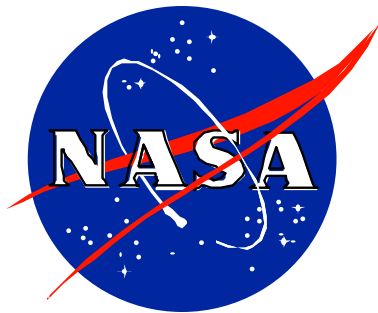


Neutral Buoyancy Laboratory Guest Diving Application Procedure

EVA, Robotics, & Crew Systems Operations
Division

Flight Operations Directorate

March 2017



National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas

Internal Publication Notice: This publication does not contain information which falls under the purview of the U.S. Munitions List (USML), as defined in the International Traffic in Arms Regulations (ITAR), 22 CFR 120-130 or the Export Administration Regulations (EAR), 15 CFR 730-744, and is not export controlled. This publication is not intended for distribution outside of NASA and its contractors. Release to the public requires approval of Flight Operations Directorate Office of Primary Responsibility through the appropriate NASA Release Process (e.g., FOIA, NASA STI, etc.).

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page ii of iv

CX12 RELEASE AUTHORIZATION

Document reviewed and approved by CX12 Configuration Control Board (CCB) on 06 March 2017 with electronic signatures captured in the SharePoint Documentation Management tool and recorded in meeting minutes on the CX12 CCB MATS site.

Direct your comments and questions regarding this document to the NBO Operations Manager or the NBO Chief.

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page iii of iv

CHANGE RECORD

Revision	Date	Originator	Description
Basic	04/16/2010	Marq Gibbs	Initial release
A	8/25/2010	Marq Gibbs	Updated the guest diver medical physical requirements per memo SD-10-195, dated July 21, 2010. Guest diver physical changed from annual to once every three years. Changed Air Force Class III physical to Dive Physical.
B	1/26/2012	Ryan Wannemacher for Marq Gibbs	General clean-up/clarify exempt, non-exempt status.
C	3/4/2013	Dan Sedej	Major rewrite of document to capture process for Non-NASA applicants.
D	08/24/2015	Dan Sedej; Lane Honeycutt	Corrected Guest Diver email and added email for sending physicals to HTSG and removed references to "EVA Office"
E	06/06/2016	Staci Stephenson	Updated Section 9 to clarify dive request process.
F	03/06/2017	Staci Stephenson	Updated Section 3.4 to correct dive physical schedule from three to one year.

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page iv of iv

TABLE OF CONTENTS

1.	INTRODUCTION.....	1
1.1	<i>Purpose.....</i>	1
1.2	<i>Scope.....</i>	1
2.	SAFETY PRECAUTIONS AND WARNING.....	1
3.	REQUIREMENTS TO DIVE.....	1
3.1	<i>Swimming and SCUBA Skills.....</i>	1
3.2	<i>Endorsement to Guest Dive.....</i>	1
3.3	<i>SCUBA Certifications.....</i>	1
3.4	<i>Medical Dive Physical Requirements.....</i>	1
4.	RESPONSIBILITIES.....	2
4.1	<i>Guest Diver Applicant.....</i>	2
4.2	<i>NBL Operations Contractor.....</i>	2
4.3	<i>Neutral Buoyancy Office.....</i>	2
4.4	<i>Deleted Section.....</i>	3
4.5	<i>Human Test Support Group.....</i>	3
5.	APPLICATION PROCESS.....	3
5.1.	<i>Approval Request Process.....</i>	3
5.2	<i>Approval/Denial Process.....</i>	4
5.3	<i>Appeals Process.....</i>	4
6.	TRAINING AND RECORD KEEPING.....	5
7.	CURRENCY RETENTION.....	5
8.	ANNUAL SCUBA SKILLS.....	5
9.	DIVE REQUEST PROCESS FOR APPROVED/CURRENT GUEST DIVERS.....	5
10.	QUALITY RECORDS AND FORMS.....	6
11.	REFERENCES.....	6
11.1	<i>Definitions and Acronyms.....</i>	6
11.2	<i>Definitions.....</i>	6
11.3	<i>Referenced Documents.....</i>	7

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page 1 of 7

1. INTRODUCTION

1.1 Purpose

The purpose of this document is to establish procedures for Neutral Buoyancy Laboratory (NBL) guest diver application, approval, and retention. This includes the approval and appeals process, requirements for maintaining diving currency, and the process for scheduling training and skills assessment dives.

1.2 Scope

This instruction applies to all personnel requesting access to guest SCUBA dive in the NBL who are not part of an NBL External Customer activity covered under a Space Act Agreement Annex.

NASA and NASA Contractor Applicants as used in this document refer to anyone with a NASA/JSC badge.

Non-NASA Applicant refers to anyone without a NASA/JSC badge.

2. SAFETY PRECAUTIONS AND WARNING

All NBL diving operations are classified as hazardous, and SCUBA diving is a physically demanding and rigorous duty.

3. REQUIREMENTS TO DIVE

3.1 Swimming and SCUBA Skills

Individuals are encouraged to initiate a swim skills physical conditioning program prior to applying. It is not the responsibility of the NBL to teach basic swim or SCUBA skills. Individuals unable to pass a swim skills test will not be permitted to continue into the SCUBA training phase.

3.2 Endorsement to Guest Dive

All applicants must obtain an endorsement to Guest Dive from one of the following: NBL Office Chief, applicant's NASA home organization, JSC Directorate or Office

3.3 SCUBA Certifications

Individuals seeking guest diver privileges shall be SCUBA certified by a nationally recognized agency (National Association of Underwater Instructors (NAUI), Professional Association of Dive Instructors (PADI), SCUBA Schools International (SSI), etc.). Astronauts may qualify by completing an NBL SCUBA training course provided by staff instructors in lieu of a national certification.

3.4 Medical Dive Physical Requirements

All Guest SCUBA divers must have a current dive physical that allows them to dive.

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page 2 of 7

NASA and NASA Contractor Applicants must have a Dive Physical performed by the JSC Clinic. This can be done by submitting JSC Form 270 to the JSC Clinic to request a JSC approved Dive Physical. The physical is good for one year.

Non-NASA Applicants must have a Dive Physical within the last year and have their physical test results approved by the NBL Dive Physician.

If one of the following Dive Physicals were completed:

- U.S. Navy
- ADC (Association of Diving Contractors)
- The Medical Examination and Assessment of Divers (MA1) British Health and Safety Commission (the standard for commercial divers in the UK)

The Dive Physical results can be sent for evaluation by calling (281) 792-5722/5774 to receive a JSC-KRYPTIQ email link.

If a different Dive Physical was completed, the Dive Physical test results must be documented by a physician on JSC FORM 1830 - REPORT OF MEDICAL EXAMINATION and sent to the Human Test Support Group for evaluation.

4. RESPONSIBILITIES

4.1 *Guest Diver Applicant*

- a. Complete the Application Process defined in this document.
- b. Obtain approved dive physical status as defined in the Medical Requirements section of this document
- c. Complete the training requirements for Guest Divers as defined in "NBL Training Requirements, CX12-POL0004"

4.2 *NBL Operations Contractor*

The NBL operations contractor shall be responsible for:

- a. Screening all guest diver applications.
- b. Maintaining the guest diver list, diver files and database.
- c. Under the direction of the NBL Ops Manager/Deputy Chief, send notifications of guest diver's status via email monthly.
- d. Scheduling and conducting all guest diver training activities.
- e. Managing the guest diver program under the authority of the NBO.

4.3 *Neutral Buoyancy Office*

The NBO shall be responsible for:

- a. Direct oversight of the guest diver program.

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page 3 of 7

- b. Approving all guest divers for NBL diving privileges.
- c. Determine if a swimming and/or diving evaluations are required
- d. Notifying the guest diver regarding any change in an individual's status, or the status of the guest diving program.

4.4 Deleted Section

4.5 Human Test Support Group

The Human Test Support Group shall be responsible for:

- a. Approving dive physicals for non-NASA Affiliated Guest Divers
- b. Conducting NBL morning dive physicals.

5. APPLICATION PROCESS

Requests submitted shall be screened and appropriately dispositioned (approved, returned or disapproved). The following steps shall be followed for the application, screening, approval and appeal for diving access as an NBL Guest Diver.

5.1. Approval Request Process

NASA and NASA Contractor applicants shall submit a request to become a guest diver or to renew their approval, via e-mail, to JSC-NBL-GUEST-DIVER-REQUESTS. The NBL operations contractor will forward to the NBO when adequate information has been received. The request shall include the following information.

- a. Applicant name, job title and JSC mail code.
- b. Requested time period and need dates for diving.
- c. Note of Endorsement to guest dive.

For Non-NASA Applicants NASA shall submit a dive request on their behalf to JSC-NBL-GUEST-DIVER-REQUESTS. The request shall include the following information.

- a. Applicant name & company.
- b. Reason for diving
- c. Date and Time period for diving.
- d. Endorsement to Guest dive from the NBL Office Chief.
- e. E-mail and phone number contact information
- f. The approximate number of total dives, dives in the last year, when and where the most recent dive was done.
- g. A statement if the Swim Test and SCUBA skills are not required. (Based on assessment of information provided on dive experience)
- h. Approval to use their own dive gear other than NBL provided mask and fins.

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page 4 of 7

Upon receiving the request, the NBL Operations contractor will notify the Human Test Support Group of the guest diver's approval. The Human Test Support Group will forward the medical requirements, medical forms, and Release of Liability Waiver to the applicant.

5.2 Approval/Denial Process

NASA and NASA Contractor Applicants

If Approved:

- a. The NBO shall notify the NBL operations contractor via e-mail.
- b. The NBL Operations contractor shall notify the applicant.
- c. Upon approval of Medical Dive Physical, the applicant shall schedule their SCUBA training sessions through the NBL Scheduling Office (mail to: JSC-NBL-GUEST-DIVER-REQUESTS).

The NBL operations contractor shall create a diver file and verify currency of applicant's JSC approved dive physical prior to start of training.

If Denied:

- a. The NBO shall notify the applicant of denial.
- b. Denial notification will be done via e-mail and include rationale.

Non-NASA Applicants

If Approved:

- a. The Human Test support group shall notify the NBL operations contractor via e-mail that the Guest Diver is cleared to dive.
- b. The NBL Operations contractor will contact the Guest Diver and schedule a time to conduct the Diver Orientation Briefing and if needed, conduct the Swim and SCUBA Skills assessment.
- c. The NBL operations contractor shall record diver information and medical approval to dive.

If Denied:

- a. The Human Test Support Group will notify the non-NASA Applicant and NBL Operations Contractor if the applicant is medically disqualified.
- b. The NBL Operations contractor will inform the NASA person who submitted the request.

5.3 Appeals Process

NASA and NASA Contractor Applicant who work at JSC can initiate the appeals process by providing the following to the NBO:

- a. Rationale cited by NBO for rejection.
- b. Copy of Guest Diver application.
- c. Any additional information for case argument.

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page 5 of 7

NBO shall review and rule on appeal but may extend the review period via written notification. NBO shall notify all parties upon ruling, and all decisions are final.

There's no appeal process for non-NASA Applicant guest divers.

6. TRAINING AND RECORD KEEPING

Guest diver training shall be conducted in accordance with the operations contractor's work instruction, NBL-DIVE-WI0032, "NBL Diver Training Procedure".

- a. The NBL operations contractor shall notify the NBO when a candidate does not pass the required training. .
- b. The NBO shall determine if remedial training is warranted, and notify the applicant if remedial training and diving privileges are denied.
- c. All Guest Divers who dive in the NBL will be entered into the diver database and their records shall be maintained by the NBL operations contractor.

7. CURRENCY RETENTION

- a. The initial qualification period starts immediately upon approval.
- b. Guest diver qualification does not expire for Astronauts (including international partner astronauts), NBL operations NASA/contractor staff.
- c. For everyone else qualification is valid for up to one year, at which time, divers may re-apply for guest diving privileges.

8. ANNUAL SCUBA SKILLS

The annual SCUBA skills for NASA and NASA Contractor Guest Divers shall be conducted in accordance with the operations contractor's work instruction, "NBL Diver Training Procedure," NBL-DIVE-WI0032. The Guest Diver must successfully complete all required skills. This is to be scheduled through the NBL scheduling office by sending an e-mail to: [JSC-NBL-GUEST-DIVER-REQUESTS](#).

This does not apply to non-NASA applicant guest divers.

9. DIVE REQUEST PROCESS FOR APPROVED/CURRENT GUEST DIVERS

NASA and NASA Contractor guest divers shall submit, via e-mail, no less than 24 hours prior to the event, the following information to the NBL Scheduling Office (mail to: JSC-NBL-GUEST-DIVER-REQUESTS). The request shall include the following information:

- a. Date of dive
- b. Time of dive
- c. Dive objective
- d. Diver full names (including buddy)

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page 6 of 7

- e. Specify if dive is a Guest Dive Plus with tools
- f. Verify divers will get their daily dive physicals between 0730 & 0800. If not request an off nominal time via email to JSC-DL-NBL-PHYSICALS-MEDICALGROUP@mail.nasa.gov

Note: Do not dive within 12 hours prior to diving at the NBL.

The NBL operations contractor shall verify the following certifications are current prior to approving a guest dive request for NASA and NASA Contractor Applicants:

- a. JSC Diver Physical
- b. SCUBA Skills
- c. Guest Diver Approval Status (if applicable)

10. QUALITY RECORDS AND FORMS

Quality Record	Record Custodian
Diver Training Checklist, Attachment B, NBL Diver Training Procedure, NBL-DIVE-WI0032	NSOC Training Department
NBL Diver Orientation Roster, Attachment A, NBL Diver Training Procedure, NBL-DIVE-WI0032	NBL Dive Operations Administrative Assistant

11. REFERENCES

11.1 Definitions and Acronyms

Refer to CX12-REF0001, NBL Definitions and Acronyms for a complete listing of NBL Definitions and Acronyms.

11.2 Definitions

Phrase	Definition
Annual SCUBA Skills	Basic SCUBA skills a guest diver must demonstrate to an NBL instructor yearly to maintain their guest diver status.
Appeals Process	Process in which an applicant may appeal to the NBO when denied access as an NBL guest diver.
Direct Operational Support	Diving support critical to an NBL training operation or event. Examples are configured SCUBA runs and developmental or verification runs using SCUBA or SSDS.
Nationally Recognized Dive Agency	A dive certifying agency such as NAUI, or PADI. This also includes commercial diving schools and military training programs.
Operations Contractor	The contractor responsible for the operations, training and maintenance in the NBL.

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.

Johnson Space Center Work Instruction Procedure	NBL Guest Diving Application, Approval and Retention Procedure	
	No.: CX12-UWI0001	Rev. F
	Date: 06 March 2017	Page 7 of 7

Phrase	Definition
Requested Time Period	Guest diver requests are approved in quarterly increments, not to exceed one year.

11.3 Referenced Documents

Document Number	Document Title
CX12-POL0001	NBL General Operating Plan
CX12-POL0002	NBL Standard Operating Plan
CX12-POL0004	NBL Training and Certification Policy
CX12-REF0001	NBL Definitions and Acronyms
JPR 8715.2	JSC Safety Standard for Underwater Operations
NBL-DIVE-WI0032	NBL Diver Training Procedure

This document is not Export Controlled but distribution is controlled, see cover for full disclosure.

Verify this is the correct version before use.