

Final
Keel Block Radiological Survey Work Instruction
Revision 0
March 3, 2005
DCN: FWSD-RAC-05-0637

AR_N00217_004111
HUNTERS POINT
SSIC NO. 5090.3.A

During the period that Hunters Point Shipyard (HPS) was an active ship repair and dismantling facility, keel blocks were used to support ships while they were within the drydocks. Since the shipyard was closed, these keel blocks have been distributed across HPS and they are currently found in most areas of the site. Approximately 1900 keel blocks are located at HPS. The largest concentration of keel blocks is in the bone yard area immediately southwest of Drydock #4 where approximately 1300 keel blocks are present. The current plan is to leave the keel blocks on site to be transferred to the City and County of San Francisco with the property.

Each of the drydocks at HPS has been identified as an impacted site in the Historical Radiological Assessment (HRA). Therefore, based on their use within the drydocks, the Navy has concluded that radiological surveillance of keel blocks at HPS is required before they can be released as part of the property transfer. Support to other contractors working in areas where unsurveyed keel blocks are present may also be required. Such work by other contractors could include non-radiological work at Installation Restoration sites where keel blocks are present. The survey of any additional submerged keel blocks (if any) that may be removed later in other drydocks or offshore areas may also be performed.

Under this Work Instruction Tetra Tech FW, Inc. (TtFW) will:

- Perform radiological surveys of the keel blocks located throughout HPS.
- Segregate radiologically contaminated keel blocks.
- Provide a radiation safety briefing to staff of other contractors assigned to work in areas where unsurveyed keel blocks are present.
- Provide radiological monitoring support to other contractors working with or near unsurveyed keel blocks.

The radiological survey of the keel blocks will be conducted in accordance with TtFW's Standard Operating Procedure (SOP) HPO-Tt-006, Radiation and Contamination Surveys. All sides, including the bottom of the keel blocks, will be surveyed. A minimum of one swipe sample will be collected from each keel block. The swipe will be taken at an area that exhibits elevated readings during the direct survey of the keel block. If no elevated readings are identified, a swipe will be taken from the top of the keel block. The swipe will be collected from the top since that is the most likely place contamination would be found, as they were used as the resting platform for the ships brought into the drydock. Samples will be analyzed for loose surface contamination using a gas-flow proportional counter. Swipe sampling will be conducted in accordance with TtFW's SOP HPO-Tt-006. Survey and swipe sampling data will be compared to the release criteria listed in Table 1.

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**TABLE - 1
 RELEASE CRITERIA**

| Radionuclide | Radiation | Loose (dpm/100 cm ²) | Fixed (dpm/100 cm ²) |
|--------------|--------------|-------------------------------------|-------------------------------------|
| radium-226 | Alpha | 20 α | 100 α |
| strontium-90 | Beta | 200 β ⁻ | 1,000 β ⁻ |
| cesium-137 | Beta / Gamma | 1,000 β ⁻ , γ | 5,000 β ⁻ , γ |

Notes:

Types of radiation: α - alpha, β⁻ - beta, γ - gamma
 cm² - square centimeters
 dpm - disintegrations per minute

Keel blocks that have been submerged in water, have been recently exposed to rainfall, or are in direct contact with wet ground surfaces will be allowed sufficient time to dry out prior to surveying the affected (moist) surface(s).

Each block will be visibly numbered and marked after it has been surveyed in order to avoid duplication of the survey in the future and to allow survey and analytical data to be tracked for each individual keel block.

During the keel block surveys, surveying of personnel, tools, materials, or equipment will not be performed unless alpha, beta and/or gamma activity in excess of the release criteria in Table 1 are found on a corresponding keel block. TtFW will conduct tools, materials and/or equipment screening in accordance with TtFW's SOP HPO-Tt-012, Release of Material from Radiological Control Areas at a frequency specified in the applicable Radiological Work Permit. Personnel screening will be performed in accordance with the applicable Radiological Work Permit.

RASO will be notified of any keel block that exhibits radioactive contamination above the release criteria identified in Table 1. Contaminated keel blocks will be segregated for future decontamination and/or packaging and storage pending disposition as directed by RASO. The area where the keel block was located will be isolated and further characterized to determine if the contamination originated on the keel block or from the area the keel block was located. Contaminated keel blocks will be staged in Building 406 and maintained under New World Technology, Inc.'s license until disposition.

To the extent possible, the keel block surveys will be scheduled to eliminate the need for other contractors to work with or immediately adjacent to unsurveyed keel blocks. However, when this is not possible, such as if another contractor is assigned to recover any additional submerged keel blocks, TtFW will conduct tools, materials and/or equipment screening in accordance with TtFW's SOP HPO-Tt-012. Personnel working with keel blocks will be screened in accordance with the applicable TtFW Radiological Work Permit.

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If TtFW is called on to move unsurveyed keel blocks to support another contractor's work, every attempt will be made to survey the keel block before it is relocated. However, in the event that there is not sufficient time or manpower to survey the keel block, then the blocks will be moved the minimum distance required to facilitate that work. Before TtFW moves unsurveyed keel blocks located in unimpacted areas they will be wrapped in plastic to prevent potential spread of contamination. No wrapping will be performed if unsurveyed blocks are moved solely within an impacted area. Equipment utilized to relocate unsurveyed or contaminated keel blocks will be surveyed in accordance with TtFW's SOP HPO-Tt-006, Radiation and Contamination Surveys.

Activities performed under this Work Instruction will be conducted in accordance with the requirements of a TtFW Radiation Work Permit and the TtFW Base-wide Health and Safety Plan.

Personnel assigned to conduct this work will be trained and qualified to perform the tasks required to complete this Work Instruction.

Keel block survey results will be submitted to RASO upon completion of the field surveys and compilation of the data collected.



TETRA TECH FW, INC.

March 3, 2005
FWSD-RAC-05-0637
File 5.0

Naval Facilities Engineering Command
Southwest Division
Attn: Mr. Ralph Pearce
1230 Columbia Street, Suite 1100
San Diego, California 92101

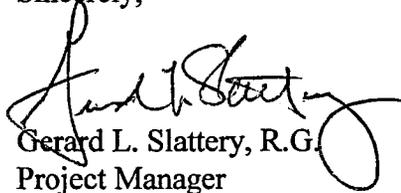
**SUBJECT: FINAL, KEEL BLOCK RADIOLOGICAL SURVEY WORK
INSTRUCTION, REVISION 0, HUNTERS POINT SHIPYARD, SAN FRANCISCO,
CALIFORNIA.**

Reference: Contract N68711-98-D-5713, Environmental Remedial Action Contract
For Sites Southern California, Arizona, New Mexico, and Southern Nevada

Dear Mr. Pearce:

Enclosed is the Final Keel Block Radiological Work Instruction, Revision 0, dated March 3, 2005, for Hunters Point Shipyard, San Francisco, California. If you have any questions or require additional information, please contact me at (415) 671-1990.

Sincerely,



Gerard L. Slattery, R.G.
Project Manager

Enclosures: Final Keel Block Radiological Work Instruction, Revision 0, dated March 3, 2005

Bcc:

BPMOW
Keith Forman
Pat Brooks

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TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N68711-98-D-5713 (RAC III)

Document Control No. 05-0637

File Code: 5.0

TO: Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Ms. Beatrice Appling, 02R1.BA
1220 Pacific Highway
San Diego, CA 92132-5190

DATE: 03/03/05

CTO: 0072

LOCATION: Hunters Point Shipyard

FROM:

Neil Hart, Program Manager

DESCRIPTION: Final Keel Block Radiological Survey Work Instruction, Revision 0, 03/03/05

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[] Other

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*See Attached Cover Letter
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Date/Time Received