Stephen A. Byrne
Senior Vice President, Nuclear Operations
803.345.4622

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A SCANA COMPANY

December 23, 2003
RC-03-0254

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Ms. K. R. Cotton

Dear Sir or Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
RESPONSE TO NRC BULLETIN 2002-02
REACTOR PRESSURE VESSEL HEAD AND VESSEL HEAD PENETRATION NOZZLE INSPECTION PROGRAMS

Reference:
1. S. A. Byrne (SCE&G) letter to Document Control Desk (NRC), RC-02-0160, (30 day after start-up) Response to NRC Bulletin 2002-02, September 12, 2002
2. K. R. Cotton (NRC) letter to S. A. Byrne (SCE&G), Virgil C. Summer Nuclear Station, Unit No. 1 - Response to NRC Bulletin 2002-02, "Reactor Pressure Vessel Head and Vessel Head penetration Nozzle Inspection Programs" (TAC No. MB5928), December 23, 2002
3. NRC, February 11, 2003 Order Establishing Interim inspection Requirements for Reactor Vessel Heads at Pressurized Water Reactors (EA-03-009)
4. S. A. Byrne (SCE&G) letter to Document Control Desk (NRC), RC-03-0048, Response to NRC Order, February 28, 2003

The U. S. Nuclear Regulatory Commission (NRC) issued NRC Bulletin 2002-02 to require that pressurized water reactor (PWR) utilities to provide information related to their reactor pressure vessel (RPV) head and vessel head penetration (VHP) nozzle inspection programs. The information was to include a summary discussion of inspection program plans to supplement their required visual inspections with non-visual non-destructive examination (NDE) methods, or justification for reliance on visual examinations as the primary method to detect degradation.

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South Carolina Electric & Gas (SCE&G) Company provided the required response through Reference 1 on September 12, 2002. In this response, SCE&G indicated that it would implement the EPRI Material Reliability Program (MRP) Inspection Plan and comply with its requirements beginning with the conduct of a planned bare metal visual (BMV) inspection during RF-14. SCE&G noted that the MRP Inspection Plan is consistent with the inspection commitments SCE&G made in its responses to Bulletin 2001-01 and Bulletin 2002-01, and is more rigorous.

The NRC stated through Reference 2 on December 23, 2002, that the SCE&G plan to perform a 100-percent BMV inspection during RF-14 would provide reasonable assurance of adequate protection of public health and safety. It was noted that SCE&G was to provide the inspection scope and results within 30 days after plant restart following the inspection of the RPV head and VHP nozzles.

On February 11, 2003, the Nuclear Regulatory Commission (NRC) issued an Order (Reference 3) in accordance with 10 CFR 2.202 that established interim inspection requirements for pressurized water reactor (PWR) vessel heads. Licensees were required by Section V of the Order to submit an answer in accordance with 10 CFR 2.202 within twenty (20) days of date of the Order.

SCE&G provided the required response through Reference 4 on February 28, 2003. In this response, SCE&G indicated that it would comply with the Order and submit the inspection results within 60 days of plant re-start as required.

As the requirements are the same for both responses, SCE&G acting for itself and as agent for South Carolina Public Service Authority, hereby submits the attached in response to these requirements.

Should you have questions, please call Mr. Ronald B. Clary at (803) 345-4757.

I certify under penalty of perjury that the foregoing is true and correct.

12/23/03
Executed on

Stephen A. Byrne

JT/SAB/dr
Attachments (3)

c: N. O. Lorick
N. S. Cams
T. G. Eppink (w/o Attachments)
R. J. White
L. A. Reyes
K. R. Cotton
A. L. Bennett
S. C. Lee
NRC Resident Inspector
K. M. Sutton
NSRC
RTS (C-02-2640, C-03-0447)
File (815.02, 815.07)
DMS (RC-03-0254)

30-Day After Re-start from Refueling Outage 14
Response to NRC regarding February 11, 2003 Order
and
NRC SER issued from VCSNS Refueling Outage 13
(Bulletin 2002-02 "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs")
for
V. C. Summer Nuclear Station

Discussion

VCSNS Engineering personnel conducted an evaluation of video inspection performed between the reactor vessel head insulation and the reactor vessel head. EPRI Report "Visual Examination for Leakage of PWR Reactor Head Penetrations on Top of RPV Head", Revision 1 (TR 1006296) was used as guidance for the evaluation. Attachment II contains comments about the as found conditions of each penetration. Control Rod Drive Mechanism (CRDM) penetration numbers are identified on Attachment III.

The following are general comments on the vessel head inspection video:

Dirt, Debris, and Miscellaneous Comments

1. Insulation collars on several tubes, which are all not specifically identified, were not fully flush with the bottom of the insulation. This is considered a cosmetic item and no corrective action is needed.

2. There were small amounts of debris (dust, dirt, etc.) adjacent to several of the tubes and on the general area of the vessel head. This debris is small in size and is not considered to be a concern. Most of this debris had accumulated on the uphill side of the tubes. None of these accumulations are considered large enough to conceal any boric acid deposits. Most of the debris was blown from the area of the CRDMs during the video inspection.

3. In addition to this small debris, a nail, washer, bolt, and lockwasher were blown from the vicinity of the CRDM. These items are also not a concern because they are very small (cannot cause any damage to the head), the area on the top of the head is encapsulated by the insulation, and there is no airflow in this area to move the objects.

4. No signs of pitting or corrosion were noted on any of the tube surfaces or on the surface material of the vessel head.

Boron Deposition Comments

A close inspection of 360 degrees of each penetration-to-head interface (annulus) was performed to determine if any boron deposits were present that had a "popcorn" or "stalagmite" appearance as described in sections 6.2.2 and 6.2.3 of EPRI Report TR 1006296. No boron deposits were found to be originating from the annulus area.

Traces of boric acid were noted on several of the tubes. The deposits were very thin films of dried boron that originated from above the reactor vessel head insulation and trickled down the tubes. This trickle was noted on 36 of the 65 tubes (or on the insulation at the top of the tube). The majority of the boron did not make it all the way to the surface of the reactor vessel.

The only areas where it did make it to the vessel head were at tubes 27, 47, 51, 55, and 59. The boron was a thin dry film on the tube and on the vessel head surface. All areas on the vessel head were sampled. CRDM #50 was also sampled because of the thickness and it was not identified in RF-13 because of the nature of the video inspection. Chemical analysis showed that all swipes of the residue on the surface of the vessel head dated to greater than two years (Ref. 19). No corrosion was noted on the head surface. A dry film of boron is not considered to be a corrosion threat to carbon steel materials. Although there is no concern with leaving this thin film of boron on the head surface, all areas identified above were adequately cleaned to the extent practical to assure that there was no adverse impact from the accumulations.

In 2002 after the video inspection, QC inspected the top surface of the reactor vessel head. This inspection was performed from the crane looking down on the vessel head assembly. No signs of boric acid residue were found on the top surface of the head insulation or at the top of the CRDM and conoseal housings. Since all on the samples of boric acid residue was dated to greater than two years, it is likely that the leakage occurred sometime earlier in plant life.

The boron deposits are all consistent with leakage found at relatively low temperatures. Each deposit is a thin film that has uniform thickness, indicating that the leakage was allowed to trickle and dry. This would indicate that the leakage occurred during shutdown conditions where the metal temperatures were relatively low and the boron concentrations were relatively high. In contrast, a leak at higher temperatures would evaporate quickly when contact was made with the hot surfaces, leaving a buildup at that point of contact instead of a uniform film.

Cleaning Results

The reactor vessel was adequately cleaned to the extent practical considering the high dose rates in the general area to assure that there was no adverse impact from the Boric Acid residue. The areas cleaned were videoed to show the as left conditions. The cleaning video was reviewed by VCSNS engineering. Great consideration was given to the dose rates in the vicinity of the head. In the cleaning plan, CRDMs 27, 47, 50, 51, 55 and 59 were treated with the highest concern because they had the most dried residue and/or were in areas where the dried film went onto the vessel head. Also, as a result of the cleaning efforts, CRDMs 44, 62, 63, 42, 46, and 58 were cleaned. All of the additional CRDMs that were cleaned are in the vicinity of the CRDMs that were treated with the highest concern. Cleaning was terminated because of high dose concerns. Attachment II contains comments about the as left conditions of the penetrations after the cleaning.

Leakage History

Since the boric acid residue sampled dates greater than two years and there are no cases reported since the last vessel head inspection, prior historical reviews for leakage are still valid. Due to head design, the most likely sources of leakage that could have caused the boron deposits are the conoseals, the vessel head vent assembly, and the RVLIS connection.

Conoseal penetrations are identified by housings 47, 49, 51, 59 and 55 on Attachment III. Leakage has been noted in the past, but not specifically on the conoseal for housing 47. However, the leakage from other conoseals could have run across the top of the insulation and entered through the insulation at a different location.

A historical review for the RVLIS and Reactor Head Vent piping attached to the reactor vessel was performed. No documented evidence could be found of leakage from the mechanical joints associated with these lines.

In summary, the time and location of the leakage that caused the deposits has not been positively determined; however, it is highly likely that the source of the leakage can be attributed to previous leaks from the instrumentation conoseals.

Material Comments

The vessel head is SA 533, Grade B, Class 1 alloy steel and the CRDM housings are Inconel. The primary concern for the leakage onto the vessel head material is boric acid induced corrosion of the metals from the boric acid in the primary coolant that leaked from the RCS. This type of process fluid has the capability, under the right conditions, to be highly corrosive to carbon and certain low alloy steels. The corrosion mechanism of greatest concern due to leakage of borated water is uniform corrosion, or wastage.

Conclusion

The video inspection shows no evidence of boric acid leakage from the CRDM penetrations on the Reactor Vessel Head. The minor boron deposits found on the head have not resulted in any corrosion of the vessel head material. This deposit is not from an active leak and does not pose a future corrosion concern since it was a dry film. The boron residue that was found on the vessel head was cleaned to the extent practical. The debris noted during this inspection is considered very minor. Only some of the debris was cleaned off, but leaving some of the debris on the head surface will pose no concern. There is no indication of any degradation of materials and structural integrity is unaffected.

As Found conditions:

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
1	Possible evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris around the tube. 2. Insulation collar around the tube is not fully flush with the insulation.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
2	Possible evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris around the tube blown away by air blower. 2. Insulation collar around the tube is not fully flush with the insulation.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
3	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	1. Slight amount of debris. 2. Washer on vessel head next to the tube blown to the side.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
4	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
5	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
6	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris around the tube. 2. Insulation collar around the tube is not fully flush with the insulation. 3. Nail found between this tube and tube 10.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
7	Possible evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
8	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
9	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris around the tube. 2. Possible piece of steel wool coming out from the insulation.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
10	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris on the uphill side of the tube. 2. Nail found between this tube and tube 6.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
11	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
12	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris around the tube. 2. Piece of steel wool coming out between collar and insulation.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM. Piece of steel wool is coming out between collar and insulation.

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
13	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Slight amount of debris on uphill side of tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
14	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
15	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
16	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris on the uphill side of the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
17	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	1. Surface scratch at base of tube. 2. Small amount of debris around tube.	Surface scratch at base of tube. During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
18	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
19	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris on the uphill side of the tube. 2. Insulation collar around the tube does not appear to be flush with the insulation.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM. Insulation collar around the tube does not appear to be flush with the insulation.

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
20	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris around the tube. 2. Possible slight scratch on tube surface.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM. Possible slight scratch on tube surface.
21	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	1. Housing appears to have a slight surface scratch. 2. Small amount of debris around tube.	Housing appears to have a slight surface scratch. During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
22	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	1. Small amount of debris/dust around tube. 2. Brownish stain on head on the uphill side of the tube.	Brownish stain on head on the uphill side of the tube. During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
23	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
24	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris on the uphill side of the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
25	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris noted on the uphill side of tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
26	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris/dust around tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
27	Small amount of boron deposit noted at top of insulation, with trickle down the tube. Thin film on the head between this tube and tube 47. The film was dry. No evidence of any degradation of the reactor vessel head surface.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	Small amount of debris noted on the uphill side of tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM. Brownish stain on head on the uphill side of the tube.
28	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
29	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
30	Evidence of boron deposit on the tube. Deposit was a dried film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
31	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
32	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
33	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	1. No debris noted. 2. Possible small scratches on the tube.	No debris noted. Possible small scratches on the tube.
34	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
35	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris on the uphill side of the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
36	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris on the uphill side of the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
37	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Piece of debris (metal sliver) at base of tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
38	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Small amount of debris on the uphill side of the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.

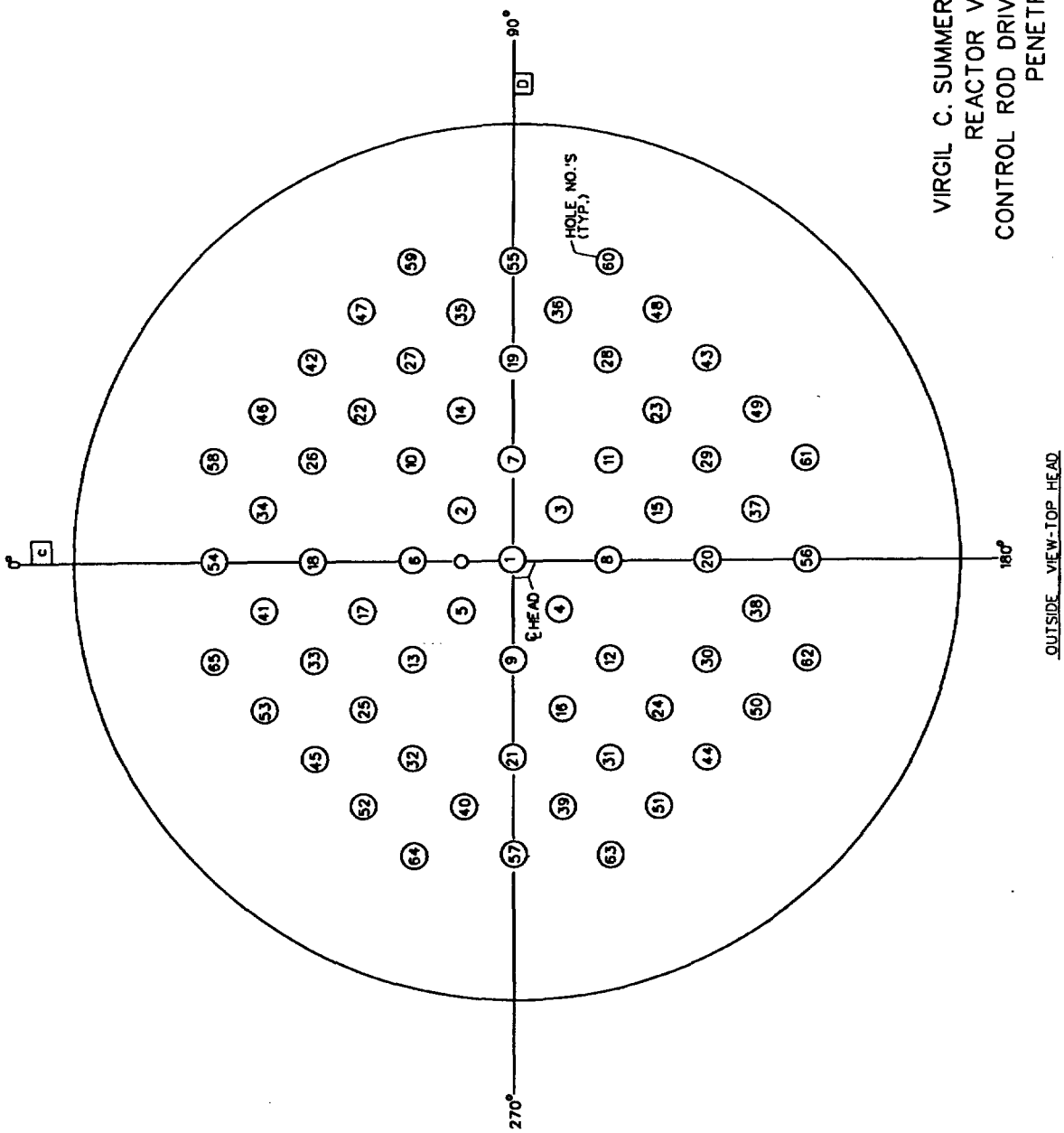
CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
39	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
40	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	1. Slight amount of debris. 2. Lock washer on vessel head next to the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
41	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris on the uphill side of the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
42	Boron noted at top insulation around the tube, but no boron noted on tube.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	No debris noted.	No debris noted.
43	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Slight amount of debris.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
44	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	No debris noted.	No debris noted.

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
45	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	Slight amount of debris.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
46	No boron deposits were observed.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	Dust/debris around tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
47	Small amount of boron deposit noted at top of insulation, with trickle down the tube. Thin film on the head between this tube and tube 27. The film was dry, nearly transparent, and uniform in thickness. No evidence of any degradation of the reactor vessel head surface.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	No debris noted.	Brownish stain on head on the uphill side of the tube.
48	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
49	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
50	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
51	Small amount of boron deposit noted at top of insulation, with trickle down the tube. Thin film on the head	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
52	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
53	No boron deposits were observed. (Conoseal tube)	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
54	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
55	Small amount of boron deposit noted at top of insulation, with trickle down the tube. Thin film on the head.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	Piece of steel wool in the vicinity of the CRDM.	Piece of steel wool in the vicinity of the CRDM.
56	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris was noted.	No debris noted.
57	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris was noted.	
58	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface	No debris noted.	No debris noted.
59	Evidence of very slight boron deposit (dried trickle) on the tube. Thin film on the head.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	Small amount of debris around the tube. Steel wool nearby.	Steel wool near by. During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
60	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.
61	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris noted.	No debris noted.

CRDM #	Boric Acid Inspection Remarks		Other Remarks	
	As found	As left	As found	As left
62	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
63	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	There is a thin film or stain that is dry, nearly transparent. No evidence of any degradation of the reactor vessel head surface.	Small amount of debris around the tube.	During initial inspection, the majority of the debris was blown away from the circumference of the CRDM.
64	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris was noted.	No debris was noted.
65	No boron deposits were observed.	This CRDM was not cleaned and was left as it was found.	No debris was noted.	No debris was noted.
Vent Pipe	Evidence of very slight boron deposit (dried trickle) on the tube. Deposit was a dried thin film that originated from above the insulation and did not reach the vessel head.	This was not cleaned and was left as it was found.	Small bolt next to vent piping penetration.	Small bolt next to vent piping penetration.

VIRGIL C. SUMMER NUCLEAR STATION
REACTOR VESSEL HEAD
CONTROL ROD DRIVE MECHANISM (CRDM)
PENETRATIONS



OUTSIDE VIEW-TOP HEAD