



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

NOV 21 1996

Montana State University
ATTN: Dr. Robert J. Swenson
Vice President for Research
Office of the Vice President for Research
Bozeman, Montana 59717

SUBJECT: DECOMMISSIONING FINANCIAL ASSURANCE FOR NRC LICENSE 25-00326-06

We have reviewed your decommissioning financial assurance submittal dated November 14, 1996. Within the scope of our review, no further deficiencies were identified. If additional information is required, we will contact you.

Sincerely,

D. Blair Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch

License: 25-00326-06
Docket: 030-00871

cc: S. Erick Lindstrom, RSO
Montana State University
Safety and Risk Management
309 Montana Hall
Bozeman, Montana 59717

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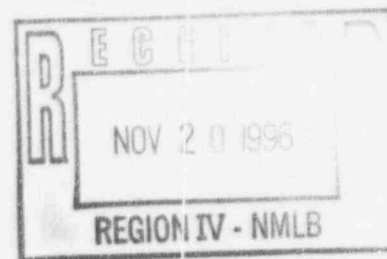
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DBS → C. HERNANDEZ



Department of Safety and Risk Management

Radiation Safety Office
309 Montana Hall
Montana State University - Bozeman
Bozeman, MT 59717
Phone: (406) 994-2108
Fax: (406) 994-4792
avrel@gemini.oscs.montana.edu



November 14, 1996

Mr. D. Blain Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Subject: **Decommissioning Funding Plan for NRC License 25-00326-06**

Dear Dr. Spitzberg:

Enclosed please find Montana State University's "corrected" Statement of Intent in support of our previously submitted Decommissioning Funding Plan. I apologize for the lateness of this submittal, and for the error that the original contained.

For Montana State University,

A handwritten signature in cursive script, appearing to read "S. Erick Lindstrom".

S. Erick Lindstrom
Radiation Safety Officer
Montana State University

SOI in safe. MCH.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

September 19, 1996

Montana State University
ATTN: Dr. Robert J. Swenson
Vice President for Research
Office of the Vice President for Research
Bozeman, Montana 59717

SUBJECT: DECOMMISSIONING FINANCIAL ASSURANCE FOR NRC LICENSE 25-00326-06

Montana State University in Bozeman, Montana, submitted a revised decommissioning funding plan, dated March 27, 1996, using a statement of intent in the amount of \$6,600,000, to address estimated decommissioning costs of \$6,598,829 for license 25-00326-06 issued under 10 CFR Part 30. Upon review of the submission, in order for the NRC to continue its review, Montana State University needs to modify the submission in the following way:

- **Revise the Statement of Intent to Specify the Correct Date**

The statement of intent submitted by Montana State University contains an apparent typographical error in that it is dated March 25, 1995. Based on the date of the submission, March 27, 1996, it appears that the correct year for the current statement of intent should be 1996. Due to the error, it is not clear that the new statement of intent for \$6,600,000 takes precedence over the earlier \$3,991,200 statement of intent, dated October 25, 1995. Therefore, to ensure that Montana State University has provided the full amount of required financial assurance, the statement of intent must be revised to specify the correct date.

Please submit the revised financial assurance mechanism as an originally signed duplicate within 30 days of receipt of this letter so that we can continue our review. Unless the documents have been properly signed, the NRC cannot be certain that the financial assurance mechanism is enforceable. Where good cause is shown, consideration will be given to extending the response time. If you have any questions regarding this matter, please contact me at (817) 860-8191 or Ms. Christi Hernandez at (817) 860-8217.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. Blair Spitzberg", is written over a horizontal line.

D. Blair Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch

License: 25-00326-06
Docket: 030-00871

cc: S. Erick Lindstrom, RSO
Montana State University
Safety and Risk Management
309 Montana Hall
Bozeman, Montana 59717

DISTRIBUTION:

DMB (IX-50)

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RIV Nuclear Materials Financial Assurance File

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9/19/96		9/20/96						

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STATEMENT OF INTENT

Montana State University
Byproduct Material License No. 25-00326-06

*Original returned
to licensee
2/21/96
MCH*

Montana State University-Bozeman is a unit of the Montana University System, composed of campuses in Billings, Bozeman, Great Falls and Havre. The system is under the direction and control of the Board of Regents for the State of Montana. A copy of the relevant constitutional and statutory authority for the Board of Regents is hereby attached.

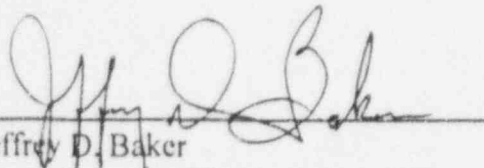
The Montana University System is an arm of the State government, and as such, the State of Montana is ultimately responsible for the activities of the System's units, including any decommissioning costs that may be necessary to terminate the Byproduct Material License that Montana State University-Bozeman currently holds (#25-00326-06). The facilities presently covered by this license include only those established on the central campus of Montana State University located in Bozeman, Montana.

In the unlikely event that Montana State University-Bozeman should terminate licensed activity for any reason and the University is unable to cover the costs of decommissioning from its budget, the Commissioner of Higher Education, on behalf of the Board of Regents, hereby certifies that the funds necessary to conduct decommissioning up to \$6,600,000 for the fiscal year ending June 30, 1996, and at an increase of 4% per year through the life of the current license, will be requested and obtained sufficiently in advance of decommissioning to prevent delay of required activities.

The Commissioner of Higher Education acts as a representative of the Board of Regents. A copy of the relevant authority for the Commissioner to sign this document on behalf of the Board of Regents is hereby attached.

This Statement of Intent is an originally signed duplicate.

Dated this 25th day of March, 1995

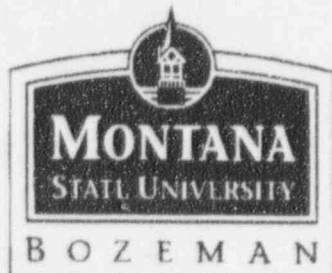

Jeffrey D. Baker
Commissioner of Higher Education
Montana University System

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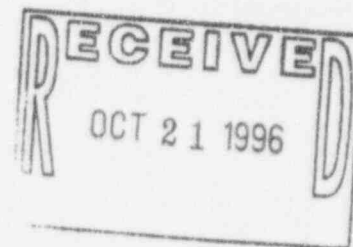
MAR 26 1996

VICE PRESIDENT FOR
ADMINISTRATION AND FINANCE

FINANCIAL ASSURANCE RECORDS

**Safety and Risk Management**

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avrel@gemini.oscs.montana.edu

**FAX TRANSMITTAL**

October 21, 1996

(1 page)

Mr. D. Blain Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064
Fax: (817) 860-8263

Subject: **Statement of Intent Supporting the Decommissioning Funding Plan for NRC
License 25-00326-06**

Dear Dr. Spitzberg:

Mr. Robert Specter, MSU's Vice President for Administration and Finance, is presenting the revised Statement of Intent to both the State Commissioner of Higher Education and his Legal Counsel for perusal sometime this week. This step was deemed necessary because the position of Commissioner of Higher Education has been recently filled by a new individual, and we felt that he should be fully appraised of the details contained in the DFP. I'm confident that we should have the revised Statement of Intent in your hands before November 8, 1996.

Your patience in this matter is appreciated.

Sincerely,

A handwritten signature in cursive script, appearing to read "Erick Lindstrom".

Erick Lindstrom
Radiation Safety Officer
Montana State University

**Safety and Risk Management**

Radiation Safety Office
309 Montana Hall
Montana State University
Bozeman, MT 59717
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FAX TRANSMITTAL

March 12, 1996

(1 page)

Mr. D. Blain Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064
Fax: (817) 860-8263

Subject: **Decommissioning Funding Plan for NRC License 25-00326-06**

Dear Dr. Spitzberg:

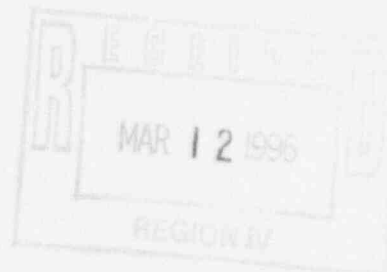
MSU's Treasurer, Dr. Thomas Gibson, is presently negotiating the financial terms of the University's revised Statement of Intent with the State Commissioner for Higher Education. The University Administration agreed last week to substantially increase the monetary commitment that addresses the Planning and Preparation costs for Decommissioning.

I am hopeful that the details will be finalized soon (seven to ten working days), and that our amended cost-estimating submittal will receive Nuclear Regulatory Commission approval.

Sincerely,

A handwritten signature in cursive script, reading "S. Erick Lindstrom".

S. Erick Lindstrom
Radiation Safety Officer
Montana State University





UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

February 12, 1996

Montana State University
ATTN: Dr. Robert J. Swenson
Vice President for Research
Office of the Vice President for Research
Bozeman, Montana 59717

SUBJECT: DECOMMISSIONING FUNDING PLAN FOR NRC LICENSE 25-00326-06

Montana State University (MSU) in Bozeman, Montana, submitted a decommissioning funding plan, using a statement of intent in the amount of \$3,991,200. The submission assures estimated decommissioning costs of \$3,991,155 for license 25-00326-06 issued under 10 CFR Part 30.¹ In order for the NRC to continue its review, MSU needs to modify this submission as follows:

- (1) Account for the costs of planning and preparing for decommissioning (Regulatory Guide 3.66, page 1-9 and NUREG/CR-1754, Addendum 1, page B.30);
- (2) Submit additional detail to support the estimated number of person-days required for conducting a final radiation survey (NUREG/CR-1754, Addendum 1, Appendix B);
- (3) Account for the costs of conducting a final radiation survey (Regulatory Guide 3.66, pages 1-9 and F-5); and
- (4) If the cost estimate increases, increase the coverage provided by the statement of intent (10 CFR 30.36).

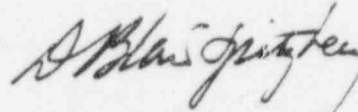
These requests for modification and other issues are discussed in greater detail in the enclosure to this letter.

Finally, MSU should ensure that documents submitted are originally signed duplicates, as recommended in Regulatory Guide 3.66. Unless the documents have been properly signed, the NRC cannot be certain that the financial assurance mechanism is enforceable.

¹ The NRC reviewed two previous submissions from the licensee and reported several recommendations to MSU in letters dated April 9, 1992, and May 23, 1995.

Please submit the required information as originally signed duplicates within 30 days of receipt of this letter so that we can continue our review. Where good cause is shown, consideration will be given to extending the response time. If you have any questions regarding this matter, contact me at (817) 860-8191 or Ms. Christi Hernandez at (817) 860-8217.

Sincerely,



D. Blair Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch

License No. 25-00326-06
Docket No. 030-00871

Enclosure: NRC Recommendations

NRC RECOMMENDATIONS

- (1) Account for the Costs of Planning and Preparing for Decommissioning (Regulatory Guide 3.66, page 1-9 and NUREG/CR-1754, Addendum 1, page B.30)

In response to the NRC's request that additional detail be submitted to support the estimate for planning and preparation,² MSU reaffirmed its opinion that planning and preparation will be largely unnecessary in its case. Specifically, MSU's response states the following:

We submit to NRC that this institution is running a pro-active Radiation Safety Program, one that is vigilant in the monitoring of the contamination status of all nuclear material use and storage areas on campus. These areas are being surveyed on a monthly basis, and if contamination is discovered it is removed promptly thereafter. It is therefore a license commitment to keep the contamination in these areas to levels below that to which they can be presumed releasable for unrestricted use.... [W]e feel that a program that addresses the contamination of facilities on a consistent basis precludes much of the estimating in terms of planning and preparation that would be necessary.

Even accepting that this is true, however, it does not eliminate the need to conduct planning and preparation for decommissioning. In fact, NUREG/CR-1754³ anticipates significant planning and preparation activities for reference user laboratories despite the following assumption, on page 7-32, that is similar to MSU's:

All areas of the laboratory are monitored for radiation weekly. The weekly inspections include both instrument surveys and wipe tests.... Spills of radioactivity are cleaned up when they occur to keep contamination levels on bench tops and floors as low as possible.

A period of planning and preparation before decommissioning a facility is necessary to ensure that the decommissioning effort is performed in a safe and effective manner in accordance with all applicable federal, state, and local regulations. Characterizing the radiological condition of the facility involves more than surveying the facility before it is decommissioned. It also involves reviewing past operations at the facility and reviewing environmental surveillance and radiation survey records.

² A November 8, 1995, letter from MSU to the NRC indicates that MSU's responses pertain to "NRC Recommendations proposed in the correspondence dated May 23, 1995."

³ NUREG/CR-1754, Technology, Safety and Costs of Decommissioning Reference Non-Fuel-Cycle Nuclear Facilities: Compendium of Current Information, Pacific Northwest Laboratory, October 1988.

In addition to characterizing the facility's radiological condition, planning and preparation also includes preparing documentation for regulatory agencies and developing a work plan. These activities are as important to the success of the decommissioning effort as is assessing the level of radiation at the facility and, as shown in NUREG/CR-1754, Addendum 1, require more time to complete than does surveying the facility.⁴ Table B.17 on page B.30 estimates that 50 person-days would be required to prepare documentation, 15 person-days would be required to perform radiological surveys, and 25 person-days would be required to develop a work plan.

In particular, preparing a work plan prompts the licensee to consider and document methods and procedures for the essential components of decommissioning a facility, including schedule of operations, safety, and quality assurance. These issues are not fully addressed in the decommissioning cost estimate (nor are they required to be) and, consequently, will demand MSU's consideration before decommissioning begins.

MSU's response to the NRC also expresses concern over the potentially high cost of planning and preparation for its facility:

Appendix B of NUREG/CR-1754 (Addendum 1) suggests that the costs of planning and preparation (for a "Reference Institutional User Laboratory") would be in the range of \$60,000 to \$70,000. Given the fact that MSU has approximately 50 laboratories that fall under the reference description, our planning and preparation costs would apparently exceed \$3,000,000! However, the majority of these laboratories have very similar physical characteristics. If we were to plan and prepare one laboratory for decommissioning, could we not apply this work as a template for the other laboratories?

The NRC agrees with MSU that economies of scale may be realized by applying MSU's approach for planning and preparation to all of its laboratories.

Based on the issues discussed above, MSU is required to revise its cost estimate to account for the costs of planning and preparation, as called for in Regulatory Guide 3.66 "Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70, and 72," June 1990, page 1-9, and in NUREG/CR-1754, Addendum 1, page B.30.

- (2) Submit Additional Detail to Support the Estimated Number of Person-Days Required for Conducting a Final Radiation Survey (NUREG/CR-1754, Addendum 1, Appendix B)

Appendix 2-A of MSU's cost estimate indicates that 83 laboratories will require decommissioning. The cost estimate indicates that performing and documenting the results of a final radiation survey for all its laboratories (which, individually, are of similar size to the reference institutional user

⁴ NUREG/CR-1754, Addendum 1, Technology, Safety and Costs of Decommissioning Reference Non-Fuel-Cycle Nuclear Facilities: Compendium of Current Information, Pacific Northwest Laboratory, October 1989.

laboratory in NUREG/CR-1754) will require approximately 151 person-days. NUREG/CR-1754, Addendum 1 estimates that it would require 36 person-days to perform a final radiation survey at its reference institutional user laboratory.⁵ Using the NUREG/CR-1754 estimate for a single institutional user laboratory, the NRC estimates that approximately 3,000 person-days would be required to survey all of the licensee's laboratories. Therefore, MSU is required to provide additional detail to support its current estimate of the number of person-days required for a final radiation survey.

(3) Account for the Costs of Conducting a Final Radiation Survey (Regulatory Guide 3.66, pages 1-9 and F-5)

Regulatory Guide 3.66 recommends that decommissioning cost estimates include the costs of conducting a final radiation survey (see pages 1-9 and F-5) to help ensure that the materials license can be terminated and the premises released for unrestricted use. Although MSU's cost estimate includes hours for conducting a final radiation survey (see Recommendation 2), it does not appear that MSU included the cost of these hours in its estimate. The NRC recommends that MSU account for these costs in the decommissioning cost estimate.

(4) If the Cost Estimate Increases, Increase the Coverage Provided by the Statement of Intent (10 CFR 30.36)

10 CFR 30.36 requires licensees to obtain financial assurance for the full cost of decommissioning their facilities. Although the submitted statement of intent provides adequate financial assurance for the full amount of MSU's current decommissioning cost estimate, the issues raised above (i.e., in Recommendations 1 through 3) suggest that the current cost estimate may be significantly low. Therefore, to ensure that the amount of financial assurance provided is adequate, MSU is required to increase the coverage provided by the statement of intent if the cost estimate increases.

Other Issues

In addition to the issues raised above, the following issues are noteworthy:

- (a) MSU states that the funding assured by the statement of intent (which in essence equals the amount of the cost estimate) is "more than adequate to cover all costs and contingencies that may arise in the decommissioning scenario." Consequently, MSU has not acted to incorporate a 25 percent contingency factor into the cost estimate. Upon review of the materials in the current submission, however, it appears that MSU has implicitly (if inadvertently) included a 25 percent contingency factor for decontamination costs (which include costs for packaging, shipping, and disposal of radioactive wastes). This is because the estimate is based on costs taken from Appendix A of NUREG/CR-1754, Addendum 1, which include a 25 percent contingency

⁵ Appendix B, Table B.17.

factor. The NRC notes, however, that MSU will need to include a 25 percent contingency for any new costs added to the current cost estimate (e.g., for planning and preparation and conducting the final radiation survey, as discussed in Recommendations 1 and 3).

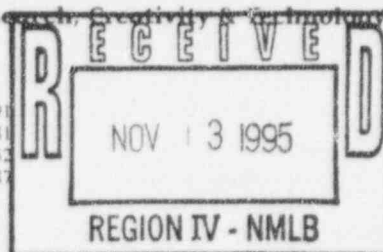
- (b) In response to the NRC's request to submit additional information on the Red Bluff Experimental Station, the licensee submitted a discussion of the site, a description of the materials buried at the site, and copies of various records and correspondence regarding the site. The submission acknowledges that there are radioactive materials at the site. It states that "radioactive materials deposited at the site were placed there with full NRC approval," and that all radiological operations at the site were conducted "in full accordance with all applicable laws." The submission also states that there is essentially no way to further stabilize the site. Consequently, the cost estimate does not include any costs related to the Red Bluff Experimental Station and the statement of intent does not assure any amount for the Red Bluff Experimental Station. Moreover, in describing the facilities covered by the statement of intent, the statement of intent seems to exclude the Red Bluff Experimental Station by stating that "the facilities presently covered by this license include only those established on the central campus of Montana State University located in Bozeman, Montana."



Office of the Vice President for Research, Creativity & Technology Transfer

MSU • Bozeman
Bozeman, MT 59717-0246

Research and Creative Activities (406) 994-2891
Grants and Contracts (406) 994-2381
Intellectual Property Management (406) 994-2752
Technology Transfer (406) 994-6687
Fax (406) 994-2893
Internet AVRDO@MSU.OSCS.MONTANA.EDU



November 8, 1995

Mr. D. Blain Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Subject: **Decommissioning Funding Plan for NRC License 25-00326-06**

Dear Dr. Spitzberg:

Enclosed please find Montana State University's proposed Decommissioning Funding Plan. Though we are reasonably certain that the Plan is not yet in its finalized form (pending NRC review), we are confident that this submittal addresses the majority of the requirements expressed in the decommissioning literature.

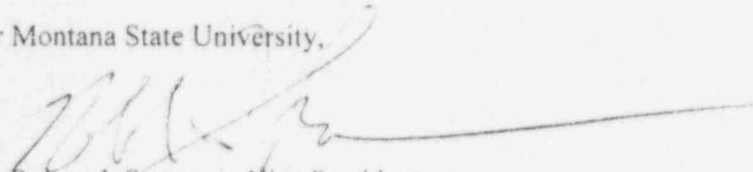
The Decommissioning Funding Plan is broken down into three primary sections:

- 1) The University's Statement of Intent, along with documentation supporting that financial assurance instrument.
- 2) The University's Response to NRC Recommendations proposed in the correspondence dated May 23, 1995.
- 3) Appendices in support of the Response to NRC Recommendations.

As we progressed through this exercise, we became apprehensive with regard to the conservative criteria maintained throughout the decommissioning guidelines. Many of the assumptions expressed therein do not accurately correspond to our operations. We have made an earnest effort here to provide sufficient financial assurance. However, we also felt it necessary to outline a course of action that is anchored in tangible scenarios.

Montana State University will certainly continue to work with NRC to further refine what remains of our decommissioning obligations. In that regard, please feel free to contact the University anytime with your questions or comments on this issue.

For Montana State University,


Dr. Robert J. Swenson, Vice President
Research, Creativity and Technology Transfer

Decommissioning Funding Plan



Montana State University
Bozeman, MT 59717-0246

November 1995

3-ring binder in safe.

**Safety and Risk Management**

Radiation Safety Office
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~~DPB~~ 10/31/95 → Christi

FAX TRANSMITTAL

October 30, 1995

(1 page)

Mr. D. Blain Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064
Fax: (817) 860-8263

Subject: **Decommissioning Funding Plan for NRC License 25-00326-06**

Dear Dr. Spitzberg:

Last Thursday I received a Statement of Intent from the State of Montana's Commissioner for Higher Education. The SOI gives assurance that \$3,991,200 will be available for the decommissioning of those University facilities associated with the use of licensed nuclear materials. A copy of the relevant authority is also in my possession.

I am presently awaiting the arrival of documents from the Department of State Lands - Abandoned Mines Program regarding the Red Bluff mine. There is supposedly some sampling data (work done just prior to the closure) that will be included with those documents.

As I mentioned to Ms. Hernandez, the DFP submittal for MSU is still day-to-day. However, I will continue to keep you informed of our progress.

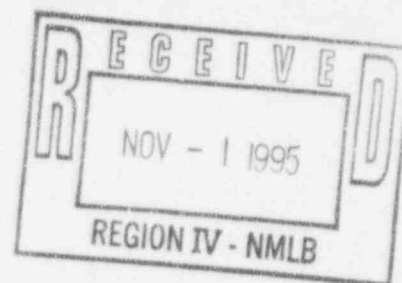
Sincerely,

A handwritten signature in cursive script, appearing to read "S. Erick Lindstrom".

S. Erick Lindstrom
Radiation Safety Officer
Montana State University

**Safety and Risk Management**

Radiation Safety Office
309 Montana Hall
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**FAX TRANSMITTAL**

October 18, 1995

(3 pages)

Mr. D. Blain Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064
Fax: (817) 860-8263

Subject: **Decommissioning Funding Plan for NRC License 25-00326-06**

Dear Dr. Spitzberg:

Montana State University's Vice President for Administration and Finance is today presenting to Montana's Commissioner for Higher Education a request to earmark decommissioning funds at a level of four million dollars. Though I can't say for sure how this will be reviewed by that individual, I'm cautiously optimistic that it will be accepted. We are also proposing that yearly adjustments will follow the Consumer Price Index.

We reached the four million dollar figure by applying Appendix A of NUREG/CR-1754 Addendum 1 to those facilities in which radioactive materials are used or stored. I will say here that MSU's previous submittal grossly underestimated the facilities involved. We are not, however, designing a scheme using Appendix B to support the planning and preparation phase of the decommissioning. We will propose the following (although probably in more detail):

- 1) MSU's radioactive materials license application (and therefore a license "condition") specifies that radiation and contamination surveys are to be conducted on a monthly basis (in all use and storage areas). Tied to that specification are action levels at which decontamination procedures will be implemented should contamination be present. The action level for removable contamination of beta and gamma emitting radioisotopes currently stands at 200 dpm/100 cm². The alpha action level stands at 20 dpm/100 cm². In the case of fixed contamination, the contaminated item will be removed and packaged for waste (or shielded and earmarked for waste disposal when appropriate).

The conservative assumptions presented in Appendix B (and Appendix A as well) comprehensively suggest that all facilities and equipment are grossly contaminated. How

can that assumption be promulgated in the view of the requirements contained in the license proper? NRC also uses the inspection process to ensure that license obligations are being adhered to (in two-year cycles). Therein, how are we to conclude that such wide-spread contamination could ever establish itself (particularly in a proactive environment where even minimal contamination will not be tolerated)? MSU would be in gross violation of its license!


It is my responsibility to prove, on a daily basis, that the facilities we operate are radiologically safe (per Federal standards). I am also responsible for maintaining large volumes of records supporting this for regulatory perusal. We submit to NRC that our day-to-day operations unequivocally preclude the scenario suggested by the guidelines given in the decommissioning paraphernalia.

- 2) In support of (i) above, MSU wants to make clear to NRC that substantial monetary resources are directed toward averting the full-blown decommissioning scenario. Startup costs for this program last year came in at approximately \$180,000. We are presently funding the radiation safety program at a cost (salaries and support) of nearly \$85,000 per year. That figure does not include waste disposal, which is usually on the order of \$12,000 to \$15,000 annually.
- 3) Appendix B of NUREG/CR-1754 (Addendum 1) suggests that the costs of planning and preparation (for a "Reference Institutional User Laboratory") would be in the range of \$60,000 to \$70,000. Given the fact that MSU has approximately 50 laboratories that fall under the reference description, our planning and preparation costs would apparently exceed \$3,000,000! However, the majority of these laboratories have very similar physical characteristics. If we were to plan and prepare one laboratory for decommissioning, could we not apply this work as a template for the other laboratories? This recognizes, of course, that there are subtle differences between each laboratory. However, we feel that these subtleties would not constitute much in the way of additional cost.
- 4) Our operations are not in the "business" of manufacturing radiolabeled substances. Montana State University operates a moderate number of teaching and research laboratories where radioactive materials may frequently be used. All come under Type C classification given in the IAEA Safety Standards "Safe Handling of Radionuclides, 1973 Edition" (i.e., good quality general chemical procedures - posted with "Caution - Radioactive Materials"). Each lab, in general, contains at least one fume hood and a variety emergency shower/eyewash stations. The University would not want to characterize any of these use areas as "specially designed radioisotope laboratories" (i.e., Type B) because of the ambiguity that exists between the two (e.g., when considering ventilation and fume hood operation, and the use of easily cleaned non-absorbent surfaces). Typical processes utilize sub-millicurie quantities of radioisotopes (in biomedical related research).

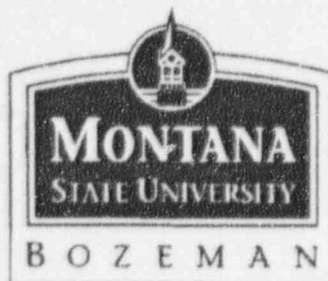
- 5) We have determined that the only process by which gross contamination of facilities could exist would be a through situations in which direct sabotage or terrorism were involved. This type of situation would not be the result of "licensed activities." However, MSU would furnish resources to decontaminate all facilities involved (in the obvious interests of public health and safety and the University's standing in the community).

I have been asked by the MSU administration to argue these points with NRC. I would very much appreciate some feedback from NRC regarding their interpretation of what we are proposing here, and whether the rationale presented herein will be acceptable. I am certain that our responses to the other areas of concern will be properly addressed in the formally submitted DFP.

Sincerely,



S. Erick Lindstrom
Radiation Safety Officer
Montana State University

**Safety and Risk Management**

Radiation Safety Office
309 Montana Hall
Montana State University
Bozeman, MT 59717
Phone: (406) 994-2108
Fax: (406) 994-4792
AVREL@gemini.oscs.montana.edu

FAX TRANSMITTAL

September 28, 1995

(2 pages)

Mr. D. Blain Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064
Fax: (817) 860-8263

Subject: **Decommissioning Funding Plan for NRC License 25-00326-06**

Dear Dr. Spitzberg:

I am afraid that I'm facing some delays in finishing the DFP for Montana State University. Although the 90 day extension you granted was quite generous, I am not going to have the DFP completed by the thirtieth. Following are some of the impediments that I have faced over the last three months:

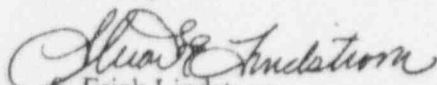
- 1) Just after we received the extension, my student assistant left for summer work at a ranch near West Yellowstone. Needless to say, this put me out in the "field" more often than behind my desk.
- 2) Summer demolition of an old research building turned up a drum of 11e.2 material, and I've been grappling with NRC and DOE folks on getting a disposal variance (and some sort of declaration of the "pedigree" of the material). The material has been well analyzed, and we know precisely what it consists of. However, there are the legal "catch 22s" to deal with.
- 3) In the process of putting together a bid for waste disposal, I learned that the State of Montana does not meet the indemnification limits required by the State of Washington with regards to waste certification. I've been hard at work with MSU's legal counsel and the Washington State Attorney's Office in establishing some sort of resolution.

These problems have taken up a great deal of my time, however, much work has been done on the DFP. I've got the majority of the details worked out on the cost estimating (I believe we will come in around 1.5 million), as well as a wealth of information regarding the Red Bluff mine. We have

hit a bottleneck in deciding who will sign the DFP (either the Commissioner of Higher Education or MSU's VP for Administration), but this is being pursued by MSU's Treasurer.

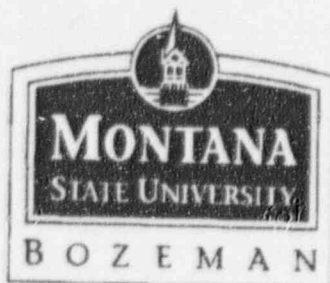
In closing, I can't say precisely when the DFP will be presented to NRC because we are waiting on other parties to deliver information. If we can get the signature thing figured out we should be done in a matter of days.

Sincerely,



S. Erick Lindstrom
Radiation Safety Officer
Montana State University

P.S. Could you send me a copy of the original NUREG/CR-1754 (1981)? I only received the Addendum (1) which references certain items in the original. I want to be sure that we don't leave anything out.

**Safety and Risk Management**

Radiation Safety Office
309 Montana Hall
Montana State University
Bozeman, MT 59717
Phone: (406) 994-2108
Fax: (406) 994-4792
AVREL@gemini.oscs.montana.edu

→ *McN*

FAX TRANSMITTAL

(2 pages)

June 20, 1995

Mr. D. Blain Spitzberg, Ph.D., Chief
Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064
Fax: (817) 860-8263

Subject: **Decommissioning Funding Plan for NRC License 25-06326-06**

Dear Dr. Spitzberg:

On behalf of Montana State University, I am requesting an extension for the submittal of the University's Decommissioning Funding Plan. I have established a preliminary outline/draft using the appropriate criteria, however, numerous components of the Plan require joint cooperative evaluations undertaken by myself and the following departments/individuals:

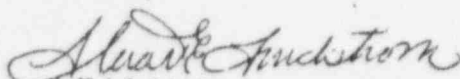
- MSU - Administration (Business and Research)
- MSU - Legal Counsel
- MSU - Architects/Engineers
- MSU - College of Agriculture
- MSU - College of Arts and Sciences
- MSU - Facilities Services (Project Estimators, Plumbers, Carpenters, etc.,)
- State of Montana - Department of Administration
- State of Montana - Legislative Budget Committee
- State of Montana - Legislative Fiscal Analyst
- State of Montana - Board of Regents
- State of Montana - Commissioner of Higher Education
- State of Montana - Department of Health and Environmental Sciences (Solid Waste Management Bureau)
- State of Montana - Department of State Lands (Abandoned Mines Program)

It is not certain if all of the above mentioned entities will be involved, although each has (in the past) been connected with some aspect of the University's operations relating to the use and disposal of licensed material.

In view of the layers of commitment associated with this endeavor, I cannot assume to have the Plan completed in less than sixty days (from today). Realizing NRC's position in this affair, however, I would certainly be agreeable to providing you with situation reports regarding the status of the Plan as we proceed.

I respectfully appreciate your consideration of this request. If you should have any questions or comments regarding this correspondence, please feel free to contact me at the numbers or addresses shown above.

Sincerely,



S. Erick Lindstrom
Radiation Safety Officer
Montana State University

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 01100
STATUS CODE: 0
FEE CATEGORY: EX 3L 1D
EXP. DATE: 20000331
FEE COMMENTS: 170.11(A)(4)
DECOM FIN ASSUR REQ: Y

LICENSE FEE TRANSMITTAL

A. REGION IV

1. APPLICATION ATTACHED

APPLICANT/LICENSEE: MONTANA STATE UNIVERSITY
RECEIVED DATE: 9/1/95
DOCKET NO: 3000871
CONTROL NO: 425881
LICENSE NO: 25-00325-06
ACTION TYPE: FIN. ASSURANCE

2. FEE ATTACHED

AMOUNT: 4
CHECK NO.: 4

3. COMMENTS

SIGNED
DATE

Billie Myszynski
11/6/95

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED ☒)

1. FEE CATEGORY AND AMOUNT: EX 3L 1D

2. CORRECT FEE PAID, APPLICATION MAY BE PROCESSED FOR

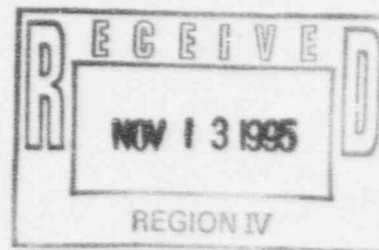
FEE EXEMPT
170.11(A)(4)

AMENDMENT
RENEWAL
LICENSE

3. OTHER

SIGNED
DATE

Rita Messier
11/9/95



RECEIVED BY LFMS	
Date	<u>11/8/95</u>
Ldg	<u>Nov 1</u>
By	<u>Kern</u>
Date Completed	<u>11/9/95</u>

Radiological Safety
Chemistry Department
Montana State University
Bozeman, MT 59717

May 13, 1993

U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

Dear Sirs,

In reply to Ms. Vivian Campbell's letter of April 2, 1993

References	License Number 25-00326-06
	Docket Number 030-00871
	Control Number 462629

We have been requested to submit a "decommissioning cost estimate". Our current estimate of the decommissioning cost is \$75,000 as shown below. This is in essential agreement with earlier estimates approved by the Radiation Sources Committee, but we have now taken the time to fill out the table in appendix F of Regulatory Guide 3.66.

The principal costs of decommissioning the work at Montana State University under license number 25-00326-06 will be for waste disposal. Here, the most significant costs are likely to be connected with our sealed sources. It is possible that some of these sealed sources will have residual value at the time of decommissioning, and that this would meet some of the cost for disposal of the others. But as the decommissioning is not anticipated in the near future, the safest assumption is that all of them must be shipped to a high level waste disposal facility which will presumably be established by that time. We have seven large sealed sources including Pu-Be sources totalling 6 Curies. We are estimating \$3000 for the disposal of each of these large sealed sources, and \$500 each for about 20 smaller sealed sources such as 100 mCi Am-Be soil moisture probes. Thus the total for sealed source disposal is $7 \times 3000 + 10000 = \31000 .

The full budget arranged into the six categories of Appendix F of Regulatory Guide 3.66 are:

1. Planning and preparation	0.00
-----------------------------	------



465881
~~464900~~

This will have to be covered long before decommissioning, and is an ongoing expense, as the cost estimate must be kept up to date. Thus it is an expense item in the operation of the Radiation Safety Program instead of an item in the decommissioning cost.

2. Decontamination and/or dismantling of radioactive facility components. 19600.00

We may have contaminated fume hoods, but these are not expected to involve radioisotopes with half lives in excess of 120 days, and the material can be allowed to decay for 10 half lives. While accelerators are not specifically covered under this license, we do have two Van de Graaf accelerators, including a large old one originally from the University of Wisconsin. It is possible that parts of these accelerators will require disposal at the time of decommissioning, and we are budgeting \$10000 for this purpose.

Decontamination and checking of buildings can be accomplished by a two man team, possibly a radiological safety officer and an hourly laborer. The totals in this area from appendix F are \$8400 salary and benefits plus \$1200 for supplies. This brings the category 2 total to \$19600.

3. Packaging, shipping, and disposal of radioactive waste. 54000.00

This item includes 31000 for disposal of sealed sources as described above, and 23000 for disposal of low level solid waste based upon the assumption that shipments on decommissioning would amount to somewhat more than the normal yearly shipments from the university. The figures shown in part 3 of the appendix F form total to \$22400. The Pu and Am sources which would be higher than class C waste and are not suitable for near surface burial will presumably require a high level waste depository which we assume will be operational before decommissioning is required.

4. Restoration of contaminated areas on facility ground 0.00

There are no such contaminated areas at present.

5. Final radiation survey 1400.00

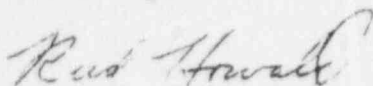
The figures in the appendix F form come out to \$900 in this area. We have chosen to add an extra \$600 for contingencies to make the value agree with our April 1992 estimate. We have added one supervisor and one hourly employee as estimated above in item 3 for one week's work on building decontamination.

6. Site stabilization and long term surveillance 0.00

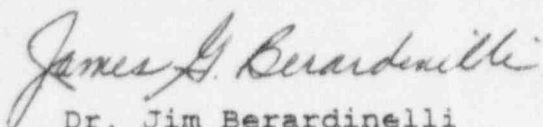
On decommissioning oversight of the burial site at the Red Bluff experiment station would be transferred to some other representative body of the state of Montana. No other site stabilization or long term surveillance should be required.

Total cost estimate adding items 1 through 6: \$75000.00

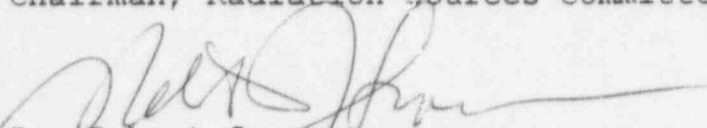
Sincerely,



Dr. Reed Howald
Radiological Safety Officer



Dr. Jim Berardinelli
Chairman, Radiation Sources Committee



Dr. Robert Swenson
Vice President for Research

APPENDIX F
COST ESTIMATING TABLES

1. Planning and Preparation

Table 1

<u>Task</u>	<u>Supervisor</u>	<u>Work Days</u> <u>Foreman</u>	<u>H.P.</u>	<u>Clerical</u>	<u>Total</u>	<u>Total</u> <u>Cost</u>
1. Preparation of Documentation for Regulatory Agencies	_____	_____	_____	_____	_____	_____
2. Submittal of Decommissioning Plan to NRC when required by 10 CFR 30.36(c)(2), 40.42(c)(2), or 70.38(c)(2)*	_____	_____	_____	_____	_____	_____
3. Development of Work Plans	_____	_____	_____	_____	_____	_____
4. Procuring of Special Equipment	_____	_____	_____	_____	_____	_____
5. Staff Training	_____	_____	_____	_____	_____	_____
6. Characterization of Radiological Condition of the Facility (Including soil and tailings analysis or ground-water analysis, if applicable)	_____	_____	_____	_____	_____	_____
7. Other	_____	_____	_____	_____	_____	_____
8. Total	_____	_____	_____	_____	_____	_____

* For assistance in preparation of cost estimate for 10 CFR Part 72, consult NRC Office of Nuclear Material Safety and Safeguards.

APPENDIX F (Continued)
COST ESTIMATING TABLES

Table 2

<u>Position</u>	<u>Unit Cost for Workers</u>		<u>Worker Cost/year</u>
	<u>Basic Salaries (\$/yr)</u>	<u>Overhead Rate (%)</u>	
Supervisor	40,000	24%	49,600
Foreman			
Craftsman			
Technician	20,000		
Health Physicist		24%	24,800
Laborer			
Clerical			
Other			

2. Decontamination and/or Dismantling of Radioactive Facility Components*

	<u>No.</u>	<u>Dimensions</u>		<u>No.</u>	<u>Dimensions</u>
Glove Boxes	0	0 (m ³)	Amount of Floor Space	20	300 (m ²)
Fume Hood	6	6 (m ³)	Ventilation Ductwork	6	500 (m)
Hot Cells	0	0 (m ³)	Amount of Wall Space	20	300 (m ²)
Lab Benches	60	500 (m)	Other		
Sink and Drain	30	300 (m)			

Table 3

Work Days

<u>Task</u>	<u>Super- visor</u>	<u>Fore- man</u>	<u>Tech- nicians</u>	<u>H.P.</u>	<u>Crafts- men</u>	<u>La- borer</u>	<u>Total</u>	<u>Total Cost</u>
1. Decon/Dis- mantle Major Components and/or Proc- essing and Storage Tanks	5		5				10	1488
2. Decon/Dis- mantle Laboratories, Fume Hoods, Glove Boxes, Benches, etc.	15		25					2480

*Indicate whether component is to be decontaminated to unrestricted release levels or packaged and disposed of at a low-level waste site.

APPENDIX F (Continued)
COST ESTIMATING TABLES

Table 3 (continued)

Task	Work Days						Total	Total Cost
	Super- visor	Fore- man	Tech- nicians	H.P.	Crafts- men	La- bore		
3. Decon/Dis- mantle Waste Areas	<u>4</u>	<u> </u>	<u>5</u>	<u> </u>	<u> </u>	<u> </u>	<u>9</u>	<u>1290</u>
- Radwaste Areas								
- Scrap Recovery Areas								
- Other								
4. Decon/Dis- mantle Service Facilities	<u>5</u>	<u> </u>	<u>5</u>	<u> </u>	<u> </u>	<u> </u>	<u>10</u>	<u>1488</u>
- Maintenance Shop								
- Decontamination Areas								
- Ventilation Systems								
- Other								
5. Decon/Dis- mantle Waste Treatment Facilities and Storage Areas on the Site (Including exhum and package contaminated soil and tail- ings, if any)	<u>2</u>	<u> </u>	<u>2</u>	<u> </u>	<u> </u>	<u> </u>	<u>4</u>	<u>600</u>
- Fluoride Lagoons								
- Nitrate Lagoons								
- CaF ₂ Waste Recovery								
- Ground Water Restoration								
- Other								

APPENDIX F (Continued)
COST ESTIMATING TABLES

Table 3 (continued)

Task	Work Days						Total Cost
	Super- visor	Fore- man	Tech- nicians	H.P.	Crafts- men	La- borer	
6. Monitor for compliance, reclean and remonitor, if necessary	<u>2</u>	<u> </u>	<u>5</u>	<u> </u>	<u> </u>	<u> </u>	<u>896</u>
7. Other (e.g., contractor fees)	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Table 4

Equipment/Supply	Quantity	Cost
Miscellaneous	<u> </u>	<u>1,200</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

3. Packaging, Shipping, and Disposal of Radioactive Wastes

Table 5

Waste Type	Volume (m ³)	No. of Containers	Type of Containers	Unit Cost of Container	Cost of Container
A	<u>4</u>	<u>20</u>	<u>drums</u>	<u>65</u>	<u>1,300</u>
B	<u>.4</u>	<u>2</u>	<u>"</u>	<u>65</u>	<u>130</u>
C	<u>.2</u>	<u>1</u>	<u>"</u>	<u> </u>	<u>70</u>
Total	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>1,500</u>

Table 6

Distance Shipped			<u>700</u>	(miles)	
Unit cost for shipment			<u>3.00</u>	(\$/mile/truckload)	
Additional charges					
Overweight			<u>0</u>	(\$/mile)	
Surcharges			<u>0</u>	(\$/mile)	
Waste Type	No. of Shipments	Unit Cost for Shipping	Distance Shipped	Surcharge	Transportation Cost
A	<u>.7</u>	<u>2100</u>	<u>700</u>	<u>0</u>	<u>2100</u>
B	<u>.1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
C	<u>.1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Total	<u>1</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

APPENDIX F (Continued)
COST ESTIMATING TABLES

Table 7

Burial Charges	4,000	(\$/m ³)
Surcharges		
Per container		(\$)
Disposal		(\$/m ³)

<u>Waste Type</u>	<u>Burial Volume</u>	<u>Unit Cost of Burial</u>	<u>Surcharge</u>	<u>Burial Cost</u>
A	4	16,000	0	16,000
B	.4	1,600	200	1,800
C	.2	800	200	1,000
<u>Total</u>				

4. Restoration of Contaminated Areas on Facility Ground

Table 8

<u>Task</u>	<u>Supervisor</u>	<u>Work Days</u>		<u>Clerical</u>	<u>Total</u>	<u>Total Cost</u>
		<u>Foreman</u>	<u>H.P.</u>			
Backfill and Restore Site					0	0

5. Final Radiation Survey

Table 9

<u>Task</u>	<u>Supervisor</u>	<u>Work Days</u>		<u>Clerical</u>	<u>Total</u>	<u>Total Cost</u>
		<u>Foreman</u>	<u>H.P.</u>			
	3		3		6	900
<u>Total</u>						

APPENDIX F (Continued)
COST ESTIMATING TABLES

6. Site Stabilization, Long-Term Surveillance (if applicable)

Table 10

<u>Task</u>	<u>Supervisor</u>	<u>Work Days</u>		<u>Clerical</u>	<u>Total</u>	<u>Total Cost</u>
		<u>Foreman</u>	<u>H.P.</u>			
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

