# PREPRODUCTION INITIATIVE-NELP
# ENGINE GAS PATH EFFLUENT CAPTURE SYSTEM (HELICOPTER)
# TEST PLAN

## SITE: NAS NORTH ISLAND

## 1.0 OBJECTIVE

In response to a message from the CNO requiring the 100-percent capture and containment of engine wash water, NAS North Island will evaluate, under the Pollution Prevention Equipment Program (PPEP), a helicopter engine wash water containment system that captures wash water directly on the flight line. Previously, the site considered using a wash rack to capture effluent; however, moving helicopters to the wash rack proved to be too labor- and time-intensive.

This test plan describes the data collection procedure for the helicopter engine gas path effluent capture system. These data will be used to determine the system's efficiency, effectiveness, and overall success[1] in achieving 100-percent capture of helicopter engine wash water.

## 2.0 DESCRIPTION

The helicopter engine gas path effluent capture system consists of four mats with containment berms and two evacuation units for collection of the contained effluent. The collected wash water will be disposed of at the nearby wash rack and treated at the industrial waste treatment plant.

The following were selected for evaluation:

***Mats***

- Two ECCS mats by Aviation Environmental Inc. (AEI)—semipermanent mats with wedge-shaped berms designed to channel effluent back into the containment area as an aircraft enters and exits a platform secured by a batten-bar system
- One Latimat by Riveer Company—a portable mat with a foam-filled berm with tie-down points around the perimeter
- One Ultratech by Riveer Company—a portable mat with an air-filled berm and track belting for the entire length of the mat.

***Evacuation Units***

- One PCS-200 by AEI—self-powered vacuum system with duckbill suction wand and 210-gallon collection reservoir
- One TRVSCG6 by Riveer—self-powered vacuum system with hand-held suction wand and squeegee and a 210-gallon collection reservoir.

[1] Since the containment system is under evaluation in response to a compliance issue, it is not expected that a financial return on investment will be realized. The cost figures are intended to provide a guideline for other sites that are considering implementation.

The basic concept for this system requires only a single mat and a single evacuation unit. The above components have been chosen to facilitate site interface and allow multiple simultaneous washes. Each component will be evaluated based on its ability to achieve a designated task. Any combination of components or features of components should be considered to create the system most optimally suited for future purchase and fleetwide use.

## 3.0 TEST PLAN

This test plan will be used to evaluate the effectiveness and efficiency of the containment system in capturing wash water. The system—four mats and two evacuation units—will be prototyped at NAS North Island.

### 3.1 Approach

Helicopter engine gas path cleaning operations will occur as before, with the addition of a mat for containment and evacuation units for the retrieval and disposal of wash water. The system effectiveness will be measured by its ease of use compared with the wash rack and interface with site operations. Quantitative and qualitative data will be acquired through the completion of Table 1.

#### *3.1.1 Instructions for Completing Table 1*

**Operational Data**

**Date:** Indicate date the containment system was used.

**Man-hours:** Record the time (in man-hours) required to complete the entire washing operation (i.e., the time required to move the helicopter to the mat, the wash time, and the time required to evacuate the wash water from the mat).

**Quantity:** Indicate the number of helicopters cleaned on the specified date.

**Volume:** Indicate the total volume of wash water resulting from cleaning operations on a given day. (This can be determined by approximating the volume collected in the evacuation unit and emptied into the wash rack.)

**Evacuation Unit:** Indicate which vacuum system was used to collect wash water from the berm platform.

#### *3.1.2 Instructions for Completing Table 2*

**Consumables**

**Date:** Indicate the date on which the consumable was ordered.

**Item:** Provide a part number or description of the consumable ordered

**Quantity/Volume**: Indicate the quantity and volume of the consumable ordered.

**Cost:** Indicate the cost of the consumable ordered.

**Downtime/Month**

**Time Period**: Record periods when the unit was not in use.

**Reason:** Explain whether downtime was due to repairs, maintenance, work load, or other factors.

**Repairs**

**Time:** Indicate the time required to repair the system.

**Parts:** List repair parts required.

**Cost**: Record the cost of repair parts.

**Qualitative Assessment:** Provide a narrative evaluation of the capabilities of the helicopter engine gas path effluent capture system.

## 4.0 REPORTING

The data entry forms are a concise method of data collection. Forms should be completed daily or each time equipment is used. The final report will include detailed results and observations, assess the system's efficiency and effectiveness, and evaluate its ability to interface with site operations.

**Table 1**

**Operational Data**

| Date | Man-hours | Quantity | Volume |
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**Table 2**

**Consumables**

| Date | Item | Quantity/Volume | Cost |
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**Downtime/Month**

| Time Period | Reason |
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**Repairs**

| Time | Parts | Cost |
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**Qualitative Assessment*:**
Please comment on the effectiveness and efficiency of the unit.

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* Attach additional sheet if needed.