of MURR management techniques, because some employees state that they fear retaliation for raising concerns, and because our assessment did not isolate any specific apparent cause of such fear, we relate observations of workers obtained during the assessment. Many relate to management methodologies. In most instances, the issues noted below do not have a direct correlation with employee willingness to raise safety concerns or fear of repercussion for raising concerns.

- ▶ First, the changes summarized above have resulted in evident discontent among some MURR workers. When asked in the survey (Q.55) if they were generally satisfied with their jobs, approximately 12% disagreed or disagreed somewhat. We do not assert that change is the only factor causing discontent—there are indications that perceived low pay for the MURR staff and limited opportunities for career advancement also may negatively affect morale, for example—but our interviews and various survey comments confirm that the above changes have contributed to dissatisfaction. However, low morale does not relate directly to a fear of retribution for raising safety concerns and for the most part would not explain a fear of retaliation. On the other hand, with regard to the Research Department, the information obtained points to a strong inference that disharmony was created some time ago in that Department due to the change in focus of MURR, and due to the threat that the change posed to the projects and positions of certain researchers. The NRC OI Report concludes that one former researcher’s performance declined after the Director’s arrival and implementation of changes, including a policy concerning charges for researcher use of the facility. The disharmony has led, in turn, to distrust of management, particularly of

that individuals were selected for release based on being vocal over safety concerns, this interviewee could specifically have been chilled by that event. We did not verify any of this information in our Assessment.

the Director, who led the changes, by some researchers; and this disharmony and distrust has manifested itself in an expressed fear of retaliation.

- ▶ General concerns about job security may create perceptions by employees that if they raise safety concerns, they may suffer retaliation. MURR employees (like most workers) do not have guaranteed employment. They generally are not eligible for tenure. The fact that, in a university setting, they are surrounded by workers who have tenure (and thus a degree of enhanced job security), combined with the fact that more recently hired staff have a "home" in another academic post, may make certain employees feel that their jobs are vulnerable. However, there are no concrete bases for fear of job loss. While there have been some early retirements and terminations for performance-based reasons under the current Director, there have not been any involuntary layoffs. (Apparently, prior to the current Director's arrival, there had been a 10% reduction in force. There is an allegation contained in the NRC OI report (at 22) that the MURR workforce was reduced from 140 to 70 employees, but we could not verify that fact. The current workforce is about 130, based on personnel data collected for survey distribution.) In fact, there are indications that job security has increased under the current Director, since the difficult financial situation he inherited, now relieved, had itself been a threat to job security. The Director also had announced that he would not use downsizing to achieve the goal of debt reduction, and employees accordingly should have been aware that downsizing was not a risk to their job security. Similarly, when a certain product line was discontinued, the Director assured employees associated with that work that they would not be laid off.

- ▶ Some employees reported that management has made threats of termination—unrelated to the raising of safety concerns—which might exacerbate concerns over job security and which could be extrapolated into a fear of termination for raising concerns. For example, one worker stated that management too often attempted to implement orders by threatening discipline for non-compliance; the example provided was that management required training and threatened that employees who did not attend would be terminated. Remarks that suggest that termination decisions are taken lightly by management could contribute to uncertainty whether to take any risks, including, potentially, raising NSCs.

- ▶ Management comments may occasionally be perceived as messages that imply to workers that their concerns are not welcome. Examples provided to the Assessment Team included: (1) perceptions by some employees that an employee who raised an issue in a meeting was "cut off"; (2) statements by managers in response to issues that the issue was not within the employee's purview and therefore need not be of concern; and (3) a general disinterest in an "academic" approach to issue resolution, in that management is not inclined to discuss issues as extensively as academicians might.

- ▶ The relationship between “management” and “staff” is perceived by some as more distant than it has been under prior Directors. Certain comments by employees suggested that, in years past, the MURR organization was more close-knit or familial. One worker who indicated he feared potential retaliation for raising concerns said MURR is “no longer a family.” Under the current Director, management is more “corporate” in its approach, and the management style is more directive, the implication being that it is less consensus-driven. The perception of a more corporate culture could rationally be based on management’s focus on debt reduction and the relatively recent hiring of a COO to oversee operations.

- ▶ On a related point, management is perceived by some as having developed a “defensive” management attitude. In turn, this has created a perception (at least among a small number of workers) that management, which already feels “under attack,” has “closed ranks” and is less open to criticism. At least one employee stated a perception that management has formed a “blue wall of silence” (see Survey Findings); a number of employees perceived that some managers were “under the control” of the Director and would fall into line with him on issues. The reasons for these perceptions are not altogether clear. One reason may be that some longer term employees perceive that the newest managers have been hired because of their alignment with, or styles similar to, current senior management, such that managers of a like mind would stand together on policy, direction, and issues. Another reason may be that the MURR facility has been subject to substantial media attention, at least some of which focuses on sensationalism and parody, rather than on substantive issues concerning MURR operations.¹¹ Such media attention could plausibly chill management from being “open,” for fear that their comments or actions could be misconstrued or parodied—to the ultimate detriment of the MURR work environment—by third parties.

- ▶ Management is not viewed as credible by some workers, according to survey results, some survey comments and interview observations. Some of those interviewed expressed a perception that management sometimes does not “walk” its “talk”—saying one thing but doing another. The above referenced “distance” between management and staff was cited by one worker as a reason why management might not be viewed as honest. A number of workers cited management’s response to a recent incident involving improper disposal of contaminated material as calling management’s credibility into issue. Specifically, some employees questioned management’s judgment in assigning the worker who improperly disposed of the material to determine the root cause of the error. Survey comments, noted in the Findings section above, also suggest that management’s decisionmaking processes are not transparent to employees, and so employees might not have confidence in some decisions.

¹¹ E.g., *Nuclear Reactor Splitting to Make Waves*, *Maneater* (Apr. 3, 2001).

- ▶ With regard to the Director, some employees expressed a lack of confidence in him because they do not like his management "style" and perceive him to be interested more in his own personal gain than in MURR. For example, one interviewee commented that the Director's leadership was "hierarchic" and "dictatorial," and "not open to criticism." One survey commenter stated, "In my view, the work environment has become much less conducive to reporting safety problems as a direct result of Dr. Deutsch's management and the threatening, intimidating approach he brings to the job." Another survey commenter stated: "Upper management is just trying to enrich themselves [sic]. They know they won't be here that long, so who cares about the health of the reactor."¹²

- ▶ Some long-time employees suggested that they were suspicious of "new management" and that they thought that new management might view them as "relics"; conversely, some new workers feel that some "veterans" of MURR may be viewed "in a better light" than new employees. One worker commented that the Director frequently speaks of the need to change the "culture" at MURR, improperly (in this worker's view) suggesting that the culture created by longer term employees was faulty. These perceptions may impair trust between employees based on their respective tenure at MURR; impaired trust, in turn, might cause some workers to lose confidence in how they will be treated by management—including how they might be treated if they report a nuclear safety concern.

- ▶ Survey results indicated that a substantial number of employees believe that management does not obtain their input before changes are made that affect their jobs (see survey findings above). We do not suggest that management has a general obligation to obtain advance employee input on management decisions. While employees should feel free to report safety concerns, a SCWE does not require that employees participate in all decisions, nor does it require that decisions be made by consensus of all those who may be affected. In addition, the survey question regarding employee input was not limited to safety concerns, but more broadly applied to decisions that could affect employees' work. Nonetheless, employee perceptions that their input is not sought could also lead to perceptions that they should not provide input because it would not be valued. This could cause employees to hesitate to raise concerns, including safety concerns, or that they might suffer adverse consequences for doing so.

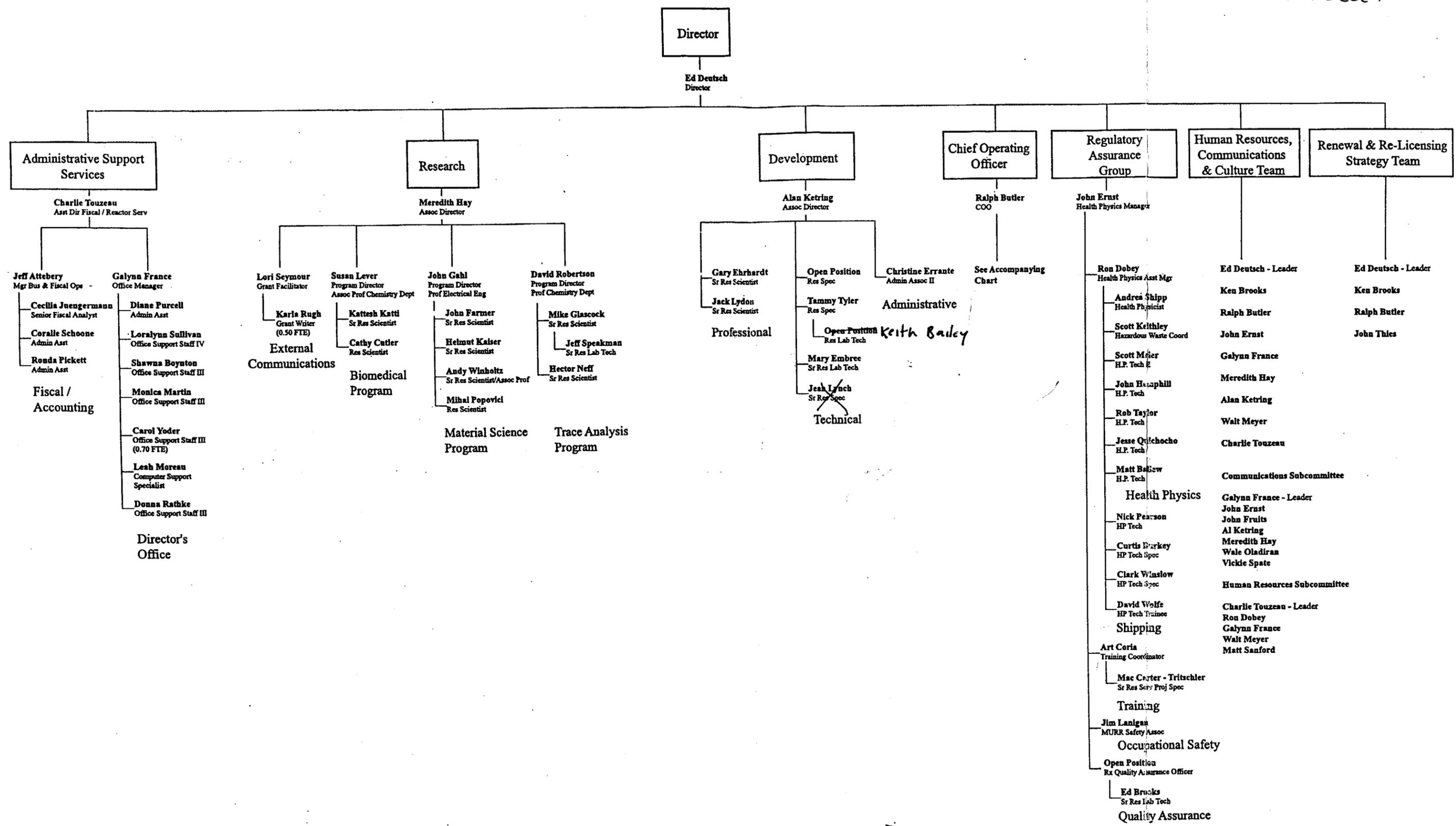
¹² The results of a 1999 University survey regarding MURR were reviewed for informational purposes. The survey results indicated that, on the whole, MURR employees were markedly more satisfied with the Director than they were with the MURR organization as a whole (May 1999 Employee Survey, cumulative results). The questions that generated the most favorable responses concerning the Director were those that asked whether the Director "provide[s] leadership and assertiveness in implementing or in initiating improvements in MURR programs and operations," whether he "stated clearly a vision" for MURR, whether he has a "genuine interest in the success" of MURR, and whether he "encourage[s] individual communication with him."

- ▶ There is a perception among a segment of the MURR population that MURR management does not provide satisfactory feedback on the resolution of employee concerns. The survey findings indicated that about one quarter of employees who evaluated the issue disagreed with the proposition that they received adequate feedback on how safety concerns they had raised were resolved. This lack of feedback could have the consequence of discouraging employees from raising concerns in the future.

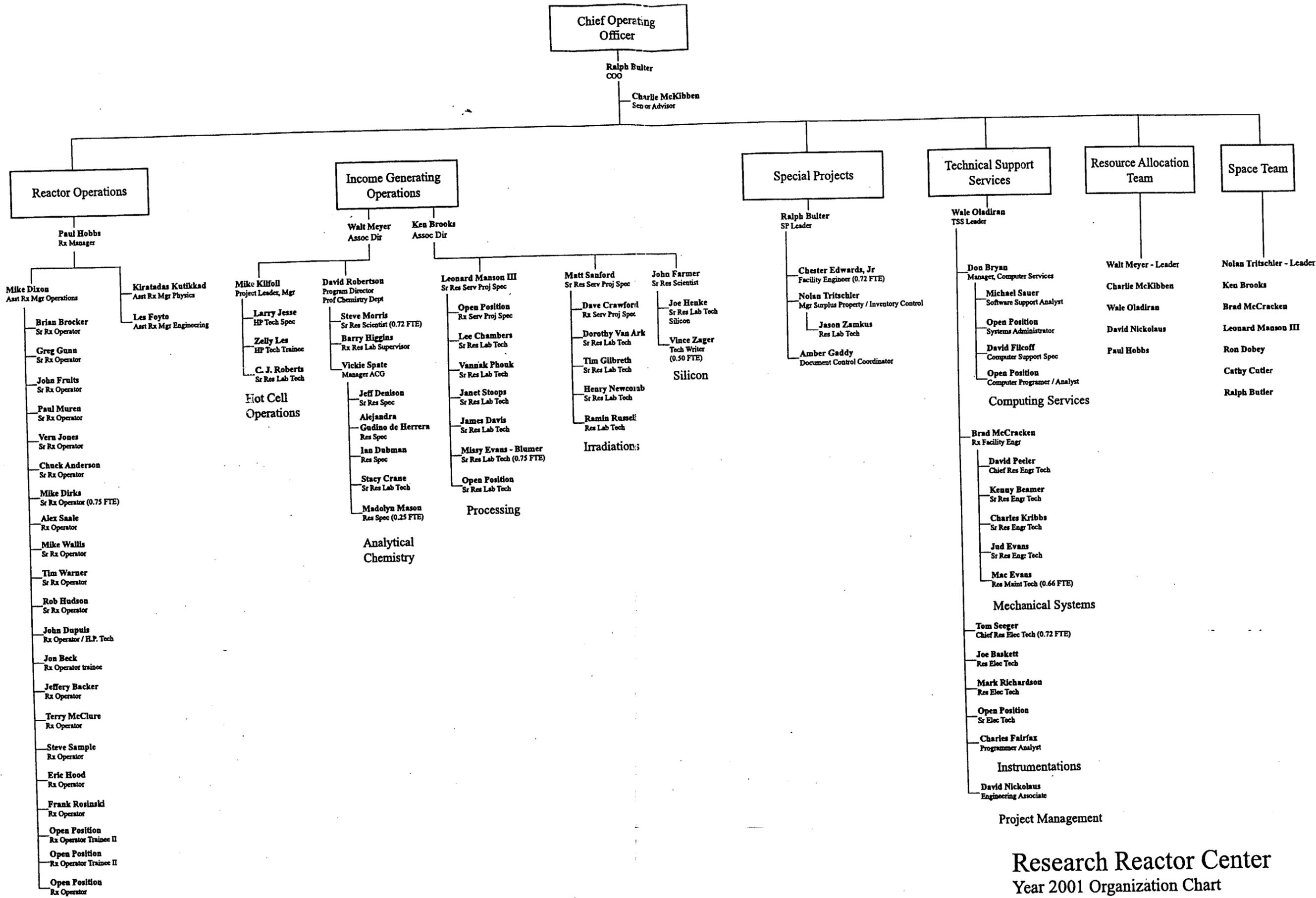
VII. POSTSCRIPT

As this Report was being completed, and after the Assessment Team had finished gathering data respecting the potential chilling effect, two additional events of potential significance to the work environment occurred. First, on June 11, 2001, the NRC issued and has since publicly released a letter determining that an apparent violation of Section 50.7 had occurred. This determination is significant because, (1) as noted at the outset of this Report, discrimination findings themselves have the potential to create a chilling effect; and (2) the apparent violation concerns the actions of the Director vis-à-vis a former researcher, and so bears the potential to expand differences in that relationship.

The second event is the filing of a defamation action by the Director against this researcher and another (who also had alleged discrimination; that allegation was not substantiated by the NRC). The Assessment Team cannot predict how MURR staff members will perceive the defamation action (whether, *e.g.*, it was justified or is viewed instead as a form of retaliation). MURR should be sensitive to the impact of this development, as well as the NRC's assertion of an apparent act of retaliation, on the freedom that employees feel to report problems without fear of retaliation.



Research Reactor Center
Year 2001 Organization Chart



Reactor Operations

Research Reactor Center

Year 2001 Organization Chart

	EMPLOYEES/RESEARCHERS							STUDENTS							FACILITY USERS							NON-DESCRIPTORS							TOTAL					Totals	
	0	1	2	3	4	NR	Sub-T	0	1	2	3	4	NR	Sub-T	0	1	2	3	4	NR	Sub-T	0	1	2	3	4	NR	Sub-T	0	1	2	3	4		NR
1	0	4	9	20	51	1	85	6	1	1	4	8	1	21	5	0	2	3	9	0	19	0	0	0	1	2	0	3	11	5	12	28	70	2	128
2	0	1	0	1	83	0	85	0	0	0	2	19	0	21	0	0	0	0	19	0	19	0	0	0	1	2	0	3	0	1	0	4	123	0	128
3	1	41	12	11	20	0	85	0	3	2	5	11	0	21	2	6	3	5	3	0	19	0	0	0	2	1	0	3	3	50	17	23	35	0	128
4	0	1	6	9	69	0	85	0	0	0	6	15	0	21	0	0	0	1	18	0	19	0	0	0	1	2	0	3	0	1	6	17	104	0	128
5	1	0	3	4	77	0	85	0	0	0	2	19	0	21	0	1	0	1	17	0	19	0	0	0	0	3	0	3	1	1	3	7	116	0	128
6	26	6	7	13	33	0	85	15	1	1	0	4	0	21	6	3	2	3	5	0	19	0	0	0	1	2	0	3	47	10	10	17	44	0	128
7	3	12	10	14	46	0	85	6	3	5	3	4	0	21	3	1	1	7	7	0	19	0	0	1	0	2	0	3	12	16	17	24	59	0	128
8	26	3	2	8	46	0	85	9	1	1	1	9	0	21	4	1	0	7	7	0	19	0	0	0	1	2	0	3	39	5	3	17	64	0	128
9	2	5	4	10	64	0	85	1	2	0	3	15	0	21	2	0	0	2	15	0	19	0	0	0	0	3	0	3	5	7	4	15	97	0	128
10	6	7	6	26	40	0	85	6	1	1	2	11	0	21	7	4	0	6	2	0	19	0	1	0	0	2	0	3	19	13	7	34	55	0	128
11	0	5	10	17	53	0	85	1	0	1	4	15	0	21	2	1	1	7	8	0	19	1	0	1	0	1	0	3	4	6	13	28	77	0	128
12	4	44	8	13	16	0	85	6	9	2	1	3	0	21	5	7	3	3	1	0	19	1	0	1	0	1	0	3	16	60	14	17	21	0	128
13	0	67	10	3	5	0	85	0	15	3	3	0	0	21	1	13	3	4	0	0	19	0	2	1	0	0	0	3	1	95	17	10	5	0	128
14	0	4	6	8	67	0	85	1	1	0	1	18	0	21	2	1	1	4	11	0	19	0	0	0	0	3	0	3	3	6	7	13	99	0	128
15	6	11	3	12	53	0	85	6	0	1	5	9	0	21	5	2	1	3	8	0	19	0	1	1	0	1	0	3	17	14	6	20	71	0	128
16	0	0	2	8	75	0	85	0	0	0	5	16	0	21	0	0	0	6	13	0	19	0	0	0	0	3	0	3	0	0	2	19	107	0	128
17	1	60	13	6	5	0	85	0	15	3	2	1	0	21	3	9	2	3	2	0	19	0	1	1	1	0	0	3	4	85	19	12	8	0	128
18	1	1	2	6	75	0	85	1	0	0	4	15	1	21	2	0	1	4	12	0	19	0	0	0	0	3	0	3	4	1	3	14	105	1	128
19	0	3	4	8	70	0	85	0	1	0	2	18	0	21	1	1	0	3	14	0	19	0	0	0	2	1	0	3	1	5	4	15	103	0	128
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23	12	2	4	23	44	0	85	7	0	0	6	7	1	21	8	1	0	1	8	0	19	0	1	0	1	1	0	3	25	4	7	31	60	1	128
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25	0	5	8	10	62	0	85	1	0	2	1	17	0	21	1	0	2	2	14	0	19	0	0	1	0	2	0	3	2	5	13	13	95	0	128
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27	2	2	1	12	67	1	85	1	0	0	9	11	0	21	2	0	0	4	13	0	19	1	0	0	0	2	0	3	6	2	1	25	93	1	128
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47	0	6	8	15	56	0	85	0	0	3	6	12	0	21	0	0	2	5	12	0	19	0	1	0	0	1	1	3	0	7	13	26	81	1	128
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50	1	3	6	13	62	0	85	1	1	0	5	14	0	21	4	2	0	4	9	0	19	0	0	0	0	2	1	3	6	6	6	22	87	1	128
51	25	7	9	20	24	0	85	12	1	1	2	5	0	21	6	1	3	6	3	0	19	0	0	0	2	0	1	3	43	9	13	30	32	1	128
52	19	26	20	12	8	0	85	13	1	2	2	3	0	21	6	4	4</																		

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August 17, 2001

Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Subject:

Two reports attached to the letter dated July 27, 2001 from the Chancellor,
University of Missouri-Columbia

Dear Sir:

This letter is sent in reference to the following documents sent to your office under the
Chancellor's transmittal letter dated July 27, 2001:

- (1) July 25, 2001, Independent Assessment of the Continuing Effectiveness of Corrective Actions Taken to Address Past Chilling Effects at the University of Missouri-Columbia campus; and
- (2) July 25, 2001, Independent Assessment Report Review of the Freedom of MURR Employees to Report Problems Without Fear of Retaliation.

Please disregard the "confidential" stamp on these documents. We have no objection to these documents being placed into the Public Document Control system.

Sincerely,

Ralph Butler
Interim Director and Chief Operating Officer

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