

Document Control Desk U. S. Nuclear Regulatory Commission 11545 Rockville Pike Rockville, MD 20852

October 29, 2010

**Subject:** Letter regarding transfer of information concerning Control Components Inc. (CCI) Drag® valves.

#### To Whom It May Concern:

This letter is provided to the U. S. Nuclear Regulatory Commission for information.

Control Components Inc. (CCI) is transferring information to affected nuclear plants regarding the potential for the disk stack to separate within certain Drag® valves. A disk stack is equivalent to a valve cage consisting of brazed disks. CCI does not have the capability to determine whether it must act under 10CFR21.

CCI has determined that under certain calculated conditions there is the potential for the disk stack to separate within Drag® valves previously supplied. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under an accident condition. It is noted that CCI has never experienced this failure in its past.

Based on CCI's analysis, the lack of any failures in the installed population, and the low probability of failure; we have recommended that at the next regularly scheduled refueling outage an inspection be performed to assure there is a force acting to compress the disk stack under all temperature conditions. The valves would be reassembled with the addition of shim kits if necessary, to assure there is compression for all conditions.

The CCI contact for more detailed discussion is:

Greg Black VP Global Engineering Work Phone 1-949-888-4115

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

IE19 NRK A copy of the letters sent to the nuclear facilities is included with this letter. The letter includes the information called for by the 10-CFR-21 regulation.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

**Attachments: Information Transfer Letters** 



October 29, 2010

Vice President, Operations Arkansas Nuclear 1 1448 SR 333 New Orleans, AR 72801

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk-stack separation. A disk stack is a cylindrical-stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

## **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas

Mobile 1-949-439-9603 Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Entergy Corp.							
PLANT NAME	AFFECTED VALVES						
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION		
Arkansas Nuclear 1	591011-1		2	620-0008MU-V19/ CV-1207MU-15-POC	Seal Injection Valve		
Indian Point 2	709091-1	709091-1-1/2/3/4	4	FCV-406A/B/C/D	Aux. Feedwater Control Valve		
Palisades	201857-1	103077-010-1/2	2	CV-3001/3002	Containment spray flow control		
Palisades	702031-1	702031-1-1	1	CV-0522A	Steam Supply Control Valve		
Palisades	702031-2	702031-2-1	1	CV-0522B	Steam Supply Control Valve		
Vermont Yankee	623521-1	623521-1-1/2	2	1/V10-89,V10-89B	RHR Service Water Control Valve		
Vermont Yankee	672071-1	672071-1-1/2	2	SW-92A/B(V70-92A/B)	RBCCW Heat Exchanger SW Throttling Valve		



October 29, 2010

Vice President, Nuclear Operations Beaver Valley 2 Route 168 Akron, PA 15077-0004

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis
Aftermarket Manager, Americas
Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

FirstEnergy Corp						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Beaver Valley 2	200788-1	101184-010-1/2/3	3	2FWS-478/488/498	Feedwater Regulator	
Davis-Besse 1	645141-1	645141-1-1/2	2	PV-ICS11A/B	Atmospheric Vent Valve	
Perry 1	647771-2	647771-2-1/2	2	1E12F0003 A/B	Heat Exchanger Outlet	



October 29, 2010

Plant Manager Bellefont 1 & 2 400 West Summit Hill Drive Knoxville, TN 37902

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

### **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970 Fax: 1-949-858-1878

Email: gblack@ccivalve.com

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Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

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Attachment 2. List of Plant Valves

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James Pickren
Control Components Incorporated
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22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

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Control Components Incorporated

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This is not an early site permit concern.

**Attachment 2: List of Plant Valves** 

TVA						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Bellefont 1	141940	16938-1-1	1	1MU-FV6	Letdown flow control	
Bellefont 1	141960	16938-3-1/2/3/4	4	1MU-FV30A/B/C/D	Seal injection feed control	
Bellefont 1	141970	16938-4-1	1	1MU-PDV19		
Bellefont 2	141980	16939-1-1	1	2MU-FV6	Letdown flow control	
Bellefont 2	142000	16939-3-1/2/3/4	4	2MU-FV30A/B/C/D	Seal injection feed control	
Bellefont 2	142010	16939-4-1	1	2MU-PDV19		



We Solve Control Valve Problems®

October 29, 2010

Station Manager Braidwood 1&2 35100 South Route 53 Suite 84 Chicago, IL 60407

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

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Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

## **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Exelon Corp.						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Braidwood 1&2	706031-2	706031-2-X	16	1AF005A-H (8 Valves); 2AF005a-h (8 Valves)	Auxiliary Feedwater Valve	
Byron 1 & 2 Braidwood 1&2	706031-1	706031-1-X	16	1AF005A-H (8 Valves); 2AF005a-h (8 Valves)	Auxiliary Feedwater Valve	
Quad Cities 1&2	645341-1	645341-1-1/2/3/4	4	MO-1/2-11402-4A&B	Crane retrofit-Core Spray System Valve	
Dresden 2&3	637271-1	637271-1-1/2/3/4	4	MO-2/3-1402-4A&B	Crane retrofit-Core Spray System Valve	



October 29, 2010

Station Manager Byron 1&2 4450 North German Church Road Chicago, IL 61010-9794

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

# Plant Valves:,

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

#### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.
- (viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Exelon Corp.						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Braidwood 1&2	706031-2	706031-2-X	16	1AF005A-H (8 Valves); 2AF005a-h (8 Valves)	Auxiliary Feedwater Valve	
Byron 1 & 2 Braidwood 1&2	706031-1	706031-1-X	16	1AF005A-H (8 Valves); 2AF005a-h (8 Valves)	Auxiliary Feedwater Valve	
Quad Cities 1&2	645341-1	645341-1-1/2/3/4	4	MO-1/2-11402-4A&B	Crane retrofit-Core Spray System Valve	
Dresden 2&3	637271-1	637271-1-1/2/3/4	4	MO-2/3-1402-4A&B	Crane retrofit-Core Spray System Valve	



October 29, 2010

Operations Superintendent Catawba Nuclear Station 4800 Concord Road York County, SC 29745

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

	,	Duké Er	ergy			
	AFFECTED VALVES					
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Catawba 1&2	922301022	18789-10- 1/2/3/4/5/6/7/8	8	1-SV-1/7/13/19, 2-SV-1/7/13/19	Steam generator power operator relief to atmosphere	
McGuire 1&2	702811-1	702811-1-1/2	2	1/2NV459	Reactor Coolant Letdown Valve	
McGuire 1&2	707811-1	707811-1-1/2	2	1/2NV238	Charging Pump control	
McGuire 1&2	200051-1	100072-1-1/2, 227388-010-1	3	(1MV-480); 1NV-454 (1MV-480); 2NV-454(1MV-480)	Reactor Coolant Letdown Manual Throttle Valve	
Oconee 1&3	200106-1	100145-1-1/2/3	3	1/2/3 MS-93	Steam to Emergency FW Pump Turbine	
Oconee 1,2,3	202745-1	104754-011/021/031- 1	3	Not Defined	RCP Seal Bypass Valve	



We Solve Control Valve Problems®

October 29, 2010

Director Chinshan 1&2 Cheng-Hwa Jhongjheng District, Taipei City Taiwan

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

## **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

# **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

**Attachment 2: List of Plant Valves** 

Taiwan Power Co						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Chin Shan 1&2	200071-1	100093-1-1/2	2	E41-F008; E41-F008S	High Pressure Coolant Injection Test Valve	
Chin Shan 1&2	590981-1	590981-1-1/2, 590982-1-1/2	4	F017A,B; F017 AS, BS	Residual Heat Removal valve	
Chin Shan 1&2	700941-1	700941-1-1/2	2	E51-F022 & E51-F022S	Reactor Core Isolation Cooling Valve	
Kuosheng NPS	200140-1	100209-1-1/2/3/4	4	1/2-EJ-HV-122/207	Residual Heal Removal Valve	



October 29, 2010

Engineering Programmes Manager Comanche Peak Steam Electric Station 6322 North FM 56 Dallas, TX 76043

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

# **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

#### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

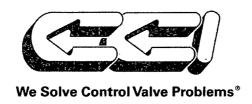
CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

TXU Electric								
		/	AFFECTE	O VALVES				
PLANT NAME	CCI P/N	· CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION			
Comanche Peak 1&2	658841-1	658841-1/2/3/4, 658842-1/2/3/4	. 8	1/2-PV-2325 to 1/2-PV-2328	Auxiliary Feedwater Steam Supply Control Valve			



October 29, 2010

Vice President & Plant Manager Diablo Canyon Power Plant 6588 Ontario Road San Francisco, CA 93405

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878 Email: gblack@ccivalve.com 2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

## **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

## Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# Attachment 2: List of Plant Valves

Pacific Gas & Electric							
			AFFECTED V	AFFECTED VALVES			
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION		
Diablo Canyon 1&2	201822-1	102993-010-1/2	2	FCV110A	Boric Acid (4%) Make-up Valve		
Diablo Canyon 1&2	201822-2	102993-020-1/2	2	FCV111A	Primary Water Valve		



October 29, 2010

Operatons Manager Davis-Besse Nuclear Power Plant 1 5501 N. State Route 2 Oakharbor, OH 43449

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

## **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
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(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

FirstEnergy Corp							
PLANT NAME	AFFECTED VALVES						
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION		
Beaver Valley 2	200788-1	101184-010-1/2/3	. 3	2FWS-478/488/498	Feedwater Regulator		
Davis-Besse 1	645141-1	645141-1-1/2	2	PV-ICS11A/B	Atmospheric Vent Valve		
Perry 1	647771-2	647771-2-1/2	2	1E12F0003 A/B	Heat Exchanger Outlet		



We Solve Control Valve Problems®

October 29, 2010

Plant Manager Dresden 2&3 6500 North Dresden Road Chicago, IL 60450

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

## **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren Control Components Incorporated President- IMI Nuclear 22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

### Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Exelon Corp.						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Braidwood 1&2	706031-2	706031-2-X	, 16	1AF005A-H (8 Valves); 2AF005a-h (8 Valves)	Auxiliary Feedwater Valve	
Byron 1 & 2 Braidwood 1&2	706031-1	706031-1-X	16	1AF005A-H (8 Valves); 2AF005a-h (8 Valves)	Auxiliary Feedwater Valve	
Quad Cities 1&2	645341-1	645341-1-1/2/3/4	4	MO-1/2-11402-4A&B	Crane retrofit-Core Spray System Valve	
Dresden 2&3	637271-1	637271-1-1/2/3/4	4	MO-2/3-1402-4A&B	Crane retrofit-Core Spray System Valve	



October 29, 2010

Plant Manager Duane Arnold Energy Center 3313 DAEC Road Palo, IA 52324

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.



The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

#### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.



# **Attachment 2: List of Plant Valves**

Alliant Energy						
PLANT NAME		, ,	AFFECTED VA	LVES	1	
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Duane Arnold	42794-1	42794-1-1	1	CV 2315	High pressure coolant injection condensate recirc. to storage tank	
Duane Arnold	44519-1	445191-1-1	1	MO-2515	Condensate recirc. to storage tank	



October 29, 2010

Plant Manager
Edwin I Hatch Nuclear Power Plant
Highway US1
PO Box 439
Birmingham, GA 31513

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.



The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

## **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

## **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

## **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CÁ 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

#### Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

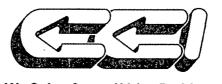
CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Southern Nuclear Operating Co., Inc.						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
E.I. Hatch 1&2	672421-1	672421-1-1, 672422-1-1	2	MPL 1/2E51-FO22	Reactor Core Isolation Cooling Valve	
E.I. Hatch 1&2	557531-1	557531-1-1/2/3/4/5	5	1/2E11-F068A/B; E11-F068-SPARE	Flow Control/ Cooling Water	



We Solve Control Valve Problems®

October 29, 2010

Plant Manager Fermi Nuclear Power Plant 6400 North Dixie Hwy Detroit, MI 48166

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

# **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

# **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren Control Components Incorporated President- IMI Nuclear 22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

## Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.
- (viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# Attachment 2: List of Plant Valves

DTE Energy						
PLANT NAME			AFFECTED VA	ALVES		
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Fermi 2	708741-1	708741-1-1/2	2	P44F400A/B	Temperature Control	



October 29, 2010

Plant Manager Indian Point 2 Nuclear Power Plant (Operated by ConEd) Broadway & Beasley Avenue New Orleans, NY 10511

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com



2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

#### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047 Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

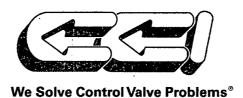
CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# Attachment 2: List of Plant Valves

Entergy Corp.							
	AFFECTED VALVES						
PLANT NAME	CCI P/N	CCI SERIÅL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION		
Arkansas Nuclear 1	591011-1		2	620-0008MU-V19/ CV-1207MU-15-POC	Seal Injection Valve		
Indian Point 2	709091-1	709091-1-1/2/3/4	4	FCV-406A/B/C/D	Aux. Feedwater Control Valve		
Palisades	201857-1	103077-010-1/2	2	CV-3001/3002	Containment spray flow control		
Palisades	702031-1	702031-1-1	1	CV-0522A	Steam Supply Control Valve		
Palisades	702031-2	702031-2-1	1	CV-0522B	Steam Supply Control Valve		
Vermont Yankee	623521-1	623521-1-1/2	2	1/V10-89,V10-89B	RHR Service Water Control Valve		
Vermont Yankee	672071-1	672071-1-1/2	2	SW-92A/B(V70-92A/B)	RBCCW Heat Exchanger SW Throttling Valve		



October 29, 2010

Jiangsu Nuclear Power Corp Lianyungang 1&2 (Tianwan 1&2) #28 Haitang Road (M) Lianyun District, Lianyungang Jiangsu Province, China 222 042

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

# **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

## **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970 Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

#### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047 Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.



Jiangsu Nuclear Power Corp. (JNPC)						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Lianyungang 1&2 (Tianwan 1&2)	103222773500	:	8	1/2 LAB 10/20/30/40 AA212	Bypass Feedwater Control	



October 29, 2010

Director Kori Nuclear Power Site 216 Kori Jangan-eup Gijang-gun, Busan 619-711 Korea

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be



created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970 Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

#### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047 Mobile 949-632-1993 Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

## Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

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- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

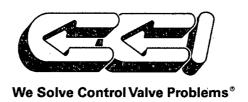
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(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Korea Hydro & Nuclear Power Co., Ltd							
	AFFECTED VALVES						
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALV E QTY.	VALVE TAG NO.	VALVE APPLICATION		
Kori 1	202243-1	103601-010-1/2	2	1-VIA-4345/4346	Compressed Air IE System		
Kori 2	200813-1	101233-010-1	1	2-PCV-135	Low Pressure Let Down		
Kori 2	200813-2	101233-020-1	1	2-HCV-218	Seal Injection Control		
Kori 2	615101-1	615101-1-1	1	FCV205	Normal Charging Flow Control Valve		
Shin-Kori 1&2	201259-207	101941-207-1/2, 101941-227-1/2	4	1/2-527-V-0007/0008	NF Turbine Drip Leg Level Control Valve		
Shin-Wolsong 1&2	201260-207	101942 <sup>1</sup> 207-1/2, 101942-227-1/2	4	1/2-527-V-0007/0008	AF Turbine Drip Leg Level Control Valve		
Ulchin 5&6	200062-5	100111-50-1/2, 100249-50-1/2	4	5/6-527-V-0007/0008	AF Turbine Steam Drip Leg Level Control Valve		
Yonggwang 3&4	542471-2	542471-2-3/4	4	3/4-542-VAF-0045/0046	Aux Feed Water Control Valve		



October 29, 2010

Director Kuosheng NPS 60 Pa-Tou Yeh-Liu Village Wanli Hsiang, Taipei County Taiwan

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

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created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

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Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

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#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

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2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

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Email: dlewis@iminuclear.com

# **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated:
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

## Attachment 2: List of Plant Valves

Taiwan Power Co						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Chin Shan 1&2	200071-1	100093-1-1/2	2	E41-F008; E41-F008S	High Pressure Coolant Injection Test Valve	
Chin Shan 1&2	590981-1	590981-1-1/2, 590982-1-1/2	4	F017A,B; F017 AS, BS	Residual Heat Removal valve	
Chin Shan 1&2	700941-1	700941-1-1/2	2	E51-F022 & E51-F022S	Reactor Core Isolation Cooling Valve	
Kuosheng NPS	200140-1	100209-1-1/2/3/4	4	1/2-EJ-HV-122/207	Residual Heal Removal Valve	



October 29, 2010

Operations Superintendent McGuire Nuclear Station 13339 Hagers Ferry Road Charlotte, NC 28078

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

### **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.
- (viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

Duke Energy						
AFFECTED VALVES						
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Catawba 1&2	922301022	18789-10- 1/2/3/4/5/6/7/8	8	1-SV-1/7/13/19, 2-SV-1/7/13/19	Steam generator power operator relief to atmosphere	
McGuire 1&2	702811-1	702811-1-1/2	2	1/2NV459	Reactor Coolant Letdown Valve	
McGuire 1&2	707811-1	707811-1-1/2	2	1/2NV238	Charging Pump control	
McGuire 1&2	200051-1	100072-1-1/2, 227388-010-1	3	(1MV-480); 1NV-454 (1MV-480); 2NV-454(1MV-480)	Reactor Coolant Letdown Manual Throttle Valve	
Oconee 1&3	200106-1	100145-1-1/2/3	3	1/2/3 MS-93	Steam to Emergency FW Pump Turbine	
Oconee 1,2,3	202745-1	104754-011/021/031- 1	3	Not Defined	RCP Seal Bypass Valve	



We Solve Control Valve Problems®

October 29, 2010

Plant Manager (Unit 2) Nine Mile Point 2 348 Lake Road Baltimore, NY 13126

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

### **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970 Fax: 1-949-858-1878

Email: gblack@ccivalve.com



2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047 Mobile 949-632-1993 Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

#### Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

## **Attachment 2: List of Plant Valves**

					, Ties	
Constellation Energy						
			AFFECTED V	'ALVES		
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Nine Mile Point 2	702661-1	702661-1-1	1	2ICS*PCV115	Turbine Coolant Pressure Control	
Nine Mile Point 2	200027-1	100041-1-1	1	2WCS-FV135	RWCU System Reactor Flow Reject	



We Solve Control Valve Problems®

October 29, 2010

Site Vice President North Anna 3&4 1022 Haley Drive Mineral, VA 23117-0402

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

### **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970 Fax: 1-949-858-1878

Email: gblack@ccivalve.com



2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047 Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

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Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

## **Attachment 2: List of Plant Valves**

Dominion Generation							
PLANT NAME	AFFECTED VALVES						
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION		
North Anna 3&4, Surry 3&4	117320	15628-1-1/2/3/4	16	620-0017/3-SP- PCV13A1/3MS- PV13A1,	Modulating atmospheric dump		
				620-0017/3-SP- PCV13B1/3MS- PV13B1,			
				620-0018/4-SP- PCV13A1/4MS- PV13A1,			
				620-0018/4-SP- PCV13B1/4MS- PV13B1,			
		·		620-0021/3SP- PCV13A1/3MS- PV13A1,			
				620-0021/3SP- PCV13B1/3MS- PV13B1,			
				620-0022/4SP- PCV13A1/4MS- PV13A1,			
				620-0022/4SP- PCV13B1/4MS- PV13B1			



October 29, 2010

Station Manager Oconee Nuclear Station 7812 Rochester Hwy Charlotte, SC 29672

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

### **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047 Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves



### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

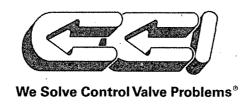
CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

## **Attachment 2: List of Plant Valves**

Duke Energy						
	AFFECTED VALVES					
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Catawba 1&2	922301022	18789-10- 1/2/3/4/5/6/7/8	8	1-SV-1/7/13/19, 2-SV-1/7/13/19	Steam generator power operator relief to atmosphere	
McGuire 1&2	702811-1	702811-1-1/2	2	1/2NV459 <sup>`</sup>	Reactor Coolant Letdown Valve	
McGuire 1&2	707811-1	707811-1-1/2	2	1/2NV238	Charging Pump control	
McGuire 1&2	200051-1	100072-1-1/2, 227388-010-1	3	(1MV-480); 1NV-454 (1MV-480); 2NV-454(1MV-480)	Reactor Coolant Letdown Manual Throttle Valve	
Oconee 1&3	200106-1	100145-1-1/2/3	3	1/2/3 MS-93	Steam to Emergency FW Pump Turbine	
Oconee 1,2,3	202745-1	104754-011/021/031- 1	3	Not Defined	RCP Seal Bypass Valve	



October 29, 2010

Plant Manager Palisades Nuclear Power Plant 27780 Blue Star Memorial Highway New Orleans, MI 49043-9530

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

### **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.



The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI** Recommendations:

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970 Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047 Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has



been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

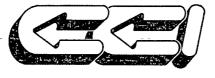
CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Entergy Corp.						
	AFFECTED VALVES					
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	, VALVE APPLICATION	
Arkansas Nuclear 1	591011-1		2	620-0008MU-V19/ CV-1207MU-15-POC	Seal Injection Valve	
Indian Point 2	709091-1	709091-1-1/2/3/4	4	FCV-406A/B/C/D	Aux. Feedwater Control Valve	
Palisades	201857-1	103077-010-1/2	2	CV-3001/3002	Containment spray flow control	
Palisades	702031-1	702031-1-1	1	CV-0522A	Steam Supply Control Valve	
Palisades	702031-2	702031-2-1	1	CV-0522B	Steam Supply Control Valve	
Vermont Yankee	623521-1	623521-1-1/2	2	1/V10-89,V10-89B	RHR Service Water Control Valve	
Vermont Yankee	672071-1	672071-1-1/2	2	SW-92A/B(V70-92A/B)	RBCCW Heat Exchanger SW Throttling Valve	



We Solve Control Valve Problems®

October 29, 2010

Vice President, Engineering Palo Verde 1,2,3 5801 South Wintersburg Road Tonopah, AZ 85354

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

### **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

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Greg Black
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Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

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### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

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Control Components Incorporated

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(v) The date on which the information of such defect or failure to comply was obtained.

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This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Arizona Public Service Co.						
PLANT NAME			AFFECTED '	VALVES		
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	. VALVE	
Palo Verde 1,2,3	922501043	21408-1,4,7	12	1/2/3JSGAHV184, 1/2/3JSGBHV185, 1/2/3JSGBHV178, 1/2/3JSGAHV179	Atmospheric dump	



We Solve Control Valve Problems®

October 29, 2010

General Plant Manager Perry Nuclear Power Plant 1 10 Center Road Akron, OH 44081

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

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The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

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Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

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The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

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Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

#### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

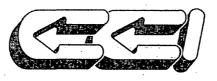
CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

FirstEnergy Corp						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Beaver Valley 2	200788-1	101184-010-1/2/3	3	2FWS-478/488/498	Feedwater Regulator	
Davis-Besse 1	645141-1	645141-1-1/2	2	PV-ICS11A/B	Atmospheric Vent Valve	
Perry 1	647771-2	647771-2-1/2	2	1E12F0003 A/B	Heat Exchanger Outlet	



We Solve Control Valve Problems®

October 29, 2010

Station Manager Quad Cities 1&2 22710 206th Avenue North Chicago, IL 61242

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

#### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Exelon Corp.						
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Braidwood 1&2	706031-2	706031-2-X	16	1AF005A-H (8 Valves); 2AF005a-h (8 Valves)	Auxiliary Feedwater Valve	
Byron 1 & 2 Braidwood 1&2	706031-1	706031-1-X	16	1AF005A-H (8 Valves); 2AF005a-h (8 Valves)	Auxiliary Feedwater Valve	
Quad Cities 1&2	645341-1	645341-1-1/2/3/4	4	MO-1/2-11402-4A&B	Crane retrofit-Core Spray System Valve	
Dresden 2&3	637271-1	637271-1-1/2/3/4	4	MO-2/3-1402-4A&B	Crane retrofit-Core Spray System Valve	



October 29, 2010

Executive Director Ringhals Nuclear Power Station SE-43022 Vaeroebacka Stockholm Sweden

**Subject:** Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

## **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

## **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

#### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Vattenfall AB						
PLANT NÁMÉ	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE . APPLICATION	
Ringhals	202334-1CH	103763-010-1/2/3	3	20415- FCV478/488/498	Feedwater Control . Valve	
Ringhals	202334-2CH	103763-020-1	1	20334FCV122	Charging Valve	
Ringhals 3	202224-1CH	101879-010CH-1/2/3	3	FCV 478/488/498	Feedwater regulator	



October 29, 2010

Manager, Station Operations
San Onofre Nuclear Generating Station (SONGS)
5000 Pacific Coast Hwy
San Clemente, CA 92672

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970 Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

#### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren
Control Componen

Control Components Incorporated President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

		Edison Inte	rnation	al	
PLANT NAME	AFFECTED VALVES				
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION
San Onofre 2&3	34254-1	34254-1-1/2/3/4	4	2HV-4762/3, 3HV-4762/3	Auxiliary feedwater bypass
San Onofre 2&3	36995-1	36995-1-1/2/3, 100142-10-1	4	2PV-0201A/B, 3PV-0201A/B	Letdown pressure regulating



We Solve Control Valve Problems®

October 29, 2010

Site Manager Shin-Kori 1&2 Hyoam-ri Jangan-eup Gijang-gun, Busan, Korea 619-711 Korea

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

#### **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be

created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

## **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

## **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

**Attachment 2: List of Plant Valves** 

Korea Hydro & Nuclear Power Co., Ltd						
	AFFECTED VALVES					
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALV E QTY.	VALVE TAG NO.	VALVE APPLICATION	
Kori 1	202243-1	103601-010-1/2	2	1-VIA-4345/4346	Compressed Air IE System	
Kori 2	200813-1	101233-010-1	1	2-PCV-135	Low Pressure Let Down	
Kori 2	200813-2	101233-020-1	1	2-HCV-218	Seal Injection Control	
Kori 2	615101-1	615101-1-1	1	FCV205	Normal Charging Flow Control Valve	
Shin-Kori 1&2	201259-207	101941-207-1/2, 101941-227-1/2	4	1/2-527-V-0007/0008	NF Turbine Drip Leg Level Control Valve	
Shin-Wolsong 1&2	201260-207	101942-207-1/2, 101942-227-1/2	4	. 1/2-527-V-0007/0008	AF Turbine Drip Leg Level Control Valve	
Ulchin 5&6	200062-5	100111-50-1/2, 100249-50-1/2	4	5/6-527-V-0007/0008	AF Turbine Steam Drip Leg Level Control Valve	
Yonggwang 3&4	542471-2	542471-2-3/4	4	3/4-542-VAF-0045/0046	Aux Feed Water Control Valve	



October 29, 2010

Site Manager
Shin-Wolsong 1&2
Bonggil-ri
Yangbuk-myum
Gangnam-gu, Gyeongsangbuk-do 780-840
Korea

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be

created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

Attachment 2: List of Plant Valves

Korea Hydro & Nuclear Power Co., Ltd						
	AFFECTED VALVES					
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALV E QTY.	VALVE TAG NO.	VALVE APPLICATION	
Kori 1	202243-1	103601-010-1/2	2	1-VIA-4345/4346	Compressed Air IE System	
Kori 2	200813-1	101233-010-1	1	2-PCV-135	Low Pressure Let Down	
Kori 2	200813-2	101233-020-1	1	2-HCV-218	Seal Injection Control	
Kori 2	615101-1	615101-1-1 '	1	FCV205	Normal Charging Flow Control Valve	
Shin-Kori 1&2	201259-207	101941-207-1/2, 101941-227-1/2	4	1/2-527-V-0007/0008	NF Turbine Drip Leg Level Control Valve	
Shin-Wolsong 1&2	201260-207	101942-207-1/2, 101942-227-1/2	4	1/2-527-V-0007/0008	AF Turbine Drip Leg Level Control Valve	
Ulchin 5&6	200062-5	100111-50-1/2, 100249-50-1/2	4	5/6-527-V-0007/0008	AF Turbine Steam Drip Leg Level Control Valve	
Yonggwang 3&4	542471-2	542471-2-3/4	4	3/4-542-VAF-0045/0046	Aux Feed Water Control Valve	



October 29, 2010

Plant Manager St. Lucie 1 & 2 6395 S. Ocean Dr Jensen Beach, Fl 34957

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

## **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren Control Compone

Control Components Incorporated President - IMI Nuclear

Work 949-888-4047 Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

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- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

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CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

FPL Group Inc.						
	AFFECTED VALVES					
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
St. Lucie 1	310801-1	310801-1-1/2/3	3	V2553/4/5	Charging pump bypass	
St. Lucie 2	23944-1	23944-1-1	3	V2553/4/5	Charging pump bypass	
St. Lucie 2	25589-1	25589-1-1/2/3/4	4	1-MV-08-18A/B, 1-MV-08-19A/B	Modulating vent	



October 29, 2010

Site Vice President Surry 3&4 5570 Hog Island Road Surry, VA 23883-0315

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

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Email: gblack@ccivalve.com

2. Dave Lewis
Aftermarket Manager, Americas
Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### Plant Valves:

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047 Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

### Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

## Attachment 2: List of Plant Valves

	×	Dominion G	ieneratio	on			
	AFFECTED VALVES						
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE	VALVE	VALVE		
1	CCIT/IN	CCI SENIAL NO.	QTY.	TAG NO.	APPLICATION		
North Anna 3&4, Surry 3&4	117320	15628-1-1/2/3/4	16	620-0017/3-SP- PCV13A1/3MS- PV13A1,	Modulating atmospheric dump		
	1			620-0017/3-SP- PCV13B1/3MS- PV13B1,			
				620-0018/4-SP- PCV13A1/4MS- PV13A1,	~		
·				620-0018/4-SP- PCV13B1/4MS- PV13B1,			
				620-0021/3SP- PCV13A1/3MS- PV13A1,			
				620-0021/3SP- PCV13B1/3MS- PV13B1,			
				620-0022/4SP- PCV13A1/4MS- PV13A1,			
				620-0022/4SP- PCV13B1/4MS- PV13B1			



We Solve Control Valve Problems

October 29, 2010

Director
Ulchin Nuclear Power Site
84-4 Bugu-ri
Buk-myeon
Gangnam-gu, Gyeongsangbuk-do 767-890
Korea

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be

created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

#### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

#### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970 Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# Attachment 2: List of Plant Valves

Korea Hydro & Nuclear Power Co., Ltd						
	AFFECTED VALVES					
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALV E QTY.	VALVE TAG NO.	VALVE APPLICATION	
Kori 1	202243-1	103601-010-1/2	2	1-VIA-4345/4346	Compressed Air IE System	
Kori 2	200813-1	101233-010-1	1	2-PCV-135	Low Pressure Let Down	
Kori 2	200813-2	101233-020-1	1	2-HCV-218	Seal Injection Control	
Kori 2	615101-1	615101-1-1	1	FCV205	Normal Charging Flow Control Valve	
Shin-Kori 1&2	201259-207	101941-207-1/2, 101941-227-1/2	4	1/2-527-V-0007/0008	NF Turbine Drip Leg Level Control Valve	
Shin-Wolsong 1&2	201260-207	101942-207-1/2, 101942-227-1/2	4	1/2-527-V-0007/0008	AF Turbine Drip Leg Level Control Valve	
Ulchin 5&6	200062-5	100111-50-1/2, 100249-50-1/2	4	5/6-527-V-0007/0008	AF Turbine Steam Drip Leg Level Control Valve	
Yonggwang 3&4	542471-2	542471-2-3/4	4	3/4-542-VAF-0045/0046	Aux Feed Water Control Valve	



October 29, 2010

Plant Manager Vandellos Apartado De Correos 27-43890 L'Hospitalet de l'Infant E-43890 Spain

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

## **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

1. Greg Black VP Global Engineering Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

		Ende	esa		
PLANT NAME	AFFECTED VALVES				
	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION
Vandellos 2	672611-1	672611-1-1/2/3	3	FCV-478/488/498	Feedwater Regulator



October 29, 2010

Plant Manager Vermont Yankee Nuclear Power Plant 320 Governor Hunt Road New Orleans, VT 05354

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21

Attachment 2. List of Plant Valves

### Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

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Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

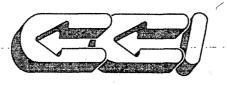
CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

# **Attachment 2: List of Plant Valves**

Entergy Corp.						
	AFFECTED VALVES .					
PLANT NAME	CCI P/N	CCI SERIAL NO.	VALVE QTY.	VALVE TAG NO.	VALVE APPLICATION	
Arkansas Nuclear 1	591011-1	_	2	620-0008MU-V19/ CV-1207MU-15-POC	Seal Injection Valve	
Indian Point 2	709091-1	709091-1-1/2/3/4	4	FCV-406A/B/C/D	Aux. Feedwater Control Valve	
Palisades	201857-1	103077-010-1/2	2	CV-3001/3002	Containment spray flow control	
Palisades	702031-1	702031-1-1	1	CV-0522A	Steam Supply Control Valve	
Palisades	702031-2	702031-2-1	1	CV-0522B	Steam Supply Control Valve	
Vermont Yankee	623521-1	623521-1-1/2	2	1/V10-89,V10-89B	RHR Service Water Control Valve	
Vermont Yankee	672071-1	672071-1-1/2	2	SW-92A/B(V70-92A/B)	RBCCW Heat Exchanger SW Throttling Valve	



We Solve Control Valve Problems

October 29, 2010

Director Yonggwang Nuclear Power Site 514 Gyema-ri Hongnong-eup Yeonggwang-gun, Jeollanam-do 513-880 Korea

Subject: Transfer of Information concerning Control Components Inc. (CCI) Drag® Valves.

Dear Plant Manager;

## **Executive Summary:**

CCI routinely reviews its quality practices and engineering protocols in the design and manufacturing of its severe service valve products. In connection with a routine review, a question was raised regarding the integrity of disk stacks in CCI Drag® valves and the potential for disk stack separation. A disk stack is a cylindrical stack of disks, brazed together which determines the flow characteristics of the valve. Although there have been no failures with respect to disk stacks in the past, CCI performed an analysis that was inconclusive in determining if a safety hazard could potentially exist. In accordance with nuclear industry practice, CCI is notifying plants with certain installed valves to allow the site to perform its own analysis. This notification is only applicable to Drag® valves installed in nuclear power plants. Valves in other applications are not affected by this notification. With over 25 years of service in the nuclear power industry, CCI has received no reports of any such failure.

By way of background, on October 20, 2010, CCI determined that under certain calculated conditions there is the potential for the disk stack within CCI Drag® valves to separate if the integrity of the brazing is questioned allowing movement of the disks. CCI has analyzed numerous valve assemblies and has been unable to rule out disk separation that might affect the functioning of the valve under certain conditions. Please note that CCI has never experienced this failure mode on this type of valve in the past.

CCI is providing this transfer of information notice so that the licensee may determine whether it must act under 10CFR21. The details of the transfer of information are included in Attachment 1. CCI does not have the ability to determine whether a safety hazard is created or could be

created by a failure of the disk stack as CCI is not aware of plant system details, or the basis of the associated Safety Analysis Report.

The valves of concern are in high temperature applications where differential thermal expansion of the valve body relative to the internal disk stack could occur. If the initial compression of the disk stack inside the valve body is insufficient, then the load on the disk stack may not be enough to prevent separation of the disks if the integrity of the brazing is questioned. Under these conditions, the individual disks could move laterally relative to each other, preventing the valve from opening, closing or modulating correctly. The lateral load causing a shift could occur due to flow through the valve and/or maximum seismic forces. CCI's analysis is not able to completely eliminate this potential occurrence if the integrity of the brazing is questioned because of the uncertainty of the compressive load on the disk stack.

Because CCI is unable to quantify all of the variables associated with potential disk slippage, a Probabilistic Risk Analysis (PRA) was performed. With the knowledge of the CCI Drag installed base, the PRA estimated the risk associated with a separation causing a failure to operate on demand. This analysis resulted in a mean estimate of 2.26E-07 failures per hour in operation.

Based on the compression analysis performed, the lack of any failures in the installed fleet, and the low probability of failure, CCI recommends that at the next regularly scheduled refueling outage an inspection be performed to determine the height of the trim with respect to the valve. CCI will issue a technical bulletin to provide details of how to measure the height of the valve trim and perform any required corrective actions.

### **CCI Recommendations:**

A CCI representative will contact the site beginning Monday, November 1, 2010. CCI's recommendation is to disassemble and inspect the valves at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure a disk stack compressible load. CCI will prepare shim packages, if needed, that will assure compressive loads upon reassembly with gaskets.

CCI will offer technical discussion for the purpose of clarification to assist with the plant's determination under 10CFR21. Arrangements for a CCI Field Service technician can be made to assist in this activity in accordance with existing procedures for scheduling field service.

### **CCI Contacts:**

The Contacts listed can arrange for a conference call to discuss any questions that arise and assure that knowledgeable personnel are available to respond to your needs.

Greg Black
 VP Global Engineering
 Mobile 1-949-282-3970

Fax: 1-949-858-1878

Email: gblack@ccivalve.com

2. Dave Lewis Aftermarket Manager, Americas Mobile 1-949-439-9603

Fax: 1-949-858-1878

Email: dlewis@iminuclear.com

### **Plant Valves:**

The impacted valves at your plant are shown on Attachment 2. This Attachment lists the valve tag numbers, serial numbers, CCI part number, and application when noted on the Top Assembly Drawing provided by CCI for the original supply.

Sincerely,

James Pickren

Control Components Incorporated

President - IMI Nuclear

Work 949-888-4047

Mobile 949-632-1993

Fax 949-858-1878

Attachment 1. Summary of Information for Transfer of Information per 10CFR21 Attachment 2. List of Plant Valves

## Attachment 1: Summary of Information for Transfer of Information per 10CFR21

(i) Name and address of the individual or individuals informing the Commission.

James Pickren
Control Components Incorporated
President- IMI Nuclear
22591 Avenida Empresa, Rancho Santa Margarita, CA 92688

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The basic component that contains a potential defect is Drag® control valves manufactured by CCI. See Attachment 2 for a list of potentially affected valves and the locations of those valves in your facility.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Control Components Incorporated

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

CCI determined that under certain calculated conditions there is the potential for the disk stack to separate (valve cage consisting of brazed disks) within CCI Drag® valves supplied to your facility. CCI has analyzed the valve assemblies and has been unable to rule out disk separation that might impede the valve plug opening, closing or modulating under certain conditions.

(v) The date on which the information of such defect or failure to comply was obtained.

A Potential Reportable Condition Evaluation in accordance with 10CFR Part 21 was initiated on August 24, 2010.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

This notice covers CCI Drag® supplied for safety related applications that require the valve to open, close or modulate as part of its safety function. A list of all valves that have been supplied by CCI is shown in Attachment 2.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has

been or will be taken to complete the action.

- CCI has issued a Transfer of Information to all affected utilities on 29 October 2010 since CCI is unable to make the determination if a reportable condition exists under 10CFR Part 21.21.
- CCI will issue a Technical Bulletin to all affected utilities to provide guidance on inspection and maintenance requirements to insure adequate compressive loading of the disk stack. This will be issued by 5 November, 2010.
- CCI has revised its design and assembly requirements to insure that there is adequate compressive loading on all future valve designs.
- CCI will discontinue sale of valves manufactured with the "old design" to the nuclear industry and will design all spare parts and parts kits sold in the future so as to assure there will be no separations to impede operation.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

CCI's recommendation is to disassemble and inspect the valves that cannot be ruled satisfactory at the next scheduled refueling outage. The inspection would involve measuring the trim height above the body/bonnet interface and reassembly with shims, if necessary, to assure adequate Disk Stack compressible load.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.

	Kor	ea Hydro & Nucle	ear Pov	wer Co., Ltd		
PLANT NAME	AFFECTED VALVES					
	CCI P/N	CCI SERIAL NO.	VALV E QTY.	VALVE TAG NO.	VALVE APPLICATION	
Kori 1	202243-1	103601-010-1/2	2	1-VIA-4345/4346	Compressed Air IE System	
Kori 2	200813-1	101233-010-1	1	2-PCV-135	Low Pressure Let Down	
Kori 2	200813-2	101233-020-1	1	2-HCV-218	Seal Injection Control	
Kori 2	615101-1	615101-1-1	1	FCV205	Normal Charging Flow Control Valve	
Shin-Kori 1&2	201259-207	101941-207-1/2, 101941-227-1/2	4	1/2-527-V-0007/0008	NF Turbine Drip Leg Level Control Valve	
Shin-Wolsong 1&2	201260-207	101942-207-1/2, 101942-227-1/2	4	1/2-527-V-0007/0008	AF Turbine Drip Leg Level Control Valve	
Ulchin 5&6	200062-5	100111-50-1/2, 100249-50-1/2	4	5/6-527-V-0007/0008	AF Turbine Steam Drip Leg Level Control Valve	
Yonggwang 3&4	542471-2	542471-2-3/4	4	3/4-542-VAF-0045/0046	Aux Feed Water Control Valve	