Attachment J-C23.2

National Aeronautics and
Space Administration

John H. Glenn Research Center
Lewis Field
Cleveland, OH 44135–3191

March 23, 2012

Reply to Attn of: QS

TO: FDO/Richard Minter

FROM: QS/Chair, Process Systems Safety Committee (PSSC)

SUBJECT: Operations and Maintenance of North Central Chilled Water System (#009-01-04P) Safety Permit

Attached are an original and a copy of the safety permit covering the subject activity. In accordance with the Glenn Safety Manual, Section 1.A.7.5, you are responsible for the following:

1. Have the original copy of the safety permit posted at the permit area site.
2. Ensure that all conditions listed on the permit are followed and provide required documentation to PSSC. Failure to comply with the procedures and operating conditions found on the safety permit, and of any accompanying documentation, will result in termination of the operation by the Safety Committee Chair and/or the Safety, Health, and Environmental Division.
3. Discuss the requirements of this safety permit with the project team and qualified operators.
4. Keep the PSSC appraised of new hazards and of any changes affecting this activity in purpose, design, operations, procedures, operational limits and constraints, qualified operators, information or supporting documentation from the original Safety Permit Request.
5. Upon completion of the activity, initiate close out of the permit in accordance to Section 1.A.7.6 of the Glenn Safety Manual.

Osvaldo Rivera

3 Enclosures:
1. NASA C-580
2. NASA C-590
3. NASA C-919

cc:
FDO/P. M. Kall
FDS/V. G. Verhoff
QS/SHED File

SAFETY PERMIT

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GLENN RESEARCH CENTER
CLEVELAND, OHIO

Date Issued (mm/yyyy)	Expiration Date (mm/yyyy)
02/2012	02/2014

TITLE: Operations & Maintenance of North Central Chilled Water System

(Limited to 70 characters including blank spaces)

LOCATION OF ACTIVITY: **Bldg 9**

(Indicate facility name, number, cell)

PERMIT NUMBER: **009-01-04P**

EMERGENCY CONTACTS

Name (Knowledgeable person): Don Musick	Work Phone: (216) 433-5737	Home Ph: (440) 885-5137
Name (Alternate contact): Barry Flowe	Work Phone: (216) 433-5606	Home Ph: (440) 263-8327

☑ This permit covers identified PV/S. All required PV/S component (vessels, relief devices, etc.) have been identified and are in the GRC Pressure Systems Database (PSD). The PV/S RAC(s) have been assessed by the Pressure Systems Office (PSO) and are approved to be of acceptable risk. The PSO RAC acceptance letter and PV/S RAC assessment summary is attached.

ACTIVITY DESCRIPTION:

Operations and maintenance of two, 1100-ton (CWG-1, CWG-3) and one 650-ton (CWG-2) chilled water generator, including associated switchgear, equipment and distribution piping in Bldg 9. These closed loop chillers provide 45 degree F cooling water for office and research facilities at GRC. PLC monitoring and control is from Bldg 12.

The following are the systems specifications:

Chilled Water Generator	CWG-1	CWG-2	CWG-3
Refrigerant	R-123, 1850 lb.	R-123, 635 lb.	R-134a, 2900 lb.
Water Pressure Range	60-100 psig	60-100 psig	60-100 psig
Water Temperature Range	40-60 Degrees F	40-60 Degrees F	40-60 Degrees F
Compressor Motor Voltage	2400 VAC	2400 VAC	2400 VAC

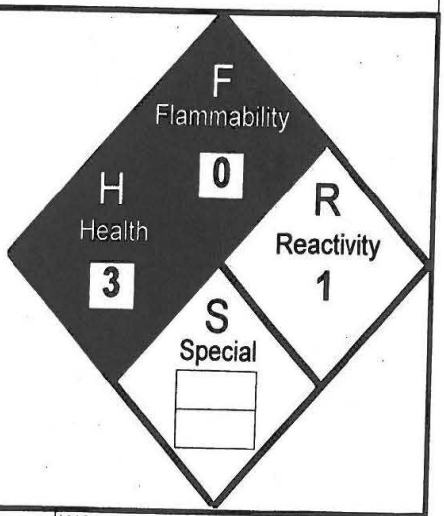
Refrigerant specific detectors monitor the levels of refrigerant in the air inside Bldg 9. This monitoring system provides both warning and evacuation alarms, and activate exhaust vent fans when concentration levels exceed predetermined limits.

System operational description, recommended maintenance intervals, special maintenance considerations and training recommendations are contained in the Operations and Maintenance Manual for NASA Bldg 9 Chiller Mods, Phase II, Project 230-PE-9803.

HAZARDOUS MATERIALS/OPERATION IDENTIFICATION & COMMUNICATION

List predominate materials & approximate amounts	H	F	R	S
R 134A	2	0	0	
CL 4892	3	0	1	
CL 2189T	3	1	1	
CL 6033	3	0	1	

(Additional materials/chemicals listed in MSDS folder)



SAFETY PERMIT REQUESTER (Print name)	ORGANIZATION	WORK PHONE	MAIL STOP
Richard D. Minter	FDO	(216) 433-3161	MS 21-3

SAFETY COMMITTEE CHAIRPERSON (Signature) 3/23/12

ACTIVITY COMPLETED - Requester **sign** and **date** below, then **return** to Glenn Safety Office (MS 6-3)

NASA C-919 (REV 6-2005) Page 1 of 2 Previous editions are obsolete

SAFETY PERMIT

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

GLENN RESEARCH CENTER
CLEVELAND, OHIO

TITLE: Operations & Maintenance of North Central Chilled Water System (Limited to 70 characters including blank spaces)	LOCATION OF ACTIVITY: **Bldg 9** (Indicate facility name, number, cell)
PERMIT NUMBER: **009-01-04P**	
SAFETY PERMIT REVIEWERS: O. Rivera, J. Hritz, B. Hodgson, M. Kudlack, A. Walker	

SAFETY COMMITTEE CONDITIONS FOR CONDUCTING ACTIVITY:
(LIST MINIMUM PERSONAL PROTECTIVE EQUIPMENT REQUIRED)

1. The equipment covered under this permit operates under a NASA STD 8719.17 Exclusion, no. 10-GCE-001, dated 03/02/2010, and thus, is subjected to the conditions stated therein.
2 The North Central Chilled Water system is approved for unattended operation with automatic controls and monitoring from Bldg 12.
3. Qualified Operators and Maintenance personnel shall be used for all operations and maintenance activities. The current Qualified Operators List shall be posted with this safety permit. Proof of compliance of training records and required certifications shall be submitted to the PSSC prior to renewal of this permit.
4. The following written procedures shall be used when operating the system and when performing maintenance activities:

001009	Bldg 9 Chiller Operations	05/25/04
003009	Bldg 9 Equipment Refrigerant Charging Procedure	05/25/04

5. Overpressure protective devices on the refrigerant side of the Chiller Units shall be inspected in accordance with the GRC Recertification Program. Proof of compliance shall be submitted to the PSSC within six month of issuance of this permit.
6. All circuit breakers and motor controllers rated above 600 VAC shall be inspected and maintained annually. Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
7. Protective relays shall be calibrated every three years in accordance with the requirements of HVEPS-01015. Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
8. Troubleshooting of the high voltage electrical switchgear is not permitted while the high voltage bus of that switchgear is energized and can only be done by qualified (high voltage) switchman.
9. All equipment covered under this permit shall be maintained and serviced according to the requirements and procedures under CMMS (MP-2). Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
10. The GRC Lock Out/Tag Out policy and procedures are in effect for this system.
11. The requirements of the "two-person" level of the Glenn Buddy System in accordancw with Chapter 22 of the GRC Safety Manual shall be followed during high voltage switching operations.
12. The requirements of the "Communication-Check" level of the Glenn Buddy System in accordance with Chapter 22 of the GRC Safety Manual shall be followed during operations and maintenance activities.
13. Access to Bldg 9 is limited to authorized and qualified personnel only. Others must be accompanied anc escorted by an authorized person.
14. Posted hearing protection shall be observed at all times. Personnel covered under this permit shall be in the Hearing Protection Conservation Program.
15. Refrigerant detection equipment and the building evacuation alarm system in bldg 9 shall be inspected monthly to verify their operation. The refrigerant detection system equipment shall be calibrated every six months. Proof of compliance shall be submitted to the PSSC prior of renewal of this permit.
16. All MSDS shall be maintained current and kept in file at Bldg 9.
17. The Emergency Evacuation Plan shall be posted at each Bldg entrance.
18. The use of gloves and proper eye protection shall be used when performing refrigerant systems maintenance operations.
19. Backflow prevention devices shall be tested annually. Proof of compliance shall be submitted to PSSC at time of renewal of this permit.

SAFETY PERMIT RENEWAL/CHANGE REQUEST	DATE RECEIVED (Completed by Committee Chair) 01/29/2012	PERMIT NUMBER (To be provided by Committee) 009-01-04P

TITLE (From Safety Permit to be renewed or changed. Note proposed title changes below. Limited to 70 characters including blank spaces)

Operations and Maintenance of North Central Chilled Water System

TO: (Provide area number or special committee name)	PERMIT ISSUE DATE	PERMIT EXPIRATION DATE
SAFETY COMMITTEE	03-2012	03-2014

FROM: Requester Last Name	First Name	MI	Organization	Work Phone	Mail Stop
MINTER	RICHARD	D	FDO0	(216) 433-3161	21-3

A review is required of the activities and supporting documentation associated with the safety permit to be renewed or changed. After conducting this review, check the appropriate box below.

☐ This review identified no new hazards and no changes to the design, operations, constraints, information or supporting documentation from the original Safety Permit Request.

☑ This review identified changes which are described in detail below.

☑ This permit covers identified PV/S. All required PV/S component (vessels, relief devices, etc.) have been identified and are in the GRC Pressure Systems Database (PSD). The PV/S RAC(s) have been assessed by the Pressure Systems Office (PSO) and are approved to be of acceptable risk. The PSO RAC acceptance letter and PV/S RAC assessment summary is attached.

DESCRIPTION OF CHANGES

(Includes details of changes to the design, operations, constraints, information or supporting documentation from the original Safety Permit Request (e.g. Emergency Contacts) and changes to the supporting documentation (e.g., Qualified Operators List, the NASA C-923a Safety Permit Hazard Analysis Worksheet)

A Preventative Maintenance program is established however, 8 mechanical and 18 electrical protective relays in B9 are overdue for testing. Funding for the work is now available but the work has not been approved due to a dispute over the size and scope of the contractor's estimate. As soon as the issue is resolved, the delinquent PM's can be performed.

The required PV/S components have been entered into the PSD. PV/S RAC(s) are not required as system 131-0009-01WC is an excluded system.

SAFETY PERMIT REQUESTER (Sign and date)	SUPERVISOR OF REQUESTER (Print name, sign and date)	WORK PHONE
Richard D Minter 1/26/12	James Onest James J Onest 1/26/12	(216) 433-6217

NASA TECHNICAL SUPERVISOR (Required if Safety Permit Requester is a contractor. Print name, sign and date)	WORK PHONE	INSTRUCTIONS: Attach a copy of the original Safety Permit, C-923a-Hazardous Analysis Worksheet, and C-580-Qualified Operators List, to this request along with any modified supporting documentation and send to the Glenn Safety Office. Refer to the Glenn Safety Manual, Chapter 1, for additional information.
Richard Minter	(216) 433-3161	

NASA C-500 (REV. 6 2005)

QUALIFIED OPERATORS LIST	DATE RECEIVED (Completed by Committee Chair)	PERMIT NUMBER (To be provided by Committee) 009-01-04P

TITLE (From Safety Permit Request. Limited to 70 characters including blank spaces)
North Chilled Water System

LOCATION OF ACTIVITY (Include facility name, number, cell)
Building 9

EXPERIENCE, TRAINING AND OTHER PROGRAM REQUIREMENTS

(Provide a description of the requirements to be a Qualified Operator. Training requirements can include formal education, work-mandated instruction or classes, and on-the-job training. Other program requirements may involve fitness or medical clearance or a specific program qualification/certification. Examples include, but are not limited to, respirator fit-testing and medical clearance, laser baseline eye exam, audiometric testing, lifting device or "crane" physical, powered-industrial truck "license," etc. Reference written procedures and manuals as appropriate in identifying training, medical and/or other requirements. Line management will implement training and other program requirements to certify Qualified Operator(s) and will review this form at the time of Safety Permit renewal.)

Prior to achieving "qualified operator" status, each technician must have demonstrated a though understanding the equipment to be operated (and/or maintained), including the purpose of all safety and the consequences of ignoring or bypassing them.
Prior to achieving "qualified operator" status, technicians must be familiar with the location and function of all gauges and monitoring points, and must be able to properly utilize and associated check sheets and logbooks intended to ensure safe operation.
Prior to achieving "qualified operator" status, technicians must be able to recognize all warnings of unsafe or unusual chiller operation, and must be able to initiate emergency shutdown procedures if necessary.
Prior to achieving "qualified operator" status, technicians must be able to read, understand and take appropriate and authorized actions on abnormal refrigerant monitor readings.
For independent (unsupervised) operation of chiller equipment in the above facilities, each technician must have first completed at least 30 (cumulative) days of on-the-job training, under the direction of a qualified operator, and during which at least a portion of each day was dedicated to chiller operation and/or maintenance.
Chiller operations that are initiated from remote terminals are excluded from the above requirements, providing those operations can only tad place if all predefined and monitored safety conditions are met.
A "qualified" technician holding a valid CFC license must perform all chiller maintenance activities that involve the addition, transfer, recovery, or possible release of any regulated refrigerant.

QUALIFIED OPERATORS

NAME	ORG.	NAME	ORG.
Gary Andryszczyk	CHI	Kevin McKinley	CHI
Brian Hartman	CHI		
Brian Jones	CHI		
Mike Krysiak	CHI		
Don First	CHI		
Darrell Finley	CHI		
Brian Logue	CHI		
Don Musick	CHI		
Glenn Edgerton	CHI		
Dean Marquette	CHI		

SUPERVISOR(S) OF QUALIFIED OPERATOR(S) (Print name, work phone, sign and date)
Barry Flowe Barry Flowe (216) 433-5606 1/26/12

SAFETY PERMIT REQUESTER (sign and date)	SUPERVISOR OF REQUESTER (Print name, sign and date)	WORK PHONE
Richard Minter 1/26/12	James Onest 1/26/12	(216) 433-6217

NASA TECHNICAL SUPERVISOR (Required if Safety Permit Requester is a contractor. Print name, sign and date)	WORK PHONE	INSTRUCTIONS: Send this form with the Safety Permit Request to the Glenn Safety Office. After GSO review, send form and permit request information to the Area Safety Committee Chair. Place a copy with the posted Safety Permit.
Richard Minter 1/26/12	(216) 433-3161	

NASA C-580 (REV. 11-2006)

National Aeronautics and
Space Administration

John H. Glenn Research Center
Lewis Field
Cleveland, OH 44135-3191

March 23, 2012

Reply to Attn of: QS

TO: FDO/Richard Minter

FROM: QS/Chair, Process Systems Safety Committee (PSSC)

SUBJECT: Operations and Maintenance of South Central Chilled Water System (#094-01-01P) Safety Permit

Attached are an original and a copy of the safety permit covering the subject activity. In accordance with the Glenn Safety Manual, Section 1.A.7.5, you are responsible for the following:

1. Have the original copy of the safety permit posted at the permit area site.

2. Ensure that all conditions listed on the permit are followed and provide required documentation to PSSC. Failure to comply with the procedures and operating conditions found on the safety permit, and of any accompanying documentation, will result in termination of the operation by the Safety Committee Chair and/or the Safety, Health, and Environmental Division.

3. Discuss the requirements of this safety permit with the project team and qualified operators.

4. Keep the PSSC appraised of new hazards and of any changes affecting this activity in purpose, design, operations, procedures, operational limits, and constraints, qualified operators, information or supporting documentation from the original Safety Permit Request.

5. Upon completion of the activity, initiate close out of the permit in accordance to Section 1.A.7.6 of the Glenn Safety Manual.

Osvaldo Rivera

Osvaldo Rivera

3 Enclosures:
1. NASA C-580
2. NASA C-590
3. NASA C-919

SAFETY PERMIT	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION GLENN RESEARCH CENTER CLEVELAND, OHIO	Date Issued (mm/yyyy) 02/2012	Expiration Date (mm/yyyy) 02/2014
TITLE: South Central Chilled Water System, Operation & Maint, Bldg 94 (Limited to 70 characters including blank spaces)		LOCATION OF ACTIVITY: **Bldg. 94** (Indicate facility name, number, cell)	
PERMIT NUMBER: **094-01-01P**			

EMERGENCY CONTACTS

Name (Knowledgeable person): Don Musick	Work Phone: (216) 433-5737	Home Ph: (440) 885-5137
Name (Alternate contact): Barry Flowe	Work Phone: (216) 433-5606	Home Ph: (440) 263-8327

☑ This permit covers identified PV/S. All required PV/S component (vessels, relief devices, etc.) have been identified and are in the GRC Pressure Systems Database (PSD). The PV/S RAC(s) have been assessed by the Pressure Systems Office (PSO) and are approved to be of acceptable risk. The PSO RAC acceptance letter and PV/S RAC assessment summary is attached.

ACTIVITY DESCRIPTION:

Operations and maintenance of three, 600-ton (CWG-1, CWG-2, & CWG-3) and one 1200-ton (CWG-4) chilled water generator, including associated switchgear, equipment, and distribution piping in Bldg 94. These closed loop chillers provide 45 degree F cooling water services for office and research facilities at GRC. PLC monitoring and control is from Bldg 12.

The following are the systems specifications:

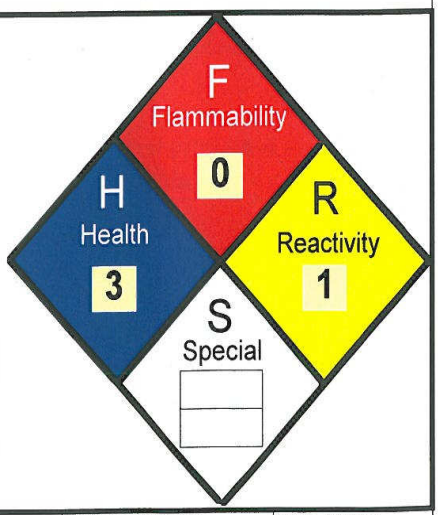
Chilled Water Generator	CWG-1, 2 & 3	CWG-4
Refrigerant	R-123, 1000 lb.	R-22, 2300 lb
Water Pressure Range	60-100 psig	60-100 psig
Water Temperature Range	40-60 Degrees F	40-60 Degrees F
Compressor Motor Voltage	2400 VAC	2400 VAC

Refrigerant specific detectors monitor the levels of refrigerant in the air inside Bldg 94. This monitoring system provides both warning and evacuation alarms, and activate exhaust vent fans when concentration levels exceed predetermined limits.

System operational description, recommended maintenance intervals, special maintenance considerations and training recommendations are contained in the Operations and Maintenance Manual for NASA Bldg 94 Chiller Plant Automation Project 230-PE-2137, Revised 2/8/01.

HAZARDOUS MATERIALS/OPERATION IDENTIFICATION & COMMUNICATION

List predominate materials & approximate amounts	H	F	R	S
R 22	3	0	1	
CL 1432	3	0	1	
CL 6033	3	0	1	
CL 2150	3	0	1	



(Additional materials/chemicals listed in MSDS folder)

SAFETY PERMIT REQUESTER (Print name)	ORGANIZATION	WORK PHONE	MAIL STOP
Richard Minter	FDO	(216) 433-3161	MS 21-3

SAFETY COMMITTEE CHAIRPERSON (Signature)	ACTIVITY COMPLETED - Requester **sign** and **date** below, then **return** to Glenn Safety Office (MS 6-3)
Gerald Quinn 3/23/12	

NASA C-919 (REV 6-2005) Page 1 of 2 Previous editions are obsolete

SAFETY PERMIT

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GLENN RESEARCH CENTER
CLEVELAND, OHIO

TITLE: South Central Chilled Water System, Operation & Maint, Bldg 94 (Limited to 70 characters including blank spaces)	LOCATION OF ACTIVITY: **Bldg. 94** (Indicate facility name, number, cell)
PERMIT NUMBER: **094-01-01P**	
SAFETY PERMIT REVIEWERS: O. Rivera, J. Hritz, S. Wnuk, B. Hodgson, M. Kudlac, and A. Walker	

SAFETY COMMITTEE CONDITIONS FOR CONDUCTING ACTIVITY:
(LIST MINIMUM PERSONAL PROTECTIVE EQUIPMENT REQUIRED)

1. The equipment covered under this permit operates under a NASA STD 8719.17 Exclusion, no. 10-GCE-001, dated 03/02/2010, and thus, is subjected to the conditions stated therein.
2 The South Central Chilled Water system is approved for unattended operation with automatic controls and monitoring from Bldg 12.
3. Qualified Operators and Maintenance personnel shall be used for all operations and maintenance activities. The current Qualified Operators List shall be posted with this safety permit. Proof of compliance of training records and required certifications shall be submitted to the PSSC prior to renewal of this permit.
4. The following written procedures shall be used when operating the system and when performing maintenance activities:

001094	Bldg 94 Chiller Operations	05/25/04
003094	Bldg 94 Equipment Refrigerant Charging Procedure	05/25/04

5. Overpressure protective devices on the refrigerant side of the Chiller Units shall be inspected in accordance with the GRC Recertification Program. Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
6. All circuit breakers and motor controllers rated above 600 VAC shall be inspected and maintained annually. Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
7. Protective relays shall be calibrated every three years in accordance with the requirements of HVEPS - 01015. Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
8. Troubleshooting of the high voltage electrical switchgear is not permitted while the high voltage bus of that switchgear is energized and can only be done by qualified (high voltage) switchman
9. All equipment covered under this permit shall be maintained and serviced according to the requirements and procedures under CMMS (MP-2). Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
10. The GRC Lock Out/Tag Out policy and procedures are in effect for this system.
11. The requirements of the "two-person" level of the Glenn Buddy System in accordance with Chapter 22 of the GRC Safety Manual shall be followed during high voltage switching operations.
12. The requirements of the "Communication-Check" level of the Glenn Buddy System in accordance with Chapter 22 of the GRC Safety Manual shall be followed during operations and maintenance activities.
13. Access to Bldg 94 is limited to authorized and qualified personnel only. Others must be accompanied and escorted by an authorized person.
14. Posted hearing protection shall be observed at all times. Personnel covered under this permit shall be in the Hearing Protection Conservation Program.
15. Refrigerant detection equipment and the building evacuation alarm system in Bldg 94 shall be inspected monthly to verify their operation. The refrigerant detection system equipment shall be calibrated every six months. Proof of compliance shall be submitted to the PSSC prior of renewal of this permit.
16. All MSDS shall be maintained current and kept in file at Bldg 94.
17. The Emergency Evacuation Plan shall be posted at each Bldg entrance.
18. The use of gloves and proper eye protection shall be used when performing refrigerant systems maintenance operations.
19. Backflow prevention devices shall be tested annually. Proof of compliance shall be submitted to PSSC at time of renewal of this permit.

NASA C-919 (REV. 6-2005) Page 2 of 2 Previous editions are obsolete

SAFETY PERMIT	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION GLENN RESEARCH CENTER CLEVELAND, OHIO	Date Issued (mm/yyyy) 02/2012	Expiration Date (mm/yyyy) 02/2014
TITLE: South Central Chilled Water System, Operation & Maint, Bldg 94 (Limited to 70 characters including blank spaces)		LOCATION OF ACTIVITY: Bldg. 94 (Indicate facility name, number, cell)	
PERMIT NUMBER: 094-01-01P			

EMERGENCY CONTACTS

Name (Knowledgeable person): Don Musick	Work Phone: (216) 433-5737	Home Ph: (440) 885-5137
Name (Alternate contact): Barry Flowe	Work Phone: (216) 433-5606	Home Ph: (440) 263-8327

☑ This permit covers identified PV/S. All required PV/S component (vessels, relief devices, etc.) have been identified and are in the GRC Pressure Systems Database (PSD). The PV/S RAC(s) have been assessed by the Pressure Systems Office (PSO) and are approved to be of acceptable risk. The PSO RAC acceptance letter and PV/S RAC assessment summary is attached.

ACTIVITY DESCRIPTION:

Operations and maintenance of three, 600-ton (CWG-1, CWG-2, & CWG-3) and one 1200-ton (CWG-4) chilled water generator, including associated switchgear, equipment, and distribution piping in Bldg 94. These closed loop chillers provide 45 degree F cooling water services for office and research facilities at GRC. PLC monitoring and control is from Bldg 12.

The following are the systems specifications:

Chilled Water Generator	CWG-1, 2 & 3	CWG-4
Refrigerant	R-123, 1000 lb.	R-22, 2300 lb
Water Pressure Range	60-100 psig	60-100 psig
Water Temperature Range	40-60 Degrees F	40-60 Degrees F
Compressor Motor Voltage	2400 VAC	2400 VAC

Refrigerant specific detectors monitor the levels of refrigerant in the air inside Bldg 94. This monitoring system provides both warning and evacuation alarms, and activate exhaust vent fans when concentration levels exceed predetermined limits.

System operational description, recommended maintenance intervals, special maintenance considerations and training recommendations are contained in the Operations and Maintenance Manual for NASA Bldg 94 Chiller Plant Automation Project 230-PE-2137, Revised 2/8/01.

HAZARDOUS MATERIALS/OPERATION IDENTIFICATION & COMMUNICATION

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CL 1432	3	0	1	
CL 6033	3	0	1	
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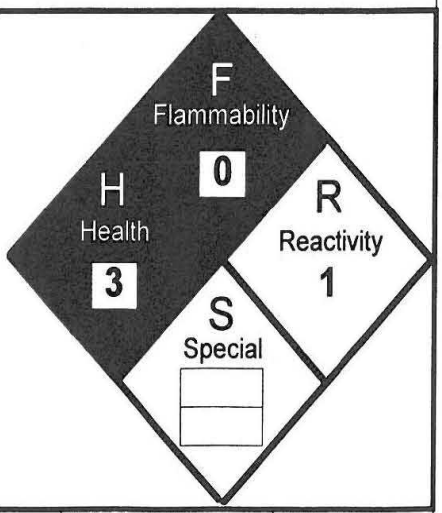

(Additional materials/chemicals listed in MSDS folder)

SAFETY PERMIT REQUESTER (Print name)	ORGANIZATION	WORK PHONE	MAIL STOP
Richard Minter	FDO	(216) 433-3161	MS 21-3

SAFETY COMMITTEE CHAIRPERSON (Signature)	ACTIVITY COMPLETED - Requester **sign** and **date** below, then **return** to Glenn Safety Office (MS 6-3)
3/23/12	

NASA C-919 (REV 6-2005) Page 1 of 2 Previous editions are obsolete

SAFETY PERMIT

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GLENN RESEARCH CENTER
CLEVELAND, OHIO

TITLE: South Central Chilled Water System, Operation & Maint, Bldg 94 (Limited to 70 characters including blank spaces)	LOCATION OF ACTIVITY: **Bldg. 94** (Indicate facility name, number, cell)
PERMIT NUMBER: **094-01-01P**	
SAFETY PERMIT REVIEWERS: O. Rivera, J. Hritz, S. Wnuk, B. Hodgson, M. Kudlac, and A. Walker	

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001094	Bldg 94 Chiller Operations	05/25/04
003094	Bldg 94 Equipment Refrigerant Charging Procedure	05/25/04

5. Overpressure protective devices on the refrigerant side of the Chiller Units shall be inspected in accordance with the GRC Recertification Program. Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
6. All circuit breakers and motor controllers rated above 600 VAC shall be inspected and maintained annually. Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
7. Protective relays shall be calibrated every three years in accordance with the requirements of HVEPS - 01015. Proof of compliance shall be submitted to the PSSC prior to renewal of this permit.
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13. Access to Bldg 94 is limited to authorized and qualified personnel only. Others must be accompanied and escorted by an authorized person.
14. Posted hearing protection shall be observed at all times. Personnel covered under this permit shall be in the Hearing Protection Conservation Program.
15. Refrigerant detection equipment and the building evacuation alarm system in Bldg 94 shall be inspected monthly to verify their operation. The refrigerant detection system equipment shall be calibrated every six months. Proof of compliance shall be submitted to the PSSC prior of renewal of this permit.
16. All MSDS shall be maintained current and kept in file at Bldg 94.
17. The Emergency Evacuation Plan shall be posted at each Bldg entrance.
18. The use of gloves and proper eye protection shall be used when performing refrigerant systems maintenance operations.
19. Backflow prevention devices shall be tested annually. Proof of compliance shall be submitted to PSSC at time of renewal of this permit.

SAFETY PERMIT RENEWAL/CHANGE REQUEST	DATE RECEIVED (Completed by Committee Chair) 1/29/12	PERMIT NUMBER (To be provided by Committee) 094-01-01P

TITLE (From Safety Permit to be renewed or changed. Note proposed title changes below. Limited to 70 characters including blank spaces)

Operation and Maintenance of the South Central Chilled Water System

TO: (Provide area number or special committee name)	PERMIT ISSUE DATE	PERMIT EXPIRATION DATE
SAFETY COMMITTEE	03-2012	03-2014

FROM: Requester Last Name	First Name	MI	Organization	Work Phone	Mail Stop
MINTER	RICHARD	D	FDO0	(216) 433-3161	21-3

A review is required of the activities and supporting documentation associated with the safety permit to be renewed or changed. After conducting this review, check the appropriate box below.

☑ This review identified no new hazards and no changes to the design, operations, constraints, information or supporting documentation from the original Safety Permit Request.

☐ This review identified changes which are described in detail below.

☐ This permit covers identified PV/S. All required PV/S component (vessels, relief devices, etc.) have been identified and are in the GRC Pressure Systems Database (PSD). The PV/S RAC(s) have been assessed by the Pressure Systems Office (PSO) and are approved to be of acceptable risk. The PSO RAC acceptance letter and PV/S RAC assessment summary is attached.

DESCRIPTION OF CHANGES
(Includes details of changes to the design, operations, constraints, information or supporting documentation from the original Safety Permit Request (e.g. Emergency Contacts) and changes to the supporting documentation (e.g., Qualified Operators List, the NASA C-923a Safety Permit Hazard Analysis Worksheet)

SAFETY PERMIT REQUESTER (Sign and date)	SUPERVISOR OF REQUESTER (Print name, sign and date)	WORK PHONE
Richard D Minter 1/26/12	James Onest 1/26/12	(216) 433-6217

NASA TECHNICAL SUPERVISOR (Required if Safety Permit Requester is a contractor. Print name, sign and date)	WORK PHONE	INSTRUCTIONS: Attach a copy of the original Safety Permit, C-923a-Hazardous Analysis Worksheet, and C-580-Qualified Operators List, to this request along with any modified supporting documentation and send to the Glenn Safety Office. Refer to the Glenn Safety Manual, Chapter 1, for additional information.
Richard Minter	(216) 433-3161	

NASA C-590 (REV. 6-2005)

QUALIFIED OPERATORS LIST	DATE RECEIVED (Completed by Committee Chair)	PERMIT NUMBER (To be provided by Committee) 094-01-01P

TITLE (From Safety Permit Request. Limited to 70 characters including blank spaces)
South Central Chilled Water System

LOCATION OF ACTIVITY (Include facility name, number, cell)
Building 94

EXPERIENCE, TRAINING AND OTHER PROGRAM REQUIREMENTS
(Provide a description of the requirements to be a Qualified Operator. Training requirements can include formal education, work-mandated instruction or classes, and on-the-job training. Other program requirements may involve fitness or medical clearance or a specific program qualification/certification. Examples include, but are not limited to, respirator fit-testing and medical clearance, laser baseline eye exam, audiometric testing, lifting device or "crane" physical, powered-industrial truck "license," etc. Reference written procedures and manuals as appropriate in identifying training, medical and/or other requirements. Line management will implement training and other program requirements to certify Qualified Operator(s) and will review this form at the time of Safety Permit renewal.)

Prior to achieving "qualified operator" status, each technician must have demonstrated a though understanding the equipment to be operated (and/or maintained), including the purpose of all safety and the consequences of ignoring or bypassing them.
Prior to achieving "qualified operator" status, technicians must be familiar with the location and function of all gauges and monitoring points, and must be able to properly utilize and associated check sheets and logbooks intended to ensure safe operation.
Prior to achieving "qualified operator" status, technicians must be able to recognize all warnings of unsafe or unusual chiller operation, and must be able to initiate emergency shutdown procedures if necessary.
Prior to achieving "qualified operator" status, technicians must be able to read, understand and take appropriate and authorized actions on abnormal refrigerant monitor readings.
For independent (unsupervised) operation of chiller equipment in the above facilities, each technician must have first completed at least 30 (cumulative) days of on-the-job training, under the direction of a qualified operator, and during which at least a portion of each day was dedicated to chiller operation and/or maintenance.
Chiller operations that are initiated from remote terminals are excluded from the above requirements, providing those operations can only tad place if all predefined and monitored safety conditions are met.
A "qualified" technician holding a valid CFC license must perform all chiller maintenance activities that involve the addition, transfer, recovery, or possible release of any regulated refrigerant.

QUALIFIED OPERATORS

NAME	ORG.	NAME	ORG.
Gary Andryszczyk	CHI		
Brian Hartman	CHI		
Brian Jones	CHI		
Mike Krysiak	CHI	Kevin McKinley	CHI
Don First	CHI		
Darrell Finley	CHI		
Brian Logue	CHI		
Don Musick	CHI		
Glenn Edgerton	CHI		
Dean Marquette	CHI		

SUPERVISOR(S) OF QUALIFIED OPERATOR(S) (Print name, work phone, sign and date)
Barry Flowe Barry Flowe (216)433-5606 1/26/12

SAFETY PERMIT REQUESTER (sign and date)	SUPERVISOR OF REQUESTER (Print name, sign and date)	WORK PHONE
Richard Minter 1/26/12	James Onest 1/26/12	(216) 433-6217

NASA TECHNICAL SUPERVISOR (Required if Safety Permit Requester is a contractor. Print name, sign and date)	WORK PHONE	INSTRUCTIONS: Send this form with the Safety Permit Request to the Glenn Safety Office. After GSO review, send form and permit request information to the Area Safety Committee Chair. Place a copy with the posted Safety Permit.
Richard Minter 1/26/12	(216) 433-3161	

NASA C-580 (REV. 11-2006)