RPP-27195

Ownership matrix	Click for copy of Word (native) file

1.0 PURPOSE AND SCOPE

This standard provides guidance for meeting requirements for handling materials that pose a potential carcinogenic hazard. (5.1.1) It is the Washington River Protection Solutions, LLC (WRPS) policy to maintain exposures to carcinogens to as low as reasonably achievable (ALARA).

This standard establishes the minimum requirements and guidance for the purchase, use, storage, and handling of the Occupational Safety and Health Administration (OSHA) regulated carcinogens, (5.1.2), OSHA-specific carcinogens, (5.1.3), and known human and suspect human carcinogens listed by the American Conference of Governmental Industrial Hygienists (ACGIH) (5.1.4), International Agency for Research on Cancer (IARC), and National Toxicology Program (NTP) for all Hanford employees.

Chemicals for laboratory use are covered by the 222-S Laboratory Complex Chemical Hygiene Plan (ATS-310, Section 4.5) and, therefore, are not covered by this program.

In general, asbestos is not covered by this program. However, proposed materials containing asbestos or asbestiform products shall be evaluated by industrial hygiene for potential exposures during usage and to explore safer substitutes.

2.0 IMPLEMENTATION

This standard is effective on the date shown in the header.

3.0 STANDARD

1. WRPS personnel or subcontractors who plan to introduce a new material must gain approval from Industrial Hygiene. Should the industrial hygienist discover that the material contains a carcinogen, they will consult with the Carcinogen Control Subject Matter Expert (SME) and the SME will assist with:

    - Determining whether the material shall be treated as a carcinogen (>0.1% content based on weight or volume). If the material is treated as a carcinogen, the limit of use of the material shall be established

    - Determining whether practical substitutes can effectively replace the proposed material. The evaluation will consider the application, as it relates to exposure potential

    - Determining if, based on usage quantities and activities, product specific operating procedures for safe use and disposal of the material shall be required for this material. (As required, these procedures shall include emergency procedures should a spill or a major release occur.)

- Ensuring that training is provided for all carcinogens listed in Attachments A and B, and other carcinogens regulated by OSHA, including asbestos

- Some carcinogens have also been identified as Chemicals of Potential Concern (COPCs) and possibly Chemicals of Concern (COCs) derived from tank headspace (see attachment C). Such chemicals will be identified in RPP-RPT-60220 and TFC-ESHQ-S_IH-C-66 and managed according to procedure TFC-ESHQ-S_IH-C-48

- Providing technical assistance to ensure applicable regulatory requirements for the carcinogenic material are implemented

- Obtaining approval for carcinogenic material procurement.

A written hazard assessment and use justification is required to procure products determined by the industrial hygienist to pose a carcinogen exposure hazard. Procurement approval is accomplished by completing a Hazard Assessment & Use Justification for Hazardous Material Procurement form (form A-6006-626) with subsequent approval by the industrial hygienist through the Tank Farm Material Management System (TFMSS). The written justification is attached by the approver to TFMSS.

2. The operational organization intending to use the carcinogen containing material, with assistance from the organization's industrial hygienist must determine whether the carcinogenic material contains an OSHA-regulated or OSHA-specific carcinogen and ensure that the requirements of the applicable OSHA standard are implemented. (See Attachments A and B).

3. Once use of a product containing a carcinogen begins, line management shall be responsible for requirements under this procedure, including:

   - Notifying Waste Management when disposal of the carcinogen is necessary

   - Providing Industrial Hygiene a current list of employees authorized to work with the carcinogen, and provide an annual update of the list

   - Reviewing the use of the carcinogen on an annual basis, and substituting a non-carcinogenic material, when available

   - Notifying Industrial Hygiene should there be plans for altered use of the carcinogenic material from the original application.

4. All Tank Operations Contractor (TOC) facilities that store or use carcinogens shall keep a current carcinogen inventory, and have it readily available. The inventory shall include the following:

   - Carcinogen product name

   - Material Safety Data Sheet (MSDS) # or the Safety Data Sheet (SDS) #

   - Storage and use location

- Volume on hand

- Designation as an OSHA-regulated or OSHA-specific carcinogen (see Attachments A and B). (5.1.2, 5.1.3)

5. A regulated area must be established where each OSHA-regulated carcinogen (5.1.2) is used regardless of exposure level, and where the use of an OSHA-specific carcinogen (5.1.3) results in exposures greater than the permissible exposure level (PEL), short-term exposure limit (STEL), or excursion limit. (See Attachments A and B.)

6. The manager responsible for carcinogenic material usage shall consult Industrial Hygiene to obtain assistance in determining exposure potential and the need for establishing a regulated area based on potential or monitoring results. Authorized personnel working in a regulated area established for carcinogen exposures are required to:

   - Have a baseline medical exam, with specific notation for that OSHA-regulated or OSHA-specific carcinogen

   - Be placed on a medical surveillance program specific for each OSHA-regulated or OSHA-specific carcinogen.

7. All employees who work with, or are potentially exposed to, carcinogens must be provided with documented, facility-specific training. Hazard Communication Program facility-specific training can satisfy this requirement.

8. A carcinogen label (store stock item #37-4300-206) shall be placed on all carcinogenic material containers as determined by the industrial hygienist to pose a potential carcinogen exposure hazard, unless the material contains an acceptable GHS-HAZCOM label. The Globally Harmonized System (GHS) of classification and labeling of chemicals requires the use of pictograms and may designate products with either the word “Danger” or “Warning” noted on the safety data sheet (SDS) and/or label.

9. All regulated work areas shall be posted with the appropriate warning sign. OSHA approved signs are available at the Sign Shop or can be purchased commercially. The sign shop will add the name of the carcinogen in the product or the product identification number.

   a. Unless required for an OSHA-specific-carcinogen, the regulated area sign below is acceptable:

DANGER
(Chemical Identification)
May Cause Cancer
Authorized Personnel Only

b. For inorganic Arsenic regulated areas, use this sign:

DANGER
Inorganic Arsenic
Cancer Hazard
Authorized Personnel Only
No Smoking or Eating
Respirator Required

c. For Cadmium regulated areas, use this sign:

DANGER
Cadmium
May Cause Cancer
Can Cause Lung and Kidney Disease
Authorized Personnel Only
Respirators Required in this Area

d. For Benzene regulated area, use this sign:

DANGER
Benzene
Cancer Hazard
Flammable – No Smoking
Authorized Personnel Only
Respirator Required

e. For Coke Oven Emission regulated areas, use this sign:

DANGER
Coke Oven Emissions
May Cause Cancer
Do Not Eat, Drink, Or Smoke
Wear Respiratory Protection
Authorized Personnel Only

10. Employees must wash hands after using or handling carcinogens or expected carcinogens.

11. Eating, drinking, chewing and food utensil storage is prohibited in work areas where carcinogenic materials are being used or stored.

4.0 DEFINITIONS

Action level. Fifty percent of the permissible exposure limit or the threshold limit value, whichever is most restrictive. The action level is established to ensure an adequate margin of safety, and is used by the industrial hygienist in determining the necessity for specific engineering, work practices, and personal protective equipment controls, to reduce employee exposure.

Authorized personnel. Any person whose duties require entering a regulated area and have been trained according to risk of exposure.

Carcinogen. A carcinogen is a substance that causes cancer or is believed to cause cancer. A chemical is considered to be a carcinogen if any one of the following conditions exist:

- OSHA has designated it in as a carcinogen in 29 CFR 1910, Subpart Z (5.1.2, 5.1.3)
- It has been identified by the ACGIH as an A1 (Carcinogen) or A2 (Suspected Human Carcinogen) (5.1.4)
- It has been evaluated by the IARC and found to be a carcinogen or potential carcinogen (Group 1, Group 2A, or Group 2B)
- It is listed as a carcinogen or potential carcinogen in the "Annual Report on Carcinogens" published by the NTP (latest edition).

Assume mixtures present a carcinogenic hazard if they contain at least 0.1 percent in volume or weight of a carcinogen.

Excursion limit. Excursion limits apply to those chemicals that do not have an established 15 minute STEL or ceiling limit. Excursions in worker exposure levels may exceed 3 times the threshold limit value –time weighted average (TLV-TWA) for no more than a total of 30 minutes during a work-day, and under no circumstances should they exceed 5 times the TLV-TWA, provided the TLV-TWA is not exceeded.

Occupational exposure limit (OEL). A term used to represent: (1) the concentration or intensity of an airborne agent that is allowable, (2) the time period that workplace concentrations are averaged to compare with the allowable exposure, and (3) the allowable concentration of a biological exposure index (BEI) in a biological sample. Thus, each OEL consists of an exposure limit and an averaging timethat are set by the sponsor of the OEL and must be used together, as prescribed by DOE. A substance may have several OELs for short term or acute exposures (e.g., 15-minute STEL or 30 minute Excursion Limit), long term or chronic exposures (e.g., 8-hour Time Weighted Average), or not-to-exceed limits (Ceiling Limit).

The most restrictive OELs have been selected for use from DOE regulated limits (e.g., OSHA permissible exposure limits [PELs], ACGIH Threshold Limit Values [TLVs], DOE regulated limit or, in in absence of a DOE regulation, through a collaborative process of industrial hygienists, workers, and toxicologists as outlined in RPP-22491, "Industrial Hygiene Chemical Vapor Technical Basis" (TB).

OSHA-Regulated carcinogen. Carcinogens that meet the criteria as stated in 29 CFR 1910.1003-1016 (see Attachment A). (5.1.2)

OSHA-Specific Carcinogens. Carcinogens that require the establishment of a regulated area when employee exposure to airborne concentration may exceed the permissible exposure level, excursion limit, or STEL as stated in 29 CFR 1910 Subpart Z (see Attachment B). (5.1.3)

Regulated area. A designated area, in which area entry and exit are restricted and controlled because of the use of carcinogens.

5.0 SOURCES

5.1 Requirements

1. 10 CFR 851, "Worker Safety and Health Program."
2. 29 CFR 1910.1003-1016, "13 Carcinogens."
3. 29 CFR 1910, Subpart Z – "Toxic and Hazardous Substances."
4. American Conference of Governmental Industrial Hygienists (ACGIH), Carcinogen List.

5.2 References

1. ATS-310, SECTION 4.5, "222-S LABORATORY COMPLEX CHEMICAL HYGIENE PLAN."
2. WRPS-PER-2009-0899.

ATTACHMENT A - OSHA REGULATED 13 CARCINOGENS IN 29 CFR 1910.1003-1016*

(5.1.2)

Compound	CAS Number	Reference
4-Nitrobiphenyl	92-93-3	29 CFR 1910.1003
α-Naphthalene	134-32-7	29 CFR 1910.1004
Methyl chloromethyl ether	107-30-2	29 CFR 1910.1006
3, 3'-Dichlorobenzidine, salts	91-94-1	29 CFR 1910.1007
Bis-Chloromethyl ether	542-88-1	29 CFR 1910.1008
β-Naphthalene	91-59-8	29 CFR 1910.1009
Benzidine	92-87-5	29 CFR 1910.1010
4-Aminodiphenyl	92-67-1	29 CFR 1910.1011
Ethyleneimine	151-56-4	29 CFR 1910.1012
β-Propiolactone	57-57-8	29 CFR 1910.1013
2-Acetylaminofluorene	53-96-3	29 CFR 1910.1014
4-Dimethyleaminobenzene	60-11-7	29 CFR 1910.1015
N-Nitrosodimethylamine	62-75-9	29 CFR 1910.1016

*1910.1005 – [Reserved]

ATTACHMENT B – OSHA SPECIFIC CARCINOGENS COVERED IN 29 CFR 1910 Subpart Z "Toxic and Hazardous Substances"

(5.1.3)

Compound	CAS Number	Reference
Vinyl chloride	75-01-4	29 CFR 1910.1017
Inorganic arsenic	Varies by compound	29 CFR 1910.1018
Chromium (VI)	Varies by compound	29 CFR 1910.1026
Cadmium	Varies by compound	29 CFR 1910.1027
Benzene	71-43-2	29 CFR 1910.1028
1, 2-Dibromo-3-chloropropane	96-12-8	29 CFR 1910.1044
Acrylonitrile	107-13-1	29 CFR 1910.1045
Ethylene oxide	75-21-8	29 CFR 1910.1047
Formaldehyde	50-00-1	29 CFR 1910.1048
4,4'-Methylenedianaline	101-77-9	29 CFR 1910.1050
1, 3-Butadiene	106-99-0	29 CFR 1910.1051
Methylene Chloride	75-09-2	29 CFR 1910.1052

ATTACHMENT C - OSHA 29 CFR 1910 CARCINOGENS IN COPC LIST

Compound	CAS Number	Reference
N-Nitrosodimethylamine	62-75-9	29 CFR 1910.1016
Benzene	71-43-2	29 CFR 1910.1028
Formaldehyde	50-00-1	29 CFR 1910.1048
1, 3-Butadiene	106-99-0	29 CFR 1910.1051