EGG-HS-6294
Revision 3

CONTROL OF HEAVY LOADS AT NUCLEAR POWER PLANTS
FORT ST. VRAIN NUCLEAR GENERATING STATION
PHASE I

Docket No. 50-267

Author
T. H. Stickley

Principal Technical Investigator
T. H. Stickley

Published May 1983
Revised November 1983
Revised January 1984

EG&G Idaho, Inc.
Idaho Falls, Idaho 83415

Prepared for the
U.S. Nuclear Regulatory Commission
Under DOE Contract No. DE-AC07-76ID01570
FIN No. A6457

ABSTRACT

The Nuclear Regulatory Commission (NRC) has requested that all nuclear plants either operating or under construction submit a response of compliancy with NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." EG&G Idaho, Inc., has contracted with the NRC to evaluate the responses of those plants presently under construction. This report contains EG&G's evaluation and recommendations for Fort St. Vrain Nuclear Generating Station (FSVNGS).

EXECUTIVE SUMMARY

Fort St. Vrain Nuclear Generating Station (FSVNGS) is consistent with 5.1.1 of NUREG-0612.

CONTENTS

TABLES

CONTROL OF HEAVY LOADS AT NUCLEAR POWER PLANTS
FORT ST. VRAIN NUCLEAR GENERATING STATION
(PHASE I)

1. INTRODUCTION

1.1 Purpose of Review

This technical evaluation report documents the EG&G Idaho, Inc., review of general load-handling policy and procedures at Fort St. Vrain Nuclear Generating Station (FSVNGS). This evaluation was performed with the objective of assessing conformance to the general load-handling guidelines of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants" [1], Section 5.1.1.

1.2 Generic Background

Generic Technical Activity Task A-36 was established by the U.S. Nuclear Regulatory Commission (NRC) staff to systematically examine staff licensing criteria and the adequacy of measures in effect at operating nuclear power plants to assure the safe handling of heavy loads and to recommend necessary changes to these measures. This activity was initiated by a letter issued by the NRC staff on May 17, 1978 [2] to all power reactor licensees, requesting information concerning the control of heavy loads near spent fuel.

The results of Task A-36 were reported in NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." The staff's conclusion from this evaluation was that existing measures to control the handling of heavy loads at operating plants, although providing protection from certain potential problems, do not adequately cover the major causes of load-handling accidents and should be upgraded.

In order to upgrade measures for the control of heavy loads, the staff developed a series of guidelines designed to achieve a two-phase

objective using an accepted approach or protection philosophy. The first portion of the objective, achieved through a set of general guidelines identified in NUREG-0612, Article 5.1.1, is to ensure that all load-handling systems at nuclear power plants are designed and operated such that their probability of failure is uniformly small and appropriate for the critical tasks in which they are employed. The second portion of the staff's objective, achieved through guidelines identified in NUREG-0612, Articles 5.1.2 through 5.1.5, is to ensure that, for load-handling systems in areas where their failure might result in significant consequences, either (a) features are provided, in addition to those required for all load-handling systems, to ensure that the potential for a load drop is extremely small (e.g., a single-failure-proof crane) or (b) conservative evaluations of load-handling accidents indicate that the potential consequences of any load drop are acceptably small. Acceptability of accident consequences is quantified in NUREG-0612 into four accident analysis evaluation criteria.

The approach used to develop the staff guidelines for minimizing the potential for a load drop was based on defense in depth and is summarized as follows:

- Provide sufficient operator training, handling system design, load-handling instructions, and equipment inspection to assure reliable operation of the handling system

- Define safe load travel paths through procedures and operator training so that, to the extent practical, heavy loads are not carried over or near irradiated fuel or safe shutdown equipment

- Provide mechanical stops or electrical interlocks to prevent movement of heavy loads over irradiated fuel or in proximity to equipment associated with redundant shutdown paths.

Staff guidelines resulting from the foregoing are tabulated in Section 5 of NUREG-0612.

1.3 Plant-Specific Background

On December 22, 1980, the NRC issued a letter [3] to the Public Service Company of Colorado (PSC), the Licensee for FSVNGS, requesting that the Licensee review provisions for handling and control of heavy loads at FSVNGS, evaluate these provisions with respect to the guidelines of NUREG-0612, and provide certain additional information to be used for an independent determination of conformance to these guidelines. On September 16, 1981, PSC provided the initial response [4] to this request. Compliance with Interim Protection Measures was discussed in a letter of September 10, 1982 [4b]. In response to a conference call on September 8, 1982, PSC provided a submittal [4c] dated December 29, 1982. Some revisions to the December 29, 1982, submittal were sent on January 14, 1983 [4d].

2. EVALUATION AND RECOMMENDATIONS

2.1 Overview

The following sections summarize PSC's review of heavy load handling at FSVNGS accompanied by EG&G's evaluation, conclusions, and recommendations to the Licensee for bringing the facilities more completely into compliance with the intent of NUREG-0612. The Licensee has not indicated the weight of a heavy load for this facility (as defined in NUREG-0612, Article 1.2). The submittal can be interpreted to say that the "Heavy Load" is 165.5 tons.

2.2 Heavy Load Overhead Handling Systems

This section reviews the Licensee's list of overhead handling systems which are subject to the criteria of NUREG-0612 and a review of the justification for excluding overhead handling systems from the above mentioned list.

2.2.1 Scope

> "Report the results of your review of plant arrangements to identify all overhead handling systems from which a load drop may result in damage to any system required for plant shutdown or decay heat removal (taking no credit for any interlocks, technical specifications, operating procedures, or detailed structural analysis) and justify the exclusion of any overhead handling system from your list by verifying that there is sufficient physical separation from any load-impact point and any safety-related component to permit a determination by inspection that no heavy load drop can result in damage to any system or component required for plant shutdown or decay heat removal."

A. Summary of Licensee's Statements

"The results of the review of the plant arrangement has identified two handling systems from which a load drop may result in damage to a system required for plant shutdown. The two handling systems are the reactor building crane and the turbine building crane."

"The crane in the turbine building can be excluded from the list of potentially hazardous cranes with respect to load drops since it does not have the requirement nor the capability to carry a heavy load as defined in NUREG-0612. Loads such as parts from a turbine overhaul that have considerable weight, but not classified as a heavy load, would not be carried by the turbine building crane when the plant was operating."

B. EG&G Evaluation

EG&G concurs with the licensee's statements that the reactor building crane is the only crane required to comply with NUREG-0612.

C. EG&G Conclusions and Recommendations

Based on the information provided, EG&G concludes that the Licensee has included all applicable hoists and cranes in their list of handling systems which must comply with the requirements of the general guidelines of NUREG-0612.

2.3 General Guidelines

This section addresses the extent to which the applicable handling systems comply with the general guidelines of NUREG-0612, Article 5.1.1. EG&G's conclusions and recommendations are provided in summaries for each guideline.

The NRC has established seven general guidelines which must be met in order to provide the defense-in-depth approach for the handling of heavy loads. These guidelines consist of the following criteria from Section 5.1.1 of NUREG-0612:

- Guideline 1--Safe Load Paths
- Guideline 2--Load Handling Procedures
- Guideline 3--Crane Operator Training
- Guideline 4--Special Lifting Devices
- Guideline 5--Lifting Devices (not specially designed)
- Guideline 6--Cranes (Inspection, Testing, and Maintenance)
- Guideline 7--Crane Design.

These seven guidelines should be satisfied for all overhead handling systems and programs in order to handle heavy loads in the vicinity of the reactor vessel, near spent fuel in the spent-fuel pool, or in other areas where a load drop may damage safe shutdown systems. The succeeding paragraphs address the guidelines individually.

2.3.1 Safe Load Paths [Guideline 1, NUREG-0612, Article 5.1.1(1)]

"Safe load paths should be defined for the movement of heavy loads to minimize the potential for heavy loads, if dropped, to impact irradiated fuel in the reactor vessel and in the spent-fuel pool, or to impact safe shutdown equipment. The path should follow, to the extent practical, structural floor members, beams, etc., such that if the load is dropped, the structure is more likely to withstand the impact. These load paths should be defined in procedures, shown on equipment layout drawings, and clearly marked on the floor in the area where the load is to be handled. Deviations from defined load paths should require written alternative procedures approved by the plant safety review committee."

A. Summary of Licensee's Statements

"During plant operation, the area above the prestressed concrete reactor vessel (PCRV) is restricted from travel by the reactor building crane with a load. This is the only restriction on the travel of the reactor building crane. This restriction is in the form of administratively controlled procedures. Since this critical area is restricted, PSC feels that there is no need for the marking of safe load paths."

"The design of the refueling floor is such that there is no safety-related equipment in the vicinity of the Reactor Building Crane. The design of the lifting devices, which connect the fuel-handling machine to the Reactor Building Crane, is such that there is a large factor of safety (greater than 6) built into the design. Additionally, the lifting cable has a backup snubber system which, in the unlikely event of a cable break, would become engaged, thus preventing a heavy load drop."

"The crane snubber device limits the vertical travel to 14 inches, thereby holding the potential drop distance to a minimum. Because of these reasons, PSC is of the opinion that Guideline 1 has been satisfied and no further action is required."

B. EG&G Evaluation

The information provided in [4]. [4c], and [4d] adequately addresses the concerns of Guideline 1 of NUREG-0612, and is an acceptable deviation from the guideline. Therefore marking of safe load paths is not necessary.

C. EG&G Conclusions and Recommendations

Based upon the information supplied in [4], [4c], and [4d], EG&G Idaho considers FSVNGS to be consistent with the intent of Guideline 1 of NUREG 0612.

2.3.2 Load-Handling Procedures [Guideline 2, NUREG-0612. Article 5.1.1(2)]

"Procedures should be developed to cover load-handling operations for heavy loads that are or could be handled over or in proximity to irradiated fuel or safe shutdown equipment. At a minimum, procedures should cover handling of those loads listed in Table 3.1-1 of NUREG-0612. These procedures should include: identification of required equipment; inspections and acceptance criteria required before movement of load; the steps and proper sequence to be followed in handling the load; defining the safe path; and other special precautions."

A. Summary of Licensee's Statements

"Personnel operating the reactor building crane are required by written approved procedures not to allow any movement of the crane over the PCRV at any time, except during refueling. The crane operators are required to follow PSC's Crane Operating Procedure Manual in which these procedures of crane operation are spelled out. These procedures are reviewed each refueling with the Fuel Handling People. Administrative controls, as defined in the Technical Specifications, Section 7.4.2, would be followed to deviate from these procedures.

"As defined in the NUREG-0612, PSC has only one heavy load that is handled by the reactor building crane. The total weight of the heavy load is 165 5 tons. This is the weight of the fuel handling machine plus the weight of a fuel element. The designated lifting device is the reactor building crane. The operation of the crane when engaging the fuel handling machine is governed by PSC's Fuel Handling Procedure and by PSC's Crane Operating Procedure. These procedures contain the information required in NUREG-0612, Section 5.1.1(2)."

B. EG&G Evaluation

PSC has generated procedures to comply control the operation of the reactor building crane. The procedures are reviewed with the Fuel Handling people at each refueling. Supervisory level personnel, or above, are required to approve procedural changes.

C. EG&G Conclusions and Recommendations

Based on the information supplied in [4], [4c], and [4d], EG&G concludes that FSVNGS is consistent with the intent of Guideline 2.

2.3.3 Crane Operator Training [Guideline 3, NUREG-0612, Article 5.1.1(3)]

"Crane operators should be trained, qualified, and conduct themselves in accordance with Chapter 2-3 of ANSI B30.2-1976, 'Overhead and Gantry Cranes' [5]."

A. Summary of Licensee's Statements

"There are no exceptions taken to ANSI B30.2-1976 with respect to operator training, qualification, and conduct."

B. EG&G Evaluation

EG&G assumes that the statement in 2.3.3A constitutes a commitment to comply with Chapter 2-3 of ANSI B30.2-1976.

C. EG&G Conclusion and Recommendations

FSVNGS is consistent with Guideline 3.

2.3.4 Special Lifting Devices [Guideline 4, NUREG-0512, Article 5.1.1(4)]

"Special lifting devices should satisfy the guidelines of ANSI N14.6-1978, 'Standard for Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or More for Nuclear Materials' [6]. This standard should apply to all special lifting devices which carry heavy loads in areas as defined above. For operating plants, certain inspections and load tests may be accepted in lieu of certain material requirements in the standard. In addition, the stress design factor stated in Section 3.2.1.1 of ANSI N14.6 should be based on the combined maximum static and dynamic loads that could be imparted on the handling device based on characteristics of the crane which will be used. This is in lieu of the guideline in Section 3.2.1.1 of ANSI N14.6 which bases the stress design factor on only the weight (static load) or the load and of the intervening components of the special handling device."

A. Summary of Licensee's Statements

"Guideline 4 requires special lifting devices to be in compliance with a Modified Version of ANSI N14.6-1978, 'Standard for Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 Kg) or More for Nuclear Materials."

"ANSI N14.6-1978 as modified by NUREG-0612, deals with design, maintenance and inspection of special lifting devices used for handling heavy loads at nuclear facilities. Fort St. Vrain Nuclear Generating Station (FSVNGS) uses such devices only for lifting and positioning of the fuel handling machine. As specified in ANSI N14.6, these devices are, specifically, a pair of shackles which loop over the crane lifting hook and are pin connected to a specially designed lifting 'mushroom'. The design of the mushroom is such that it affords positive mating to the upper head of the fuel handling machine. A light and switch assembly indicates positive connection of the special lifting devices to the fuel handling machine."

"The fuel handling machine's lifting device was designed and fabricated in the late 1960's prior to the issuance of ANSI N14.6-1978. It is PSC's position that the mushroom and shackle assemblies will meet the ANSI-N14.6-1978 specification for any current operation, maintenance, and testing of the lifting device."

"The shackles and the mushroom were analyzed and have factors of safety that exceed the requirements of ANSI N14.6-1978."

"Snubbers limit any load lift to a maximum of 14 inches."

B. EG&G Evaluation

The response [4c], [4d] addresses compliance with the design and construction requirements of Guideline 4.

ANSI N14.6-1978 is not intended to be applied specifically to the type of device which has been designed to handle the fuel handling machine. However, the general principles outlined in that standard have been applied to this device. Further, PSC states that the mushroom and tackle assemblies meet the ANSI N14.6-1978 specification for any current operation, maintenance, and testing of the lifting device.

C. EG&G Conclusions and Recommendations

FSVNGS is consistent with the intent of Guideline 4.

2.3.5 Lifting Devices (Not Specially Designed) [Guideline 5, NUREG-0612, Article 5.1.1(5)]

"Lifting devices that are not specially designed should be installed and used in accordance with the guidelines of ANSI B30.9-1971, 'Slings' [7]. However, in selecting the proper sling, the load used should be the sum of the static and maximum dynamic load. The rating identified on the sling should be in terms of the 'static load' which produces the maximum static and dynamic load. Where this restricts slings to use on only certain cranes, the slings should be clearly marked as to the cranes with which they may be used."

A. Summary of Licensee's Statements

"According to Section 9-0.1 of ANSI B30.9, this specification applies to slings."

"The operation of the Reactor Building Crane for lifts of heavy loads is limited to the fuel handling machine. Since this operation does not involve the use of slings, PSC is of the opinion that Guideline 5 is not specifically applicable to heavy load operations at Fort St. Vrain Nuclear Generating Station."

B. EG&G Evaluation

PSC takes the position [4c] that slings are not used to lift heavy loads at FSVNGS. Consequently, Guideline 5 is not applicable.

C. EG&G Conclusions and Recommendations

EG&G Idaho concurs that Guideline 5 is not applicable at FSVNGS.

2.3.6 Cranes (Inspection, Testing, and Maintenance) [Guideline 6, NUREG-0612, Article 5.1.1(6)]

"The crane should be inspected, tested, and maintained in accordance with Chapter 2-2 of ANSI B30.2-1976, 'Overhead and Gantry Cranes,' with the exception that tests and inspections should be performed prior to use where it is not practical to

meet the frequencies of ANSI B30.2 for periodic inspection and test, or where frequency of crane use is less than the specified inspection and test frequency (e.g., the polar crane inside a PWR containment may only be used every 12 to 18 months during refueling operations, and is generally not accessible during power operation. ANSI B30.2, however, calls for certain inspections to be performed daily or monthly. For such cranes having limited usage, the inspections, test, and maintenance should be performed prior to their use)."

A. Summary of Licensee's Statements

"ANSI B30.2-1976 has been invoked with respect to crane inspection, testing, and maintenance. These requirements are contained in PSC's Crane Operating Inspection and Maintenance Procedure. All reactor crane operators at Fort St. Vrain are required to follow these procedures. No exceptions are taken to this standard."

B. EG&G Evaluation

PSC has made an unreserved commitment to comply with Chapter 2-2 of ANSI B30.2-1976, without the relief afforded by Guideline 6.

C. EG&G Conclusions and Recommendations

EG&G concludes that FSVNGS is consistent with Guideline 6.

2.3.7 Crane Design [Guideline 7, NUREG-0612, Article 5.1.1(7)]

"The crane should be designed to meet the applicable criteria and guidelines of Chapter 2-1 of ANSI B30.2-1976, 'Overhead and Gantry Cranes,' and of CMAA-70, 'Specifications for Electric Overhead Traveling Cranes' [8]. An alternative to a specification in ANSI B30.2 or CMAA-70 may be accepted in lieu of specific compliance if the intent of the specification is satisfied."

A. Summary of Licensee's Statements

"The crane was originally specified and designed in 1967, to EOCI Spec. #61. In 1972, the crane was reanalyzed and upgraded to conform to CMAA 70 specifications."

B. EG&G Evaluation

The December 14, 1981, submittal (Phase II), Attachment 1, states that the crane was certified to be in compliance with CMAA-70 (1970) by the Whiting Corporation, the manufacturer.

Compliance with Chapter 2-1 of ANSI B30.2-1976 is addressed in [4c] and [4d].

EG&G accepts the statement of compliance with CMAA-70 and ANSI B30.2-1976.

C. EG&G Conclusions and Recommendations

FSVNGS is consistent with the intent of Guideline 7.

2.4 Interim Protection Measures

The NRC staff has established (NUREG-0612, Article 5.3) that six measures should be initiated to provide reasonable assurance that handling of heavy loads will be performed in a safe manner until final implementation of the general guidelines of NUREG-0612, Article 5.1 is complete. Four of these six interim measures consist of general Guideline 1, Safe Load Paths; Guideline 2, Load-Handling Procedures; Guideline 3, Crane Operator Training; and Guideline 6, Cranes (Inspection, Testing, and Maintenance). The two remaining interim measures cover the following criteria:

- Heavy load technical specifications
- Special review for heavy loads handled over the core.

Licensee implementation and evaluation of these interim protection measures are contained in the succeeding paragraphs of this section.

2.4.1 Interim Protection Measure 1--Technical Specifications

"Licenses for all operating reactors not having a single-failure-proof overhead crane in the fuel storage pool area should be revised to include a specification comparable to Standard Technical Specification 3.9.7, 'Crane Travel--Spent Fuel Storage Pool Building,' for PWRs and Standard Technical Specification 3.9.6.2, 'Crane Travel,' for BWRs, to prohibit handling of heavy loads over fuel in the storage pool until implementation of measures which satisfy the guidelines of Section 5.1."

A. Summary of Licensee's Statements

Not addressed by the Licensee.

B. EG&G Evaluation

Since Interim Protection Measure 1 is written to address fuel storage pools, it is not directly applicable to FSVNGS.

C. EG&G Conclusions and Recommendations

EG&G concludes that Interim Protection Measure 1 is not applicable to FSVNGS.

2.4.2 Interim Protection Measures 2, 3, 4, and 5--Administrative Controls

"Procedural or administrative measures [including safe load paths, load-handling procedures, crane operator training, and crane inspection]... can be accomplished in a short time period and need not be delayed for completion of evaluations and modifications to satisfy the guidelines of Section 5.1 of [NUREG-0612]."

A. Summary of Licensee's Statements

Summaries of Licensee's statements are contained in discussions of the respective general guidelines in Sections 2.3.1, 2.3.2, 2.3.3, and 2.3.6, respectively. PCS also addressed these measures in reference [4b].

B. EG&G Evaluations, Conclusions, and Recommendations

FSVNGS is consistent with Interim Protection Measures 2, 3, 4, and 5.

2.4.3 Interim Protection Measure 6--Special Review for Heavy Loads Over the Core

"Special attention should be given to procedures, equipment, and personnel for the handling of heavy loads over the core, such as vessel internals for vessel inspection tools. This special review should include the following for these loads: (a) review of procedures for installation of rigging or lifting devices and movement of the load to assure that sufficient detail is provided and that instructions are clear and concise; (b) visual inspections of load bearing components of cranes, slings, and special lifting devices to identify flaws or deficiencies that could lead to failure of the component; (c) appropriate repair and replacement of defective components; and (d) verify that the crane operators have been properly trained and are familiar with specific procedures used in handling these loads, e.g., hand signals, conduct of operations, and content of procedures."

A. Summary of Licensee's Statements

In Reference [4b], PSC avows compliance with this interim measure.

B. EG&G Evaluation

From a study of all submittals, EG&G Idaho is able to acquire sufficient information to reach a conclusion.

C. EG&G Conclusion

EG&G Idaho concludes that FSVNGS is consistent with Interim Protection Measure 6.

3. CONCLUDING SUMMARY

3.1 Applicable Load-Handling Systems

Based on the information supplied, EG&G concludes that the list of cranes and hoists provided by the Licensee as being subject to the provisions of NUREG-0612 is adequate (see Section 2.2.1).

3.2 Guideline Recommendations

Consistency with the seven NRC guidelines for heavy load handling (Section 2.3) is satisfied at FSVNGS. This conclusion is represented in tabular form as Table 3.1.

Guideline	Recommendation
1. (Section 2.3.1)	a. FSVNGS is consistent with Guideline 1.
2. (Section 2.3.2)	a. FSVNGS is consistent with Guideline 2.
3. (Section 2.3.3)	a. FSVNGS is consistent with Guideline 3.
4. (Section 2.3.4)	a. FSVNGS is consistent with Guideline 4.
5. (Section 2.3.5)	a. Guideline 5 is not applicable to FSVNGS.
6. (Section 2.3.6)	a. FSVNGS is consistent with Guideline 6.
7. (Section 2.3.7)	a. FSVNGS is consistent with Guideline 7.

3.3 Interim Protection

EG&G's evaluation of information provided by the Licensee indicates that the following actions are necessary to ensure that the six NRC staff measures for interim protection at FSVNGS are met:

Interim Measure	Recommendation
Interim Measure No. 1	Not applicable to FSVNGS.
Interim Measures 2, 3, 4, 5, and 6	FSVNGS complies with Interim Protection Measures 2, 3, 4, 5, and 6.

TABLE 3.1. NUREG-0612 COMPLIANCE MATRIX FORT ST. VRAIN NUCLEAR GENERATING STATION

Equipment Designation	Heavy Loads	Weight or Capacity (tons)	Guideline 1 Safe Load Paths	Guideline 2 Procedures	Guideline 3 Crane Operator Training	Guideline 4 Special Lifting Devices	Guideline 5 Slings	Guideline 6 Crane-Test and Inspection	Guideline 7 Crane Design
Reactor Building Crane		200	C	C	C	C	C	C	C
Fuel Handling Machine		165.5							

C = Licensee action complies with NUREG-0612 Guideline.
NC = Licensee action does not comply with NUREG-0612 Guideline.
X = Licensee has proposed revisions/modifications designed to comply with NUREG-0612 Guideline.
I = Insufficient information provided by the Licensee.

-02-

4. REFERENCES

1. NUREG-0612, Control of Heavy Loads at Nuclear Power Plants, NRC.

2. V. Stello, Jr. (NRC), Letter to all licensees. Subject: Request for Additional Information on Control of Heavy Loads Near Spent Fuel, NRC, 17 May 1978.

3. USNRC, Letter to Public Services Company of Colorado. Subject: NRC Request for Additional Information on Control of Heavy Loads Near Spent Fuel, NRC, 22 December 1980.

4. Public Services Company of Colorado, Letter to Darrell G. Eisenhut (NRC). Subject: Control of Heavy Loads dated September 16, 1981. P 81228.

4a. Public Service Company of Colorado, Letter to Darrel G. Eisenhut. Subject: Control of Heavy Loads, P81316. Fort St. Vrain, Unit 1, dated December 14, 1981.

4b. Public Service Company of Colorado, Letter to Darrel G. Eisenhut. Subject: Control of Heavy Loads, P82385. Fort St. Vrain, Unit 1, dated September 10, 1982.

4c. Public Service Company of Colorado, Letter to Robert A. Clark. Subject: NUREG 0612, Control of Heavy Loads, P82561. Fort St. Vrain, Unit 1, dated December 29, 1982.

4d. Public Service Company of Colorado, Letter to Robert A. Clark. Subject: NUREG 0612, Control of Heavy Loads, P83012. Fort St. Vrain, Unit 1, dated January 14, 1983.

5. ANSI B30.2-1976, "Overhead and Gantry Cranes."

6. ANSI N14.6-1978, "Standard for Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or more for Nuclear Materials."

7. ANSI B30.9-1971, "Slings."

8. CMAA-70, "Specifications for Electric Overhead Traveling Cranes."

NRC FORM 335 (11-81)

U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

1. REPORT NUMBER (Assigned by DDC)
EGG-HS-6294

4. TITLE AND SUBTITLE
Control of Heavy Loads at Nuclear Power Plants
Fort St. Vrain Nuclear Generating Station, Phase I
Docket No. 50-267

2. (Leave blank)

3. RECIPIENT'S ACCESSION NO.

7. AUTHOR(S)
T. H. Stickley

5. DATE REPORT COMPLETED
MONTH November YEAR 1983

9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)
EG&G Idaho, Inc.
Idaho Falls, ID 83415

DATE REPORT ISSUED
MONTH January YEAR 1984

6. (Leave blank)

8. (Leave blank)

12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)
Division of Systems Integration
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

10. PROJECT/TASK/WORK UNIT NO.

11. FIN NO.
A6457

13. TYPE OF REPORT

PERIOD COVERED (Inclusive dates)

15. SUPPLEMENTARY NOTES

14. (Leave blank)

16. ABSTRACT (200 words or less)

The Nuclear Regulatory Commission (NRC) has requested that all nuclear plants either operating or under construction submit a response of compliancy with NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." EG&G Idaho, Inc. has contracted with the NRC to evaluate the responses of those plants presently under construction. This report contains EG&G's evaluation and recommendations for Fort St. Vrain Nuclear Generating Station (FSVNGS).

17. KEY WORDS AND DOCUMENT ANALYSIS

17a. DESCRIPTORS

17b. IDENTIFIERS/OPEN-ENDED TERMS

18. AVAILABILITY STATEMENT
Make available only as specifically approved by program office.

19. SECURITY CLASS (This report)
Unclassified

21. NO. OF PAGES

20. SECURITY CLASS (This page)
Unclassified

22. PRICE
$

NRC FORM 335 (11-81)