

Introduction:

This standard outlines basic precautions and work practices to minimize the exposure to vanadium. *Vanadium is present in heavy fuel oils such as residual oil or bunker "C" oil. Vanadium compounds are heavily concentrated in the ash when these fuels are burned.*

Standard:

1. Exposure to vanadium may occur anywhere oil fired ash is present. To the extent possible vanadium containing ash shall be removed before working on the combustion side of boilers and ancillary equipment. Removal can be accomplished by washing, vacuuming or other suitable means. Experience has demonstrated that prior cleaning is an effective and necessary control technique to reduce exposure to vanadium to more easily manageable levels.

It is understood that in the event of emergency repairs prior cleaning may not be feasible in which case more stringent control measures will necessary.
 2. Systems that may be contaminated by boiler ash shall be ventilated by general or mechanical means to the extent possible. In the boiler and ancillary systems this includes ensuring that the duct system is open through to the stack and that all dampers and doors are open. Additional mechanical ventilation may be necessary.
 3. Respiratory protection shall be worn by all individuals entering any system that may be contaminated by oil-fired boiler ash. The minimum acceptable respirator is a half mask equipped with NIOSH approved *N95, or better*, filters. The use of respirators shall be in accordance with Health and Safety Standard I-3 and CSA Standard Z94.4-93, Selection, Use and Care of Respirators

For emergency repairs where entries must be done without prior cleaning a full facepiece respirator with *N95, or better, filters* is the minimum acceptable protection. For very dusty operations such as cleaning or gouging, a full-facepiece, air-supplied, or a full-facepiece, powered air-purifying respirator shall be used.
 4. All employees who may be exposed to vanadium shall be instructed on the hazards and health effects of the potential exposure. Reference should be made to the ash material safety data sheet and other appropriate resources. Instruction shall also include the safe work practices and procedures to be followed to minimize the exposure potential.
 5. Oil fired ash forms an acidic solution on contact with water. Skin, *eye and respiratory* irritation may occur on contact with the ash and moisture. *Wear gloves and coveralls when working in areas contaminated with boiler ash.* The use of a barrier cream can help prevent skin irritation. Wash all exposed skin areas at the end of the shift. Showers at the end of the shift are recommended.
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6. Contaminated work clothes should not be worn off the job site. Change soiled work clothes before leaving the job site. Contaminated coveralls shall not be worn into eating areas. Contaminated work clothes should not be washed with other household laundry. Where commercial cleaning services or on-site services are used the person doing the cleaning shall be advised of the presence of vanadium and the personal precautions to be followed.

Change areas shall be set up near to boiler work areas where employees may be exposed to ash. Contaminated coveralls shall be removed at the change area before leaving the work area. Where practical the change areas shall be provided with facilities for the employees to wash their face and hands.

7. Do not eat, drink or smoke in areas potentially contaminated with ash and do not store food, drink or tobacco products in these areas. Wash hands and face before eating, drinking or smoking.
8. Any spills of ash should be promptly cleaned up to prevent the dust from becoming airborne. Care should be taken to minimize the amount of airborne dust generated during such clean ups.

Reference/Appendix:

A handwritten signature in black ink, appearing to read "Gary S. Boyd", written over a horizontal line.

Gary S. Boyd, Director
Health, Safety & Security Services

Revision Number	Revised Section(s)	Revision Summary	Revised By:	Effective Date:
01		Minor change to Introduction In steps #3 & #5 minor changes and in #6 2 nd paragraph added	K. Gordon	13-09-01

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