



DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER

April 24, 2013

MEMORANDUM FOR: NYSDEC
ATTN: MR. DANIEL EATON
Bureau of Eastern Remedial Action
625 Broadway, 12th Floor
Albany, NY 12233-7015

FROM: AFCEC/CIBE Plattsburgh
8 Colorado Street, Suite 121
Plattsburgh, NY 12903

SUBJECT: Site SS-041, Final Work Plan
For Contamination Delineation and Wetland Delineation
Former Plattsburgh Air Force Base, Plattsburgh, New York

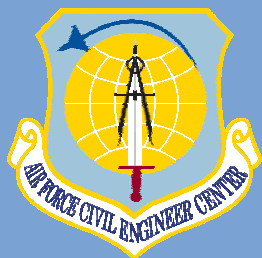
Attached is the *Final Work Plan for Contamination Delineation and Wetland Delineation at Site SS-041, Former Plattsburgh Air Force Base, Plattsburgh, New York* and responses to NYSDEC and USEPA comments on the Draft Work Plan; the Draft Work Plan was revised based upon these comments.

If you have any questions, please contact me at 518-563-2871 or at david.farnsworth@us.af.mil.

DAVID S. FARNSWORTH
Program Manager/BRAC Environmental Coordinator
BRAC Support Branch

Attachments: Site SS-041, Final Work Plan
Responses to Comments

cc:
USEPA (Mr. Robert Morse)
NYSDOH (Ms. Wendy Kuehner)
BRAC/AR (Administrative Record)



United States Air Force Base
Environmental Restoration Program

Work Plan for Contamination Delineation and Wetland Delineation at Site SS-041

Former Plattsburgh Air Force Base
Plattsburgh, New York

April 2013

**WORK PLAN
FOR CONTAMINATION DELINEATION AND WETLAND DELINEATION
AT SITE SS-041**

**FORMER PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK**

**CONTRACT NO. FA4890-06-D-0006-0005
MODIFICATION NO. 01**

**Prepared for:
Air Force Civil Engineer Center (AFCEC)**

**Prepared by:
URS Group, Inc.**

April 2013

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ACRONYMS/ABBREVIATIONS

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFCEE	Air Force Center for Engineering and Environment (precursor to AFCEC)
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOD	Department of Defense
FPM	FPM Group, Ltd.
FT-002	IRP Site FT-002, Fire Training Area
HAZWOPER	Hazardous Waste Operations and Emergency Response
IA	Industrial Area
IRP	Installation Restoration Program
mg/kg	milligrams per kilogram
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NWP	Nationwide Permit
PARC	Plattsburgh Airbase Redevelopment Corporation
PCN	pre-construction notification
QA/QC	quality assurance/quality control
RAO	Remedial Action Objective
ROD	Record of Decision
SS-041	IRP Site SS-041, Building 2612 Spill Site (formerly SD-041)
SSHP	Site Safety and Health Plan
SWPPP	Storm Water Pollution Prevention Plan
URS	URS Group, Inc.
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This Work Plan describes the requirements for evaluating the extent of contamination in a wetland and performing a wetland delineation at Building 2612 Spill Site SS-041 at the former Plattsburgh Air Force Base (AFB) in Plattsburgh, New York (Figure 1). Other elements of the project, including site remediation, restoration, and inspection activities, will be discussed in a work plan prepared subsequent to the completion of the contaminated sediment and wetland delineations.

2.0 SITE BACKGROUND

Plattsburgh AFB was closed on September 30, 1995 as part of the third round of base closures mandated by the Defense Base Closure and Realignment Act of 1993. The United States Air Force Installation Restoration Program (IRP) involves investigation and cleanup under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The IRP at the former Plattsburgh AFB was implemented according to a Federal Facilities Agreement, Docket No.: II-CERCLA-FFA-10201, signed on July 10, 1991 by the Air Force, the United States Environmental Protection Agency (USEPA), and the New York State Department of Environmental Conservation (NYSDEC). Plattsburgh AFB was placed on the National Priorities List in 1989 and cleanup is being funded by the Air Force.

Building 2612 is located in the central-eastern portion of the former Plattsburgh AFB on the east side of Arizona Avenue approximately 600 feet north of the intersection of Arizona and Idaho Avenues (Figure 2). Site SS-041 consists of Building 2612, the adjacent areas including the wetlands to the south, and the area between Buildings 2612 and 2616. Building 2612 was used in the early 1960's in support of the Atlas Intercontinental Ballistic Missile (ICBM) program. Thereafter, from 1970 until Base closure in 1995, the building was used as an unheated base equipment and supply warehouse. Its use as an unheated warehouse continues under its current owner. The wetland located south of Building 2612 (Figure 2) contains sediments with concentrations of cadmium and chromium that present an unacceptable potential ecological risk to terrestrial receptors (land dwelling animals). The metals contamination appears to have originated at a storm sewer discharge point in the wetland, and the contamination follows depressional contours within the low-lying wetland area. Floor drains and sink drains from the building discharged into this storm sewer. Surface water is not considered a media of concern for

Site SS-041 because there is no consistent, long-term standing surface water at the site. Based on a human health risk assessment done during the remedial investigation of this site, there is no significant threat to human health posed by contaminants remaining in soil and sediment at the site (URS, 2008).

The Record of Decision (ROD) for the SS-041 Soil and Sediment Operable Unit (FPM, 2012) selected removal of the contaminated wetlands soils/sediments as the remedy for this site. The remedial action objective (RAO) for Site SS-041 is intended to reduce cadmium and chromium concentrations in the wetland sediments to the following remediation goals:

REMEDIATION GOALS

Contaminant	Maximum Allowable Concentration for Ecological Receptors (mg/kg)	6 NYCRR Part 375 Residential Use Soil Cleanup Objectives (mg/kg)
Cadmium	2.5	2.5
Chromium - total	150	NA
Chromium – Hexavalent	NA	22
Chromium - Trivalent	NA	36

NA = Not Applicable mg/kg = milligrams per kilogram

The remediation goals for ecological receptors were developed during the remedial investigation of Site SS-041 (URS, 2008). The residential use remediation goals were added later when the SS-041 ROD was finalized. Because the remedial investigation only considered total chromium in samples collected in the wetland, the final remedy selected in the ROD also includes delineating the site for hexavalent and trivalent levels.

Achieving the specified remediation goals for trivalent and hexavalent chromium and/or cadmium will qualify the Site SS-041 area for residential use in the future and will achieve an acceptable level of risk for ecological receptors. Achieving the remediation goals will also render unnecessary any additional use restrictions or associated land use controls/institutional controls for the Site SS-041 soil and sediment operable unit. Groundwater contamination at Site SS-041 is being addressed by remedial actions, including use restrictions that are part of the Fire Training Area/Industrial Area (FT-002/IA) Groundwater Operational Unit.

URS Group, Inc. (URS) will initially delineate the extent of the wetlands (the delineation will also include an evaluation of whether a groundwater to surface water connection is present)

and contaminated soil/sediment remaining at concentrations above the remediation goals at the site, and will subsequently excavate and dispose of the contaminated material offsite, replace the excavated soil with clean fill, re-grade and seed the area, and restore the wetlands in accordance with Federal and State law.

3.0 SCOPE OF WORK

3.1 General

Work for this project will be executed by URS on behalf of the Air Force Civil Engineer Center (AFCEC) in accordance with Contract FA4890-06-D-0006-0005, Modification No. 01. URS will execute the contamination delineation, wetland delineation, and surveying as indicated in this Work Plan. Samples will be collected using either a Macrocore sampler with a disposable acetate liner or a hand auger, depending on the conditions encountered in the field. URS will provide appurtenances necessary to decontaminate its tools and equipment. All equipment and tools used to collect soil/sediment will be decontaminated prior to work on site, between each sample location, and prior to removal from the site. Initially, grass and soil will be brushed off of the sampling equipment. Macrocore samplers will be rinsed with potable water after sampling at each location with the rinsate allowed to infiltrate at the ground surface. Used acetate liners will be disposed of as municipal waste. Hand augers and other equipment that may come in direct contact with samples will be decontaminated above a 5-gallon plastic container using laboratory-grade non-phosphate detergent and potable water followed by a dilute nitric acid rinse. Decontamination rinsate, sediment, and fluids will be consolidated in a 55-gallon plastic drum and the contents will be analyzed as appropriate prior to off-site disposal. The URS supervising geologist and the URS project chemist will consult with the receiving waste facility regarding the analyses to be performed, likely to include at least RCRA Metals and corrosivity.

Prior to work at the site, URS will contact DigSafelyNewYork, Inc. to mark the location of underground utilities within the work area.

URS will clean the work area(s) and remove all trash, debris, and used personal protective equipment at the end of each workday. URS will restore the ground surface at each sample location to match the conditions that were present prior to the delineation sampling.

3.2 Site Access

The portion of Site SS-041 that will be investigated is made up of two (2) parcels including the major portion of the site owned by CCC&V and an elevated strip of land along the east side of the site that is owned by the Plattsburgh Airbase Redevelopment Corporation (PARC). The railroad on this embankment is operated by the Canadian Pacific Railroad under an Industry Track Agreement with PARC. Ownership of this strip of land is scheduled to be transferred by PARC to Clinton County. Written access agreements or letters of confirmation from the owners and operators will be obtained and URS and its subcontractors will comply with the resulting terms. Also, portions of any existing agreements between PARC and the Canadian Pacific Railroad governing activity on the track area will be obtained and adhered to by URS and its subcontractors. The agreements will be presented in Appendix A of the Final Work Plan.

3.3 Field Activities

3.3.1 Contamination Delineation

A sampling grid will be established over the entire wetland, including the stream that exits the property at Idaho Avenue. Planned sample locations are shown on Figure 2. The initial sampling grid spacing will be 30 feet between borings with the grid covering the entire area of the wetland, as it was delineated in 1994. Also, a single line of borings will be located at approximate 50-foot intervals at the bottom of the drainage swale trending along Idaho Avenue. Samples will be initially collected at 53 locations. If elevated levels of cadmium and/or chromium are detected in any of the southernmost 18 initial sample locations, then samples may be collected from an additional 20 contingency sampling locations (as indicated on Figure 2).

The remedial investigation for Site SS-041 (URS, 2008) concluded that the majority of the exceedances for ecological risk remediation goals occurred at depths up to two (2) feet below ground surface, but there were some exceedances at up to three (3) feet. Therefore, soil samples will initially be collected from 0-1 foot, 1-2 feet, and 2-3 feet at the 53 locations.

The sampling sequence is summarized below:

- Sample locations will be staked using a satellite global positioning system (GPS) receiver, and predetermined coordinates generated from Figure 2. It should be noted

that these proposed locations may be modified slightly based on field conditions encountered (e.g., trees, utilities, etc.).

- Continuous samples will be collected to 3 feet below ground surface by hand using a 5-foot long Macrocore sampler with disposable acetate liner. If this method is not successful in retrieving sufficient sample volume, then the samples will be collected with a stainless steel hand auger.
- A soil sample log will be prepared for each sample location and will contain information such as soil type, presence of fill materials, moisture content/depth to water table, etc.
- Three (3) samples will be selected for laboratory analysis from each location at depths of 0-1 foot, 1-2 feet, and 2-3 feet.
- Upon collection of the soil samples, the bore holes will be backfilled with the soil cuttings, the ground surface restored to near original conditions, and a stake will be placed identifying the sampling location.
- Any generated investigation derived waste (IDW) (i.e. spent acetate liners, Tyvek[®], gloves, etc.) will be bagged and disposed of properly at a municipal landfill.

If remediation goals are exceeded in any of the samples, then additional soil samples will be collected during a second round of delineation, potentially including the 20 contingency sampling locations shown on Figure 2. If the initial sampling results from the 2-3 foot interval at any sampling location indicate a concentration of a parameter exceeding its remediation goal, then samples will be collected for that parameter at 3-4 foot and 4-5 foot intervals at that location. Also, if the initial sampling results from any sampling location on the grid perimeter indicate a concentration of a parameter exceeding its remediation goal, then three additional borings (0-1 foot, 1-2 feet, and 2-3 feet for all three parameters) will be collected, stepping out 30-feet from the location with the exceedance and its adjacent locations. Additional rounds of sampling will be executed until the remaining contaminated area is adequately delineated, both vertically and horizontally.

3.3.2 Wetland Delineation

Wetland delineations are required to locate boundaries of wetland and/or stream resources on proposed project sites to avoid and/or minimize impacts from proposed actions (i.e., soil/sediment removal), and to enable proper restoration/mitigation, whenever possible. According to Section 404 of the Clean Water Act (Clean Water Act, 1977) and Article 24 of the New York State Environmental Conservation Law (NYSDEC, 1997), a current (within 5-years) delineation of wetland resources must be performed before intrusive development or development

that changes the surface water drainage pattern is undertaken. The forested wetland boundary shown on Figure 2 was delineated by URS in 1994 (URS, 1994), but does not appear on current US Fish and Wildlife Service National Wetlands Inventory mapping. Mapping indicates that this area appears to connect to streams leading to Lake Champlain, with a non-maintained ditch as the intermediary. A current wetland delineation and jurisdictional determination has not been performed by the current land owner. Therefore, URS will perform an updated wetland delineation and request a jurisdictional determination by the USEPA and NYSDEC. The NYSDEC may choose to defer to USEPA to render the determination.

In accordance with the United States Army Corps of Engineers' (USACE) *Nationwide Permit Program*, per Nationwide Permit #38 (NWP #38): *Cleanup of Hazardous and Toxic Sites* (USACE, 2012a), "...specific activities required to effect the containment, stabilization or removal of hazardous or toxic waste materials that are performed, ordered or sponsored by a government agency with established legal or regulatory authority," are permitted by the USACE.

However, activities undertaken entirely on a CERCLA site by authority of CERCLA, as approved or required by USEPA, are not required to obtain permits from USACE under Section 404 of the Clean Water Act (Clean Water Act, 1977) or Section 10 of the Rivers and Harbors Act (Rivers and Harbors Act, 1899). However, the permittee must submit a pre-construction notification (PCN) to the USACE prior to commencing the activity (USACE, 2012a).

Under Section 401 of the Clean Water Act (Clean Water Act, 1977), NYSDEC has responsibility for issuing or denying Water Quality Certifications for the USACE NWPs. Consequently, any party conducting the activities authorized by NWP #38 must apply for and obtain an individual Section 401 Water Quality Certification from NYSDEC.

When adequate spring foliage is present, a field team will conduct the wetland delineation in accordance with the *USACE Wetland Delineation Manual* (Environmental Laboratory, 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)* (USACE, 2012b), and the *NYSDEC Freshwater Wetlands Delineation Manual* (NYSDEC, 1995) for the routine delineation procedure. Using the data collected during the wetland delineation, URS will mark out the

boundaries of identified wetlands with bright colored flagging labeled “WETLAND DELINEATION.”

URS will request a jurisdictional wetlands determination by the USEPA and NYSDEC based on the wetlands delineation. Once the determination is accepted, URS will then prepare and submit a Joint Application for Permit to the NYSDEC on the Air Force’s behalf to request a Water Quality Certification. This Joint Application for Permit will also serve as the package needed for the PCN to the USACE. The area that will be disturbed must be included in the permit application/PCN. As part of the PCN submission, a wetlands restoration design plan is required and will include a plan for regrading, showing how the wetland hydrology will be maintained. Other components of the design will include an Existing Conditions Plan, a Clearing and Removal Plan, a Storm Water Pollution Prevention Plan (SWPPP), Planting Plans, Seeding Plans, Planting Details, and Erosion Control Structure Details. Following review by the Air Force and the property owner, the Joint Application for Permit/PCN will be submitted to NYSDEC and the USACE, which will include the following attachments:

- Site location and topographic map;
- US Fish and Wildlife Service National Wetland Inventory;
- NYSDEC Freshwater Wetlands map;
- New York State streams map including the New York State streams classification;
- US Department of Agriculture Natural Resources Conservation Service Soil Survey map;
- Map showing the delineated wetland boundaries; and,
- Project drawings showing the proposed wetland restoration design (i.e. grading & planting plans).

3.3.3 Locational Survey

Upon completion of the wetland delineation and contaminated sediment delineation, a locational survey will be performed. Using a satellite GPS receiver, the URS surveyor(s) will verify the wetland boundaries and soil sampling locations. Also, the surveyor(s) will record the topography to enable generation of a contour map of the site depicting contours at a 1-foot interval. The topographic map will be used 1) as an aid in developing a drainage plan for the wetland restoration design and 2) as a baseline for determining the volume of material removed during excavation.

3.4 Analytical Testing

Soil samples collected during the site investigations will be shipped under proper chain-of-custody to TestAmerica Laboratories, Inc. in North Canton, Ohio, a New York State Department of Health (NYSDOH) and Department of Defense (DOD) certified laboratory, for analysis. Analyses will be performed and validated in accordance with the AFCEE Quality Assurance Project Plan, Final Version 4.0.02, May 2006. Field quality assurance/quality control (QA/QC) samples will consist of field duplicates, matrix spikes and matrix spike duplicates (collected at a frequency of 1 per 20 samples), and field equipment rinse blanks (collected at a frequency of 1 per day per sample apparatus).

Each soil sample will be analyzed for cadmium, trivalent chromium, and hexavalent chromium using USEPA SW-846 Methods 6010B or 7196A as appropriate. The table below indicates the type and maximum number of samples anticipated for the sampling effort. The sample turnaround time for the initial round of delineation is 15 business days (3 weeks). If subsequent rounds of delineation are warranted, the sample turnaround time for these rounds will be 5 business days (1 week). Further details regarding potential subsequent sampling events are presented in Section 3.3.1.

SUMMARY OF ANALYTICAL TESTING PROGRAM INCLUDING QA/QC SAMPLES

Analyte	Method	Primary Samples	Equipment Rinse Blanks	Duplicates	Matrix Spikes	Matrix Spike Duplicates	Total Samples
Cadmium	6010B	219	8	11	11	11	260
Trivalent Chromium	7196A	219	8	11	11	11	260
Hexavalent Chromium	7196A	219	8	11	11	11	260

3.5 Excavation Planning

Sample results will be compiled into a Contamination Delineation Report and Excavation Plan. This deliverable will show the planned excavation area and excavation depths based on the sampling results and also will discuss details regarding remediation of the contaminated

soil/sediment. A topographic map of the site will also be presented to establish site grades prior to the soil removal. The Excavation Plan will discuss the planned remediation process including site control, clearing and grubbing, excavation, stockpiling, sampling for clean confirmation and disposal, clean soil replacement, and regrading prior to restoration. The plan will be submitted to the USEPA and NYSDEC for review and comment. A SWPPP will be developed for the construction and submitted to the NYSDEC separately. After resolving comments from the NYSDEC and USEPA, URS will amend and resubmit the document as final.

4.0 HEALTH AND SAFETY

All personnel on site must be trained to comply with OSHA regulations found in 29 CFR 1910.120(e) (HAZWOPER) and are required to bring copies of training certificates with them on the first day of field activities.

A site safety and health plan (SSHP) is included in Appendix B, which addresses the hazards that are associated with the delineation and remedial efforts at Site SS-041. URS personnel must adhere to the health and safety protocols outlined in the SSHP.

5.0 SCHEDULE

The following is an estimated schedule for planning and executing the Site SS-041 remedy:

- April 26, 2013 Delineation Work Plan Approved;
- May 6, 2013 Initiate Soil/Sediment Sampling;
- May 13, 2013 Wetland Field Delineation (weather dependent);
- May 31, 2013 Request Jurisdictional Wetlands Determination;
- August 6, 2013 Submit Draft Contamination Delineation Report and Excavation Plan for Review;
- August 15, 2013 Submit a Joint Application for Permit to the NYSDEC and USEPA;
- September 17, 2013 Preconstruction Notification Submitted to USACE; and,
- September 18, 2013 Target Construction Start Date.

6.0 REFERENCES

Clean Water Act of 1977; 33 U.S.C. 1251, as amended; retrieved on February 20, 2013 from <http://www.epa.gov/npdes/pubs/cwatxt.txt>.

Environmental Laboratory, 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

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New York State Department of Environmental Conservation (NYSDEC), 1995. *Freshwater Wetlands Delineation Manual*, July.

New York State Department of Environmental Conservation (NYSDEC), 1997. *ARTICLE 24 Freshwater Wetlands Title 23 of Article 71 of the Environmental Conservation Law*, May.

Rivers and Harbors Appropriations Act of 1899. 33 U.S.C. 401, 403, and 407, as amended: http://el.erdc.usace.army.mil/emrrp/emris/emrishelp5/rivers_and_harbors_acts_legal_matters.htm

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United States Army Corps of Engineers (USACE), 2012b. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center, January.

FIGURES



Legend

Base Boundary

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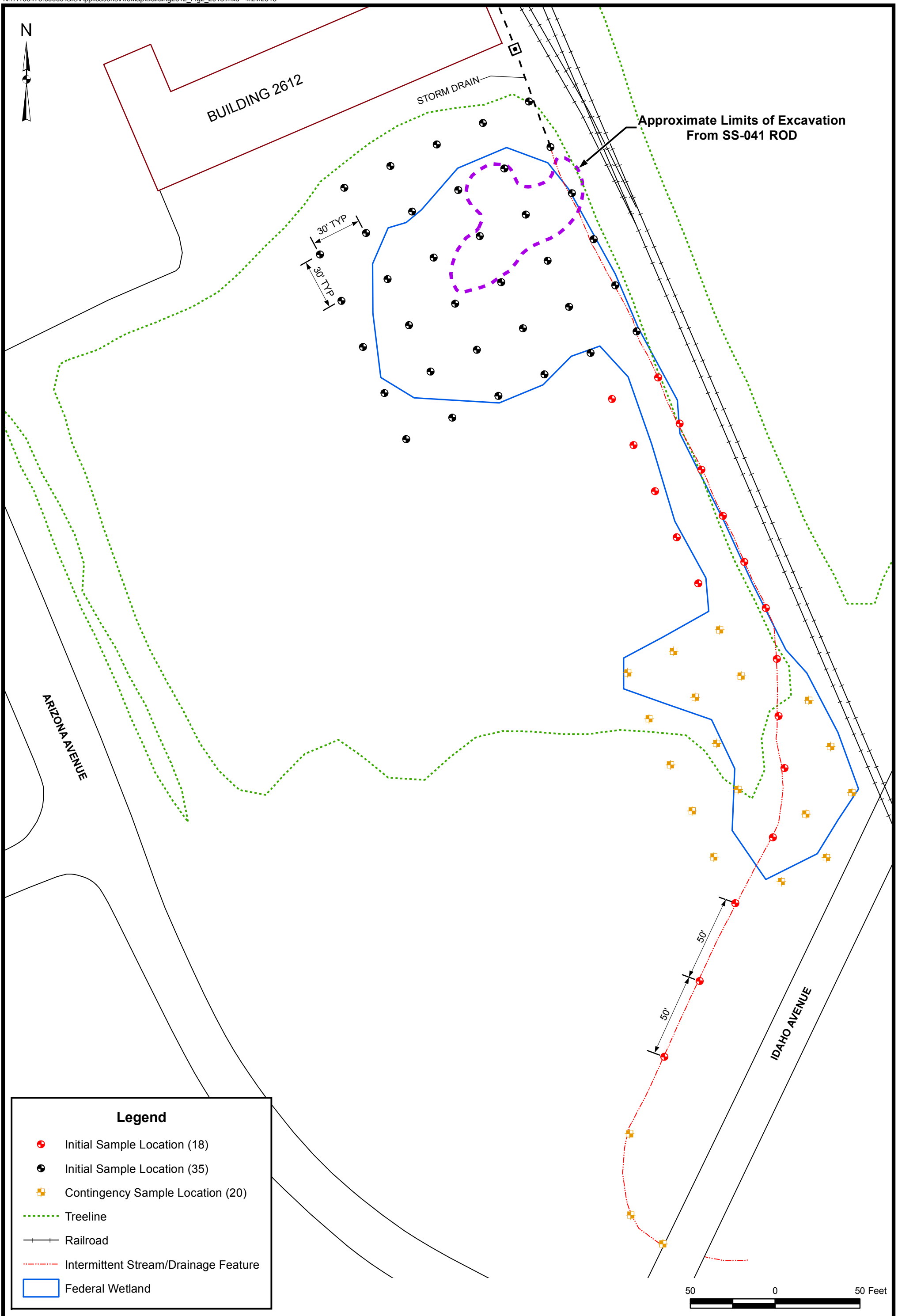
0 1,250 2,500 5,000
Feet



FORMER PLATTSBURGH AFB, NY
SS-041 BUILDING 2612
SITE LOCATION

FIGURE 1

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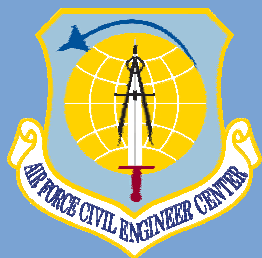


APPENDIX A

ACCESS AGREEMENTS AND PERMITS

APPENDIX B

SITE SAFETY AND HEALTH PLAN



United States Air Force Base
Environmental Restoration Program

Site Safety and Health Plan for Site SS-041 Delineation and Remedial Action

Former Plattsburgh Air Force Base
Plattsburgh, New York

February 2013

**SITE SAFETY AND HEALTH PLAN
FOR
SITE SS-041 DELINEATION AND REMEDIAL ACTION
FORMER PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK**

Contract No. FA4890-06-D-0006-0005

Modification No. 01

Prepared for:

Air Force Civil Engineer Center (AFCEC)

Prepared by:

URS GROUP, INC.

FEBRUARY 2013

EMERGENCY CONTACT LIST

PROJECT PERSONNEL


David Farnsworth, AFCEC/CZRB (BRAC Environmental Coordinator)	(518) 563-2871
Don Hunt, P.E., URS (Project Manager)	(716) 923-1210
Bruce Przybyl, URS (Technical Lead)	(716) 923-1102
Benjamin Bertolotti, URS (Regional Health, Safety and Environmental Manager)	(973) 777-3003
Steve Moeller, URS (Health, Safety, and Environmental Representative)	(716) 923-1112
Adam Simmons, URS (or TBD) (Field Geologist and Site Safety Officer)	(518) 534-3991
Jeanette Schrimsher, URS (Occupational Manager)	Office: (866) 326-7321 Cell: (512) 656-0203

SITE SAFETY AND HEALTH PLAN APPROVALS

		<u>PHONE</u>
Project Number:	11176891.00001	
Project Manager:	Don Hunt, P.E.	(716) 923-1210
Site SSO/Geologist:	Adam Simmons (or TBD)	(518) 534-3991
Regional Health, Safety and Environmental Manager:	Benjamin Bertolotti, CIH	(973) 777-3003
Health, Safety, and Environmental Representative:	Steve Moeller, P.G., CHMM	(716) 923-1112
Plan Preparer:	Kevin J. McGovern, P.G., CPG, CHMM	(716) 923-1101
Preparation Date:	February 15, 2013	
Renewal Date:	February 2014	

APPROVALS

Regional Health, Safety, and Environmental Manager:


Benjamin Bertolotti, CIH 2-15-13
(DATE)

Health, Safety, and Environment Representative


Steve Moeller, PG, CHMM 2-15-13
(DATE)

Project Manager:


Don Hunt, P.E. 2-15-13
(DATE)

This Site Safety and Health Plan Appendix is valid only for the Project as described herein. It is not to be used for other projects or subsequent phases of this project without the written approval of the Regional Health, Safety, and Environmental Manager. A copy of this plan shall be maintained at the site at all times.

Disclaimer:

This Site Safety and Health Plan Appendix, and each of its provisions, is applicable only to, and for use only by, URS Group, Inc., its affiliates, and its subcontractors. Any use of this Plan by other parties, including, without limitation, third party contractors without the express written permission of URS, will be at that party's sole risk, and URS Group, Inc. shall have no responsibility therefore. The existence and use of this Plan by URS shall not be deemed an admission or evidence of any acceptance of any safety responsibility by URS for other parties unless such responsibility is expressly assumed in writing by URS in the project contract.

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FIGURES

Figure 1	Route to the Hospital
Figure 2	Site Location Map

TABLES

Table 6-1	Job Safety Analysis
Table 6-2	Occupational Health Exposure and Toxicological Properties for Selected Contaminants of Occupational Health Concern

ATTACHMENTS

Attachment A	URS' Safety Management Standards
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1.0 PLAN-AT-A-GLANCE

SITE SAFETY AND HEALTH PLAN APPENDIX SUMMARY SHEET

THIS SECTION IS PROVIDED AS A QUICK-REFERENCE/OVERVIEW ONLY. THE REMAINDER OF THIS SITE SAFETY AND HEALTH PLAN (SSHP) APPENDIX IS INTEGRAL TO THE SAFE CONDUCT OF SITE OPERATIONS AND MUST BE APPLIED IN ITS ENTIRETY.

1.1 Emergency Information

Ambulance:	911
Fire:	911
Police:	911
Champlain Valley Physicians Hospital:	(518) 561-2000
Project Manager: Don Hunt, P.E.	(716) 923-1210
Technical Lead: Bruce Przybyl	(716) 923-1102
Field Geologist: Adam Simmons (or TBD)	(518) 534-3991
Regional Health, Safety, and Environmental Manager:	Benjamin Bertolotti, CIH
Health, Safety, and Environmental Representative:	Steve Moeller, PG, CHMM
URS Occupational Manager	Jeanette Schrimsher

1.2 Emergency Numbers

The 911 service is available from the Plattsburgh AFB to reach the police department, ambulance, and/or fire department in emergency situations. Other non-emergency numbers are listed below:

Benjamin Bertolotti	(973) 777-3003
Steve Moeller	(716) 923-1112
Jeanette Schrimsher	Office: (866) 326-7321
	Cell: (512) 656-0203
NYS Police	(518) 563-3761
Clinton County Sheriff	(518) 561-1810
National Response Center	(800) 424-8802
Chemtrec	(888) 344-7233
Poison Control Center	(800) 562-8236

HOSPITAL DIRECTIONS: SEE FIGURE 1

Additional information concerning emergency procedures is located in the SSHP.

CONSTITUENTS OF CONCERN

1. Metals (Cadmium and Chromium)

Task Number	Activity
1	Work Plan
2	Survey, Wetland Delineation and Contamination Delineation
3	Clearing and Grubbing, Soil Removal and Backfilling
4	Wetlands Restoration
5	Wetlands Inspection and Maintenance

PROJECT HAZARD ANALYSIS

Task	Chemical Hzds.	Heat/ Cold Stress	Noise	Slip/ Trip/ Fall	Lifting Hzds.	Mechanical Hzds.	Bio-logical Hzds.	Electro-cution	Explosi on	Exca-vation
1.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.	M	M	M	H	H	H	H	L	N/A	N/A
3.	M	M	M	H	H	H	H	M	L	H
4.	N/A	M	M	H	H	H	H	M	N/A	H
5.	N/A	M	L	L	M	M	H	N/A	N/A	L

High - Exposure likely more than 50% of the time Med - Exposure likely 10 to 50% of the time
 Low - Exposure likely less than 10% of the time N/A – Exposure not anticipated

This SSHP Appendix pertains to procedures and protocols associated with the tasks listed above. Other site-specific remedial activities will require addendums to the SSHP.

Task	Minimum Protective Clothing/Equipment Requirements
1.	Office Attire.
2.	Level D PPE (Hardhat, steel-toed boots, safety glasses, leather work gloves, traffic safety vest, as directed by SSO)
3.	
4.	
5.	

PROTECTIVE CLOTHING UPGRADE (if particulate monitor reading is ≥ 0.10 milligrams per cubic meter [mg/m³])

Chemical Protective Clothing

- Outer Coveralls: Polycoated Tyvek®
- Outer Gloves: Nitrile
- Inner Gloves: Surgical Nitrile
- Boots: Chemical protective steel-toed boots or chemical-resistant boot covers over steel-toed boots
- Respirator: Air purifying respirator with P100 HEPA cartridge

The SSHP Appendix Preparer has conducted a Hazard Assessment for this project based on information provided by the Project Manager, in accordance with 29 CFR 1910.132(d).

ENGINEERING CONTROLS TO BE USED (as applicable)

- Caution tape and other appropriate work zone barricades.
- Dust suppression measures

INSTRUMENTATION TO BE USED

- Photoionization Detector (PID) w/ 10.6 eV probe
 Foxboro TVA-1000 Organic Vapor Analyzer (OVA) Flame Ionization Detector (FID)
 Combustible Gas/O₂ Indicator (Lantec GA 90)
 Aerosol Particulate Monitor (TSI DustTrak)

PERSONAL EXPOSURE SAMPLING

- Will be conducted
 Will be conducted if PID readings require the use of respiratory protection as described in the Action Level Table (page 1-5) and in Section 6.1.1
 Is not anticipated

ACTION LEVELS (for Aerosol Particulate Monitor)

Particulate Reading	Location	Action
<0.10 mg/m ³	Point of Operations/General Work Area	<ul style="list-style-type: none"> • Continue intrusive activities. • Level D protection. Continue monitoring every 10 minutes.
0.10 - 2.0 mg/m ³	Point of Operations/General Work Area	<ul style="list-style-type: none"> • Continue intrusive activities. • Upgrade to Level C protection (air purifying respirator with P100 HEPA cartridges). • Continue air monitoring every 5 minutes.
>2.0 mg/m ³	Point of Operations/General Work Area	<ul style="list-style-type: none"> • Temporarily suspend intrusive activities. • Employ dust suppression measures if particulate readings > 2.0 mg/m³ • Consult with Project SSO. • Continue air monitoring every 5 minutes in Level C PPE.

HEALTH AND SAFETY EQUIPMENT LIST

Required	Not Required	
X		URS Safety Management Standards
	X	Occupational Safety and Health Administration (OSHA) "Safety on the Job" Posters
X		Hardhats
X		Safety glasses
A		Ear plugs or muffs
	X	Cotton coveralls
X		Traffic safety vest
A		Tyvek [®] coveralls
A		Polycoated Tyvek [®] Q-23 coveralls
X		Steel-toed boots
A		Chemical-resistant steel-toed boots or chemical-resistant boot covers
X		Leather Work gloves
X		Nitrile outer gloves
	X	Plastic sheeting (visqueen)
A		55-gallon 17-H drums (for contaminated solids)
A		55-gallon 17-E drums (for liquids)
A		Drum liners
A		Barricades
X		Wash tubs and scrub brushes
X		Decontamination solutions
	X	Folding chairs
A		5- or 10-gallon portable eyewash
A		Respirator sanitizing equipment
X		First aid kit
	X	Infection control kit
A		Drinking water
A		Gatorade or similar drink
X		Type ABC fire extinguishers (in trucks or provided by Contractor)
A		½ -face respirators approved by National Institute for Occupational Safety and Health (NIOSH)
A		Full-face respirators (NIOSH-approved)
A		Respirator cartridges [organic/P100]
	X	PID w/[10.6 eV] lamp and calibration kit
	X	FID and calibration kit
X		Aerosol Particulate Monitor
	X	Combustible gas indicator (CGI) and calibration kit
A		Garden sprayer
A		Compressed gas horn
X		Paper towels and hand soap
A		Spill sorbent
A		Plastic garbage bags
A		Broom and/or shovel

[A] may be required for certain activities

SAFETY MANAGEMENT STANDARDS REFERENCED BY THIS SSHP APPENDIX

SMS	TOPIC
001	Regulatory Inspections
002	Hazard Communication (Worker Right to Know)
013	Excavations
016	Hand Tools
018	Heat Stress
019	Heavy Equipment Operations
021	Housekeeping
026	Noise and Hearing Conservation
029	Personal Protective Equipment
030	Sanitation
034	Utility Clearances
042	Respiratory Protection
046	Subcontractor H&S requirements
047	Biological Hazards
049	Incident Reporting
050	Toxic and Hazardous Substances
057	Vehicle Safety
059	Cold Stress
063	Railroad On-Track Safety
064	Hand Safety
065	Injury and Claims Management
069	Manual Material Handling
072	Behavior Based Safety
083	Chromium (VI) Inhalation Exposure Protection
086	Managing HSE Related Risks

These SMSs are available on the URS Health, Safety, and Environment Web site. Access the Web site from the SoURSe.

Copies of the SMSs referenced by this SSHP Appendix are in Attachment A. Project Managers (PMs) are responsible to see that other SMSs relevant to field activities, but not directly referenced by this SSHP Appendix, also are available on site.

2.0 SITE SPECIFIC INFORMATION

2.1 Description of Project Area

The work will be performed near Building 2612 as shown on Figure 2. Building 2612 was used in the early 1960's in support of the Atlas Intercontinental Ballistic Missile (ICBM) program. Thereafter, from 1970 until Base closure in 1995, the building was used by the Air Force as an unheated base equipment and supply warehouse. The current owner of the building continues to use Building 2612 as an unheated warehouse.

2.2 Nature and Extent of Contamination

The wetland located south of Building 2612 contains sediments with concentrations of cadmium and chromium that present an unacceptable potential ecological risk to terrestrial receptors (land dwelling animals). Chromium may be present in two (2) valent states, including trivalent chromium and hexavalent chromium. The metals contamination appears to have originated at a storm sewer discharge point in the wetland, and the contamination follows depression contours within the low-lying wetland area. Floor drains and sink drains from the building discharged into this storm sewer. Surface water is not considered a media of concern for Site SS-041 because there is no consistent, long-term standing surface water at the site. Based on a human health risk assessment done during the remedial investigation of this site, there is no significant threat to human health posed by contaminants remaining in soil and sediment at the site.

3.0 PURPOSE AND SCOPE OF WORK

Achieving the specified remediation goals for trivalent and hexavalent chromium and/or cadmium will qualify the Site SS-041 area for unrestricted reuse in the future and unlimited exposure for ecological receptors. Achieving the remediation goals will also render unnecessary any additional use restrictions or associated land use controls/institutional controls for this site; i.e., the site will be suitable for unrestricted use in terms of any residual sediment contamination remaining in the wetland.

URS will re-delineate the extent of chromium and cadmium contaminated sediment remaining at concentrations above the remediation goals in the wetland, dispose of the contaminated material offsite, replace the excavated wetland soil with clean fill, re-grade and seed the area, and restore the wetland resource in accordance with Federal and State law.

The work will be performed adjacent to an active railroad line. URS will obtain permission and secure the appropriate permits and training for its employees to perform work within the right-of-way for the line.

There are five tasks associated with the work that will be performed by URS:

Task 1 - Work Plan

Task 2 – Survey, Wetland Delineation and Contamination Delineation

Task 3 – Clearing and Grubbing, Soil Removal and Backfilling

Task 4 – Wetlands Restoration

Task 5 – Wetlands Inspection and Maintenance

4.0 APPLICABILITY

The purpose of this SSHP Appendix is to assign responsibilities, establish personal protection standards and mandatory safety procedures, and provide for contingencies that may arise at the site. This SSHP Appendix complies with, but does not replace, Federal Health and Safety Regulations, as set forth in 29 CFR 1910 and 1926, and applicable state regulations. This SSHP Appendix is to be used by URS personnel as a supplement to the SSHP for the Former Plattsburgh Air Force Base and the above referenced rules, regulations, and guidance. This SSHP Appendix is to be augmented by the URS Health, Safety, and Environment Program and Management System. Relevant standards from the URS program and system shall be available on site during all activities.

The provisions of this SSHP Appendix are mandatory for all onsite URS employees engaged in hazardous material management activities associated with this project.

Changing and/or unanticipated site conditions may require modification of this SSHP Appendix to maintain a safe and healthful work environment. Any proposed changes to this appendix will be reviewed with a URS health, safety, and environment professional prior to their implementation. If this is not feasible, the Site/Project Manager may modify this appendix and record all changes in a field logbook. Under no circumstances will modifications to this appendix conflict with federal, state, or other governmental health and safety regulations.

URS is providing a copy of this SSHP Appendix to each site subcontractor to fulfill its obligation under 29 CFR 1910.120(b) to inform subcontractors of site hazards. In turn, each subcontractor will provide documentation to URS that describes their plan for addressing applicable the health and safety requirements for activities that are unique to their scope of services.

5.0 RESPONSIBILITIES

5.1 URS

URS will have site safety and health oversight and coordination responsibilities for URS personnel. The subcontractor will be held accountable for the safe and healthful performance of work by each of its employees, subcontractors, or support personnel who may enter the site.

URS will be responsible for utility mark outs and adhering to SMS 34 – Utility Clearances.

URS will provide field personnel to oversee the on-site activities pursuant to the project specifications.

URS will adhere strictly to the provisions of this SSHP Appendix, along with the SSHP and applicable regulations issued by governmental entities.

URS will be responsible for obtaining permission to perform work within the railroad's right-of-way at the site. URS will provide its employees training required by the access agreement. Only approved and trained personnel will be allowed to enter the right-of way when performing work at the site.

5.2 Landscaping Contractor

The landscaping Contractor will provide all necessary labor and equipment to complete the job safely and pursuant to the project specifications, including decontamination of equipment.

The landscaping Contractor will provide the name of their designated Safety Officer who will interface with the URS SSO.

5.3 Excavation Contractor

The excavation Contractor will provide all necessary labor and equipment to complete the job safely and pursuant to the project specifications, including decontamination of excavation equipment.

The excavation Contractor will provide the name of their designated Safety Officer who will interface with the URS SSO. The excavation Contractor will provide copies of OSHA training records for their on-site employees.

The excavation Contractor will provide the necessary training in accordance with the railroad right-of-way access agreement. Only approved and trained personnel will be allowed to enter the right-of-way when performing work at the site.

6.0 JOB HAZARD ANALYSIS

Each definable feature of the work (presented in section 3.0) is subject to a Job Safety Analysis (JSA). JSA's are provided in Table 6-1.

6.1 Chemical Hazards

Chemical hazards associated with site activities include potential exposure to metals (cadmium and chromium) and gasoline/diesel fuel for jobsite equipment and vehicles.

From an occupational health standpoint, given that the site has been well characterized, and any potential exposures to site personnel will be intermittent, the levels of contaminants that may be encountered during site activities should not represent a significant concern if the provisions of this SSHP Appendix are appropriately implemented. Exposure to elevated levels of these contaminants may pose hazards. Occupational exposure limits are presented in Table 6-2.

Please refer to SMSs 002, 029, 042, 050, 083 and 086.

6.2 Physical Hazards

Physical hazards associated with this work site include:

- Cold stress/Heat stress;
- Noise from the operation of site equipment;
- Airborne dust from earthwork activities;
- Vehicular accidents;
- Slip-trip-fall types of accidents;
- Back injuries resulting from improper lifting;
- Hot water/steam;
- Biological hazards;
- Railroad;
- Heavy equipment
- Underground utilities;
- Hand and power tools, falling trees/branches, and,
- Caught in or struck by moving equipment.

Please refer to SMSs 018, 019, 026, 029, 034, 046, 047, 057, 059, 063, 064, 069 and 072.

6.2.1 Work Area Protection

Project operations will be undertaken in the wetlands area as shown in Figure 2. No significant automobile traffic is expected in this area. Traffic controls (i.e. flagmen) may be required for ingress/ egress from the roadways to the work area. Also, an active railroad abuts the work area to the east, with part of the work area's eastern portion in the railroad's right-of way.

Refer to SMSs 019, 057 and 063.

6.2.2 Survey, Wetland Delineation and Contamination Delineation

URS will conduct survey of the work area to gather original surficial topography data and to stake out the proposed locations for soil delineation locations (presented in Sections 3.3.1 and 3.3.3 of the Work Plan).

In conjunction with the survey, URS will perform a wetland delineation (presented in Section 3.3.2 of the Work Plan. The data from this wetland delineation will be used to develop the site restoration plan.

URS will also conduct a contamination delineation (presented in Section 3.3.1 of the Work Plan. Soil samples will be collected using manual methods, at the locations staked out earlier, from depths of 0-1 foot, 1-2 feet, and 2-3 feet.

Please refer to SMSs 016, 018, 029, 034, 047, 063 and 064.

6.2.3 Clearing and Grubbing

The landscaping Contractor will use heavy machinery (i.e., chain saws, bulldozers, etc.) to clear and grub the work area in preparation for excavation activities. The section of the work area to be cleared/grubbed will be determined using the data collected during the contamination delineation.

Please refer to SMSs 016, 019, 026, 029, 034, 047, 057, 063, 064, 069 and 072.

6.2.4 Soil Removal and Backfilling

The excavation Contractor will use excavators, and other heavy equipment to remove contaminated soil from the work area and transport it off-site for disposal. The section of the

work area to be excavated will be determined using the data collected during the contamination delineation.

To determine the limits of the excavation, periodic sampling of the excavation's sidewalls and floor will be conducted by URS personnel. During these sampling events, all excavation activities will cease and all heavy equipment will be on stand-by (i.e. parked and idle).

Once the last of the contaminated soil has been taken off-site for disposal, the excavation Contractor will use heavy equipment to backfill the excavation to near original grade.

Please refer to all SMSs listed above.

6.2.5 Decontamination

The excavation Contractor will use a steam cleaner/power washer to perform decontamination of excavation equipment. Personnel utilizing this equipment will wear a face shield and appropriate gloves. All decontamination fluids and debris generated from the decontamination activities will be managed in accordance with the workplan.

Please refer to SMSs 002, 019, 021, 029, 030, 046, 057 and 064.

6.2.6 Wetland Restoration

After the excavation has been backfilled to near original grade, the landscaping Contractor will restore the site to original wetland conditions using tree planters, back-hoes and other heavy equipment.

Please refer to SMSs 013, 016, 018, 019, 021, 026, 029, 030, 046, 047, 057, 064 and 069.

6.2.7 Wetland Inspection and Maintenance

URS personnel will return to the site one-year after the wetland restoration to inspect the restored wetland. If deficiencies are noted during the inspection, the landscaping Contractor will return to the site and make the necessary repairs, possibly using heavy equipment (i.e., back-hoe, etc.).

Please refer to SMSs 002, 013, 016, 018, 019, 021, 026, 029, 030, 046, 047, 057, 064 and 069.

7.0 EXPOSURE MONITORING PLAN

Noise and chemical exposures may be encountered at this site. Noise levels will not be monitored. URS personnel will wear hearing protection that consists of earplugs or earmuffs during heavy equipment or power tool operation.

7.1 Chemical Exposure Monitoring (Including Particulates)

The field instruments described in this SSHP Appendix have been selected for the contaminants that may be encountered during the course of this project. Selection factors include anticipated airborne concentrations, instrument sensitivity, and occupational exposure limits. The action levels specified in Section 1.0 were established with the expectation that specific instruments will be used. Do not substitute instruments without the consent of the SSO or RHSEM.

The monitoring equipment specified in Section 1.0 will be used on a regular basis to evaluate the potential for exposure to airborne contaminants, typically every ten minutes. Monitoring will be conducted in the immediate vicinity of the contaminant source point or work area. The action levels and appropriate responses are detailed in Section 1.0.

A breathing zone aerosol particulate reading above 2.0 mg/m^3 will require work to stop, and workers will move upwind while the airborne contaminants dissipate. If elevated levels remain for more than five minutes, the source of the airborne contamination will be wetted with clean water, or covered with plastic sheeting or foam (or be controlled in an appropriate manner), and the Health, Safety, and Environment Representative or PM will be contacted for further guidance.

7.2 Background Readings

All direct-reading instruments will be evaluated relative to background readings, not “meter zero”. Prior to the start of work at each shift, and whenever there is a significant shift in wind direction, instrument readings will be obtained upwind of the site work zone to determine the level of “background” readings from such things as local vehicle traffic or emissions from nearby operations unrelated to the site. Site readings will be evaluated against these background readings (i.e., if an action level is listed as 2.0 mg/m^3 , it is evaluated as 2.0 mg/m^3 above

background). The SSO will consult with the industrial hygienist regarding the potential health hazards associated with background readings above 2.0 mg/m³.

7.3 Data Logging

All monitoring data, including background readings, will be recorded in a field logbook. The results of instrument calibrations or function checks will either be logged on a URS form or in the field logbook. All monitoring instruments will be calibrated in accordance with the manufacturers' instructions. Calibration will also be performed when inconsistent or erratic readings are obtained. If an instrument cannot be calibrated to specification or becomes otherwise inoperable, all invasive site work will cease until the instrument is appropriately repaired or replaced.

8.0 PERSONAL PROTECTIVE EQUIPMENT

The minimum Personal Protective Equipment (PPE) for site personnel includes:

- Hardhat;
- Safety glasses with side shields (or impact-resistant goggles);
- Traffic safety vest;
- ANSI – rated steel-toed boots or chemical-resistant steel-toed boots;
- Hearing protection in the vicinity of noisy equipment; and,
- Leather work gloves and/or chemical-resistant gloves.

Additional PPE is required if certain action levels are reached. Section 1.0 describes the PPE requirements relative to specific aerosol particulate monitoring readings. Procedures for the use and selection of PPE are provided in SMS 029, a copy of which is to be maintained on site.

The SSO will establish the duration of work tasks in which personnel use PPE ensembles that include chemical protective clothing. Variables to be considered include ambient temperature and other weather conditions, the capacity of individual personnel to work in the required level of PPE in heat and cold, and the limitations of specific PPE ensembles.

9.0 RESPIRATORY PROTECTION

Engineering controls and safe work practices (e.g., elimination of the source of contamination, ventilation equipment, working upwind, limiting exposure time, etc.) must always be the primary control for air contaminants. Respirators will be used as an interim control measure while engineering or work practice controls are implemented.

Once the need for respirators has been established, the respirators will be selected on the basis of hazards to which the worker is exposed. Only NIOSH-approved respirators will be issued.

CAUTION: A respirator does not protect against excessive heat or against a hazardous substance that can attack the body through the skin, or substances that do not sorb to or are filtered by cartridge media.

Airborne contaminants have been evaluated based on the suspected contaminants of concern. The concentration of the airborne chemical hazard will be evaluated using direct-reading instruments to determine when respiratory protection will be used. Airborne readings will be compared to the action levels identified in Section 1.0.

URS staff will generally stay upwind and away from the immediate work area during excavation activities, except when performing downwind air monitoring activities.

10.0 SITE CONTROL

The work area will be designated by safety tape or other means to identify the work areas and to keep unauthorized people away from the potential hazardous work zones.

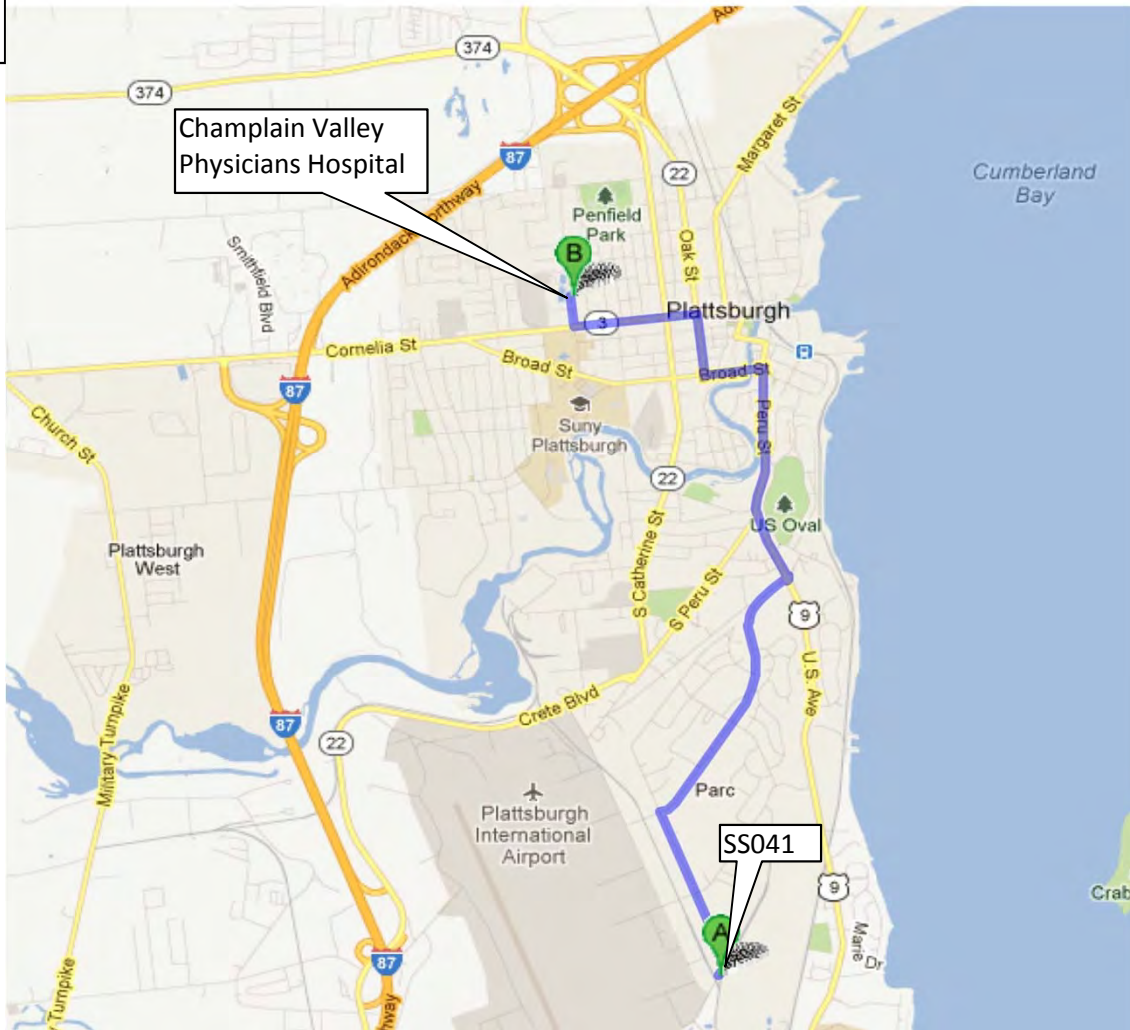
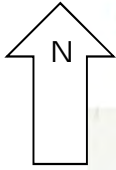
All contaminated soils and fluids shall be handled in accordance with relevant regulations and specifications in the work plan.

A short piece of barricade tape can be affixed to a secure upright mast to serve as a wind direction telltale. The SSO will determine an upwind evacuation area prior to each work shift and all personnel will be notified of its location.

FIGURES



Directions to 75 Beekman St, Plattsburgh, NY 12901
4.4 mi – about 13 mins



- A** Idaho Ave
- 1. Head **northeast** on **Idaho Ave** toward **Connecticut Ave**
About 2 mins go 0.8 mi
total 0.8 mi
- 2. Take the 3rd right onto **New York Rd**
About 4 mins go 1.3 mi
total 2.1 mi
- 3. At the traffic circle, take the 3rd exit onto **U.S. Ave**
About 1 min go 0.4 mi
total 2.5 mi
- 4. Continue onto **Peru St**
About 1 min go 0.7 mi
total 3.2 mi
- 5. Turn left onto **Broad St**
About 1 min go 0.3 mi
total 3.4 mi
- 6. Take the 3rd right onto **Oak St**
About 59 secs go 0.3 mi
total 3.7 mi
- 7. Turn left onto **Cornelia St**
About 2 mins go 0.5 mi
total 4.2 mi
- 8. Turn right onto **Beekman St**
Destination will be on the left go 0.1 mi
total 4.4 mi
- B** 75 Beekman St, Plattsburgh, NY 12901



Route to Hospital
Revised Project Objective for SS041
Former Plattsburgh AFB
Plattsburgh, NY

FIGURE 1



N:\11168476.00000\GIS\Applications\ArcMap\ss-041-siteplan.mxd, 10/22/2008, EM

Legend

Base Boundary

© 2013 Microsoft Corporation

0 1,250 2,500 5,000

Feet



FORMER PLATTSBURGH AFB, NY
 SS041 BUILDING 2612
 SITE LOCATION

FIGURE 2

TABLES

**TABLE 6-1
JOB SAFETY ANALYSIS**

URS Group, Inc. Former Plattsburgh AFB Site	DATE 3/18/13	<input checked="" type="checkbox"/> NEW <input type="checkbox"/> REVISED	PAGE 1 of 1
WORK ACTIVITY (Description): Survey, Wetland Delineation and Contamination Delineation			
DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY:	POSITION/TITLE
TBD	Site Geologist	S. Moeller	HSE Representative
Don Hunt, P.E.	Project Manager	B. Bertolotti	RSHEM
Bruce Przybyl	Technical Lead	TBD	SSO
MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)			
<input checked="" type="checkbox"/> REFLECTIVE VEST <input checked="" type="checkbox"/> HARD HAT <input checked="" type="checkbox"/> SAFETY GLASSES <input checked="" type="checkbox"/> PPE CLOTHING Level D with long pants or as required by changing conditions as determined by SSO	<input checked="" type="checkbox"/> SAFETY SHOES Steel-toe <input type="checkbox"/> HEARING PROTECTION ear plugs not required for personnel outside 30-ft safety zone or if operator's vehicle door and window is closed	<input type="checkbox"/> AIR PURIFYING RESPIRATOR required as specified in SSHP Appendix and determined by SSO	<input checked="" type="checkbox"/> GLOVES nitrile/leather as required by task-specific critical actions of JSA <input checked="" type="checkbox"/> OTHER All PPE must be worn as specified in task-specific critical actions of JSA
JOB STEPS¹	POTENTIAL HAZARDS²	CRITICAL ACTIONS TO MITIGATE HAZARDS³	
Surveying	Vehicular traffic	No major traffic anticipated	
	Working Near Active Railroad	Attend Site-Specific Railway Safety Training Provided by Track Owner/Operator	
		Keep aware of any railroad activities	
	Adjacent Site Activities	Receive Work Permit from Railroad Owner/Operator, if necessary.	
Biological Hazards	Keep aware of any adjacent activities		
Hand Auguring	Vehicular traffic	Use Level D PPE as directed by the SSO.	
	Underground Utilities	Keep aware of hazardous fauna	
		No major traffic anticipated	
		Review site drawings.	
		Contact Dig-Safe, Air Force Real Property Agency	
	Working Near Active Railroad	Mark utility locations in the field prior to drilling.	
		Receive Dig Permit.	
		Attend Site-Specific Railway Safety Training Provided by Track Owner/Operator	
	Adjacent Site Activities	Keep aware of any railroad activities	
		Receive Work Permit from Railroad Owner/Operator	
		Keep aware of any adjacent activities	
Inspect general condition of tools.			
Hand & Power Tools	Review safety requirements in Operator's Manual.		
	Identify PPE required for each tool.		
	Check for proper guarding.		
Biological Hazards	Only trained operators allowed.		
	Use Level D PPE as directed by the SSO.		
Pinch Points	Keep aware of hazardous fauna		
Environmental Conditions	Be aware of potential pinch points and wear appropriate PPE		
	Monitor work area for volatile vapors (PID).		
	Use PPE (polycoated Tyvek [®] coveralls, chemical-resistant over boots, nitrile outer gloves, and air purifying respirator) as directed by SSO.		

- Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2
- A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress/ergonomics/lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"
- Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

**TABLE 6-1
JOB SAFETY ANALYSIS**

URS Group, Inc. Former Plattsburgh AFB Site	DATE 3/18/13	<input checked="" type="checkbox"/> NEW <input type="checkbox"/> REVISED	PAGE 1 of 1
WORK ACTIVITY (Description): Clearing/Grubbing for Excavation Activities			
DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY:	POSITION/TITLE
TBD	Site Geologist	S. Moeller	HSE Representative
Don Hunt, P.E.	Project Manager	B. Bertolotti	RSHEM
Bruce Przybyl	Technical Lead	TBD	SSO
MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)			
<input checked="" type="checkbox"/> REFLECTIVE VEST <input checked="" type="checkbox"/> HARD HAT <input checked="" type="checkbox"/> SAFETY GLASSES <input checked="" type="checkbox"/> PPE CLOTHING Level D with long pants or as required by changing conditions as determined by SSO	<input checked="" type="checkbox"/> SAFETY SHOES Steel-toe <input checked="" type="checkbox"/> HEARING PROTECTION ear plugs not required for personnel outside 30-ft safety zone or if operator's vehicle door and window is closed	<input type="checkbox"/> AIR PURIFYING RESPIRATOR required as specified in SSHP Appendix and determined by SSO	<input checked="" type="checkbox"/> GLOVES nitrile/leather as required by task-specific critical actions of JSA <input checked="" type="checkbox"/> OTHER All PPE must be worn as specified in task-specific critical actions of JSA
JOB STEPS¹	POTENTIAL HAZARDS²	CRITICAL ACTIONS TO MITIGATE HAZARDS³	
Clearing/Grubbing	Vehicular traffic	No major traffic anticipated	
	Adjacent Site Activities	Keep aware of any adjacent activities	
	Underground Utilities	Review site drawings.	
		Contact Dig-Safe, Air Force Real Property Agency	
		Mark utility locations in the field prior to drilling. Receive Dig Permit.	
	Working Near Active Railroad	Attend Site-Specific Railway Safety Training Provided by Track Owner/Operator	
		Keep aware of any railroad activities	
		Receive Work Permit from Railroad Owner/Operator, if necessary.	
	Hand & Power Tools	Inspect general condition of tools.	
		Review safety requirements in Operator's Manual.	
		Identify PPE required for each tool.	
		Check for proper guarding. Only trained operators allowed.	
	Heavy Equipment	Check/verify operation of back-up signal(s). Avoid blind spots designated by operator.	
Noise >85 dB	Wear hearing protection (plugs or muffs).		
Pinch Points	Be aware of potential pinch points and wear appropriate PPE		
Falling Trees	Implement engineering controls (barriers)		
	Wear appropriate PPE to prevent flying branches from causing eye or other injuries		
Biological Hazards	Wear appropriate PPE to prevent insects or other fauna from causing eye or other injuries		
	Monitor work area for animals, poisonous plants.		

- Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2
- A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress/ergonomics/lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"
- Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

**TABLE 6-1
JOB SAFETY ANALYSIS**

URS Group, Inc. Former Plattsburgh AFB Site	DATE 3/18/13	<input checked="" type="checkbox"/> NEW <input type="checkbox"/> REVISED	PAGE 1 of 2
WORK ACTIVITY (Description): Excavation, Backfilling and Wetlands Restoration Activities			
DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY:	POSITION/TITLE
TBD	Site Geologist	S. Moeller	HSE Representative
Don Hunt, P.E.	Project Manager	B. Bertolotti	RSHEM
Bruce Przybyl	Technical Lead	TBD	SSO
MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)			
<input checked="" type="checkbox"/> REFLECTIVE VEST <input checked="" type="checkbox"/> HARD HAT <input checked="" type="checkbox"/> SAFETY GLASSES <input checked="" type="checkbox"/> PPE CLOTHING Level D with long pants or as required by changing conditions as determined by SSO	<input checked="" type="checkbox"/> SAFETY SHOES Steel-toe <input checked="" type="checkbox"/> HEARING PROTECTION ear plugs not required for personnel outside 30-ft safety zone or if operator's vehicle door and window is closed	<input type="checkbox"/> AIR PURIFYING RESPIRATOR required as specified in SSHP Appendix and determined by SSO	<input checked="" type="checkbox"/> GLOVES nitrile/leather as required by task-specific critical actions of JSA <input checked="" type="checkbox"/> OTHER All PPE must be worn as specified in task-specific critical actions of JSA
JOB STEPS¹	POTENTIAL HAZARDS²	CRITICAL ACTIONS TO MITIGATE HAZARDS³	
Excavation	Vehicular traffic	No major traffic anticipated	
	Underground Utilities	Review site drawings.	
		Contact Dig-Safe, Air Force Real Property Agency	
		Mark utility locations in the field prior to drilling. Receive Dig Permit.	
	Working Near Active Railroad	Attend Site-Specific Railway Safety Training Provided by Track Owner/Operator	
		Keep aware of any railroad activities Receive Work Permit from Railroad Owner/Operator, if necessary.	
	Biological Hazards	Use Level D PPE as directed by the SSO. Keep aware of hazardous fauna	
	Adjacent Site Activities	Keep aware of any adjacent activities	
	Hand & Power Tools	Inspect general condition of tools.	
		Review safety requirements in Operator's Manual.	
		Identify PPE required for each tool. Check for proper guarding. Only trained operators allowed.	
	Heavy Equipment	Check/verify operation of back-up signal(s). Avoid blind spots designated by operator.	
	Noise >85 dB	Wear hearing protection (plugs or muffs).	
	Pinch Points	Be aware of potential pinch points and wear appropriate PPE	
	Particulates	Monitor work area for particulates.	
Implement engineering controls (wetting) if high levels of particulates are created.			
Wear appropriate PPE to prevent flying debris from causing eye or other injuries Use PPE (dust masks as appropriate).			
Environmental Conditions	Monitor work area for volatile petroleum vapors (PID).		
	Implement engineering controls (ventilation) as necessary. Use PPE (polycoated Tyvek [®] coveralls, chemical-resistant over boots, nitrile outer gloves, and air purifying respirator) as directed by SSO.		

**TABLE 6-1
JOB SAFETY ANALYSIS**

URS Group, Inc. Former Plattsburgh AFB Site	DATE 3/18/13	<input checked="" type="checkbox"/> NEW <input type="checkbox"/> REVISED	PAGE 2 of 2	
JOB STEPS ¹	POTENTIAL HAZARDS ²	CRITICAL ACTIONS TO MITIGATE HAZARDS ³		
Backfilling	Vehicular traffic	No major traffic anticipated		
	Adjacent Site Activities	Keep aware of any adjacent activities		
	Working Near Active Railroad		Attend Site-Specific Railway Safety Training Provided by Track Owner/Operator	
			Keep aware of any railroad activities	
			Receive Work Permit from Railroad Owner/Operator, if necessary.	
	Biological Hazards		Use Level D PPE as directed by the SSO.	
			Keep aware of hazardous fauna	
	Hand & Power Tools		Inspect general condition of tools.	
			Review safety requirements in Operator's Manual.	
			Identify PPE required for each tool.	
			Check for proper guarding.	
	Heavy Equipment		Only trained operators allowed.	
			Check/verify operation of back-up signal(s).	
	Noise >85 dB	Avoid blind spots designated by operator.		
Pinch Points	Wear hearing protection (plugs or muffs).			
Particulates		Be aware of potential pinch points and wear appropriate PPE		
		Monitor work area for particulates.		
		Implement engineering controls (wetting) if high levels of particulates are created.		
		Wear appropriate PPE to prevent flying debris from causing eye or other injuries		
		Use PPE (dust masks as appropriate).		
Wetland Restoration	Vehicular traffic	No major traffic anticipated		
	Adjacent Site Activities	Keep aware of any adjacent activities		
	Working Near Active Railroad		Attend Site-Specific Railway Safety Training Provided by Track Owner/Operator	
			Keep aware of any railroad activities	
			Receive Work Permit from Railroad Owner/Operator, if necessary.	
	Biological Hazards		Use Level D PPE as directed by the SSO.	
			Keep aware of hazardous fauna	
	Hand & Power Tools		Inspect general condition of tools.	
			Review safety requirements in Operator's Manual.	
			Identify PPE required for each tool.	
			Check for proper guarding.	
	Heavy Equipment		Only trained operators allowed.	
			Check/verify operation of back-up signal(s).	
	Noise >85 dB	Avoid blind spots designated by operator.		
Pinch Points	Wear hearing protection (plugs or muffs).			
Falling Trees/Branches		Be aware of potential pinch points and wear appropriate PPE		
		Implement engineering controls (wetting) if high levels of particulates are created.		
		Use PPE (dust masks as appropriate).		

- Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2
- A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress/ergonomics/lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"
- Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

**TABLE 6-1
JOB SAFETY ANALYSIS**

URS Group, Inc. Former Plattsburgh AFB Site	DATE 3/18/13	<input checked="" type="checkbox"/> NEW <input type="checkbox"/> REVISED	PAGE 1 of 1
WORK ACTIVITY (Description): Wetland Inspection and Maintenance			
DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY:	POSITION/TITLE
TBD	Site Geologist	S. Moeller	HSE Representative
Don Hunt, P.E.	Project Manager	B. Bertolotti	RSHEM
Bruce Przybyl	Technical Lead	TBD	SSO
MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)			
<input checked="" type="checkbox"/> REFLECTIVE VEST <input checked="" type="checkbox"/> HARD HAT <input checked="" type="checkbox"/> SAFETY GLASSES <input checked="" type="checkbox"/> PPE CLOTHING Level D with long pants or as required by changing conditions as determined by SSO	<input checked="" type="checkbox"/> SAFETY SHOES Steel-toe <input checked="" type="checkbox"/> HEARING PROTECTION ear plugs not required for personnel outside 30-ft safety zone or if operator's vehicle door and window is closed	<input type="checkbox"/> AIR PURIFYING RESPIRATOR required as specified in SSHP Appendix and determined by SSO	<input checked="" type="checkbox"/> GLOVES nitrile/leather as required by task-specific critical actions of JSA <input checked="" type="checkbox"/> OTHER All PPE must be worn as specified in task-specific critical actions of JSA
JOB STEPS¹	POTENTIAL HAZARDS²	CRITICAL ACTIONS TO MITIGATE HAZARDS³	
Site Inspection	Vehicular traffic	No major traffic anticipated	
	Adjacent Site Activities	Keep aware of any adjacent activities	
	Working Near Active Railroad	Attend Site-Specific Railway Safety Training Provided by Track Owner/Operator	
		Keep aware of any railroad activities	
		Receive Work Permit from Railroad Owner/Operator, if necessary.	
Biological Hazards	Wear appropriate PPE to prevent insects or other fauna from causing eye or other injuries Monitor work area for animals, poisonous plants.		
Repair/ Maintenance	Vehicular traffic	No major traffic anticipated	
	Adjacent Site Activities	Keep aware of any adjacent activities	
	Working Near Active Railroad	Attend Site-Specific Railway Safety Training Provided by Track Owner/Operator	
		Keep aware of any railroad activities	
		Receive Work Permit from Railroad Owner/Operator	
	Hand & Power Tools	Inspect general condition of tools.	
		Review safety requirements in Operator's Manual.	
		Identify PPE required for each tool.	
		Check for proper guarding.	
	Heavy Equipment	Only trained operators allowed.	
		Check/verify operation of back-up signal(s). Avoid blind spots designated by operator.	
	Noise >85 dB	Wear hearing protection (plugs or muffs).	
	Pinch Points	Be aware of potential pinch points and wear appropriate PPE	
Falling Trees	Implement engineering controls (barriers)		
	Wear appropriate PPE to prevent flying branches from causing eye or other injuries		
Biological Hazards	Wear appropriate PPE to prevent insects or other fauna from causing eye or other injuries		
	Monitor work area for animals, poisonous plants.		

- Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2
- A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress/ergonomics/lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"
- Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

**TABLE 6-1
JOB SAFETY ANALYSIS**

URS Group, Inc. Former Plattsburgh AFB Site	DATE 3/18/13	<input checked="" type="checkbox"/> NEW <input type="checkbox"/> REVISED	PAGE 1 of 1
WORK ACTIVITY (Description): Decontamination of Equipment			
DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY:	POSITION/TITLE
TBD	Site Geologist	S. Moeller	HSE Representative
Don Hunt, P.E.	Project Manager	B. Bertolotti	RSHEM
Bruce Przybyl	Technical Lead	TBD	SSO
MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)			
<input checked="" type="checkbox"/> REFLECTIVE VEST <input checked="" type="checkbox"/> HARD HAT <input checked="" type="checkbox"/> SAFETY GLASSES <input checked="" type="checkbox"/> PPE CLOTHING Level D with long pants or as required by changing conditions as determined by SSO	<input checked="" type="checkbox"/> SAFETY SHOES Steel-toe <input checked="" type="checkbox"/> HEARING PROTECTION ear plugs not required for personnel outside 30-ft safety zone or if operator's vehicle door and window is closed	<input type="checkbox"/> AIR PURIFYING RESPIRATOR required as specified in SSHP Appendix and determined by SSO	<input checked="" type="checkbox"/> GLOVES nitrile/leather as required by task-specific critical actions of JSA <input checked="" type="checkbox"/> OTHER All PPE must be worn as specified in task-specific critical actions of JSA
JOB STEPS¹	POTENTIAL HAZARDS²	CRITICAL ACTIONS TO MITIGATE HAZARDS³	
Decontamination of equipment	Flying debris	Use safety glasses with a face shield and/or goggles	
	Chemical Exposure	Wear appropriate PPE (nitrile gloves, Tyvek).	
	Noise (>85 dB)	Hearing protection required.	
	Particulates	Implement engineering controls (wetting) if high levels of particulates are created.	
		Use PPE (polycoated Tyvek [®] coveralls, chemical-resistant over boots, nitrile outer gloves, and air purifying respirator) as directed by SSO.	
Hot water and steam	If pressure washer is used, use goggles and face shield, and gloves. Keep wand pointed away from hands and face and other people.		

- Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2
- A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress/ergonomics/lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"
- Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

TABLE 6-2
HAZARD CHARACTERISTICS OF CONTAMINANTS OF CONCERN POTENTIALLY PRESENT AT
FORMER PLATTSBURGH AIR FORCE BASE SS-041

SUBSTANCE	TOXICITY/CARCINOGENICITY	OCCUPATIONAL EXPOSURE VALUES
Cadmium (dusts and salts)	Highly toxic, especially by inhalation of dust or fume. Suspected human carcinogen. Ingestion usually induces a strong emetic action.	0.01 mg/m ³ (Inhalable) (TLV-TWA) 0.002 mg/m ³ (Respirable) (TLV-TWA) 0.005 mg/m ³ (PEL)
Chromium (dusts and salts)	Highly toxic, especially by inhalation of dust or fume. Suspected human carcinogen. Ingestion usually induces a strong emetic action.	0.5 mg/m ³ (Trivalent) (TLV-TWA and PEL) 0.05 mg/m ³ (Hexavalent) (Water Soluble Compounds) (TLV-TWA) 0.01 mg/m ³ (Hexavalent) (Water Insoluble Compounds) (TLV-TWA) 0.1 mg/m ³ (Hexavalent) (Ceiling ⁽¹⁾) (PEL)

Notes

(1) Ceiling – The concentration that should not be exceeded during any part of the working exposure.

References

- “Guide to Occupational Exposure Values – 2004”. American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio, 2004.
- “2002 TLVs and BEIs-Threshold Limit Values for Chemical Substances, Physical Agents, and Biological Exposure Indices.” American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio, 2002.
- NIOSH Pocket Guide to Chemical Hazards website (<http://www.cdc.gov/niosh/npg/>).
- Hawley, Gessner, G. The Condensed Chemical Dictionary, Tenth Edition, New York, Van Nostrand Reinhold, 1981.
- Sax, R. Irving. Dangerous Properties of Industrial Materials, Sixth Edition, New York, Van Nostrand Reinhold, 1984.

Definitions:

Threshold Limit Values (TLVs) - Refers to airborne concentrations of substances as issued by the American Conference of Governmental Industrial Hygienists (ACGIH) and represents conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse effect.

Threshold Limit Value - Time-Weighted Average (TLV-TWA) - The Time-Weighted Average concentration as issued by ACGIH for a normal 8-hour Work day and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

Permissible Exposure Limits (PELs) - Exposure limits that are enforceable by the Occupational Safety and Health Administration (OSHA) as legal standards and cannot be exceeded over an 8-hour exposure.

ATTACHMENT A

URS' SAFETY MANAGEMENT STANDARDS

URS SAFETY MANAGEMENT STANDARD

Inspections by Regulatory Agencies

1. Applicability

This procedure applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

Representatives of regulatory agencies may have statutory authority to evaluate URS operations for compliance with health, safety, and environmental regulations. URS personnel are to cooperate with all such inspections. This standard provides guidelines for responding to the inspector and for documenting inspection activities.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 001 NA – North America, UK and Ireland, Europe, and Middle East](#)

[SMS 001-AP2 – Asia Pacific](#)

URS SAFETY MANAGEMENT STANDARD

Inspections by Regulatory Agencies

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

Representatives of regulatory agencies may have statutory authority to evaluate URS operations for compliance with health, safety, and environmental regulations. URS personnel are to cooperate with all such inspections. This standard provides guidelines for responding to the inspector and for documenting inspection activities.

Once an agency enforcement action (civil penalty or criminal) is received, URS Legal must be contacted. URS Legal will be the controlling entity when addressing the allegations. Regulatory citations have the potential to impact the entire Company, not just the local operation. These potential impacts include "repeat", "serious", or "willful" violations because of multiple sites and multiple citations and compromised ability to compete for work in all Businesses of the Company.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Obtain Positive Identification

Request formal identification (photo identification card) from any regulatory agency representative. Confirm with the agency if there is any question regarding the identity of the individual (independently obtain the agency's number; do not use a number provided by the representative); explain to the representative that this is a precautionary security measure. Obtain a business card from the inspector for URS records.

B. Warrants

Do not require an inspector to obtain a warrant prior to conducting an inspection.

C. Health and Safety Notification

Contact the local Health, Safety, and Environment (HSE) Representative and/or applicable HSE Manager immediately upon confirming the identification of the representative. If the representative is from an

URS SAFETY MANAGEMENT STANDARD

Inspections by Regulatory Agencies

Environmental/Public Health agency, also contact the local environmental group leader and Office Manager.

D. Opening Conference

1. Request an opening conference if one is not initiated by the inspector.
2. Introduce members of the management team.
3. Use the opening conference to determine the reason for and type of inspection. If the inspection is the result of a formal complaint, ask for a copy (the name of the employee may be withheld).
4. Determine the intended scope and duration of the inspection. If the inspection will be lengthy, provide office space, equipment, and clerical support for the inspection team (as available).
5. Work with the inspector to determine the following: inclusion of representatives of other employees on site, inclusion of representatives of employees, and the number of inspection teams to be used.
6. Ensure that each inspector or inspection team is accompanied by a management team representative at all times.
7. Establish a method of document production. It is preferable that requests for documents be in writing and be presented to a document controller, who will screen them for privileges that require withholding (e.g., attorney-client privileged) or determine if the regulatory agency must give them special handling (e.g., trade secret or business confidential information). A log should be kept of all documentation provided to the inspector.
8. Work with the inspector to agree that any photos he/she produces will be shared with URS and screened prior to the inspector departing the site for trade secrets or business confidential information.
9. Determine if the inspector will be using videotape or digital video. Negotiate use of the video in the same manner as photographs.
10. Determine if any industrial hygiene sampling or other monitoring will be completed. Arrange for side-by-side testing. Note that inspectors will usually provide 24-hour advance notice regarding sampling or monitoring activities during an inspection.

URS SAFETY MANAGEMENT STANDARD

Inspections by Regulatory Agencies

11. Establish a procedure for conducting employee interviews.

12. Take detailed meeting notes during the conference.

E. Inspection Activities

1. Escort the inspector at all times, taking him/her *directly* to the area of interest. Select inspection routes that will take the inspectors past as few work areas as possible.
2. Answer all questions honestly, but do not volunteer information. Be courteous and business-like.
3. Do not argue with or attempt to mislead the inspector.
4. Resolve conditions while the representative is on site, if possible.
5. Make sure the inspector has appropriate qualifications to enter high hazard areas.
6. Take detailed notes during the inspection (e.g., what areas were inspected, what equipment was inspected, which employees were interviewed, questions and remarks made by the inspector, photos and videos taken by the inspector and duplicated by management).
7. Replicate or share any pictures or video the inspector takes.
8. Duplicate any monitoring or industrial hygiene sampling.
9. Inspectors generally have the right to interview employees if they do not interrupt operations.
10. If the inspection is lengthy, arrange a daily end-of-day meeting to determine the next day's events, employee interviews to schedule, and industrial hygiene or monitoring equipment to have ready (if any). Review any concerns they have as a result of the day's inspection activities.
11. If the inspection is lengthy, debrief the walk-around team members on a daily basis.

F. Closing Conference

1. Request a closing conference if one is not initiated by the inspector.
2. Use the closing conference to determine what regulatory violations the representative found, if any. This is also the opportunity to

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Inspections by Regulatory Agencies

correct any errors and misunderstandings before any citation is closed.

3. Ask the inspector to specify any citations that will probably be issued and how the violations will be characterized.
4. Do not try to negotiate during the closing conference, and guard against damaging admissions.
5. Take detailed meeting notes during the conference.

G. Post-Inspection Activities

1. Immediately contact the appropriate HSE Manager and communicate the results of the inspection. The HSE Manager will provide additional instructions regarding the inspection.
2. Debrief any employees who were contacted by the representative; all discussions should be documented in meeting notes.
3. All follow-up activities associated with the inspection will be coordinated by the HSE Manager, the Vice President/Director of HSE (or designee), and appropriate Legal Counsel. Local URS employees are not to conduct any follow-up activities without the express consent of the Vice President/Director of HSE (or designee).

5. Documentation Summary

Provide the following documents to the Vice President/Director of HSE (or designee):

- A. Inspector's business card
- B. All materials provided to or from the inspector
- C. All meeting notes relating to the inspection, opening conference, closing conference, and debriefings
- D. All photos and/or video from the inspection, with explanatory notes

6. Resources

U.S. Occupational Safety and Health Administration (OSHA) – [Field Inspection Reference Manual](#)

URS SAFETY MANAGEMENT STANDARD

Hazard Communication (Worker Right-to-Know)

1. Applicability

This procedure applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this Hazard Communication standard (also known as worker right-to-know program) is to provide URS personnel with information and training about safety and health hazards associated with the chemicals they may encounter in the workplace. This procedure describes how chemical safety hazards are communicated to URS personnel and how information is to be provided to employees of other companies working at the location. The requirements include steps to acquire this information, maintain the information, and train personnel in the hazard communication program.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 002 NA – North America](#)

[SMS 002 EU – UK and Ireland, Europe, and Middle East](#)

[SMS 002 AP2 – Asia Pacific](#)

URS SAFETY MANAGEMENT STANDARD

Hazard Communication (Worker Right-to-Know)

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

This standard is not applicable to chemical laboratory operations that are covered under 29 Code of Federal Regulations (CFR) 1910.1450 (Occupational Exposure to Chemicals in Laboratories).

2. Purpose and Scope

The purpose of this Hazard Communication standard (also known as worker right-to-know program) is to provide URS personnel with information and training about safety and health hazards associated with the chemicals they may encounter in the workplace. This procedure describes how chemical safety hazards are communicated to URS personnel and how information is to be provided to employees of other companies working at the location. The requirements include steps to acquire this information, maintain the information, and train personnel in the hazard communication program.

3. Implementation

Implementation of this standard is the responsibility of the URS manager who directs activities at the facility, site, or project location. For office locations and large projects, this program may be incorporated into the general site orientation and training program or administered by project management.

4. Requirements

A. Hazardous Material Inventory

Maintain a hazardous material inventory that lists all of the hazardous materials used at each workplace (i.e., office, field location). Use chemical names consistent with the applicable material safety data sheet (MSDS).

B. Site-Specific Written Program

A site-specific written program may be prepared as a stand-alone document or included within a site-specific health and safety plan. The program must cover hazardous materials in all physical forms (liquids, solids, gases, vapors, fumes, and mists); regardless of whether they are “contained.”

C. Material Safety Data Sheets (MSDSs)

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Hazard Communication (Worker Right-to-Know)

1. The safety representative will obtain an MSDS for each chemical before it is used. MSDSs will generally be received by the person ordering the product. MSDSs for products frequently used should be kept on file because additional copies may not be included in repeat shipments.
2. The safety representative will review each MSDS when it is received to evaluate whether the information is complete and to determine whether existing protective measures are adequate.
3. Each office or project location will assign a responsible person or department to maintain a collection of all applicable and relevant MSDSs in an area that is accessible by all employees at all times. An electronic database is an acceptable method of maintaining the MSDSs.
4. The assigned person or department will replace MSDSs when updated sheets are received and will communicate any significant changes to those who work with the chemical.
5. MSDSs are required for all hazardous materials brought on site by project personnel.
6. General household products to be used for their specific purpose, as well as food, drugs, and cosmetics brought into the workplace for employee consumption, are exempt, as are supplies in the first aid kit, such as isopropyl alcohol and antibacterial wipes.
7. Subcontractors bringing hazardous materials on to a site or project must submit MSDSs to the safety representative. The safety representative may restrict the use of certain hazardous materials on a site or project due to occupational health risk, hazardous physical properties of the material, or potential employee sensitivity to odor or irritating properties of the material.

D. Labels

Unless each container has appropriate labeling, label all chemical containers with the following information:

1. Product name and identity of the hazardous chemical(s).
2. Appropriate hazard warnings.

URS SAFETY MANAGEMENT STANDARD
Hazard Communication (Worker Right-to-Know)

3. Name and address of the chemical manufacturer, importer, or other responsible party.

Labels on incoming containers of hazardous materials will not be removed or defaced.

Labels are also required when a hazardous substance is transferred from a primary container to a secondary container. Labels on secondary containers must indicate the product name or the names of the hazardous substances contained therein, as well as related physical and health hazards and their associated target organs.

Labels may incorporate words, pictures, symbols, or combinations thereof to ensure the appropriate information is provided to the end user. Examples of acceptable labeling systems include the National Fire Protection Association (NFPA) Diamond, the Hazardous Materials Identification System (HMIS), the Chemical Hazard Identification and Training (CHIT) system, or similar.

E. Hazardous Non-routine Tasks

Periodically, employees are required to perform hazardous nonroutine tasks. Prior to starting work on such projects, each employee must be provided with information about hazards to which they may be exposed, as follows:

1. Specific chemical hazards.
2. Protective/safety measures that must be taken.
3. Measures that have been taken to lessen the hazards, including ventilation, respirators, presence of another employee, and emergency procedures.

F. Informing Contractors/Subcontractors

Provide other contractors/subcontractors working in the same area with the following information on chemicals used by or provided to URS personnel:

1. Names of hazardous chemicals to which they may be exposed while on the jobsite.
2. Precautions the employees may take to lessen the possibility of exposure by usage of appropriate protective measures, such as

URS SAFETY MANAGEMENT STANDARD
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ventilation or isolation of the work. In some cases, as an administrative control measure, a task may be delayed to a time when a minimal number of employees are present in the area.

3. Location of MSDSs.

G. Training

1. Provide training to all employees who have the potential to be exposed to hazardous materials, on the following schedule:
 - a. At the time of the initial task assignment, or
 - b. Whenever new chemicals are introduced into the workplace.
2. This training will include the following:
 - a. Applicable regulatory requirements.
 - b. Location of the program, inventory, and MSDS.
 - c. Chemicals used and their hazards (chemical, physical, and health).
 - d. How to detect the presence or release of chemicals.
 - e. Safe work practices and methods employees can take to protect themselves from chemical hazards.
 - f. How to read an MSDS.
 - g. Site- or project-specific information on hazard warnings and labels in use at the location, if applicable.
3. Document the training.
4. Where non-English-speaking workers are employed, arrange provisions for training in the appropriate language. International Chemical Safety Cards (see Section 6, ILO) may be used in conjunction with MSDS information to provide non-English-language information. MSDSs are required to be on site, but there is no requirement for the MSDSs to be in a language other than English.

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5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Chemical Inventory.
- B. MSDSs.
- C. Training records.
- D. Contractor/Subcontractor notifications.

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) General Industry Standards – Hazard Communication – 29 Code of Federal Regulations (CFR) [1910.1200](#)
- B. U.S. OSHA General Industry Standards – Occupational Exposure to Hazardous Chemicals in Laboratories – [29 CFR 1910.1450](#)
- C. U.S. OSHA Construction Standards – Hazard Communication – [29 CFR 1926.59](#)
- D. Mine Safety and Health Administration – Hazard Communication – [30 CFR 47](#)
- E. OSHA Administration Technical Links – [Hazard Communication](#)
- F. National Paint and Coatings Association (NPCA) – [Hazardous Materials Identification System \(HMIS\) Version III](#)
- G. [National Fire Protection Association \(NFPA\) Standard 704](#) – Standard System for the Identification of Hazardous Materials for Emergency Response
- H. International Labour Organization (ILO) – International Chemical Safety Cards (information about 1613 chemicals in 18 languages). <http://www.ilo.org/public/english/protection/safework/cis/products/icsc/index.htm>
- I. Agency for Toxic Substances and Disease Registry (ATSDR) – Tox FAQs and Tox FAQs en Espanol, 2003. <http://www.atsdr.cdc.gov/toxfaq.html>

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7. Supplemental Information

- A. [Hazard Communication Program – Template](#)
- B. [Hazard Communication Employee Training Program](#)



HAZARD COMMUNICATION PROGRAM

Table of Contents

- A. Purpose
- B. Identification of Hazardous Substances
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- D. Material Safety Data Sheets (MSDS)
- E. Employee Training and Information
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- G. Access to Information by Other Employees

Appendices

- I. Hazard Communication Checklist
- II. Potentially Hazardous Substances
- III. List of Jobsite Hazardous Substances
- IV. Sample Letter to Suppliers to Obtain MSDS

A. PURPOSE

A-1 To protect the health and safety of our employees, URS Corporation has developed this Hazard Communication program.

1. As an organization we intend to provide information about chemical hazards and other hazardous substances, and the control of hazards via our comprehensive Hazard Communication Program, which includes container labeling, Material Safety Data Sheets (MSDS), and training.
2. This written Hazard Communication Program applies to all operations that MAY expose employees to hazardous substances because of normal work conditions or as the result of a reasonably foreseeable emergency.
3. This written Hazard Communication Program is available, upon request, to employees, their designated representatives and to appropriate representatives of state and/or federal safety and health agencies.

A-2 Scope

This program is part of URS Corporation's comprehensive health and safety program and shall be applied in conjunction with that overall program.

A-3 Responsibilities

1. The Project Manager is responsible for implementing and ensuring compliance with this written hazard communication program. The Hazard Communication checklist found in Appendix I is provided to assist the Project Manager in carrying out this responsibility.
2. The designated Project Safety Representative is responsible for coordinating and administering the program, in developing and assisting in the presentation of training materials and in providing technical assistance to project supervision.
3. Each Project Supervisor shall become familiar with the hazard communication procedures and shall supervise the application of these procedures to tasks for which they are responsible.
4. The Safety Manager is the designated safety professional for the project or office location and is responsible for providing technical assistance to the Project Supervisor or Safety Representative to implement the hazard communication program.

B. IDENTIFICATION OF HAZARDOUS SUBSTANCES

- B-1 "Hazardous Substances" are materials or mixtures that are or have physical or health hazards (See Appendix II for examples of potentially hazardous materials).
- B-2 "Exposure" is any situation arising from work conditions where an employee may ingest, inhale, absorb or otherwise come in contact with a hazardous substance.
- B-3 A master list and the MSDSs of all of the hazardous substances to which employees may be exposed on this jobsite shall be maintained in the project office (see Appendix III).

C. CONTAINER LABELING

- C-1 When hazardous substances are received, the project safety representative shall examine the containers to determine if the labels provide the following information (primary containers):
1. The identity of the hazardous substances they contain;
 2. Appropriate warnings of the physical and health hazards associated with those substances;
 3. The name and address of the chemical manufacturer or distributor.
- C-2 When hazardous substances are transferred into portable or secondary containers, the responsible Project Supervisor shall ensure that these containers are labeled with an extra copy, of the manufacturer's label or with a printed label that includes the information in one (1) and two (2) above.
- EXCEPTION: When an employee transfers a hazardous substance into a portable container for his/her own immediate use, within the work shift the portable container need not be labeled.
- C-3 Each Project Supervisor shall ensure that the labels on containers of hazardous substances are not removed or defaced, unless the containers are immediately relabeled with the information in C-1 above. The labels shall be written legibly in English. However, for non-English speaking employees information may be presented in their native language as well.
- C-4 Containers without complete labels or with defaced labels will not be used on the job.
- C-5 The Project Supervisor or Safety Representative shall review the jobsite labeling procedure at least quarterly and update as required.

D. MATERIAL SAFETY DATA SHEETS (MSDS)

- D-1 Material Safety Data Sheets (MSDSs) are documents that supply information about a particular hazardous substance or mixture. Manufacturers are required to provide MSDSs when the hazardous substances are sold to distributors or purchasers. In most cases, MSDSs are sent to the purchaser of the project (e.g. the procurement department or Project Supervisor) not the safety department.
- D-2 The Safety Manager / Project Safety Representative or Project Supervisor in coordination with the purchasing agent or project business manager, will be responsible for obtaining and maintaining the master sets of MSDSs and other information on all hazardous substances used (see sample letter in Appendix IV).
- D-3 The Project Safety Representative will review MSDSs for completeness. If an MSDS is missing or obviously incomplete, a new MSDS will be requested from the manufacturer. In some cases, MSDSs may be obtained on-line through the manufacturer's web site. The Project Safety Representative should review products for highly toxic or dangerous constituents prior to use and consult with the Safety Manager for any items considered hazardous or toxic.
- D-4 MSDSs are available to all employees in their work area for review during each work shift. If MSDSs are not available or new hazardous substance(s) in use do not have MSDSs, contact the Project Safety Representative immediately. Additional information such as chemical safety cards and the NIOSH Pocket Guide to Chemical Hazards may be used for additional information.
- D-5 Project Supervisors shall be alert to other employees (such as subcontractors) whose work on the jobsite may expose employees to additional hazardous substances. When it appears such exposure will occur, MSDSs for the substances must be obtained.
- D-6 When doing renovation or remodeling work, the Project Supervisor shall coordinate MSDSs of hazardous materials used by contractors. Contractors bringing hazardous materials on to a site or project must submit MSDSs to the Project Supervisor. The Project Supervisor should consult with the Safety Manager if there are any questions regarding hazardous constituents of products.

E. EMPLOYEE TRAINING AND INFORMATION

- E-1 Initial Orientation

Before starting work, each new employee must attend a health and safety orientation. Also, URS Corporation's on-line training program on Hazard Communication may be used as a component of the initial training but employees still require site specific information on hazards of chemicals in use, site specific spill and emergency procedures, and site specific labeling systems as described below.

- E-2 Training shall be provided before employees are assigned duties that may cause exposure to hazardous substances. Training shall also be given when new hazardous substances are introduced into the work area or when an MSDS is changed. In general, this training shall include:
1. Information on which hazardous substances are in the work area.
 2. How to read and interpret information on MSDSs and labels.
 3. Any physical or health hazards associated with the use of a hazardous substance or mixture being used in the work area.
 4. Proper precautions for handling, including specific procedures the company has implemented to protect workers from exposure such as personal protective equipment and work practices.
 5. Proper procedures for reporting of releases or threatened releases of hazardous substances.
 6. Emergency procedures for spills, fires, disposal and first aid.
 7. The methods and observations that can be used to detect the presence of a hazardous substance in the work place (odor, visual appearance or monitoring).
 8. The right of employees, their physicians or their collective bargaining agents to receive information on hazardous substances to which they may be exposed.
 9. The right against discharge or discrimination due to an employee's exercise of the rights afforded by law.
 10. The details of this written Hazard Communication Program; the availability and location of this written Hazard Communication Program and of MSDSs or other information.
- E-3 Hazard communication training must be documented.
- E-4 Additional training shall be provided as needed during the weekly safety and health training ("toolbox") meetings in order to emphasize the safe handling, use and storage of onsite hazardous substances.

F. NON-ROUTINE TASK TRAINING

F-1 When employees are assigned to a non-routine task that may expose them to a hazardous substance for which they have not been trained, they shall be trained in the manner required by Section E.

F-2 Some examples of non-routine tasks are:

- Confined space entry.
- Tank cleaning.
- Reactor vessels.
- Repair of pipes or tanks containing hazardous substances.

Prior to starting work on such projects, each affected employee will be given information about the hazardous chemicals he or she may encounter during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use, and steps the jobsite is using to reduce the hazards, including ventilation, respirators, presence of another employee and emergency procedures including site specific warnings, evacuation routes, and assembly points.

G. ACCESS TO INFORMATION BY OTHER EMPLOYERS

G-1 It is the responsibility of the Project Safety Representative or Project Supervisor to provide contractors and subcontractors with information about hazardous chemicals their employees may be exposed to on a jobsite and suggested precautions for the contractor's employees to follow to avoid exposure to hazardous conditions.

G-2 Contractors and subcontractors on the job site with potential exposure or risk will be contacted before work is started, to gather and distribute information concerning any chemical hazard that they may bring or be exposed to, in areas that are under URS Corporation control.

APPENDIX I**HAZARD COMMUNICATION CHECKLIST**

- _____ 1. Have we prepared a list of all the hazardous chemicals in our workplace?
- _____ 2. Are we prepared to update our hazardous chemical list?
- _____ 3. Have we obtained or developed a material safety data sheet for each hazardous chemical we use?
- _____ 4. Have we developed a system to ensure that all incoming hazardous chemicals are checked for proper labels and data sheets?
- _____ 5. Do we have procedures to ensure proper labeling or warning signs for containers that hold hazardous chemicals?
- _____ 6. Are our employees aware of the specific information and training requirements of the Hazard Communication Standard?
- _____ 7. Are our employees familiar with the different types of chemicals and the hazards associated with them?
- _____ 8. Have our employees been informed of the hazards associated with performing non-routine tasks?
- _____ 9. Do our employees understand how to detect the presence or release of hazardous chemicals in the workplace?
- _____ 10. Are employees trained about proper work practices and personal protective equipment in relation to the hazardous chemicals in their work area?
- _____ 11. Does our training program provide information on appropriate first aid, emergency procedures and the likely symptoms of overexposure?
- _____ 12. Does our training program include an explanation of labels and warnings that are used in each work area?
- _____ 13. Does the training describe where to obtain data sheets and how employees may use them?
- _____ 14. Have we worked out a system to ensure that new employees are trained before beginning work?
- _____ 15. Have we developed a system to identify new hazardous chemicals before they are introduced into a work area?
- _____ 16. Do we have a system for informing employees when we learn of new hazards associated with a chemical we use?
- _____ 17. Have the employees been advised of the consequences for failure to follow established procedures?
- _____ 18. Do we have a system to ensure Subcontractors are sharing information with one another, concerning the hazardous chemicals they have brought to the site?

APPENDIX II**EXAMPLES OF POTENTIALLY HAZARDOUS MATERIALS THAT MAY BE
FOUND ON URS CORPORATION
CONSTRUCTION AND GENERAL INDUSTRY PROJECTS**

Acetone	Kerosene
Acetylene gas	Lead
Adhesives	Lime (calcium oxide)
Aluminum etching agent	Limestone
Ammonia	Lubricating oils
Anti-freeze	Lye (sodium hydroxide, potassium hydroxide)
Arsenic compounds	Magnesium
Asbestos	Metals (aluminum, nickel, copper, zinc, cadmium, iron, etc.)
Asphalt (Petroleum) fumes	Methanol (methyl alcohol)
Battery Fluids	Methyl ethyl ketone (2-butanone)
Benzene (and derivatives)	Motor oil additives
Bleaching agents	Muriatic acid (hydrochloric acid)
Carbon black	Naptha (coal tar)
Carbon monoxide (in cylinders)	Nitroglycerin
Caulking, sealant agents	Oxalic acid
Caustic soda (sodium hydroxide)	Ozone
Chromate salts	Paint remover
Chromium	Paint stripper
Cleaners	Paints/lacquers
Cleaning agents	Particle board
Coal tar pitch	Pentachlorophenol
Coal tar epoxy	Pesticides
Coatings	Photographic developers and fixers
Cobalt	Photogravure ink (copy machine)
Concrete curing compounds	Plastics
Creosol	Polishes for metal floors
Cutting oil (oil mist)	Propanol
De-emulsifier for oil	Putty Resins, epoxy/synthetics
Diesel gas, diesel oil	Sealers
Drywall	Shellac
Dusts (brick, cement block)	Solder, flux (zinc chloride, fluorides, etc.)
Enamel	Solder, soft (lead, tin)
Etching agents	Solvents
Ethyl alcohol	Sulfuric acid
Fiberglass, mineral wool	Thinner, paint/lacquer
Foam insulation	Tin
Freon 20, R20 (and others)	Transite
Gasoline (petrol, ethyl)	Turpentine, gum spirit, oil of turpentine
Glues	Varnishes
Graphite	Waterproofing agents
Greases	Waxes
Helium (in cylinders)	Welding Rods
Hydraulic brake fluid	Wood alcohol (methanol)
Hydrochloric acid	Wood preservative
Hydrogen (in cylinders)	Xylene
Inks	Zinc
Insulations	
Iron	

	<p style="text-align: center;">Health, Safety and Environment HAZARD COMMUNICATION PROGRAM - TEMPLATE</p>	<p style="text-align: right;">SMS 002 NA Supplemental Information A Issue Date: February 2009 Revision 1: December 2009</p>
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APPENDIX III

LIST OF PROJECT SPECIFIC HAZARDOUS SUBSTANCES

On the following page(s) is a current list of the specific hazardous substances and the manufacturer's name of the product known to be present at this jobsite.

This list uses the chemical name referenced on the MSDS. Specific information on each substance may be found on the MSDSs located in the project office.

	<p align="center">Health, Safety and Environment HAZARD COMMUNICATION PROGRAM - TEMPLATE</p>	<p align="right">SMS 002 NA Supplemental Information A Issue Date: February 2009 Revision 1: December 2009</p>
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APPENDIX IV

(PROJECT LETTERHEAD)

Date

Product Manufacturer's Name
Product Manufacturer's Address

Subject: Material Safety Data Sheet Requisition

Dear Manufacturer:

Please provide the following material safety data sheet(s):

Thank you for your support and assistance in this matter.

Sincerely,

Requestor's Name
Requestor's Address



This document presents information that can be used for hazard communication training.

This information has been developed based on groups (types) of hazardous substance(s) used and the common hazards associated with them.

For specific hazard information on each brand of material the MATERIAL SAFETY DATA SHEETS (MSDS) must be reviewed.

OVERVIEW OF THE HAZARD COMMUNICATION REGULATION

The Hazard Communication Regulation is intended to ensure that both employers and employees are aware of the dangers associated with hazardous substances in their workplaces. The following information is a review of the specific requirements of a hazard communication program, including container labeling, MSDS and training.

WRITTEN HAZARD COMMUNICATION PROGRAM

We have a written program that outlines how we will provide information and control your exposure to hazardous substances. This plan is available for your review during our training and at the project office for review during your work shift.

HAZARDOUS SUBSTANCES USED IN OUR WORKPLACE

On this job, we use a variety of products. Many of these products contain one or more hazardous substances. Let's review the HAZARDOUS SUBSTANCE INVENTORY LIST in your work area.


READING LABELS AND MSDS

LABELS: A product label on both the original and secondary containers should be reviewed prior to working with the material. Each label will have three important pieces of information you should be familiar with:

1. The identity of the Hazardous Substance.
2. Hazard Warnings.
3. Target Organs.

The label on the original container will also state the name and address of the manufacturer.

The label should act as a visual reminder of the information we have presented in this training session and of the information found in more detail on the MSDS. It is essential for your safety that you read the Hazard Warning and only use the Hazardous Substance(s) within the guidelines prescribed on the label. Questions concerning the label should be directed to your supervisor/foreman.

	<p style="text-align: center;">Health, Safety and Environment</p> <p style="text-align: center;">HAZARD COMMUNICATION</p> <p style="text-align: center;">EMPLOYEE TRAINING PROGRAM</p>	<p style="text-align: right;">SMS 002 NA Supplemental Information B</p> <p style="text-align: right;">Issue Date: February 2009 Revision 1: December 2009</p>
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MATERIAL SAFETY DATA SHEETS (MSDS): The MSDS is the primary means we will use to convey the necessary information about the hazards of the substances we use. The manufacturers and importers are responsible for providing us with the MSDS. The manufacturer must provide us with adequate information to use the substance safely.

PHYSICAL AND HEALTH HAZARDS OF THE HAZARDOUS SUBSTANCE(S) USED

Employees are to be trained specifically about the hazards of the substances in their work areas. This may be done by specific Hazardous Substance(s) or by categories of hazards, but in any case, the employee is to be aware that information is available on the specific hazards of individual Hazardous Substances through MSDSs.

Employees may be trained using the common type or generic chemical group or by reviewing the specific MSDS as long as the training includes the following information:

1. Measures to protect employee from the hazards (i.e., work practices, engineering controls and the use of personal protective equipment).
2. The physical and health hazards of the Hazardous Substance(s).
3. Detection of release of the substance; emergency and first aid procedures.

EXAMPLE OF GENERAL HAZARDOUS SUBSTANCE GROUP TYPE TRAINING

Product/Chemical Group: Hydrocarbon Solvents.

Health Effects – Effect of Overexposure: High concentrations of solvent vapors are irritating to the eyes, nose, throat and lungs, may cause headaches and dizziness and sleepiness. Even higher levels may cause unconsciousness and may have other brain and central nervous system effects.

Prolonged or repeated liquid contact with the skin may cause defatting of the skin, leading to dryness, possible irritation and dermatitis (reddening and inflamed skin). Some solvents are absorbed right through the skin and the health effects are just as if the solvent vapor was inhaled.

Each organic solvent's possible long term health effects will vary; however, prolonged solvent exposures are related to possible liver, kidney and central nervous system and brain damage (NOTE: THE VARIETY OF SOLVENT TYPES SHOULD BE REVIEWED).

Physical Hazards: Hydrocarbon solvents are flammable and combustible and represent fire and explosion hazards if the materials are not handled correctly. Hydrocarbon solvents are generally stable and will not react violently with water. Review the MSDS section on Fire and Explosion Hazard information. Most solvents will vaporize rapidly and become airborne.

Detection of Release: Odor – Solvent vapor may produce an odor or cause your nose or eyes to be irritated, but do not depend on odor to warn you. Odor thresholds (lowest level that can be detected) for most solvents vary widely from person to person. Also, some solvents produce “olfactory fatigue” - the rapid loss of ability to smell the odor. However, odor can warn you of exposure to some solvents (confirm this with industrial hygiene monitoring).

Appearance – Most solvent vapors are invisible so do not rely on appearance to warn you for exposure.

Instrumentation – A variety of industrial hygiene instruments can be used to measure employee exposure. This equipment should be operated only by qualified personnel.

Emergency Response – For Flammable Solvents: If the material is spilled or leaks, shut-off and eliminate all sources of ignition. Recover the free product by adding absorbents to the spill. Minimize breathing vapors and skin contact. Ventilate the area by opening windows and doors. Follow the established hazardous waste disposal procedures.

Exposure Control: Protective Equipment, Engineering Controls and Proper Work Practices:

- Protective Equipment – Use chemical-resistant gloves, aprons or clothing if prolonged or repeated skin contact may occur. Use splash goggles and face shield when eye or face contact may occur. Use approved respiratory protective equipment as established by our Safety Program (NOTE: if needed, a review of the respiratory protective program may be appropriate).
- Engineering Controls/Work Practices – Ventilation is to be used when it is necessary to prevent build-up of vapors from both a health or fire and explosion concern. Keep containers closed when not in use. Do not handle or store near heat or sources of ignition or strong oxidants. No smoking, burning or welding is permitted near the flammable vapors. Use the bonding and/or grounding system when transferring materials. Most solvents will vaporize rapidly and become airborne.

APPROPRIATE EMERGENCY AND FIRST AID PROCEDURES

Eye contact – If splashed into the eyes, flush with water for 15 minutes or until irritation subsides. If irritation continues, call a physician.

Skin contact – In case of skin contact, remove any contaminated clothing and wash skin thoroughly with water and soap.

Inhalation – If overcome by vapors, remove from exposure and call a physician immediately. If breathing is irregular or has stopped, start resuscitation.

Ingestion – If ingested, DO NOT induce vomiting, call emergency medical aid immediately.



Health, Safety and Environment
HAZARD COMMUNICATION
EMPLOYEE TRAINING PROGRAM

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HAZARD COMMUNICATION TRAINING

Date: _____

I have received hazard communication training as described in the URS Corporation Hazard Communication Program.

Employee Name (Print)	Employee Signature	Employee Number

I hereby certify that the above named employees have been provided with hazard communication training.

Supervisor/Instructor's Name

Supervisor/Instructor's Signature

HAZARDOUS PROPERTIES OF CHEMICALS TRAINING

Chemicals are a part of every aspect of our lives. A minute does not go by that we do not use something that contains chemicals, or chemicals were used in the manufacturing process. The chemicals you use in the work place only present potential health and physical hazards when they are mishandled, improperly used, incompatible mixtures combined, improperly stored or labeled.

Depending upon the chemical and the level of exposure, health hazards can vary from minor skin irritations to serious chemical burns, nerve damage, different forms of cancer and even death. Physical damage may include fires, explosions, property and environmental damage.

Hazard awareness is recognizing and understanding the potential injuries and illnesses or physical damage the chemicals can cause. The communication of this information is essential for your being aware of, understanding and respecting the potential hazards. This knowledge is important for the decisions you make concerning how you use the chemicals and the safe work practices you follow.

Remedial action response personnel may be exposed to a number of substances that are hazardous because of their properties. These properties can be summarized into three broad categories:

- a. physical/chemical
- b. biological
- c. radiological

It should be noted that many hazards may be present at any one time. It is important to understand the fundamentals of each of these properties and their relationships so that effective safety practices may be employed to reduce the risk to the public and remedial response personnel. Some hazards that may be encountered at this work site are toxic substances, flammable materials, explosive materials, corrosive materials, biological agents, excessive noise, heat or cold stress, oxygen deficient work areas, and radioactive materials.

PHYSICAL/CHEMICAL PROPERTIES

Physical hazards. Chemical compounds possess inherent properties, which determine the type and degree of the hazard they represent. Evaluating risks of an incident depends on understanding these properties and their relationship to the environment.

- a. Solubility. The ability of a solid, liquid, gas or vapor to dissolve in a solvent is solubility. An insoluble substance can be physically mixed or blended in a

solvent for a short time but is unchanged when it finally separates. The solubility of a material is important when determining its reactivity, dispersion, mitigation and treatment.

- b. Density. The density of a substance is its mass per unit volume, commonly expressed in g/cc.
- c. Specific gravity. Specific gravity is the ratio of the density of a substance to the density of water. If the specific gravity of a substance is greater than 1 it will sink in water. The substance will float in water if its specific gravity is less than 1.
- d. Vapor density. The vapor density is the density of a gas compared to the density of air. If the density of a gas is greater than that of air then the gas will tend to pocket and settle into the lowest points. If the vapor density is close to air or lower than air then the gas will disperse. If the vapor or gas displaces oxygen in the low spots then it can become an asphyxiant problem. If the gas or vapor is an explosive, when it pockets it will become an explosive hazard.
- e. Flashpoint. If the ambient temperature in relation to the material of concern is right, then it may give off enough vapor at its surface to allow ignition by an open flame or spark. The minimum temperature at which a substance produces sufficient flammable vapors to ignite is its flashpoint. If the vapor does ignite, combustion can continue as long as the temperature remains at or above the flashpoint. The relative flammability of a substance is based on its flashpoint. An accepted relation between the two is:

Highly flammable:	Flashpoint <100°F
Moderately flammable:	Flashpoint >100°F & <200°F
Relatively inflammable:	Flashpoint >200°F

- f. Chemical Hazards. Hazardous conditions that may exist because of the chemical nature of substances may be summarized as fire hazards, explosive hazards, corrosive hazards, and chemical reactivity.

Fire Hazards

- a. Combustibility: Combustibility is the ability of a material to act as a fuel, that is, to burn. Materials that can be readily ignited and sustain a fire are considered to be combustible, while those that cannot are called noncombustible. Three elements are required for combustion to occur: fuel, oxygen, and heat. The concentration of the fuel and the oxygen must be high enough to allow ignition and maintain the burning process. Combustion is a chemical reaction that requires heat to proceed. Heat is supplied by the

ignition source and is maintained by the combustion, or it must be supplied from an external source. The relationship of these three fire components can form a triangle. If one leg of the triangle is removed, then the fire can be extinguished. For example, water applied to a fire removes the heat, thereby extinguishing the fire. When a material generates enough heat by itself to self-ignite and combust, spontaneous combustion occurs, either as a fire or explosion (e.g., diesel greater than 140 degrees Fahrenheit is combustible.)

- b. Flammability: Flammability is the ability of a material (liquid or gas) to generate a sufficient concentration of combustible vapors under normal conditions to be ignited and produce a flame. It is necessary to have a proper fuel-to-oxygen (oxygen) ratio (% fuel in air) to allow combustion. A flammable material is considered highly combustible if it can burn at ambient temperatures. But a combustible material is not necessarily flammable because it may not be easily ignited or the ignition maintained. Pyrophoric materials will ignite at room temperature in the presence of a gas or vapor or when a slight friction or shock is applied.

The substances listed below are easily ignited (pyrophorics), require little oxygen to support combustion, have low flammability limits and explosive limits and a wide flammable and explosive range.

Flammable liquids

Aldehydes
Ketones
Amines
Ethers
Aliphatic Hydrocarbons
Aromatic Hydrocarbons
Alcohols
Nitroaliphatics

Flammable solids

Phosphorus
Magnesium Dust
Zirconium Dust
Titanium Dust
Aluminum Dust
Zinc Dust

Water Reactive Flammable Solids

Potassium
Sodium
Lithium

Pyrophoric Liquids

Organometallic compounds
Dimethyl Zinc
Tributyl Aluminum

Some of the hazards related to fires and explosions can cause physical destruction due to shock waves, heat, and flying objects. Secondary fires can be created as well as other flammable conditions. Toxic or corrosive compounds may also be released to the surrounding environment as well.

Explosives

An explosive is a substance, which undergoes a very rapid chemical transformation producing large amounts of gases and heat. The gases

produced, for example, nitrogen, oxygen, carbon monoxide, carbon dioxide, and steam, due to the heat produced, rapidly expand to velocities exceeding the speed of sound. This creates both a shockwave (high pressure front) and noise. The main categories of explosives are listed below.

High or detonating – produces a shock wave followed by combustion.

Primary high explosive – detonation occurs in a short time. Examples: lead azide, mercury fulminate, and lead styphnate.

Secondary high explosive – needs a booster to detonate. Examples: Tetryl, cyclonite, dynamite and TNT

Low or deflagrating – Explosive rate very fast. Combustion followed by a shock wave. Examples: smokeless powder, magnesium, and molotov cocktail.

Corrosive Hazards

Corrosion is a process of material degradation. Upon contact, a corrosive material may destroy body tissues, metals, plastics, and other materials. Corrosivity is the ability of material to increase the hydrogen ion concentration of a material or to transfer electron pairs of or from itself or another material. A corrosive material is a reactive compound or element that produces a destructive chemical change in the material it is acting on. Common corrosives are:

Halogens

Bromine
Chlorine
Fluorine
Iodine

Acids

Acetic acid
Hydrochloric acid
Hydrofluoric acid
Nitric acid
Sulfuric acid

Bases (Caustics)

Potassium Hydroxide
Sodium Hydroxide

Skin irritation and burns are typical results when the body contacts an acidic or basic corrosive material.

The measure of an acid or a base is the pH scale. The pH scale ranges from 0 to 14 with a pH <7 being acidic and a pH >7 being basic. The lower the pH of the acid the more acidic is the material, and the higher the pH of the base the more basic the material. A pH of 7 is considered neutral.

Chemical Reactivity

- a. Reactivity hazards. A reactive material is one that undergoes a chemical reaction under specified conditions. Generally, the term “reactive hazard” is used to refer to a substance that undergoes a violent or abnormal reaction in

the presence of water or under normal ambient atmospheric conditions. Among this type of hazard are the pyrophoric liquids that will ignite in air at or below normal room temperature in the absence of added heat, shock, or friction, and the water-reactive flammable solids that will spontaneously combust upon contact with water.

The most common reactive mixture in construction is found in gas welding or brazing. Acetylene gas mixes with oxygen to provide an extremely powerful reaction in the form of a very intense flame.

- b. Compatibility. If two or more hazardous materials remain in contact indefinitely without reaction, they are compatible. Incompatibility, however, does not necessarily indicate a hazard. For example, acids and bases (both corrosive) react to form salts and water, which may not be corrosive.

The compatibility of materials must be determined before the materials are used or stored. Some examples of incompatibilities are sulfuric acid and plastics (toxic gas or vapor is produced), acids and metal (flammable gas or vapor is produced), chlorine and ammonia (chlorine gas is created, toxic gas). There are many other incompatibilities that may be found. Check to make sure that the materials used for a project are compatible.

All of the hazards listed above will be found on the material safety data sheet (MSDS). The MSDS is a short technical report that provides you with the known hazards of a specific material. The MSDS explains how to properly use the material, handle any problems related to the material and how to store the material. Know what the MSDS says for the materials that you work with.

All materials should have a label on them. This is the first and easiest place to look to see if a material is hazardous. Labels should tell you any precautions that must be taken when handling the material. Read the label on the materials that you use and abide with the cautions and warnings. If a material is not properly labeled, notify your supervisor so that the problem is corrected.

BIOLOGICAL HAZARDS

Biological agents are living organisms that can cause sickness or death to exposed individuals. Biological hazards can cause infection or disease to persons who are exposed.

Biological hazards may involve plants or animals including microorganisms. Biological hazards, such as disease causing agents, may be present at a hazardous waste site or involved in a spill. Like chemical hazards, they can be dispersed throughout the environment via wind and water.

Many biological agents require a carrier to inoculate a person. For instance, rabid rodents at a landfill may be a biological hazard. Deer carry ticks that may have Rocky Mountain Spotted fever; prairie dogs will not.

The same personnel protective requirements for a response to a chemical hazard apply to biological hazards. Body coverings and respiratory protective equipment might have to be utilized. Especially important is the need to maintain personnel cleanliness. Before eating, drinking or smoking residual contamination should be washed off.

BIOHAZARDS

Biohazard training will be provided to employees as per the blood borne pathogen program on biohazardous materials.

HAZARDOUS MATERIAL PROTECTION

The routes of exposure for hazardous materials include the following:

- Inhalation – Breathing contaminated air (e.g. welding fumes.)
- Skin Absorption – Contact with harmful liquids, gases, solids or contaminated clothing, equipment, medications, cosmetics, etc. A good example is solvents. Materials can also enter through an open wound.
- Ingestion – Eating or drinking contaminated foods, water or medications. (Remember food and cigarettes can become contaminated by your unwashed hands, gloves, equipment. Good hygiene practices are very important.)
- Injection – A contaminated material can be injected into some part of the body.

Protection from potentially hazardous materials include the following:

- Use good personal hygiene. This is the simplest control measure to chemical hazards.
- Know what protective equipment is required for the specific job you are doing. Ask your supervisor what risks you might encounter and what hazardous substances you are working with.
- Know what potential explosive and or flammable conditions may exist with the job you are doing.
- Have all confined spaces checked for explosives, hydrogen sulfide, carbon monoxide, and oxygen deficiency. Know what hazards are involved with confined spaces.
- Know where emergency equipment is located and how to use it. For example know where the nearest fire extinguisher is from your work area.

- Know the standard operating procedures for rescue and emergency situations.
- Know the proper method for decontamination when working with hazardous materials.
- Use the buddy system when at all possible. Keep communication lines open when working with hazardous materials.
- Stay out of contaminated areas if you are not properly trained, equipped, or authorized to enter. Do not take chances with life-threatening materials or situations.

PERSONAL PROTECTIVE EQUIPMENT

Different types of protective equipment will be required depending on the substances to be handled, the existing conditions, and the particular situation. Personal protective equipment includes a variety of special suits, hard hats, goggles, face shields, aprons, boots, gloves, and respirators. Each is designed to protect you from certain hazards. It is important for you to know the advantages and disadvantages of all the equipment you may use or need. Use all equipment as instructed and follow all written procedures for the specific equipment.


STANDARD OPERATING PROCEDURES FOR EMERGENCY SITUATIONS

Standard operating procedures exist for any unexpected event such as an accident, fire, explosion, etc.

If you know or suspect that you have been contaminated with a hazardous substance, **TELL YOUR SUPERVISOR**. You should know the general symptoms of over-exposure to toxic substances. These include:

- Irritation of skin, eyes, nose, throat, or respiratory tract
- Changes in complexion or skin discoloration
- Headache
- Difficulty in breathing
- Nausea
- Dizziness or light-headedness
- Excessive salivation (drooling)
- Lack of coordination
- Blurred vision
- Cramps and/or diarrhea
- Changes in behavior patterns

You should know the location of emergency eyewash and shower facilities.

	<p style="text-align: center;">Health, Safety and Environment</p> <p style="text-align: center;">HAZARD COMMUNICATION EMPLOYEE TRAINING PROGRAM</p>	<p style="text-align: right;">SMS 002 NA Supplemental Information B</p> <p style="text-align: right;">Issue Date: February 2009 Revision 1: December 2009</p>
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Before you enter, and periodically while you are working in confined spaces such as tanks, crawl spaces, ditches, etc., the air in the space should be tested by a qualified individual for oxygen content, explosive levels, gases, and contamination of hazardous materials.

Understand the site emergency response procedures and know the locations of response equipment before the need arises. If you must rescue someone, use proper precautions and protective equipment. **DO NOT BECOME A CASUALTY YOURSELF.** Move the affected person from the hazardous exposure if possible. Get help and follow emergency rescue procedures.

For spills and leaks of hazardous materials limit the leak or spill as quickly as possible. Small spills should be cleaned up immediately. If a valve must be closed to prevent a spill from continuing then do so. If the spill is large, or your skin, eyes or clothing are contaminated, leave the work area immediately. Wash eyes, skin, and clothes off with lots of water to remove the material. Get to fresh air. Notify your foreman or supervisor as soon as it is safe for you to do so. Unless you have special training and the proper protective equipment, do not try to clean up large spills yourself.

If a corrosive material is splashed in your eyes or on your skin and clothes, deal with it immediately. Wash the affected area with plenty of water (at least 15 minutes with a continuous stream). Remove any contaminated clothing. Get to fresh air if you feel burning in the nose, throat or lungs. Do not vomit if you have swallowed a corrosive material. Drink large quantities of water to dilute the material, and seek immediate medical attention.

EXAMPLES OF HAZARDOUS MATERIALS POSSIBLY FOUND ON SITE

SOLVENTS

Solvents are among the most common toxic materials in the workplace. Many processes, mixing and cleaning, use or give off solvent vapors. They are also used as thinners in paints and adhesives. Solvents vary in their toxicity from practically non-toxic materials such as the alcohols, ketones, halogenated solvents, to the very toxic such as dimethyl acetamide, methyl acrylate and other materials. Some solvents are also flammable or reactive.

Solvents can cause irritations to the eyes and skin when in high concentrations. Most will dissolve the protective layer of oils on the skin and leave it looking white in the small cracks. They should never be used to clean the skin; if there is a problem with contamination, some form of glove or barrier cream should be used to protect the skin. The early signs of overexposure often include headaches, dizziness, nausea and other related symptoms.

METALS AND SOLID PARTICULATES

Examples: Babbitt metal, cadmium, galvanized metal, lead, manganese, nickel, zinc

Metals and other particulate solids can be toxic and are usually given off when welding or grinding. Some, like gypsum dust are only nuisance dusts, while others, like zinc fume from welding cause flu-like symptoms. Others, like asbestos have been linked to cancer and other chronic diseases. Dusts can irritate the skin and be ingested with food, drinks or smoking materials if they aren't washed off the hands and removed from clothing. They may also be carried home to family members and cause problems there if they are not washed off before leaving the work area.

When the welding, brazing, grinding or cutting of metal is performed, care should be taken to avoid breathing the fumes or dusts. Local exhaust ventilation should be used to reduce your exposure. If fumes and dust cannot be controlled with exhaust ventilation, appropriate approved respirators should be used. Approved safety goggles and gloves should be worn when working with metals. Gloves may be necessary to prevent skin sensitization and dermatitis.

ACIDS

Examples of acids found on URS Corporation sites are sulfuric acid (used in water treatment plants and found in batteries), hydrochloric acid, and nitric acid. Acids are considered corrosives and cause material degradation. Acids destroy tissues, metals and other materials. Acids can cause skin irritations in the form of rashes or other types of dermatitis, and more severe problems such as skin or eye burns. When working with acids proper eye and face protection should be worn as well as hand protection.

LUBRICANTS, COOLANTS AND MACHINE OILS

Lubricants, coolants and machine oils are common in construction sites. There are three types: petroleum based (straight oils), water based, and synthetic fluids that contain no oils. Many cutting oils contain additives to inhibit corrosion, prevent bacterial growth and permit high temperature operation. The fumes and mist from cutting operations can be irritating to the eyes and lungs. Skin exposure can result in acne-like conditions and can cause other problems. Avoid breathing mist and fumes and use gloves and aprons to minimize contact with materials.

GASES

Examples: Acetylene, ammonia, carbon dioxide, carbon monoxide, freon, oxygen, hydrogen, liquefied petroleum gas, propane

Gases present a range of problems. Some, like nitrogen, are simple asphyxiates. They prevent the body from getting enough oxygen by displacing it from the air stream. Some are chemically hazardous, like carbon monoxide, or nitrous oxide, which cause poisoning of the body systems. Some are very toxic, like arsine and phosphine. Some are very reactive and should be dealt with in very careful manners. Other gases, like hydrogen, oxygen and acetylene are explosives and must be treated with great care. Chains and stands should secure all compressed gas cylinders at all times, and only the proper fittings should be used. Liquefied and petroleum gases are extremely flammable and considered simple asphyxiates.

PLASTICS, EPOXIES AND POLYMERS

Plastics, epoxies and polymers are a growing group of industrial chemicals. Materials such as polystyrene, polypropylene, acrylates, vinyl, and polyurethane are but a few. Although most of these materials are not toxic in their final form, where they are being molded, extruded, laid up, there can be significant hazards. When burned, these materials can be very hazardous.

CLEANERS

Cleaners contain acid, alkalis, aromatics, surfactants, petroleum products, ammonia and hypochlorite. Because of these ingredients these materials are considered to be irritants, and can be harmful to you if swallowed or inhaled. Many may cause eye, nose, throat, and skin and lung irritation. Some cleaners are flammable and burn easily. Others may be caustic or corrosive and cause severe skin burns. Because many cleaners used in the job area are consumer products commonly found in our homes, you may underestimate the hazard they pose. Protect yourself from these hazards by reading the labels and following the recommended precautions. Wear gloves and eye protection. Avoid inhaling the vapors and mists. Wash your hands and face thoroughly before eating, drinking or smoking.

Specific emergency procedures for each chemical will be detailed on that cleaner's material safety data sheet. In general, if a cleaning chemical gets into your eyes, flush the eyes with clean running water for at least 15 minutes, then seek medical attention. If the chemical gets on your skin, wash the area of contact and seek medical attention.

Do not mix two cleaning chemicals together, unless specifically told to do so by your supervisor. For example, the dangerous gas, chlorine, will be created if you mix bleach and ammonia or bleach and drain cleaner together.

Examples: Abrasive cleaners, bleach, drain cleaner, general purpose cleaning spray, germicide, and glass cleaner, metal cleaner, rug and upholstery cleaners, stain remover.

FUELS

Examples: Diesel oil, gasoline, propane, kerosene

The primary hazard posed by fuels is obviously, fire. Fuels are either flammable or combustible. Whether flammable (a material which is easily ignited and burns with extreme rapidity) or combustible (a material capable of fueling a fire), they should be handled with care.

Proper storage and transport of fuels in approved, self-closing, safety containers is extremely important and should be strictly adhered to at all times. When filling portable containers with flammable materials they should be properly grounded and bonded to the container to prevent ignition from static electricity.

Store gasoline in containers marked "gasoline". Store kerosene in containers marked "kerosene". Never use kerosene containers for the transport or storage of gasoline.

Excessive skin contact with fuels can result in dermatitis. Some petroleum products have been shown to cause skin tumors. Inhalation of fuel vapors over a long period of time can cause central nervous system depression, and may aggravate any existing respiratory problems that may exist. Ingestion of fuels can cause poisoning. Do not induce vomiting. If fuels get in your eyes, rinse with clean water for at least 15 minutes and seek medical attention.

LABELING

Proper labeling of all chemical containers is another excellent control measure to chemical hazards. Container labels give the name of the chemical in the container, the name/address of the manufacturer and a hazard warning statement and/or graphic hazard statement that warns you of possible dangers. Read the label on all materials with which you work.

Examples of hazard warning statements:

- Danger, will cause death if swallowed
- Warning, causes eye irritation, harmful if swallowed
- Caution, avoid contact with skin and avoid breathing of vapors

Labels and their warnings should be taken seriously since they provide you with the first clue to the hazards posed to your health and safety. They also give information on personal protective equipment required, emergency response and first-aid steps in case of an exposure, proper procedures in case of a spill and emergency phone numbers.

MSDS

Material safety data sheets, if read and followed, are a powerful means of controlling chemical exposures. Chemical manufacturers are required to provide MSDSs for the chemicals they produce or import. The purpose of the MSDS is to communicate information on the recommended safe use and handling procedures for that chemical.

MSDS may look different, yet the Occupational Safety and Health Administration (OSHA) requires that all MSDS must provide certain categories of information about the chemical substance or mixture:

- Material identification (physical and chemical)
- Hazardous ingredients
- Emergency and first aid procedures
- Recommended control measures
- Physical and health hazards
- Safe handling procedures
- Date of preparation/revision
- Manufacturer's name, address, and phone number
- Primary routes of entry
- National Toxicological Program (NTP) or Annual Report on Carcinogens from the International Agency for Research on Cancer

MATERIAL SAFETY DATA SHEETS
THEY ANSWER YOUR QUESTIONS ABOUT THE CHEMICALS YOU WORK WITH

What product/chemical is this MSDS for?



NFPA RATING
 HEALTH = 1
 FLAMMABILITY = 2
 REACTIVITY = 0

Material Safety Data Sheet
 May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
 Occupational Safety and Health Administration
 (Non-Mandatory Form)
 Form Approved
 OMB No. 1218-0072 T-525

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

IDENTITY (As Used on Label and List)
BUG & TAR REMOVER LIQUID, T-525

Section I

Manufacturer's Name TURTLE WAX, INC.	Emergency Telephone Number NA
Address 5655 WEST 73RD STREET	Telephone Number for Information (708) 563-3600
CHICAGO, IL 60638	Date Prepared 7/1/90
	Signature of Preparer (Optional)

How much of this material can I be safely exposed to?

What Chemicals are contained in this material?

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits (Recommended)	% (Optional)
PETROLEUM DISTILLATES (CAS #64475-85-0)	5 MG/M ³	5 MG/M ³	NA	15.0%
PETROLEUM DISTILLATES (CAS #92045-37-9)	5 MG/M ³	5 MG/M ³	NA	10.0%
MONOCYCLIC TERPENES (CAS #8006-64-2)	100 PPM	100 PPM	NA	7.0%

How do I recognize this material? Things to know for storage and

What should I do to prevent this material from catching fire? How do I put it out?

Section III - Physical/Chemical Characteristics

Boiling Point	NA	Vapor Pressure (mm.Hg.)	NA	Vapor Density (AIR = 1)	NA
Specific Gravity (H ₂ O = 1)	0.932	Melting Point	NA	Evaporation Rate (Butyl Acetate = 1)	NA
Solubility in Water	40%	Appearance and Odor WHITE WATERY EMULSION. ODOOR: SOLVENT.			

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	110°F TCC	Flammable Limits	NA	LDNA	UEL NA
Extinguishing Media	CARBON DIOXIDE, CHEMICAL FOAMS, WATER SPRAY				
Special Fire Fighting Procedures	NA				
Unusual Fire and Explosion Hazards	NA				

Are there conditions or materials that should not come in contact with the product?

Section V - Reactivity Data

Stability	Unstable	Conditions to Avoid	
	Stable	X	NA
Incompatibility (Materials to Avoid)	NA		
Hazardous Decomposition or Byproducts			
NA			
Hazardous Polymerization	May Occur	Conditions to Avoid	
	Will Not Occur	X	NA

(Reproduce locally) OSHA 174, Sept. 1985



HAZARD COMMUNICATION TRAINING QUESTIONS

NAME: _____ LOCATION: _____

1. Container labels must:
 - A. Give directions to the manufacturing plant.
 - B. Give price of the product.
 - C. Notify the user of the physical and health hazards.
 - D. Provide translation in Spanish.

2. What is a MSDS?
 - A. Main Statistical Data Service.
 - B. Material Safety Data Sheet.
 - C. New accident reporting system.
 - D. Both A and C.

3. What are the requirements of the Hazard Communication Standard?
 - A. Chemical inventories.
 - B. Container labeling.
 - C. Negotiations for purchase price of chemicals.
 - D. MSDSs.
 - E. Employee Training.
 - F. All of the above except C.

4. What is one way to determine if a chemical has been spilled or released in your work area?
 - A. When you smell something out of the ordinary.
 - B. By reading the MSDS and being knowledgeable of the chemical appearance and odor.
 - C. Call somebody.
 - D. Both A & B.

5. How can you protect yourself from chemical exposures?
 - A. Personal protective equipment and proper work practices.
 - B. Stay upwind of vapors and gases.
 - C. Use proper ventilation.
 - D. All of the above.

6. What are the main examples of chemicals found on site?
 - A. Solvent, fuel, metals, lubricants, gases.
 - B. Toxic, flammable, corrosive, reactive, pressurized.
 - C. Physical properties and health effects.
 - D. The good, the bad and the ugly.

7. New and transferred employees must be trained on the hazards of their new work area.
 - A. True
 - B. False

8. A MSDS provides what?
 - A. Supervisor guide to acid unloading.
 - B. Engineering data.
 - C. Health, safety and first-aid information.
 - D. Chemical process checklist.

9. Where is your site-specific Hazard Communication program located?
 - A. Accident Prevention Manual.
 - B. Employee Handbook.
 - C. Budget Manual.
 - D. MSDS Book.

10. A new chemical used in your area is always considered a new hazard.
 - A. True
 - B. False

11. If a MSDS is not available for the chemical you are using, you should?
 - A. Notify your supervisor.
 - B. Call the manufacturer.
 - C. Contact the Safety Department.
 - D. Nothing, most chemicals are safe.
 - E. Both A & C.

12. Labeling systems use words, graphics, geometric shapes, and colors to warn you of any possible danger to your health and safety, and to tell you about safe work practices you need to follow when handling chemicals.
 - A. True
 - B. False

13. A flammable chemical is a liquid with a flashpoint:
 - A. Of 2,000 degrees Fahrenheit
 - B. Below 100 degrees Fahrenheit
 - C. At freezing
 - D. All of the above

14. Using the ANSI labeling system, which represents the most serious hazard?
 - A. Caution
 - B. Warning
 - C. Danger
 - D. Beware

15. Chemicals can enter the body through:
 - A. Breathing them in
 - B. Contact with body openings
 - C. Both A and B
 - D. None of the Above

16. If you are not familiar with a chemical, you should check the Material Safety Data Sheets.
 - A. True
 - B. False

17. A primary/original container label for a chemical must include:
 - A. The chemical name
 - B. The chemical manufacturers or importer's name and address
 - C. Warnings of its hazardous content
 - D. All of the above

18. A container label should be checked only if you do not know the contents of the container.
 - A. True
 - B. False

19. If a label is torn or missing, you should report it right away to the proper personnel at your facility.
 - A. True
 - B. False

20. The Hazard Communication Standard is also referred to as the Right to Know Standard.
 - A. True
 - B. False

21. A material safety data sheet is required for all hazardous materials in your facility.
 - A. True
 - B. False

22. Safe work practices require a complete understanding and respect for the potential hazards.
 - A. True
 - B. False

23. The written emergency response plan contains the procedures to take in the event of an emergency.
 - A. True
 - B. False

**HAZARD COMMUNICATION TRAINING QUESTIONS
ANSWER SHEET**

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URS SAFETY MANAGEMENT STANDARD

Excavation

1. Applicability

This standard applies to URS Corporation, and its subsidiary companies, office and project locations.

2. Purpose and Scope

This purpose of this standard is to protect personnel from the hazards associated with excavation and trenching activities.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 013 NA](#) – North America

[SMS 013 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 013 AP7 – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Excavation

1. Applicability

This standard applies to operations where URS Corporation and subsidiary companies perform trenching and excavation activities, and/or where URS employees are exposed to hazards associated with trenching and excavation activities.

2. Purpose and Scope

The purpose of this standard is to protect personnel from the hazards associated with excavation and trenching activities.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Competent Person

Where potential employee exposure to hazards associated with the excavation (e.g., entrapment, falls greater than 4 feet (1.2 meters), cave-ins, etc.) can reasonably be anticipated, an excavation-competent person must be on site. The excavation-competent person:

1. Has formal documentation of training as an excavation-competent person.
2. Must be physically located at the excavation site at all times while work is in progress.
3. Is responsible for conducting daily inspections of excavations, adjacent areas, and protective systems prior to each shift.
4. Is responsible for inspection after every rainstorm or other potentially hazard-producing event.
5. Must have knowledge of soils and soil classification.
6. Understands design and use of protective systems.
7. Understands the requirements of the applicable regulations.

URS SAFETY MANAGEMENT STANDARD
Excavation

8. Has authority to stop work and take corrective actions when conditions change.
9. Has the ability to recognize and test hazardous atmospheres.
10. If URS hires a subcontractor to perform excavation or trenching activities, the subcontractor will be required to assign an excavation-competent person to the project. Documentation of this person's qualifications will be maintained in the project safety file.

B. Preliminary Planning

1. Underground and aboveground utilities, adjacent structures or retaining walls, spoil layout, truck routes, and emergency procedures must be identified before work begins.
2. When the excavation or trench approaches the estimated location of underground utilities, the exact location will be determined by methods identified in SMS 034 – Utility Clearance and Isolation.

C. Access/Egress

1. Entry into an excavation or trench should not be made unless absolutely necessary.
2. If personnel enter an excavation or trench that is 4 feet (1.2 meters) deep or more, ladders, steps, ramps, or other safe means of access and egress must be provided, and located at intervals of 25 feet (7.6 meters) or less of lateral travel. If a ladder is used, the ladder must extend 3 feet (0.9 meter) above the original surface of the ground.
3. In excavations and trenches that employees may be required to enter, excavated or other material must be effectively stored and retained at least 2 feet (0.6 meter) or more from the edge of the excavation. As an alternative to this clearance requirement, barriers or other effective retaining devices may be used in lieu thereof in order to prevent excavated or other materials from falling into the excavation.
4. Surface crossing of trenches by personnel or vehicles should not be made unless absolutely necessary. When necessary, the following conditions must be met:

URS SAFETY MANAGEMENT STANDARD

Excavation

- a. Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.
 - b. Walkways or bridges must have a minimum clear width of 20 inches (50.8 centimeters [cm]), be equipped with standard guardrails, and extend a minimum of 24 inches (61 cm) past the surface edge of the trench.
5. When performing excavation oversight or observation on an excavation/trench greater than 4 feet (1.2 meters) in depth, personnel must remain at least more than 2 feet (0.6 meter) from the leading edge of the excavation.

D. Soil Classification

When sloping, benching, or installed protective systems are used, soil classification of each rock and soil deposit must be classified by a competent person. Soil and rock will be classified as one of the following: stable rock, Type A soil, Type B soil, or Type C soil. The classification will be based on the results of at least one visual analysis and one manual analysis, such as soil plasticity dry strength, thumb penetration, pocket penetrometer, or hand-operated shear vane. In the event that soil classification requires additional technical expertise, the competent person will consult with a registered professional engineer. (See Supplemental Information A – Soil Classification.)

E. Protective Systems

1. Employees in excavations deeper than 4 feet (1.2 meters) must be protected by means of properly designed protective systems.
2. Protective systems for excavations or trenches deeper than 20 feet (6.1 meters) must be designed and stamped by a registered professional engineer.
3. Protective systems must have the capacity to resist all loads that are intended or could reasonably be expected to be applied or transmitted to the system.
 - a. Sloping and Benching
 - When personnel are required to work in trenches or excavated areas, all slopes must be excavated to at least the angle of repose, or otherwise safely supported to prevent cave-ins.

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- The determination of the angle of repose and design of the supporting system must be based on careful evaluation of pertinent factors such as: depth of cut; possible variation in water content of the material while the excavation is open; anticipated changes in materials from exposure to air, sun, water, or freezing; loading imposed by structures, equipment, overlying material, or stored material; and vibration from equipment, blasting, traffic, or other sources. (See Supplemental Information B – Angles of Repose – Simple Slopes.)
- The slopes and configurations of sloping and benching systems for excavations 4 feet (1.2 meters) to 20 feet (6.1 meters) deep will be selected and constructed by the employer or his designee, and must be in accordance with the following requirements.
- Soil must be analyzed by a competent person to determine the soil or rock type. The maximum allowable slope for each soil or rock type is identified in the table below.

Soil or Rock Type	Maximum Allowable Slope (Horizontal: Vertical)
Stable Rock	Vertical 90°
Type A	¾:1 or 53°
Type B	1:1 or 45°
Type C	1½: 1 or 34°

- Soil classification is not required if 1½:1 (Horizontal:Vertical) or 34° slope is used. If this slope is greater than 1½:1 (Horizontal:Vertical) or 34°, a soil classification must be made. The excavation must comply with one of the following three options.
 - Option I – Maximum allowable slope, and allowable configurations for sloping and benching systems will be determined in accordance with the conditions and requirements in Supplemental Information A – Soil Classification; and Appendix B – Sloping and Benching.
 - Option II – Designs of sloping or benching systems will be selected by using tabulated data based on soil

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Excavation

conditions. These tables must be calculated and prepared by a registered professional engineer. The plan must be stamped by a registered professional engineer, and this information must be documented and filed on site.

- Option III – A registered professional engineer must design the sloping and benching system and stamp the plan. This information must be documented and filed on site.

Excavations with sloping and benching in excess of 20 feet deep must be designed and stamped by a registered professional engineer.

b. Timber and Aluminum Hydraulic Shoring for Trenches

Designs of support systems, shield system, and other protective systems will be selected and constructed by the employer or their designee, and must be in accordance with one of four options.

- Option I – Designs using Appendices A, C, and D (see 29 Code of Federal Regulations [CFR] 1926 Subpart P). Shoring in trenching will be determined using conditions and requirements of Supplemental Information A – Soil Classification; Appendix C – Timber Shoring; and Appendix D – Aluminum Hydraulic Shoring.
- Option II – Designs of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data will be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer (i.e., trench jacks, hydraulic). This information must be filed on site.
- Option III – Designs using other tabulated data. Designs of support systems, shield systems, or other protective systems will be selected from and be in accordance with tabulated data. This information must be filed on site.
- Option IV – Design by registered professional engineer. Support systems, shield systems, and other protective

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Excavation

systems not using Option I, II, or III must be approved and stamped by a registered professional engineer.

- c. Alternatives to Timber Shoring
- Portable trench boxes or sliding trench shields may be used for the protection of personnel in lieu of a shoring system or sloping. Where such trench boxes or shields are used, they must be designed, constructed, and maintained in a manner that will provide protection equal to or greater than the sheeting or shoring required for the trench.
 - Trench boxes require placement using portable lifting equipment such as backhoes or other tractor-like devices. The job hazard analysis will consider the hazards of lifting and placement of the trench boxes, including the proper use of chains, stability of the mobile equipment, swing radius protection for load, and load rating for the lifting device.
 - Trench shields and boxes must either be pre-manufactured with listed load ratings, or designed, stamped, and constructed under the direction of a registered professional engineer.
- d. Protective systems designed to protect employees in excavations deeper than 20 feet (6.1 meters) must be designed and stamped by a registered professional engineer.
- e. Excavations must be clearly identified and barricaded to keep unauthorized individuals out.
- f. Walkways, runways, and sidewalks must be kept clear of excavated material or other obstructions, and no sidewalks should be undermined unless shored to carry a minimum live load of one 125 pounds (56.6 kilograms) per square foot.
- g. If it is necessary to place heavy objects or operate heavy equipment on a level above and near any excavation, the side of the excavation must be sheet piled, shored, and braced as necessary to resist the extra pressure due to such superimposed loads.

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F. Hazardous Atmospheres and Confined Spaces

1. In excavations or trenches greater than 4 feet (1.2 meters) deep where an oxygen deficient (<19.5 percent) or flammable (>10 percent Lower Explosive Limit [LEL]) or other potentially toxic environment could be expected to exist, the atmosphere of the excavation must be monitored before workers enter the excavation. Air monitoring must be conducted before personnel enter an excavation or trench, and then periodically to ensure that the atmosphere remains safe. Monitoring will be conducted at a minimum of three vertical depths of the excavation to detect potentially stratified gas layers (e.g., propane has a density 1.55 times that of normal air and will accumulate in the lower depths of an open trench).
2. The frequency of air monitoring will be increased if equipment used in or near the excavation or trench may alter the atmosphere where personnel are working. All air monitoring must be documented and maintained in the project safety files.
3. Attended emergency rescue equipment, such as a breathing apparatus, a safety harness and line, basket stretcher, etc., must be readily available where adverse atmospheric conditions may exist or develop in an excavation or trench.
4. Excavations or trenches may qualify as confined spaces. When this occurs, compliance with SMS 010 – Confined Spaces, is required.

G. Water Accumulation

1. Employees will not work in excavations where water is accumulating unless adequate precautions have been taken to protect employees. Personnel must exit excavations and trenches during rainstorms.
2. De-watering equipment must be installed and monitored by a competent person.
3. Diversion ditches, dikes, or other suitable means will be used to prevent water from entering an excavation and to provide adequate drainage of the area adjacent to the excavation.

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Excavation

4. Excavations and trenches must be inspected by a competent person after each rain event and before personnel are permitted to re-enter the excavation or trench.

H. Excavation and Trenching Permit

1. An Excavation/Trenching Permit (Attachment 013-1 NA) must be completed prior to all excavation or trenching activities.
2. The Excavation and Trenching Permit must be completed and signed by all applicable parties as indicated on the permit.
3. Excavation and Trenching Permits may be valid for up to 1 week.

I. Daily Inspections

1. Daily inspections must be made (Attachment 013-2 NA) of excavations and trenches. Where potential employee exposure to hazards associated with the excavation (e.g., entrapment, falls greater than 4 feet (1.2 meters), cave-ins, etc.) can reasonably be anticipated, these inspections must be made by a competent person.
2. Inspections must be conducted daily before the start of work, after every rainstorm, after other events that would increase hazards such as snowstorm, thaw, earthquake, or dramatic change in weather, and when fissures, tension crack, sloughing, undercutting, water seepage, bulging at the bottom or other similar conditions occur.
3. If evidence of possible cave-ins or slides is apparent, all work in the excavation or trench must cease until the necessary precautions have been taken to safeguard the personnel.

J. Excavating at Potential MEC/UXO Sites

1. If the project site is suspected of munitions and explosives of concern (MEC) or unexploded ordinance (UXO) contamination, the UXO team will conduct a reconnaissance and MEC/UXO avoidance to provide clear access routes to each site before excavation crews enter the area.
2. MEC/UXO sites with planned excavation activities will not be conducted until a complete plan for the site is prepared and/or approved by the URS UXO Safety Officer. MEC/UXO avoidance

URS SAFETY MANAGEMENT STANDARD

Excavation

must be conducted during excavation operations on known or suspect MEC/UXO sites (SMS 039).

K. Training/Briefings

1. Conduct and document daily safety briefings for all employees associated with excavation activities. Discuss excavation hazards, protective measures, and work practices that will be applicable to the day's activities.

5. Documentation Summary

The following information will be maintained in the project file:

- A. Competent person qualifications.
- B. Excavation and Trenching Permit(s).
- C. Daily inspections by an excavation-competent person.
- D. Air monitoring records.

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) Standard [Excavations](#) 29 CFR 1926, Subpart P
 1. Appendix B, [Sloping and Benching](#)
 2. Appendix C, [Timber Shoring](#)
 3. Appendix D, [Aluminum Hydraulic Shoring](#)
 4. Appendix E, [Alternatives to Timber Shoring](#)
- B. U.S. OSHA Technical Links – [Trenching and Excavation](#)
- C. [SMS 010](#) – Confined Space Entry
- D. [SMS 034](#) – Utility Clearance and Isolation
- E. [SMS 039](#) – Munitions Response / Munitions and Explosives of Concern
- F. [Attachment 013-1 NA](#) – Excavation/Trenching Permit
- G. [Attachment 013-2 NA](#) – Daily Excavation/Trench Inspection Form

URS SAFETY MANAGEMENT STANDARD
Excavation

7. Supplemental Information

- A. [Soil Classification](#)
- B. [Angle of Repose – Simple Slopes](#)



EXCAVATION / TRENCHING PERMIT

All unsafe conditions must be corrected prior to excavation entry. If any hazardous conditions are observed, the excavation must be evacuated immediately, and no one is allowed to re-enter until corrective action has been taken.

Signature and Dates

	Print Name	Signature	Date
Excavation Competent Person	_____	_____	_____
Client Representative (if applicable)	_____	_____	_____
Site Supervisor	_____	_____	_____
HSE Representative	_____	_____	_____
Registered Professional Engineer (if applicable)	_____	_____	_____
Project Manager	_____	_____	_____
Subcontractor Rep	_____	_____	_____
Equipment Superintendent	_____	_____	_____
Field Engineer	_____	_____	_____
Other	_____	_____	_____



Health, Safety and Environment
DAILY EXCAVATION / TRENCH
INSPECTION FORM

Attachment 013-2 NA

Issue Date: July 2000
Revision 6: March 2012

Competent Person: _____

Date: _____

Project Name: _____

Weather Conditions: _____

Excavation Location: _____

Rainfall Amounts 24 Hours Previous: _____

Access/Egress

Is access and egress located within 25 feet (7.6 meters) of entrants? Yes No Not Applicable

If ladders are used, do they extend 3 feet (0.9 meter) beyond the top of the excavation? Yes No Not Applicable

Soil Characteristics

Is any water seepage noted in trench walls or bottom? Yes No Not Applicable

Are pumps in place, or available if needed? Yes No Not Applicable

Is there evidence of significant fracture planes in soil or rock? Yes No Not Applicable

Are there any zones of unusually weak soils or materials not anticipated? Yes No Not Applicable

Have tension cracks been observed along the top on any slopes? Yes No Not Applicable

Are there any noted dramatic dips or bedrock? Yes No Not Applicable

Is there any evidence of caving or sloughing of soil since the last inspection? Yes No Not Applicable

Protective Systems

Are slopes cut at design angle of repose? Yes No Not Applicable

Is the shoring system installed in accordance with the design? Yes No Not Applicable

Is the shoring being used secure? Yes No Not Applicable

Does the design include an adequate safety factor for equipment being used? Yes No Not Applicable

Is traffic being adequately kept away from the excavation/trenching operation? Yes No Not Applicable

Are hydraulic shores pumped to design pressure? Yes No Not Applicable

Is vibration from equipment or traffic too close to the trenching operation? Yes No Not Applicable

Are trench box(s) certified? Yes No Not Applicable

Hazardous Atmosphere & Confined Spaces

Is the hazardous atmosphere testing being conducted on a regular basis? Yes No Not Applicable

Have rescue procedures been established, and is equipment immediately available? Yes No Not Applicable



Health, Safety and Environment
DAILY EXCAVATION / TRENCH
INSPECTION FORM

Attachment 013-2 NA

Issue Date: July 2000
Revision 6: March 2012

Miscellaneous

- Are utility markings in place? Yes No Not Applicable
- Are trees, boulders, or other hazards located in the area? Yes No Not Applicable
- Are barricades or covers in place and in good condition? Yes No Not Applicable
- Is excavated material and equipment at least 2 feet (0.6 meter) from the edge of the excavation? Yes No Not Applicable
- Are all short-term trench(es) covered within 24 hours? Yes No Not Applicable
- Are GFCIs used on all temporary electrical cords? Yes No Not Applicable
- Is the excavation within the original scope of the excavation permit? Yes No Not Applicable
- Is a valid excavation permit executed for the excavation/trenching activity? Yes No Not Applicable

Notes:

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"I hereby attest that the following conditions existed and that the following items were checked or reviewed during this inspection."

All unsafe conditions must be corrected prior to excavation entry. If any hazardous conditions are observed, the excavation must be immediately evacuated, and no one is allowed to re-enter until corrective action has been taken.

Daily Excavation/Trenching Inspection Completed By:

COMPETENT PERSON

Date

SOIL CLASSIFICATION**"Type A" soils**

Cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144kPa) or greater. Examples of cohesive soils are clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A.

However, no soil is Type A if:

1. The soil is fissured;
2. The soil is subject to vibration from heavy traffic, pile driving, or similar effects;
3. The soil has been previously disturbed;
4. The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
5. The material is subject to other factors that would require it to be classified as a less stable material.

"Type B" soils

1. Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
2. Granular cohesionless soils including angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
3. Previously disturbed soils except those which would otherwise be classed as Type C soil.
 - a. Soil that Dry rock that is not stable; or
 - b. Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

"Type C" soils

1. Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less;
2. Granular soils including gravel, sand, and loamy sand;
3. Submerged soil or soil from which water is freely seeping;
4. Submerged rock that is not stable, or
5. Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

SOIL CLASSIFICATION

Soil Texture	Visual detection of particle size and general appearance of the soil	Squeezed in hand and pressure released		Soil ribboned between thumb and finger when moist.
		When Air Dry	When Moist	
Sand	Soil has a granular appearance in which the individual grain sizes can be detected. It is free flowing when in a dry condition.	Will not form a cast and will fall apart when pressure is released.	Forms a cast, which will crumble when lightly touched.	Cannot be ribboned.
Sandy Loam	Essentially a granular soil with sufficient silt and clay to make it somewhat coherent. Sand characteristics predominate.	Forms a cast, which readily falls apart when lightly touched.	Forms a cast, which will bear careful handling without breaking.	Cannot be ribboned.
Loam	A uniform mixture of sand, silt and clay. Grading of sand fraction quite uniform from coarse to fine. It is mellow, has somewhat gritty feel, and yet is smooth and slightly plastic.	Forms a cast, which will bear careful handling without breaking.	Forms a cast, which can be handled freely without breaking.	Cannot be ribboned.
Silt Loam	Contains a moderate amount of the finer grades of sand and only a small amount of clay over half of the particles are silt. When dry it may appear quite cloddy which readily can be broken and pulverized to a powder.	Forms a cast, which can be freely handled. Pulverized it has a soft flour-like feel.	Forms a cast, which can be freely handled. When wet, soil runs together and puddles.	It will not ribbon but it has a broken appearance, feels smooth and may be slightly plastic.
Silt	Contains over 80% of silt particles with very little fine sand and clay. When dry, it may be cloddy, readily pulverizes to powder with a soft flour-like feel.	Forms a cast, which can be handled without breaking.	Forms a cast, which can be freely handled. When wet, it readily puddles.	It has a tendency to ribbon with a broken appearance, feels smooth.
Clay Loam	Fine textured soil breaks into hard lumps when dry. Contains more clay than silt loam. Resembles clay in a dry condition; identification is made on physical behavior of moist soil.	Forms a cast which can be handled freely without breaking.	Forms a cast, which can be handled freely without breaking. It can be worked into a dense mass.	Forms a thin ribbon, which readily breaks, barely sustaining its own weight.
Clay	Fine textured soil breaks into very hard lumps when dry. Difficult to pulverize into a soft flour-like powder when dry. Identification based on cohesive properties of the moist soil.	Forms a cast which can be freely handled without breaking.	Forms a cast, which can be handled freely without breaking.	Forms long, thin flexible ribbons. Can be worked into a dense, compact mass. Considerable plasticity.
Organic Soils	Identification based on the high organic content. Muck consists of thoroughly decomposed organic material with considerable amount of mineral soil finely divided with some fibrous remains. When considerable fibrous material is present, it may be classified as peat. The plant remains or sometimes the woody structure can easily be recognized. Soil color ranges from brown to black. They occur in lowlands. In swamps or swales. They have high shrinkage upon drying. Table 1. –Field Method for identification of soil texture			

ANGLE OF REPOSE

FOR SLOPING OF SIDES OF EXCAVATIONS LESS THAN 20 FEET DEEP

Note: Clays, Silts, Loams
or Non-Homogenous
Soils Require Shoring
or Bracing

The Presence of
Ground Water Requires
Special Treatment

Examples*

Type A Soils:

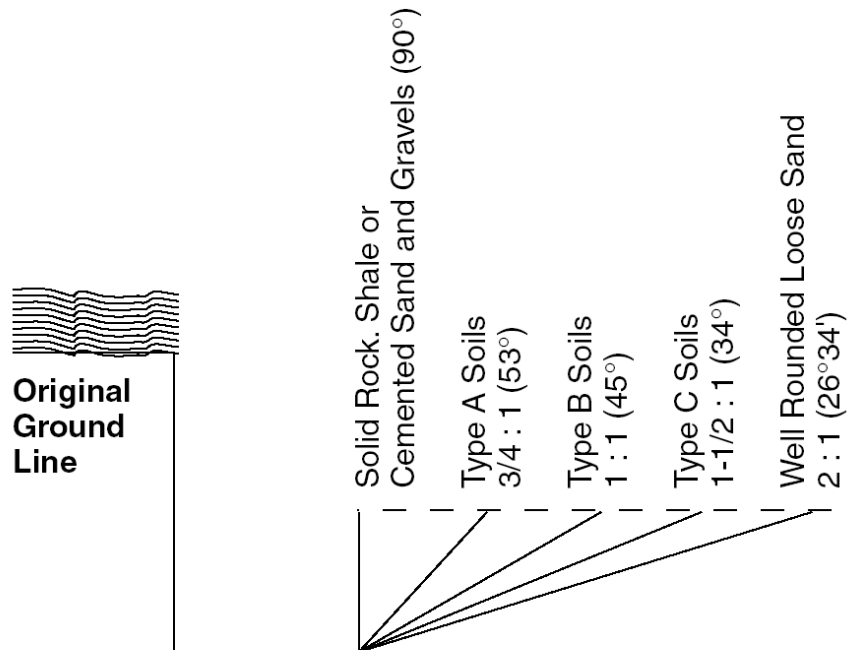
Clay, silt clay, sandy clay
clay loam, caliches,
and hardpan

Type B Soils:

Angular gravel, silt,
silt loam, sandy loam,
unstable dry rock

Type C Soils:

Gravel, sand and loamy
sand, submerged
soil and rock, and
layered soils



REFERENCE:

OSHA Safety and Health Standards 1926
Appendix A and B to Subpart P

URS SAFETY MANAGEMENT STANDARD

Hand Tools and Portable Equipment

1. Applicability

This standard applies to URS Corporation and its subsidiary companies in which hand tools and/or portable powered equipment, including chain saws; brush cutters, powder-actuated tools, and similar high-hazard implements are used.

2. Purpose and Scope

The purpose of this standard is to provide procedures for the safe use and handling of hand tools and portable powered equipment. SMS 064 – Hand Safety provides additional information on the safe use of hand tools.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site or project location.

4. Requirements

A. General

1. Keep hand and power tools in good repair and use them only for the task for which they were designed. Use tools only in accordance with the manufacturer's recommendations.
2. Remove damaged or defective tools from service. Affix a "Do Not Use" tag (or similar) to the tool until repairs are made or the tool is destroyed.
3. Provide employees using hand tools or portable powered equipment with personal protective equipment (PPE) and train employees in the use of PPE required for the operation being undertaken.
4. Keep surfaces and handles clean and free of excess oil and grease to prevent slipping.
5. Do not carry sharp tools in pockets; this practice may cause puncture wounds.
6. Clean tools and return to a suitable toolbox, room, rack, or other storage area upon completion of a job.
7. Before applying pressure, ensure that wrenches have a good bite.

URS SAFETY MANAGEMENT STANDARD
Hand Tools and Portable Equipment

- a. Brace yourself by placing your body in the proper position so that that you will not fall in case the tool slips.
 - b. Make sure hands and fingers have sufficient clearance in the event the tool slips.
 - c. Always pull on a wrench, never push.
8. When working with tools overhead, place tools in a holding receptacle or secure when not in use to prevent them from falling.
 9. Do not leave tools in or on passageways, access ways, walkways, ramps, platforms, stairways, or scaffolds where they can create a tripping hazard.
 10. Do not throw tools from place to place or from person to person, or drop tools from heights.
 11. Use nonsparking tools in atmospheres with fire or explosive characteristics.
 12. Inspect all tools prior to start-up or use to identify any defects.
 13. Powered hand tools should not be capable of being locked in the ON position, except as noted elsewhere in this standard.
 14. Require that all power-fastening devices be equipped with a safety interlock capable of activation only when in contact with the work surface.
 15. Ensure that all portable powered tools designed to accommodate guards are equipped with such when in use.
 16. Do not allow loose clothing, long hair, loose jewelry, rings, and chains to be worn while working with power tools.
 17. Do not use cheater pipes.
 18. Make provisions to prevent machines from automatically restarting upon restoration of power (see SMS 023 – Lockout and Tagout Safety).
 19. Where URS issues tools to its employees, the supervisor is responsible for the safe condition of tools and equipment.

URS SAFETY MANAGEMENT STANDARD

Hand Tools and Portable Equipment

20. Where workers furnish their own tools, their tools must conform to the requirements demanded for safety and efficiency. The supervisor has the responsibility to regularly inspect these tools for defects.

B. Electrical Power Tools

1. Electric-power-operated tools will be either of the approved double-insulated type or grounded in accordance with the National Electric Code.
2. The use of the electric cord for hoisting or lowering electric tools is an unsafe practice and will not be permitted.
3. All handheld powered drills, tappers, fastener drivers, horizontal, vertical, and angle grinders with wheels greater than 2 inches (5.1 centimeters) in diameter, disc sanders, belt sanders, reciprocating saws, saber saws, and other similar operating powered tools will be equipped with a momentary contact ON/OFF control and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.
4. All other handheld powered tools such as circular saws, chain saws, and percussion tools without positive accessory holding means will be equipped with a constant pressure switch that will shut off the power when the pressure is released (i.e., "dead man" switch).

C. Grinding Tools

1. Inspect work rests and tongue guards for grinders.
 - a. Work rest gaps should not exceed $\frac{1}{8}$ inch (3 mm).
 - b. Tongue guard gaps should not exceed $\frac{1}{4}$ inch (6 mm).
2. Do not adjust work, guards, or tool rests while the grinding wheel is moving.
3. Inspect the grinding wheel for cracks, chips, defects, or excessive wear. Remove from service if any defects are found.
4. Wear goggles when grinding. A clear full face shield may be worn with the goggles.

URS SAFETY MANAGEMENT STANDARD

Hand Tools and Portable Equipment

5. Do not use the side of a grinding wheel unless the wheel is designed for side grinding.
6. Always stand to the side of the blade, never directly behind it.
7. Use grinding wheels only at their rated speed.
8. Grinding aluminum is prohibited.
9. For operations in the United Kingdom:
 - a. No grinding wheels exceeding 55 mm are to be used.
 - b. All wheels are to be marked with their safe maximum speed.
 - c. Abrasive wheels will be operated only by personnel who have been specifically trained and specified competent by URS.
 - d. Abrasive wheels will be operated only by persons specified as competent, under the abrasive wheel regulations.
 - e. Abrasive wheels must be operated only if the manufacturer's guard is fitted and they are in good working order.

D. Power Saws

1. Require that circular saws are fitted with blade guards.
2. Inspect each day prior to use. Remove damaged, bent, or cracked saw blades from service immediately.
3. Require that table saws are fitted with blade guards and a splitter to prevent the work from squeezing the blade and kicking back on the operator.
4. Require guards that cover the blade to the depth of the teeth on hand-held circular saws. The guard should freely return to the fully closed position when withdrawn from the work surface.

E. Woodworking Machinery

URS SAFETY MANAGEMENT STANDARD

Hand Tools and Portable Equipment

1. Do not leave woodworking tools running when unattended.
2. Keep the operating table and surrounding area clear of debris.
3. Do not use compressed air to remove dust and chips from woodworking machinery.
4. Locate the ON/OFF switch to prevent accidental start-up. The operator must be able to shut off the machine without leaving the workstation. Safety goggles and kickback aprons should be provided for and worn by operators. Respirators or local exhaust ventilation may also be necessary based on the type of material being cut or sanded.
5. Guard planers and joiners to prevent contact with the blades throughout the full length of the cutting area.
6. Ensure that band saw blades are fully enclosed except at the point of operation.
7. Require that swing cut-off saws have a guard completely covering the upper half of the saw.
8. Require that circular cross-cut and rip saws are provided with a hood guard, splitter, and anti-kickback device. The hood should adjust itself automatically to the thickness of and remain in contact with the material being cut. All circular saws will be provided with a hood guard.
9. Ensure that exposed parts of the saw blade under the table are properly guarded.
10. Equip all swing cutoff and radial saws that are drawn across a table with limit stops to prevent the saw from traveling beyond the edge of the table.
11. Hold the material being cut firmly against a back guide or fence and cut with a single, steady pass.
12. Cut green or wet material slowly and with caution. Check all material being cut for nails, hard knots, etc.
13. Use a push stick when:

URS SAFETY MANAGEMENT STANDARD
Hand Tools and Portable Equipment

- a. The cutting operation requires the hands of the operator to come close to the blade.
 - b. Small pieces are being machined.
14. When cutting long stock, provide extension tables and a helper to assist the operator.
15. Adjust saw blades so they clear only the top of the cut.
16. Automatic feed devices should be used whenever feasible.
17. When drills are used:
- a. Take care to prevent clothing from being wound around the drill. Wear sleeves buttoned at the wrist or short-sleeved shirts.
 - b. Clamp or hold down material being drilled to prevent spinning with the drill.
 - c. If the bit is long enough to pass through the material, provide against damage and injury.
 - d. Secure magnetic drills with a chain or rope to prevent falling. Label cord connections to prevent unplugging.
18. When sanders are used:
- a. Move sanders away from the body.
 - b. Because dust may create an explosion hazard, guard against open flames and sparks.

F. Pneumatic Tools and Equipment

1. Require that pneumatic tools have:
- a. Tool retainers to prevent the tool from being ejected from the barrel during use.
 - b. Safety clips, chains, tie wires, or other retaining devices to secure connections between tool/hose/compressor to prevent whipping in case of disconnection or failure.

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2. Do not lay hose in walkways, on ladders, or in any manner that presents a tripping hazard.
3. Never use compressed air to blow dirt from hands, face, or clothing.
4. Do not use compressed air for cleaning purposes unless the pressure is reduced to 30 pounds per square inch (psi) or less. This rule does not apply for concrete form, mill scale, green cutting, and similar cleaning operations. Proper respiratory, hand, eye, and ear protection must be worn.
5. Never raise or lower a tool by the air hose.
6. Shut off the pressure and exhaust from the line before disconnecting the line from any tool or connection.

G. Powder-Actuated Fastener Tools

1. Use powder-actuated tools that comply with the requirements of the American National Standards Institute (ANSI)/American Society of Safety Engineers (ASSE) Standard A10.3 – 2006 – Powder-Actuated Fastening Systems.
2. Assess local and state regulations governing the use of these tools to ensure compliance.
3. Use only individuals who have been trained by a manufacturer's representative and possess the proper license to operate, repair, service, and handle powder-actuated tools.
4. With each tool, the manufacturer or supplier should furnish a detailed instruction manual covering the application, operation, and maintenance of the tool. The manufacturer's recommendation for size of charge, stud unit, or pin, and for specific application must be followed explicitly by the operator.
5. Keep cartridges or shells in the original containers, in separate metal containers, or in the carrying case provided with the tool, and then stored in locked containers. Keep cartridges of varied charges or forces segregated from each other.

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6. Take precaution, as defined by the manufacturer, in the event of a misfire.
7. Provide information from the manufacturer on the safe use, testing, and maintenance of each type of tool in each tool kit.
8. Never use a powder-actuated tool in a flammable or explosive atmosphere.
9. Require the use of goggles or a full face shield as well as safety glasses during operation of powder-actuated tools.
10. Use only tools that are provided with a shield or muzzle guard. This shield or guard should be of a size, design, and material that will effectively confine flying particles and prevent escape of ricocheting studs and pins.
11. Ensure that powder-actuated tools are not able to be fired unless the tool is pressed against the work surface.
12. Always handle powder-actuated tools like firearms, with hands clear of the muzzle and barrel pointed away from all persons, especially when the tool is being closed or assembled after loading.
13. Ensure that the tool is not able to fire if the tool is dropped when loaded.
14. Ensure that firing the tool requires two separate operations, with the firing movement being separate from the motion of bringing the tool to the firing position.
15. Provide signs and barricades when shooting into walls or floors with personnel working on the other side.
16. Never fire into easily pierced or soft substrates or into materials of unknown resistance to piercing. In these situations, there is potential for the fastener to penetrate and pass through, creating a flying projectile hazard. If penetration of these materials is required, the material should be backed with a box of wood or sand at least four inches (10 cm) thick and of adequate area.
17. Do not use powder-actuated tools in reinforced concrete if there is the possibility of striking the rebar.

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18. Do not use powder-actuated tools on cast iron, high carbon, heat treated steel, or armor plate, thin slate, marble, glass, live rock, glazed brick or tile, terra cotta, or other brittle substances, or where the composition is unknown.
19. Do not fire studs closer than three inches (7.5 cm) from the edge or corner when being used on brick or concrete. Do not fire studs closer than ½ inches (1.25 cm) from the edge when being used on steel.
20. Never load and leave a powder-actuated tool unattended. It should be loaded only prior to its intended firing. Use only studs or pins specifically designed for the tool.
21. Test tools each day prior to loading by testing safety devices according to the manufacturer's recommended procedure.
22. Inspect, clean, and store powder-actuated tools in a safe place at the end of each day. No tool will be stored loaded. Store tools with the barrels removed or breech open.
23. At the manufacturer's recommended intervals, the tool will be completely dismantled and carefully inspected for wear on the safety devices by a qualified person familiar with the tool. Worn parts will be replaced before the tool is used again. It is recommended that factory-authorized service representatives be utilized for inspection, repair, and parts replacement, where possible.

H. Chain Saws

1. Approval by the HSE manager is required for all use of chain saws.
2. Inspect the saw prior to each use and periodically during daily use.
3. Never cut above chest height.
4. Require that the idle is correctly adjusted on the chain saw. The chain should not move when the saw is in the idle mode.
5. Start cutting only after a clear escape path has been made.

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6. Shut the saw off when carrying through brush or on slippery surfaces. The saw may be carried no more than 50 feet (15 meters) while idling.
 7. Require applicable protective gear. This will include, but is not limited to:
 - a. Logger's safety hat.
 - b. Safety glasses and face shield.
 - c. Steel-toed boots.
 - d. Protective leggings.
 - e. Hearing protection.
 - f. Work gloves.
 8. Inspect saws to ensure that they are fitted with an inertia break and hand guard.
 9. *Never* operate a chain saw when fatigued.
 10. Do not allow others in the area when chain saws are operated.
 11. Make sure there are no nails, wire, or other imbedded material that can cause flying particles.
 12. Do not operate a chain saw that is damaged or improperly adjusted, or is not completely and securely assembled. Always keep the teeth sharp and the chain tight. Worn chains should be replaced immediately.
 13. Keep all parts of your body away from the saw chain when the engine is running.
 14. For all operations, only personnel specifically trained and certified as competent by URS may operate chain saws.
- I. Hand-Operated Pressure Equipment
1. Direct pressure equipment such as grease guns, and paint and garden sprayers away from the body and other personnel in the area. The person operating any equipment

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Hand Tools and Portable Equipment

such as this, which has a potential for eye injury, must wear protective goggles.

2. The noise produced when using certain types of pressure equipment may require the use of hearing protection.
3. Never allow the nozzle of a pressurized tool to come in contact with any body parts while operating. There is potential for injection of a chemical directly into the user's body, resulting in severe injury or death.

J. Gasoline-Powered Tools

1. Never pour gasoline on hot surfaces.
2. Never fuel around an open flame or while smoking.
3. Shut down the engine before fueling.
4. Provide adequate ventilation when using in enclosed spaces.
5. Use only Underwriters Laboratories (UL) - or FM-approved safety cans to transport flammable liquids. The use of unapproved containers for gasoline is strictly prohibited.
6. Label gasoline containers in compliance with Hazard Communication requirements, indicating the chemical and physical hazards of the product.

K. Inspection

Inspect all hand tools on a regular basis. Immediately remove defective tools from service, and tag or destroy them to prevent further use.

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Site briefings regarding tool use.
- B. Records of tools removed from service.
- C. Copies of powder-actuated tool licenses (as applicable).

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Hand Tools and Portable Equipment

D. Tool inspection documentation.

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) Standard – [Hand and Portable Power Tools](#) – 29 Code of Federal Regulations (CFR) 1910, Subpart P
- B. U.S. OSHA Standard – [Construction Tools – Hand and Power](#) – 29 CFR 1926, Subpart I
- C. American National Standards Institute ([ANSI](#))/[American Society of Safety Engineers \(ASSE\) Standard A10.3 – 2006](#) – Powder-Actuated Fastening Systems
- D. [National Association of Demolition Contractors](#)
- E. United Kingdom – ['Provision and Use of Work Equipment' Regulations 1998](#)
- F. Australia/New Zealand Standards – Powder-Actuated Handheld Fastening Tools - AS/NZS 1873.1:2003 Australian/New Zealand Standards – [Hand-held Motor-operated Electric Tools – AS/NZS 60745.1:2003](#)
- G. [SMS 023](#) – Lockout and Tagout Safety
- H. [SMS 064](#) – Hand Safety

URS SAFETY MANAGEMENT STANDARD

Heat Stress

1. Applicability

This standard applies to URS field projects where ambient (not adjusted) temperatures exceed 70 °F (21 °C) for personnel wearing chemical protective clothing, including Tyvek™ coveralls, and 90 °F (32 °C) for personnel wearing normal work clothes.

2. Purpose and Scope

The purpose of this standard is to protect project personnel from the effects of heat related illnesses.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 018 NA](#) – North America

[SMS 018 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 018 AP7 – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Heat Stress

1. Applicability

This standard applies to URS Corporation and its subsidiary companies on projects where ambient (not adjusted) temperatures exceed 70 degrees Fahrenheit (°F) (21 degrees Celsius [°C]) for personnel wearing chemical-protective clothing, including impermeable protective clothing such as Tyvek or Saranex coveralls, and 90°F (32°C) for personnel wearing standard permeable work clothes. Permeable clothing refers to clothes of standard cotton or synthetic materials. Note that certain governmental entities require heat stress prevention techniques be implemented at lower temperatures or whenever outdoor work is conducted. Always consult local regulations to determine if more stringent standards apply.

2. Purpose and Scope

The purpose of this standard is to protect project personnel from the effects of heat-related illnesses.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. The project Health and Safety Plan will address heat stress control when temperatures identified in Section 1 of this standard are anticipated.

This standard introduces three different means of monitoring for heat stress conditions: Wet Bulb Globe Temperature (WBGT), Humidex Based Heat Response and Physiological Monitoring. These methods can be used separately or in conjunction. For employees wearing chemical-protective clothing, physiological monitoring (Section D) is the most effective approach, because evaporative cooling capability is limited.

B. Heat stress is influenced by air temperature, radiant heat, and humidity. The WBGT is a useful index of the environmental contribution to heat stress. Because WBGT is only an index of the environment, the contributions of work demands, clothing, and state of acclimatization must also be accounted for, as described in the following steps.

1. Monitor ambient temperatures and conduct heat stress monitoring in accordance with the project Health and Safety Plan. Revise the heat

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stress monitoring and controls if there are any reports of discomfort due to heat stress.

2. Monitor temperatures in each unique environment in which workers perform work (e.g., take WBGT measurements inside truck cabs for truck drivers, and take separate WBGT measurements in the outdoor area where field employees work, etc.). Follow manufacturer’s instructions on proper use of the WBGT.
3. Determine if individual workers are acclimatized or un-acclimatized. Full heat acclimatization requires up to 3 weeks of continued physical activity under heat-stress conditions similar to those anticipated for the work. Its loss begins when the activity under those heat-stress conditions is discontinued, or when there is a sustained increase in temperatures of 10 °F (5.6 °C) or more, and a noticeable loss occurs after 4 days. A worker can be considered acclimatized for the purpose of this procedure when they have been exposed to the site conditions (including level of activity) for 5 of the last 7 days.
4. Determine the approximate workload of each worker or group of workers. The following examples can be used for comparison:

Table 1
Examples of Activities within Workload Categories

Categories	Example Activities
Resting	Sitting quietly
	Sitting with moderate arm movements
Light	Sitting with moderate arm and leg movements
	Standing with light work at machine or bench while using mostly arms
	Using a table saw
	Standing with light or moderate work at machine or bench and some walking about
Moderate	Scrubbing in a standing position
	Walking about with moderate lifting or pushing
	Walking on level at 6 Km/hr while carrying 3 Kg weight load
Heavy	Carpenter sawing by hand
	Shoveling dry sand
	Heavy assembly work on a non-continuous basis
	Intermittent heavy lifting with pushing or pulling (e.g., pick-and-shovel work)
Very Heavy	Shoveling wet sand

5. Determine the approximate proportion of work within an hour during a typical shift. Typically, the initial work schedule will be 60 minutes of work

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per hour (100 percent work) with a small break in the morning and afternoon, as appropriate, and a 30-minute lunch break mid-day.

6. Compare the WBGT values measured in 4.B.1 to the screening criteria values in the following table, using the determinations made in 4.B.3 through 4.B.5.

Table 2
SCREENING CRITERIA FOR HEAT STRESS EXPOSURE
(WBGT Values in °F /°C)

Work Cycle (60 min/ hour)	Acclimatized				Unacclimatized			
	Light Work	Mod. Work	Heavy Work	Very Heavy Work	Light Work	Mod. Work	Heavy Work	Very Heavy Work
100% Work	85.1/ 29.5	81.5/ 27.5	78.8/ 26.0	N/A	81.5/ 27.5	77.0/ 25.0	72.5/ 22.5	N/A
75% Work 25% Rest	86.9/ 30.5	83.3/ 28.5	81.5/ 27.5	N/A	84.2/ 29	79.7/ 26.5	76.1/ 24.5	N/A
50% Work 50% Rest	88.7/ 31.5	85.1/ 29.5	83.3/ 28.5	81.5/ 27.5	86/ 30	82.4/ 28	79.7/ 26.5	77/25
25% Work 75% Rest	90.5/ 32.5	87.8/ 31	86/ 30	85.1/ 29.5	87.8/ 31	84.2/ 29	82.4/ 28	79.7/ 26.5

- a. If the measured WBGT is *less than* the table value, there is little risk of excessive exposure to heat stress, and work can continue. Continue to monitor ambient conditions with the WBGT. However, if there are reports of the symptoms of heat-related disorders, then the analysis of little risk should be reconsidered.
- b. If the measured WBGT is *greater than* the table value, institute heat stress controls, including a work-rest cycle, and perform physiological monitoring as described in section D of this standard.
- c. Because of the physiological strain associated with very heavy work among less fit workers regardless of WBGT, values are not provided in Table 1 for continuous work. Physiological monitoring should always be implemented under these conditions.
- d. For workers wearing cloth coveralls (e.g., Nomex fire resistant clothing), add 3.5 to the measured WBGT. For impermeable clothing, such as Tyvek or Saranex, the WBGT procedures cannot be used. For these situations, workers should begin physiological monitoring as soon as the temperature in the work area exceeds 70°F (21°C).

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Heat Stress

C. Humidex Based Heat Response

1. The Humidex method is a simplified way of protecting workers from heat stress which is based on the WBGT to estimate heat strain. It is an equivalent scale intended to express the combined effects of warm temperatures and humidity. Humidex is used as a measure of perceived heat that results from the combined effect of excessive humidity and high temperature.
2. This method requires only a local air temperature and relative humidity value. Monitoring must continue throughout the day for changing conditions. Identify a representative location where measurements can be taken. Measurements should be recorded at least hourly when ambient temperatures and 90°F (32°C) for personnel wearing normal permeable work clothes.
3. Specific procedures to complete the Humidex Based Heat Response Plan are included in Attachment 018-1 NA – Humidex Worksheet.

D. Physiological Monitoring

Physiological monitoring provides a means to assess the effectiveness of the heat stress controls (training, hydration, work-rest cycles, etc.) that are in place. Based on the results of physiological monitoring and self-assessment, work-rest cycles can be adjusted to more effectively control heat stress by shortening the work period, or to allow for longer work periods if workers are recovering adequately during rest breaks.

1. Perform physiological monitoring as soon as the employee stops working and begins their break (rest). Perform *physiological monitoring at least every hour*. Base rest breaks on the results of the monitoring, workers' self-assessment, and professional judgment.
 - a. Example 1: If the WBGT is 85°F (29.4°C) or less for acclimatized, light-duty workers, they can work 60 minutes per hour (100 percent work), and they need only take their regularly scheduled breaks.
 - b. Example 2: If the WBGT is greater than 85°F (29.4°C) for acclimatized, light-duty workers, physiological monitoring must be performed, and workers' work-rest cycles must be adjusted as described below.
2. Have workers assess themselves and their body's reaction to the heat and work conditions (self-assessment), and report any signs or symptoms of

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heat illness. These can include nausea or dizziness, heat cramps, extreme thirst, or very dark urine.

3. Based on the results of the physiological monitoring and on the workers' self-assessments, the work period may be adjusted as follows:
 - a. The work period may be *increased* (generally, by 5- to 10-minutes intervals, up to a maximum of 4 hours) if the results of the first 2 hours of the physiological monitoring and the workers' self-assessments indicate that workers *are* recovering adequately (see below), and on the judgment of the Health and Safety Technician.
 - b. The work period *must be decreased* if the results of the physiological monitoring and the workers' self-assessment indicate that workers are NOT recovering adequately (see below).
4. Perform physiological monitoring
 - a. The worker or the Health and Safety Technician must measure and record body temperature and pulse rate as described below. Use SMS 018-2 NA – Heat Stress Monitoring Record as a tool.
5. Body Temperature Monitoring
 - a. Monitor body temperature to determine if employees are adequately dissipating heat buildup. Ear probe thermometers which are adjusted to oral temperature (aural temperature) are convenient and the preferred method of measurement. Determine work/rest regimen as follows:
 - i. Measure oral body temperature at the end of the work period. Oral body temperatures are to be obtained prior to the employee drinking water or other fluids.
 - ii. If temperature exceeds 99.6°F (37.5°C), shorten the following work period by 1/3 without changing the rest period.
 - iii. If, at the next rest period, temperature still exceeds 99.6°F (37.5°C), the worker should not be allowed to continue work until repeated temperature measurements are in the acceptable range (i.e., less than 99.6°F). Do not leave the worker alone during the recovery time. Watch for signs of heat illness and be prepared to implement emergency response as necessary.

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- iv. Do not allow a worker to wear impermeable PPE when his/her oral temperature exceeds 100.6°F (38.1°C).
 - b. Have employees assess themselves and their body's reaction to the heat and work conditions, and report any signs or symptoms of heat stress, including, but not limited to, feeling nauseous or dizzy, skin rash or skin irritation, muscle cramps, weakness or fatigue, extreme thirst, dizziness, blurred vision, headache, or very dark urine.
- 6. Pulse Rate Monitoring
 - a. Take the radial (wrist) pulse as early as possible in the rest period and determine the worker's heart rate in beats per minute. The heart rate is determined by counting the pulse for ten seconds and multiplying the number by 6 to get the beats per minute. Record this as P1.
 - b. Wait 2 minutes and repeat the pulse measurement. Record this as P2.
 - c. If P1 is greater than or equal to 110 beats per minute (bpm) and if (P1 – P2) is less than or equal to 10 bpm (indicating that workers are not recovering adequately), shorten the next work cycle by 1/3 without changing the rest period.
 - d. At the next rest period, if P1 is still equal to or greater than 110 bpm, and if (P1 – P2) is still less than or equal to 10 bpm, shorten the following work cycle by 1/3 without changing the rest period.
 - e. At the third rest period, if P1 is still equal to or greater than 110 bpm and (P1 – P2) is still less than or equal to 10 bpm, the worker should not be allowed to continue work until repeated pulse measurements are in the acceptable range (i.e., P1 is less than 110 bpm and (P1 – P2) is greater than 10 bpm). Do not leave the worker alone during the recovery time. Watch for signs of heat illness and be prepared to implement emergency response as necessary.
- E. Record monitoring results and worker's self-assessments on Attachment 018-2 NA – Heat Stress Monitoring Record.
- F. Investigate the use of auxiliary cooling devices in extreme heat conditions.
- G. Conduct briefings for employees regarding health hazards and control measures associated with heat stress whenever conditions require the implementation of heat stress monitoring. Review the information provided in Supplemental Information A.

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- H. Provide cool water and electrolyte replacement drinks as described in Supplemental Information A.
- I. Allow employees who are not accustomed to working in hot environments appropriate time for acclimatization, as described in Supplemental Information A.
- J. Provide break areas as described in Supplemental Information A.

5. Documentation Summary

The following information will be maintained in the project file:

- A. Heat Stress Monitoring Records
- B. Employee Safety Briefing Verification Forms

6. Resources

- A. NIOSH – [Working in Hot Environments \(Publication No. 86-112\)](#), 1986
- B. NIOSH – Criteria for a Recommended Standard for Occupational Exposures to Hot Environments ([Publication No. 86-113](#)), 1986
- C. ACGIH – [Documentation of the Threshold Limit Values and Biological Indices, 2003](#)
- D. AFL-CIO Building Trades Division – [Heat Stress in Construction](#)
- E. Occupational Health Clinics for Ontario Worker, Inc. – [Humidex Based Heat Response Plan](#)
- F. [Attachment 018-1 NA](#) – Humidex Worksheet
- G. [Attachment 018-2 NA](#) – Heat Stress Monitoring Record

7. Supplemental Information

- A. [Heat Stress Informational Supplement](#)



HUMIDEX WORKSHEET

Step 1: On the Humidex table below, look up the temperature on the left (Celsius is located below RH>) and the relative humidity (RH) on the top. Determine the Humidex value.

F	RH>	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	
108	42													55	52	50	48	46	
106	41												55	53	51	48	46	44	
104	40											55	53	51	49	47	45	43	
102	39										55	53	51	49	47	45	43	41	
100	38	Step 1 - Determine HUMIDEX VALUE									54	53	51	49	47	45	43	42	40
99	37								54	52	51	49	47	45	44	42	40	38	
97	36				57	55	53	52	50	49	47	45	44	42	40	39	37	37	
95	35			56	54	53	51	50	48	47	45	43	42	40	39	37	36	36	
93	34	56	55	53	52	51	49	48	46	45	43	42	40	39	37	36	34	34	
91	33	55	54	53	51	50	48	47	46	44	43	41	40	39	37	36	34	33	
90	32	53	51	50	49	48	46	45	44	42	41	40	38	37	36	34	33	32	
88	31	50	49	48	47	45	44	43	42	40	39	38	37	35	34	33	32	30	
86	30	48	47	46	44	43	42	41	40	39	37	36	35	34	33	31	30	29	
84	29	46	45	43	42	41	40	39	38	37	36	35	33	32	31	30	29	28	
82	28	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	
81	27	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	
79	26	39	38	37	36	35	34	33	33	32	31	30	29	28	27	26	25	24	
77	25	37	36	35	34	33	33	32	31	30	29	28	27	26	26	25	24	23	

Step 2: Place the Humidex value into the Heat Index Adjustment Table below. Determine the applicable adjustments based on the given work or task.

Heat Index Adjustment Table

Step 2 - Risk Factor Adjustment		
Write in value	What is the HUMIDEX value from the table in Step 1?	
Radiant Heat		Adjustment
	Working in full-sun	Add 2
	Working in ½ or partial sun or weak radiant heat source	Add 1
	Working near very hot equipment surfaces or processes	Add 2
Clothing: Pick One Only		
	Short/long sleeve shirt and pants – no overalls	None
	Overalls (e.g., Nomex suit)	Add 3
	Double layer overalls	Add 5
Stop	Impermeable clothing	Perform Physiological Monitoring
Acclimatization		
	Have been working at least 5 of last 7 days in heat stress conditions.	Subtract 4
Work Load & Miscellaneous Factors		
	Light Work (Standing, slow walking)	Subtract 2
	Medium Work (Walking about with moderate lifting or pushing)	None
	Heavy Work (Shoveling dry sand, carrying 50 lbs)	Add 2
	Very Heavy Work (Shoveling wet sand)	Add 3
TOTAL – Compare to Heat Index Response Plan		

Step 3: Compare adjusted Heat Index Total to the Heat Index Response Plan table to obtain guidance for work/rest.

Heat Index Response Plan*

TOTAL NUMBER	Final Step 3 - HEAT INDEX Response
30-33	alert & information & water
34-37	warning & increase water
38-39	75% work - 25% rest & monitor for signs of heat stress
40-41	50% work - 50% rest & monitor for signs of heat stress
42-44	25% work - 75% rest & monitor for signs of heat stress
45+	Perform Physiological Monitoring

* Percent work and rest/recovery are on a per hour basis. Adjustments and subsequent work/rest cycle recommendations are rough guidelines only. No heat stress prediction scheme can replace monitoring of symptoms or a health care practitioners advice in the case of individuals with special medical conditions or predisposing circumstances for heat related illness. Always pay attention to the way workers are feeling. Recuperate if fatigued, nauseated, dizzy or thirsty.

HEAT RASH

Heat rash (prickly heat) may result from continuous exposure to heat or humid air. It appears as red papules (elevated skin lesion), usually in areas where the clothing is restrictive, and gives rise to a prickly sensation, particularly as sweating increases. It occurs in skin that is persistently wetted by un-evaporated sweat. The papules may become infected unless treated.

First Aid for Heat Rash - To prevent heat rash, shower after work, dry off thoroughly, and put on clean, dry underwear and clothes. Try to stay in a cool place after work. If, in spite of this, you develop heat rash, see your physician.

HEAT CRAMPS

Heavy sweating with inadequate electrolyte replacement causes heat cramps. Signs and symptoms include:

- Muscle spasms.
- Pain in the hands, feet and abdomen.

First Aid for Heat Cramps - Leave the work area, and rest in a cool, shaded place.

Mild heat cramps can be treated by drinking beverages that contain salt or eating salty food. Severe heat cramps are treated with fluids and salts given intravenously.

Once the spasms disappear, you may return to work. Taking adequate breaks and drinking electrolyte replacement drink should prevent the cramps from returning.

HEAT EXHAUSTION

Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:

- Pale, cool, moist skin.
- Heavy sweating.
- Dizziness.
- Nausea.
- Fainting.
- Headache.
- Blurred vision.
- Vomiting.

The key here is that the victim is still sweating, so the cooling system is still working; it's just under severe stress. The body core temperature may be elevated, but not higher than 104°F (40°C). It is important to recognize and treat these symptoms as soon as possible, as the transition from heat exhaustion to the very hazardous heat stroke can be quite rapid.

First Aid for Heat Exhaustion – Treatment involves replacing fluids (rehydration) and salts and removing the person from the hot environment. If symptoms are mild, sipping cool, slightly salty beverages every few minutes may be all that is needed. Removing or loosening clothing and applying wet cloths or ice packs to the skin also aid cooling.

HEAT STROKE

Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels, typically at or above 104°F (40°C). Immediate action must be taken to cool the body before serious injury and death occurs. Competent medical help must be obtained. Signs and symptoms are:

- Red, hot, usually dry skin.
- Lack of or reduced perspiration (lack of perspiration may be masked for those wearing chemical protective clothing since perspiration from earlier in the day will be present).
- Nausea.
- Vomiting.
- Dizziness and confusion.
- Strong, rapid pulse.
- Coma.

First Aid for Heat Stroke - THIS IS A MEDICAL EMERGENCY! SUMMON MEDICAL ASSISTANCE IMMEDIATELY!

While awaiting transportation to the hospital, a person should be wrapped in cold, wet bedding or clothing; immersed in a lake, stream, or cool bathtub; or cooled with ice. At the hospital, body cooling is usually accomplished by removing the clothes and covering the exposed skin with water or ice. To speed evaporation and body cooling, a fan may be used to blow air on the body. Body temperature is measured frequently, often constantly. To avoid overcooling, cooling is stopped when the body temperature is reduced to about 102°F (38°C).

HEAT STRESS PREVENTION

The best approach to avoiding heat-related illness is through preventative heat stress management.

Rest areas - A relatively cool, shaded area must be provided for breaks when ambient temperatures exceed 70°F (21°C) and workers are wearing chemical protective clothing (including uncoated Tyvek), or if temperatures exceed 80°F (26°C) and workers are wearing "Level D" coveralls or work clothes. For hazardous waste sites, the rest area should be located in the support zone adjacent to the contamination reduction zone, situated so that part of it is in the decon area so workers can take breaks without going through full decon. If shade is not available, shaded areas shall be constructed. This same type of canopy can be set up to shade personnel performing various types of work in hot weather. Cooling measures other than shade (e.g., misting, air conditioned break areas, air conditioned

vehicles, etc.) can be used in lieu of shade provided it can be demonstrated that they are at least as effective in cooling employees. Employees should have access to these rest areas at break times and at any other time when suffering from heat illness or believing a preventive recovery period is needed.

Liquids - Encourage employees to drink plenty of cool plain water and electrolyte replacement drinks. Supplementing water with cool electrolyte replacement drinks, such as Gatorade, Squench or Quik-kick (drink), is helpful to employees who tend to sweat a lot. Do not use "community cups"; use paper cups. Employees should have access to potable drinking water equivalent to one quart of water per employee per hour during the shift. Less water can be available at the start of the shift provided it is effectively replaced when required.

Have workers drink 16 ounces (0.5 liters) of drink before beginning work, such as in the morning and after lunch. At each break, workers should drink 8 to 16 ounces (0.25 to 0.5 liters). Employees should not wait until they are thirsty to drink.

Discourage the use of alcohol during non-working hours, and discourage the intake of coffee during work hours, as these make heat stress control more difficult.

Acclimatization - This is the process by which your body "gets used to" hot work environments. This is achieved by slowly increasing workloads. Start at 50 percent capacity on day one, and increase by 10 percent per day; on day six, you'll be at 100 percent. You don't lose acclimatization over a weekend, but it'll start to decrease after three to four days. If you don't do hot work for a week, the acclimatization is gone. You don't have to do full shift hot work to achieve or retain acclimatization; a minimum of 100 minutes of continuous hot work exposure per day is adequate.

Auxiliary Cooling - Auxiliary cooling is usually obtained by providing workers with a specially-designed vest, which is worn under the protective clothing, but over any underclothing. These vests typically provide cooling via one of two methods: the use of ice or other frozen media, or the use of a vortex cooler. Each method has its advantages and disadvantages.

The frozen media vest requires a means for freezing the media, and the media (usually water or "blue ice") will melt, requiring replacement.

The vortex cooler tends to cool more uniformly. Instead of frozen media, this vest uses the expansion of compressed air to cool the wearer. The drawback is the compressed air requirement, but this is negated when the wearer is already using an airline respirator supplied by a compressor. A vortex cooler should not be supplied from air cylinders, as this will draw down the cylinders rapidly.

Auxiliary cooling should be considered when the following conditions exist:

- Ambient temperature over 80°F (26°C).
- Workers are wearing impermeable garments (i.e., Tyvek, Saranex, Chemrel, etc.).
- It is desirable to have long work shifts with minimum interruption.

URS SAFETY MANAGEMENT STANDARD

Heavy Equipment Operations

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies where heavy equipment is in operation.

2. Purpose and Scope

The purpose of this standard is to require that heavy equipment is operated in a safe manner, the equipment is properly maintained, and ground personnel are protected.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 019 NA](#) – North America

[SMS 019 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 019 AP7 – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Heavy Equipment Operations

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies where heavy equipment is in operation by URS employees or subcontractors.

2. Purpose and Scope

The purpose of this standard is to require that heavy equipment is operated in a safe manner; that the equipment is properly maintained; and that ground personnel are protected. Heavy equipment includes construction and mining equipment such as backhoes, excavators, skid steers, graders, loaders, dozers, tractors, cranes, drills, and draglines.

In addition to this standard, refer to SMS 038 – Cranes and Derricks; and SMS 056 – Drilling Safety.

Military related vehicles and equipment (e.g., tanks) are not covered under this standard.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Authorized Operators

1. Evaluate operators through documented experience (resume), and as appropriate, a practical evaluation of skills. Supplemental Information A through G, or a similar method, may be used for evaluating operators.
2. Allow only qualified operators to operate equipment. Trainees may operate equipment under the direct supervision of a trainer.
3. Prohibit equipment from being operated by any personnel who have not been specifically authorized to operate it.
4. Maintain a list of operators for the project, and the specific equipment that they are authorized to operate.

URS SAFETY MANAGEMENT STANDARD
Heavy Equipment Operations

5. Require operators to use seatbelts at all times in all equipment and trucks.
6. Except where allowed by the manufacturer, prohibit personnel other than the operator from riding in or on the equipment unless additional seating (with seatbelts) is provided by the manufacturer. In some cases, a trainer may ride in a cab not equipped with additional seating when training activities are being conducted.
7. Operators must maintain three points of contact whenever mounting and dismounting a piece of equipment.
8. Brief operators on the following rules of operation:
 - a. Operators are in control of their work area.
 - b. Equipment must be operated in a safe manner and within the constraints of the manufacturer's Operation Manual.
 - c. Operators must stop work whenever unauthorized ground personnel or equipment enter their work area, and only resume work when the area has been cleared.
 - d. Operators must not use mobile phones while operating heavy equipment.

B. Ground Personnel

1. Require that URS ground personnel or ground personnel interacting with URS heavy equipment operations have received training, and comply with the following rules of engagement:
 - a. Wear high-visibility protective vests when in work areas with any operating equipment.
 - b. Stay outside of the swing zone or work area of any operating equipment.
 - c. No standing or working in the equipment operator's blind spots.
 - d. Ground personnel may only enter the swing or work area of any operating equipment when:

URS SAFETY MANAGEMENT STANDARD

Heavy Equipment Operations

1. They have attracted the operator's attention and made eye contact.
 2. The operator has idled the equipment down, placed it in neutral, grounded engaging tools, and set brakes.
 3. The operator gives the ground personnel permission to approach.
- e. Ground personnel must never walk, or position themselves between, any fixed object (e.g., working face, highwall) and operating equipment, or between two operating pieces of equipment.

C. Equipment

1. Maintain operation manuals at the site for each piece of equipment that is present on the site and in use.
2. Require that operators have read or been trained on the manual for the equipment, and operate the equipment within the parameters of the manual and this standard.
3. Require that all equipment is provided with roll-over protection systems (ROPS). Tracked excavators, road trucks, and drills are exempt from ROPS requirements, but must have a cab that provides protection from overhead hazards.
4. Verify that seatbelts are present and functional in all equipment.
5. Prohibit the use of equipment that has or had cab glass (per the manufacturer's specifications) that is cracked, broken, or missing.
6. Require that backup alarms are functional on all trucks and equipment. Tracked excavators must have bi-directional alarms, or the operator must be provided with a spotter whenever tracking in either direction.
7. Require all extensions such as buckets, blades, forks, etc., to be grounded when not in use.
8. Require brakes to be set and wheels chocked or equivalent (when applicable) when not in use.

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Heavy Equipment Operations

9. Require fire extinguishers to be placed on all vehicles or equipment as required, and inspected by the operator prior to each shift. Monthly inspection and service records will be maintained in the project office, if not kept on the extinguishing equipment.
10. Require that all haulage vehicles, whose payload is loaded by means of cranes, power shovels, loaders, or similar equipment, has a cable shield and/or canopy adequate to protect the operator from shifting or falling material. If protection is not available for the operator, the operator must leave the vehicle and wait in a designated safe location until it is loaded.
11. Require that a locking device be provided that will prevent the accidental separation of towed and towing vehicles on every fifth-wheel mechanism and two-bar arrangement.
12. Require that trip handles for tailgates of dump trucks and heavy equipment be arranged so that when dumping, the operator will be in the clear.
13. Require that motors and engines are shut off during fueling or maintenance operations. Ensure proper grounding/bonding between equipment and fuel vehicle prior to fueling operations. During fueling operations, ensure the fuel nozzle remains in contact with the tank and no smoking or open flame is present in the immediate area.

D. Subcontractor Equipment

1. Require that no unsafe vehicles or equipment be allowed in construction areas. Where compliance is refused, the project manager or his or her designate should be notified immediately.
2. Require that subcontractor employees follow established safety procedures in operation, inspection, and maintenance of vehicles and equipment.
3. Require that URS supervisors visually observe the subcontractors' vehicles and equipment, and report any unsafe conditions or practices to the project manager. Equipment not in compliance with applicable safety standards is prohibited.

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Heavy Equipment Operations

E. Safe Operation

1. All vehicles transporting material or equipment on public roads must comply with local laws pertaining to weight, height, length, and width. Obtain any permits required for these loads.
2. Prohibit operating Company-owned, leased, or rented vehicles or equipment while under the influence of alcohol or illegal drugs.
3. Require seatbelts to be worn for all operators, drivers, and passengers for company owned or leased vehicles and equipment.
4. Do not drive equipment into an unsafe area. This includes areas of construction where unnecessary tire, steering, or body damage could result, or where soil conditions are not adequate to support the equipment.
5. Do not smoke on, in, or within 50 feet (15 meters) of vehicles hauling fuel oils, gasoline, or explosives.
6. Do not ride with arms or legs outside of the truck body, in a standing position on the body, on running boards, or seated on side fenders, cabs, cab shields, rear of truck bed, or on the load.
7. Do not drive any vehicle at a speed greater than is reasonable and proper, with due regard for weather, traffic, intersections, width, and character of the roadway, type of motor vehicles, and any other existing condition.
8. Oilers, apprentices, and other operators will not be allowed to operate equipment unless authorized by the project manager or general superintendent.
9. Do not operate any equipment beyond its safe load or operational limits.
10. Keep all employees clear of loads about to be lifted, or suspended loads.
11. Outfit equipment operated in hazardous atmosphere environments with the proper safety equipment (e.g., spark arrestors).
12. Utilize equipment with enclosed cabs where feasible or accessible. Where use of equipment with enclosed cabs is not feasible or said

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equipment is not accessible, require that operators use eye protection in accordance with potential airborne hazards present.

F. Inspection and Maintenance

1. Require operators to inspect equipment daily (or before each shift), using Attachment 019-1 NA or equivalent.
2. Prohibit use of equipment deemed to be unsafe, as determined by daily inspection, until required repairs or maintenance has been completed.
3. Conduct maintenance as prescribed by the manufacturer in the Operation Manuals for each piece of equipment.
4. During maintenance and repair, require that:
 - a. Motors are turned off, unless required for performing maintenance or repair.
 - b. All ground-engaging tools are grounded or securely blocked.
 - c. Controls are set in a neutral position.
 - d. Brakes are set.
 - e. Electrically driven equipment is installed with provision for tagging and locking out the controls while under repair.
 - f. Manufacturer's requirements for maintenance and repair are followed.
5. Provide and use a safety tire rack, cage, or equivalent protection when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices.
6. Maintenance records for any service, repair or modification which affects the safe performance of the equipment must be maintained and reasonably available to operator and maintenance personnel.

5. Documentation Summary

The following information will be maintained in the project file:

- A. Operator qualifications.

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Heavy Equipment Operations

- B. Daily Equipment Inspection Logs, Attachment 019-1 NA, or equivalent.
- C. Site briefing documentation for operator rules and ground personnel "rules of engagement".

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) Standard – [Motorized Vehicles and Mechanized Equipment](#) – 29 Code of Federal Regulations (CFR) 1926, Subpart O
- B. U.S. Mine Safety and Health Administration – [30 CFR 48](#) – Training and Retraining Miners
- C. U.S. Mine Safety and Health Administration – [30 CFR 56](#) Subpart H – Loading, Hauling, and Dumping
- D. U.S. Mine Safety and Health Administration – [30 CFR 56](#) Subpart M – Machinery and Equipment
- E. U.S. Mine Safety and Health Administration – [30 CFR 77](#) Subpart E – Safeguards for Mechanical Equipment
- F. U.S. Mine Safety and Health Administration – [30 CFR 77](#) Subpart K – Ground Control
- G. U.S. Mine Safety and Health Administration – [30 CFR 77](#) Subpart Q – Loading and Haulage
- H. [National Association of Demolition Contractors](#) – Safety Manual
- I. [SMS 038](#) – Cranes and Derricks
- J. [SMS 056](#) – Drilling Safety
- K. [Attachment 019-1 NA](#) – Equipment Inspection Form

Note: The above regulatory resources are for U.S. operations only.

7. Supplemental Information

- A. [Backhoe Operator Skill Evaluation](#)
- B. [Scraper Operator Skill Evaluation](#)

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Heavy Equipment Operations

- C. [Bulldozer Operator Skill Evaluation](#)
- D. [Dump Truck Operator Skill Evaluation](#)
- E. [Roller/Compactor Skill Evaluation](#)
- F. [Front-End Loader Operator Skill Evaluation](#)
- G. [Grader Operator Skill Evaluation](#)
- H. [Excavator Operator Skill Evaluation](#)
- I. [Water Truck Operator Skill Evaluation](#)



Health, Safety and Environment
DAILY HEAVY EQUIPMENT
SAFETY INSPECTION CHECKLIST

Attachment 019-1 NA
 Issue Date: June 1999
 Revision 7: September 2011

Equipment ID No: _____ Inspector's Name: _____

Equipment Name: _____ Employee No.: _____

Beg. Hours: _____ End Hours: _____ Date: _____

INSTRUCTIONS: Each shift must inspect all applicable items indicated. If an unsatisfactory condition is observed, suspend operation of the equipment and report the unsatisfactory condition to the site supervisor immediately.

ITEM INSPECTED	CHECK IF SATISFACTORY	COMMENTS	CORRECTED BY	DATE
Equipment Operating Manuals Available	<input type="checkbox"/>			
Falling Object Protective Structure (FOP)	<input type="checkbox"/>			
Roll-Over Protection Structure (ROP)	<input type="checkbox"/>			
Seat Belts	<input type="checkbox"/>			
Operator Seat Bar(s)	<input type="checkbox"/>			
Side Shields, Screens, or Cab	<input type="checkbox"/>			
Lift-Arm Device	<input type="checkbox"/>			
Grab Handles	<input type="checkbox"/>			
Back-up Alarm – Working	<input type="checkbox"/>			
Lights	<input type="checkbox"/>			
Guards	<input type="checkbox"/>			
Horn	<input type="checkbox"/>			
Windshield Wipers	<input type="checkbox"/>			
Glass, Mirrors	<input type="checkbox"/>			
Anti-Skid Tread Clear of Mud	<input type="checkbox"/>			
Safety Signs (i.e., counterbalance swing area)	<input type="checkbox"/>			
Fire Extinguisher	<input type="checkbox"/>			
General Condition	<input type="checkbox"/>			
Fuel Connection	<input type="checkbox"/>			
Oil (fuel and no leaks)	<input type="checkbox"/>			
Clear of Extra Materials	<input type="checkbox"/>			
Controls Function Properly	<input type="checkbox"/>			
Hydraulic System (full and no leaks)	<input type="checkbox"/>			
Parking Brake	<input type="checkbox"/>			
Lift Arm and Bucket	<input type="checkbox"/>			
Tires/Tracks	<input type="checkbox"/>			
Steering	<input type="checkbox"/>			
Breathing Air System	<input type="checkbox"/>			
Blast Shields	<input type="checkbox"/>			
Flammable Atmosphere Protective Equipment	<input type="checkbox"/>			
Quantity of Fuel Added	<input type="checkbox"/>			
Quantity of Oil Added	<input type="checkbox"/>			

Operator Signature _____



Health, Safety and Environment
BACKHOE OPERATOR SKILL EVALUATION

SMS 019 NA
Supplemental Information A
Issue Date: February 2009
Revision 2: August 2010

Date _____ Employee Name _____ Supervisor _____

Description:

This equipment is used primarily for excavation, although it may occasionally be used for other miscellaneous tasks for which crane or stick type equipment is required.

STEPS	KEYPOINTS	SATISFACTORY
1)	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts, leaks; oil, hydraulic and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational a) Brakes b) Lights c) Back-up alarms d) Hand rails & ladders e) Seat belts f) Tires if applicable g) Glass, wipers h) Gauges, including temperature, oil, and fuel v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2)	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3)	Excavating techniques a) Benching, sloping b) Spoil removal from side wall c) Back filling operations d) Aware of surroundings and personnel near the swing radius of boom	<input type="checkbox"/> Yes <input type="checkbox"/> No
4)	Can arrange controls and boom for travel	<input type="checkbox"/> Yes <input type="checkbox"/> No
5)	Speed in relation to terrain (controlled speed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
6)	Stock piling with front end bucket	<input type="checkbox"/> Yes <input type="checkbox"/> No
7)	Loading truck bed with bucket	<input type="checkbox"/> Yes <input type="checkbox"/> No
8)	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Set all park brakes d) Lower bucket to ground e) Perform a general walk around looking for items for maintenance	<input type="checkbox"/> Yes <input type="checkbox"/> No



Health, Safety and Environment
SCRAPER OPERATOR SKILL EVALUATION

SMS 019 NA
Supplemental Information B
Issue Date: February 2009
Revision 2: August 2010

Date _____ Employee Name _____ Supervisor _____

Description:

Drives a tractor to pull a steel bowl-like or box-like scoop (scraper), mounted on wheels, which scrapes up earth and transports it to a designated place; manipulates a series of levers to lower cutting edge of the scraper into the ground, to raise cutting edge when scraper is full, and to empty scraper.

STEPS	KEYPOINTS	SATISFACTORY
1.	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts and leaks; check oil, air, hydraulic fluids and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational a) Brakes b) Lights c) Back-up alarms d) Hand rails & ladders e) Seat belts f) Tires g) Glass, wipers h) Gauges, including temperature, oil, air and fuel v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3.	Loading techniques a) Use of apron b) Use of cutting edge c) Pump loading etc	<input type="checkbox"/> Yes <input type="checkbox"/> No
4.	Shifting and hauling	<input type="checkbox"/> Yes <input type="checkbox"/> No
5.	Rough cut and fill	<input type="checkbox"/> Yes <input type="checkbox"/> No
6.	Spreading material	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.	Fine grading	<input type="checkbox"/> Yes <input type="checkbox"/> No
8.	Obtaining compaction	<input type="checkbox"/> Yes <input type="checkbox"/> No
9.	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Lower apron d) Lower bowl to the ground e) Perform a general walk around looking for maintenance items	<input type="checkbox"/> Yes <input type="checkbox"/> No



Date _____ Employee Name _____ Supervisor _____

Description:

Operates a large tractor with a concave steel blade or push block mounted in front of the chassis to level, distribute and push earth. This equipment may be used to push earth carrying equipment. At times a ripper attachment is used for ripping the earth prior to loading the scraper. Operator regulates height of blade or push block from ground and may help in necessary adjustments to equipment as needed.

STEPS	KEYPOINTS	SATISFACTORY
1)	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts and leaks; check oil, air, hydraulic fluid and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational a) Brakes b) Lights c) Back-up alarms d) Hand rails & ladders e) Seat belts f) Tracks g) Glass, wipers h) Gauges, including temperature, oil, air and fuel i) Audible horn v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2)	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3)	Pushing techniques a) Use of push blade b) Loading of push load equipment	<input type="checkbox"/> Yes <input type="checkbox"/> No
4)	Use of ripper shanks	<input type="checkbox"/> Yes <input type="checkbox"/> No
5)	Rough cut and fill	<input type="checkbox"/> Yes <input type="checkbox"/> No
6)	Spreading material	<input type="checkbox"/> Yes <input type="checkbox"/> No
7)	Fine grading	<input type="checkbox"/> Yes <input type="checkbox"/> No
8)	Obtaining compaction by tracking in material	<input type="checkbox"/> Yes <input type="checkbox"/> No
9)	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Lower rippers d) Lower blade to the ground e) Perform a general walk around looking for maintenance items	<input type="checkbox"/> Yes <input type="checkbox"/> No



Date _____ Employee Name _____ Supervisor _____

Description:

Drives a heavy-duty gasoline or diesel-powered truck used in hauling material to fill areas or dump sites. The truck is either a tandem rear axle type, or is a tractor truck, single or tandem axle, pulling a trailer. May service and make necessary adjustments for proper operation of equipment.

STEPS	KEYPOINTS	SATISFACTORY
1)	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts and leaks; check oil, air, hydraulic fluid and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational (1) Brakes (2) Lights (3) Back-up alarms (4) Hand rails & ladders (5) Seat belts (6) Tires (7) Glass, wipers (8) Gauges, including temperature, oil, air and fuel v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2)	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3)	Truck Weighing a) Tare weights b) Gross Weights	<input type="checkbox"/> Yes <input type="checkbox"/> No
4)	Loading Techniques a) Parking into load patterns b) Bed preparation for material	<input type="checkbox"/> Yes <input type="checkbox"/> No
5)	Shifting and Hauling	<input type="checkbox"/> Yes <input type="checkbox"/> No
6)	Stockpiling	<input type="checkbox"/> Yes <input type="checkbox"/> No
7)	Backing with the use of mirrors	<input type="checkbox"/> Yes <input type="checkbox"/> No
8)	Dumping/Spreading Material a) Fill material b) Base course material c) Surface materials d) Asphalt e) Lowers truck bed (dump trucks) or dump chutes (belly dumps)	<input type="checkbox"/> Yes <input type="checkbox"/> No
9)	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Use park brake d) Perform a general walk around looking for maintenance items	<input type="checkbox"/> Yes <input type="checkbox"/> No



Health, Safety and Environment
**ROLLER / COMPACTOR OPERATOR
SKILL EVALUATION**

SMS 019 NA
Supplemental Information E
Issue Date: February 2009
Revision 2: August 2010

Date _____ Employee Name _____ Supervisor _____

Description:

Operates a self-propelled gasoline or diesel machine, which has steel wheels used to compact earth fills, flexible bases and all types of materials. Rollers are also used for compaction to achieve a desired or specified density. Rides on the machine platform and moves lever and pedals or throttles to control and guide machine.

STEPS	KEYPOINTS	SATISFACTORY
1)	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts and leaks; check oil, air, hydraulic fluid and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational a) Brakes b) Lights c) Back-up alarms d) Hand rails & ladders e) Seat belts f) Tires, if applicable g) Glass, wipers h) Gauges, including temperature, oil, air and fuel v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2)	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3)	Rolling techniques to obtain compaction a) Use of controls b) Vibratory controls c) Turns and maneuvers d) Aware of surroundings	<input type="checkbox"/> Yes <input type="checkbox"/> No
4)	Rolling patterns a) Staggered patterns with other rollers	<input type="checkbox"/> Yes <input type="checkbox"/> No
5)	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Perform a general walk around looking for maintenance items	<input type="checkbox"/> Yes <input type="checkbox"/> No



Health, Safety and Environment
**FRONT END LOADER
OPERATOR SKILL EVALUATION**

SMS 019 NA
Supplemental Information F
Issue Date: February 2009
Revision 2: August 2010

Date _____ Employee Name _____ Supervisor _____

Description:

Operates a rubber tire or crawler type tractor with an attached bucket on front end. Moves a lever to raise and lower and dump contents of bucket. Machine is used to load materials from stockpiles, excavation, loading trucks.

STEPS	KEYPOINTS	SATISFACTORY
1)	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts and leaks; check oil, air, hydraulic fluid and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational a) Brakes b) Lights c) Back-up alarms d) Hand rails & ladders e) Seat belts f) Tires g) Glass, wipers h) Gauges, including temperature, oil, air and fuel v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2)	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3)	Loading techniques a) Use of bucket and controls b) Crowding the pile c) Pump loading, etc. d) Loading patterns e) Loading trucks f) Loading scrapers	<input type="checkbox"/> Yes <input type="checkbox"/> No
4)	Control handling of contaminated soils	<input type="checkbox"/> Yes <input type="checkbox"/> No
5)	Shifting and hauling	<input type="checkbox"/> Yes <input type="checkbox"/> No
6)	Stockpiling	<input type="checkbox"/> Yes <input type="checkbox"/> No
7)	Mixing and moisture conditioning	<input type="checkbox"/> Yes <input type="checkbox"/> No
8)	Feeding crusher	<input type="checkbox"/> Yes <input type="checkbox"/> No
9)	Rough cut and fill	<input type="checkbox"/> Yes <input type="checkbox"/> No
10)	Spreading material	<input type="checkbox"/> Yes <input type="checkbox"/> No
11)	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Lower bucket to the ground d) Perform a general walk around looking for maintenance items	<input type="checkbox"/> Yes <input type="checkbox"/> No



Date _____ Employee Name _____ Supervisor _____

Description:

Rides in control cab of grader and moves levers and hand wheels to guide machine and regulate the scraper blade. Blade is mounted on a carrying and turning circle at the front of the machine. Equipment is used to level or mix soils and aggregates to grade and to lay asphalt and flexible base materials.

STEPS	KEYPOINTS	SATISFACTORY
1)	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts and leaks; check oil, air, hydraulic fluid and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational a) Brakes b) Lights c) Back-up alarms d) Hand rails & ladders e) Seat belts f) Tires g) Glass, wipers h) Gauges, including temperature, oil, air and fuel v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2)	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3)	Leveling and scraping techniques a) Use of levers b) Use of cutting edge c) Controlling front wheel tilt d) Controlling crab motion	<input type="checkbox"/> Yes <input type="checkbox"/> No
4)	Shifting and traveling with loaded moe board	<input type="checkbox"/> Yes <input type="checkbox"/> No
5)	Rough cut and fill	<input type="checkbox"/> Yes <input type="checkbox"/> No
6)	Spreading material	<input type="checkbox"/> Yes <input type="checkbox"/> No
7)	Fine grading	<input type="checkbox"/> Yes <input type="checkbox"/> No
8)	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Lower moe board to the ground d) Perform a general walk around looking for maintenance items	<input type="checkbox"/> Yes <input type="checkbox"/> No



Date _____ Employee Name _____ Supervisor _____

Description:

Operates a rubber tire or crawler type tractor with an attached bucket on front end. Moves a lever to raise and lower and dump contents of bucket. Machine is used to load materials from stockpiles, excavation, loading trucks.

STEPS	KEYPOINTS	SATISFACTORY
1)	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts and leaks; check oil, air, hydraulic fluid and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational a) Brakes b) Lights c) Back-up alarms d) Hand rails & ladders e) Seat belts f) Tires g) Glass, wipers h) Gauges, including temperature, oil, air and fuel v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2)	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3)	Loading techniques a) Use of bucket and controls b) Crowding the pile c) Pump loading, etc. d) Loading patterns e) Loading trucks f) Loading scrapers	<input type="checkbox"/> Yes <input type="checkbox"/> No
4)	Control handling of contaminated soils	<input type="checkbox"/> Yes <input type="checkbox"/> No
5)	Shifting and hauling	<input type="checkbox"/> Yes <input type="checkbox"/> No
6)	Stockpiling	<input type="checkbox"/> Yes <input type="checkbox"/> No
7)	Mixing and moisture conditioning	<input type="checkbox"/> Yes <input type="checkbox"/> No
8)	Feeding crusher	<input type="checkbox"/> Yes <input type="checkbox"/> No
9)	Rough cut and fill	<input type="checkbox"/> Yes <input type="checkbox"/> No
10)	Spreading material	<input type="checkbox"/> Yes <input type="checkbox"/> No
11)	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Lower bucket to the ground d) Perform a general walk around looking for maintenance items	<input type="checkbox"/> Yes <input type="checkbox"/> No



Health, Safety and Environment
**WATER TRUCK OPERATOR
SKILL EVALUATION**

SMS 019 NA
Supplemental Information I
Issue Date: September 2011

Date _____ Employee Name _____ Supervisor _____

Description:

Drives a pull type or truck type water truck. Waters roads, fills, and cut areas to suppress dust.

STEPS	KEYPOINTS	SATISFACTORY
1)	Demonstrated abilities a) Pre-shift inspection check list i) Check equipment for loose bolts and leaks; check oil, air, hydraulic fluid and water ii) Make sure area around the equipment is clear of people and other equipment iii) Check for fire extinguisher iv) Make sure that the following equipment is operational a) Brakes b) Lights c) Back-up alarms d) Hand rails & ladders e) Seat belts f) Tires g) Glass, wipers h) Gauges, including temperature, oil, air and fuel v) Notify supervision of any equipment that is not operational vi) The operator can park or side line a piece of equipment that is unsafe to operate if it poses a danger or hazard to employees or property	<input type="checkbox"/> Yes <input type="checkbox"/> No
2)	Identification of equipment controls	<input type="checkbox"/> Yes <input type="checkbox"/> No
3)	Loading Techniques a) Minimizes spillage b) Uses chocks or turns into berm	<input type="checkbox"/> Yes <input type="checkbox"/> No
4)	Shifting and Hauling	<input type="checkbox"/> Yes <input type="checkbox"/> No
5)	Properly applies water to ramps/corners	<input type="checkbox"/> Yes <input type="checkbox"/> No
6)	Backing with the use of mirrors	<input type="checkbox"/> Yes <input type="checkbox"/> No
11)	Parking and shut down procedures a) Equipment line-up i) Straight line ii) Allow easy access for service b) Turn off all accessories c) Use park break d) Perform a general walk around looking for maintenance items	<input type="checkbox"/> Yes <input type="checkbox"/> No

URS SAFETY MANAGEMENT STANDARD

Housekeeping

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to ensure proper housekeeping in office locations, on construction sites, and fixed work facilities to prevent cross contamination of hazardous materials, fires, and injuries resulting from slips, trips and falls.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 021 NA – North America, UK and Ireland, Europe, and Middle East](#)

[SMS 021 AP5 – Asia Pacific](#)

URS SAFETY MANAGEMENT STANDARD

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3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility or site.

4. Requirements

A. General

1. Require tools, materials, extension cords, hoses, and other equipment to be stowed at the end of the day. These materials must not be strewn about the site in a manner that may cause tripping or other hazards while in use.
2. Clear general waste, scraps, debris, and rubbish from work areas, passageways, and stairs in and around the facility on a daily basis. Do not throw or drop materials from upper levels to lower levels or to the ground unless disposal areas are provided and the area below is barricaded or secured.
3. Provide metal or other approved containers in adequate numbers to handle waste and rubbish disposal.
4. Garbage (including solid or liquid wastes), refuse, and hazardous waste such as caustics, acids, and toxic materials must be stored in approved and covered containers. Containers must be appropriately labeled as to contents. SMS 009 – Corrosive and Reactive Materials and SMS 017 – Hazardous Waste Operations, provide additional information on hazardous materials.
5. Store supplies in locations away from walkways and in a manner that will not trip workers. Maintain stored materials in safe, neat stockpiles for ease of access and to prevent collapse or falling.

URS SAFETY MANAGEMENT STANDARD

Housekeeping

6. Keep weeds and vegetation away from stockpiled materials and walkways.
 7. Maintain flooring, stairways, gangways, access ways, and walkways in a clean, dry, and smooth condition.
 8. Ensure that oil, grease, water, ice, or other hazardous materials that may cause slipping or fire hazards are removed promptly.
- B. Regularly inspect the work area for slip and trip hazards.
1. Office and trailer locations – Inspect work areas at least quarterly. Use the inspection sheet provided as Attachment 021-1 NA.
 2. Field sites – Inspect sites at least **biweekly**. Use the inspection sheet provided as Attachment 021-1 NA.
 3. Field sites performing aircraft and vehicle maintenance – Inspect the sites weekly if sanding, drilling, grinding, and/or painting operations are conducted. Use the inspection sheet provided as Attachment 021-2 NA.
 4. For European operations, the Workplace Inspection Checklist - Attachment 021-3 NA must be completed monthly.
- C. Thoroughly investigate all injuries resulting from slips, trips, and falls on site. Correct those housekeeping conditions contributing to injuries.
- D. For operations involving work with hazardous materials (including metals associated with aviation maintenance activities), the manager directing activities of the facility or site will assure that:
1. Eating, drinking, and smoking areas are removed from the work areas. Hand washing stations shall be available nearby for employees entering the eating and smoking areas.
 2. Resting, eating and smoking areas will be kept clean.
 3. Work areas will be cleaned to remove accumulated contaminants. Working surfaces, including workbenches, desks, and other lateral working surfaces, will be wiped down daily with an appropriate cleaner (soap, solvent, or oxidizing agent). Walking surfaces will be cleaned to remove accumulated contaminants weekly or more often.

URS SAFETY MANAGEMENT STANDARD

Housekeeping

5. Documentation Summary

The following information will be maintained in the project file:

- A. Completed Inspection Sheets.

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) Standard – [Sanitation – 29 Code of Federal Regulations \(CFR\) 1910.141](#)
- B. U.S. OSHA Standard – [Walking and Working Surfaces – 29 CFR 1910.22.](#)
- E. [SMS 009](#) – Corrosive and Reactive Materials
- F. [SMS 017](#) – Hazardous Waste Operations
- G. [Attachment 021-1 NA](#) – Housekeeping Inspection Sheet
- H. [Attachment 021-2 NA](#) – Special Housekeeping Inspection Sheet - Sanding, Drilling, Grinding, and Painting
- I. [Attachment 021-3 NA](#) – Workplace Inspection Checklist



HOUSEKEEPING INSPECTION SHEET

Building or Location: _____

Inspection Conducted by: _____ **Date:** _____

Check Yes, No, or NA for Not Applicable.

General Site Housekeeping

- 1. Do not block exits or emergency equipment. Yes No NA
- 2. Do not leave equipment or materials lying on the ground. Yes No NA
- 3. Keep storage areas free from the accumulation of materials that constitute trip hazards. Yes No NA
- 4. Remove scrap materials and other debris from work area. Yes No NA
- 5. Remove combustible scrap and debris by safe means at regular intervals. Yes No NA
- 6. Store oily rags in metal cans with tight fitting lids. Remove oily rags at the end of the day. Yes No NA

Visibility

- 7. Ensure that halls, stairways and walkways are well lit. Yes No NA
- 8. Ensure that well designed light switches are present in areas where walkways are not always lighted. Yes No NA
- 9. Ensure that dust, smoke or steam does not create poor visibility. Yes No NA
- 10. Ensure that glare from floodlights or windows does not create poor visibility in work areas. Yes No NA

Stairs

- 11. Ensure that handrails are tight and at the proper level. Yes No NA
- 12. Ensure that handrails extend past the top and bottom step. Yes No NA
- 13. Ensure that white or yellow strips are painted on the first and last step for better visibility. (Not an OSHA requirement – recommendation only). Yes No NA
- 14. Ensure that steps are not rough or defective. Yes No NA
- 15. Ensure that stair treads are wide enough and risers consistently spaced. Yes No NA
- 16. Ensure that stairs are free of obstructions. Yes No NA

Floor Conditions

- 17. Ensure that floors of every workroom are clean, and so far as possible, in a dry condition. Yes No NA
- 18. Ensure that floors are not oily, overly waxed, or polished. Yes No NA
- 19. Where wet floors or processes are present, provide proper drainage and false floors, mats, or other dry standing places. Yes No NA
- 20. Finish floor surfaces with non-slip coatings where spills are likely. Yes No NA
- 21. Ensure that floors and passageways are free from protruding nails, splinters, holes, or loose boards. Yes No NA
- 22. Ensure that floors are free of holes and depressions. Yes No NA
- 23. Ensure that aisles or pathways are wide enough for easy passage and for carrying objects (48 inches is recommended). Yes No NA



HOUSEKEEPING INSPECTION SHEET

- 24. Ensure that ramps are covered with non-slip surfaces or matting. Yes No NA
- 25. Keep carpets or rugs free from loose or frayed edges that may catch boots or shoes. Yes No NA
- 26. Keep walkways free from extension cords, air hoses and cables. Yes No NA
- 27. Keep pathways free from boxes, containers, machine parts, or other tripping hazards. Yes No NA

Ground Conditions

- 28. Ensure that trip hazards are not present. Yes No NA
- 29. Ensure that fall hazards are not present. Yes No NA
- 30. Ensure that holes or changes in ground elevation are either filled or guarded. Yes No NA
- 31. Ensure that muddy walkways are filled with gravel to reduce slipping. Yes No NA
- 32. Ensure that all employees who work in wet or greasy conditions wear slip resistant footwear. Yes No NA

Equipment

- 33. Ensure that vehicle steps are of adequate size, surface placement for safe dismounting. Yes No NA
- 34. Ensure that hand grips or ladders are adequate for getting into and out of equipment. Yes No NA
- 35. Ensure that ladders have been checked for damage and removed from service if found unsafe. Yes No NA

Identify areas that need attention and describe the corrective actions to be implemented:

I certify that the above inspection was performed to the best of my knowledge and ability, based on the conditions present on:

Signature



Health, Safety and Environment
SPECIAL HOUSEKEEPING INSPECTION SHEET
Sanding / Drilling / Grinding / Painting

Attachment 021-2 NA

Issue Date: June 1999
Revision 4: February 2009

Week Ending: _____

Checklist Completed by: _____

The following checklist will be used as a guide and is considered the minimum housekeeping requirement for work areas where sanding, drilling, and grinding operations on aircraft and vehicles are performed. Dust from sanding/drilling/grinding on aircraft and vehicles contain metals, chemical coatings, and paint-based contaminants that can accumulate on work areas and flat surfaces. Good housekeeping practices throughout the work area are the key to mitigating this hazard.

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
1. Remove all metal grindings and dust from sanding or grinding areas using a vacuum equipped with a HEPA filter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Remove contaminants on top of flat surfaces with HEPA-filter-equipped vacuum. <i>Do not use fox-tails or low pressure air to blow dust off work benches, work areas or clothes.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Wipe down surfaces of workbenches with damp rags using water and a surface-active cleanser. (A weekly requirement, more often if needed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Sweep floors daily, without creating dust clouds. Wet mop work area floors. (A weekly requirement using water and a surface-active cleanser).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Wipe down all other surfaces (besides the workbench) where dust collects using damp rags. (A bi-weekly requirement).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Monitor personnel to ensure no drinking or eating occurs in the industrial work areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Monitor personnel recognizing the hazards of cross contamination. Ensure all personnel are washing their hands before eating, drinking, or smoking on breaks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Identify areas that need attention and describe the corrective actions to be implemented:

URS	Health, Safety and Environment	Attachment 021-3 NA
	WORKPLACE INSPECTION CHECKLIST	Issue Date: June 1999 Revision 4: February 2009

To be filled in as directed by the **quarterly procedures checklists** (see attached).

- Where no problems have been identified, place a tick in the appropriate box under the date of the inspection.
- Where a problem has been identified, log this into the HSE and Quality Improvement Database (European Operations only) so that Corrective Action can be put in place.

Office:	Inspected By:									Year:			
Month:	J	F	M	A	M	J	J	A	S	O	N	D	
Date of Inspection:													
1. Accident book (UK)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Entrances and doors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Workstations & equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Restricted areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Steps/staircases/ladders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Floors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Electrical Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Temperature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Building services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Toilet facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Kitchens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. General cleanliness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Chemical substances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Refuse facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. First Aid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19. Access roads and car parks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20. Lifts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21. Display Screen Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22. Systems of Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23. Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24. Electrical Installation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25. H&S Meetings/Notices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

URS	Health, Safety and Environment	Attachment 021-3 NA
	WORKPLACE INSPECTION CHECKLIST	Issue Date: June 1999 Revision 4: February 2009

QUARTERLY OFFICE CHECKS - GUIDANCE NOTES/CHECKLISTS

To help in the completion of the "Workplace Inspection Checklist" the following brief notes summarise some of the most important aspects. Individual offices may need to modify them to deal with their particular arrangements.

The aspects are listed below in the same order as on the Form.

1. Accident Book (UK)	
Location	During the walk round inspection of the office, investigate the cause of any entries made during the previous month.
Reporting	All accidents/injuries dangerous occurrences known to have occurred in the property during the past month to be adequately reported.
Check Site	Employees to have easy access to the accident book whenever necessary.
2. Fire	
Fire Doors Fire Exits	All fire doors and exits to be closed, unobstructed and easy to open.
Fire Extinguishers	On hooks/brackets provided.
Records	Check that weekly fire alarm test is being carried out and that fire alarm system is being maintained
3. Entrances and Doors	
Entrances	Doors and doorways not obstructed by any article or substance. Doormats/doorsteps securely fixed and not constituting a tripping hazard.
Doors	Doors and gates secure on their hinges or sliding runners. Glazing panels on 2-way doors not covered over. Fire doors not fastened or wedged open. Fire doors able to completely close from fully open, automatically.
4. Workstations and Equipment	
Workstations (NB: Includes maintenance tools, equipment, printing equipment, etc.)	Workstation furniture and work equipment safe, clean and in a good state of repair. Workstation furniture and work equipment suitable for the person using it and for the work they are doing.
Equipment	To meet requirements of Safety System.
5. Restricted Areas	
Access Secured	Doors securely locked. Unauthorised access impossible by normal (unforced) means.
Keys	Keys not accessible to unauthorised persons.
6. Steps, Staircases and Ladders	
Structure	Treads and handrails secure and in good repair.
Tripping	Carpets/coverings untorn and secure. Edge strips well fixed. Steps and staircases free from litter. Stairs and landings clear of any unnecessary obstructions.
Slipping	Surfaces of steps not slippery. Spillages have been properly cleaned up.
Lighting	All stairs adequately lit so that the edges of each step can be clearly seen.
Cleanliness	All steps/staircases clean and free from dust dirt and litter.
Ladders	<u>No part of ladder damaged or weakened.</u> Securely positioned/fixed at base and top to prevent slipping, moving or falling of ladder when in use, or held by another person stationed at the foot of the ladder, at a slope of approximately 75°.

URS	Health, Safety and Environment	Attachment 021-3 NA
	WORKPLACE INSPECTION CHECKLIST	Issue Date: June 1999 Revision 4: February 2009

	Inspection Record available
7. Floors	
Tripping	All floor coverings even, level and securely fixed down. No obstructions in thoroughfares, which could cause people to trip or fall.
Slipping	Where floor surfaces are being polished, suitable signs warning of the slipping hazard are being displayed. Spillages have been properly cleaned up.
Cleanliness	All floors are clean and free from dust, dirt and litter.
8. Electrical Equipment	
Electrical Equipment	Working satisfactorily Undamaged in any way. All used in a proper and safe manner.
Wiring	No exposed wires or circuitry.
Portable Electric Equipment	Checked in accordance with SMS 012.
9. Lighting	
Lamps, Light Fittings and Switches	All lamps working satisfactorily and providing suitable light intensity. Light fittings are suitably orientated for task/ activity. Not damaged in any way, securely fixed and clean.
10. Temperature	
Services Functioning	Air conditioning and heating systems operating as and when required.
Air Temperature	No complaints of low or high temperatures from the building occupants (offices should be >16°C after first hour).
Draughts	No unacceptable draughts around doors, windows or grilles or through fixed or broken openings.
Thermometers	One thermometer to be provided for each floor.
11. Building Services Equipment	
Indications of Malfunctioning Building Services Equipment:	Leaks of water, oil or gas. Presence of unfamiliar noises. Presence of unfamiliar smells. Non-operation of important components. Gauges showing abnormal readings.
12. Ventilation	
Indications of Inadequate Ventilation Rates:	Presence of strong odours. Very high temperatures in summer. Condensation problems. Draughts.
13. Toilet Facilities	
Hygienic	WCs, urinals, floors, hand basins, taps and door handles kept clean.
Tidy	Toilet areas not used for storage or food/drink preparation. Litter-free and bins (including sanitary) regularly emptied.
Well Stocked	Sufficient and suitable provision of toilet paper and soap.
Well Maintained	Mechanical hand drying facilities fully operational, if provided. Towels clean, if provided. WC's, urinals, hand basins and taps in good order and functioning properly.
Ventilation	Mechanical ventilation is operational, ie. providing and/or extracting air. Problems evidenced by strong odours and/or lack of air movement. Windows and/or grilles open satisfactorily.

URS	Health, Safety and Environment	Attachment 021-3 NA
	WORKPLACE INSPECTION CHECKLIST	Issue Date: June 1999 Revision 4: February 2009

14. Kitchens	
Housekeeping	Kitchen area not being used for any other purpose than the preparation and consumption of food and drink, e.g. storage of cleaning materials. Kept clean and tidy.
Hygiene	No signs of infestation by insects or rodents. No signs of stale or rotten foodstuffs.
Appliances	Sharp kitchen implements suitably stored. All appliances in good working order.
15. General Cleanliness	
Building Fabric	Walls, floors, etc. clean and free from dust. Paint or plaster not flaking off walls or ceilings.
Furniture	Furniture clean and free from dust.
Windows	Windows not excessively dirty.
Tidiness	Corridors, fire escapes, electrical switch cupboards, etc. kept free of litter and are not used for storage.
Cleaning Materials	Suitable provision of cleaning chemicals and personal protective equipment, eg. gloves; cleaning chemicals are suitable stored.
16. Chemical Substances	
Storage and Labelling of Chemicals	Chemicals in secure, undamaged and clearly labelled containers. Chemicals stored so that they are not liable to fall or damage either themselves or other materials. Chemicals kept within locked cupboard/room if required.
17. Refuse Facilities	
Well Maintained	Bins and other refuse facilities in good state of repair.
Clean and Tidy	Waste facilities not overflowing. All refuse is being regularly collected. Area around waste facilities kept clean and tidy. Refuse bags/bins not presenting an obstruction or tripping hazard to the public or employees.
18. First Aid	
First Aid Box	First aid box fully stocked with listed items. First aid box contains guidance on the treatment of injured people. First aid box situated in the correct appointed location. Drugs, creams or ointments should not be available for use by employees, visitors or tenants (e.g. Aspirin).
First Aider/Appointed Person	At least one "appointed person" to be available during the designated working day times when people are at work, to administer first aid assistance and/or call an ambulance.
First Aid Notices	Check that first aid notices giving location of first aid box and name and location of appointed persons are up-to-date.
19. Access Roads and Car Parks	
Access and Egress	No obstructions to the safe and easy passage of vehicles throughout the property's traffic routes. All vehicle parking bays free from obstructions. In areas where vehicles and pedestrians circulate, the lines of sight available to both are not obscured. Gates/barriers in full working order and not presenting a risk to health and safety. Any fire escape route through a garage or car park not blocked by vehicles.
Signage	Signs directing traffic or pedestrians in place, visible, and, where possible to assess, being adhered to.
Cleanliness	Car-parking areas clean and tidy.

URS	Health, Safety and Environment	Attachment 021-3 NA
	WORKPLACE INSPECTION CHECKLIST	Issue Date: June 1999 Revision 4: February 2009

20. Lifts	
Lifts	Doors fully operational.
	No obvious signs of damage.
	Emergency phone operational.
	No unusual sounds when operating.
	Maintained in a clean condition and free from litter.
	Inspection Certificates
21. Display Screen Equipment (See also SMS 054 and Attachment 054-1)	
Lighting	Visual conditions for the task satisfactory, no glare from lights/sunlight, no shadowing and the screen easy to read.
Noise	Minimal nuisance from printers and heating/ventilation units
Posture	Operator able to adjust equipment in order to maintain good posture.
Furniture	Furniture and work equipment clean and in good repair.
Training and Information Packages	Information to be provided close to the workstation on the use of computer package(s), adjustment of display screen equipment and furniture, maintaining a good working posture.
Risk assessment	Completed by the main user and Office Safety Supervisor and satisfactory.
22. Systems of Work and Work Equipment	
Working Methods and Work Equipment	Safe working procedures established and being adhered to.
	Manufacturers instructions for the equipment used are being followed. Equipment working efficiently and in good repair.
	Appropriate protective clothing is being used, if necessary.
	Tools are properly stored when not in use, and safety carried especially when used at a height.
Permits to Work	In hazardous places/situations (eg. Roof work), permit to work system in place and being adhered to.
23. Water	
Little-used Outlets	Flush (run) any little-used hot and cold outlets for minimum of 3 minutes each month (5 minutes if very distant from storage).
Hot Water Supplies	Producing hot (>50°C) and not scalding (<65°C) water.
24. Electrical Installation	
Electrical Equipment	Working satisfactorily
	Undamaged in any way.
	All used in a proper and safe manner.
Wiring	No exposed wires or circuitry.
Installation	Tested every 5 years and certified by Competent Person
25. H&S Meetings/Notices	
Management Meetings	Attend Management Meetings at which H&S is discussed. The Meeting should discuss as a minimum: Updates to Safety Management System, Accidents/Incidents, Results of Audits, Corrective actions, Project-related H&S and any issues raised by the Office Safety Supervisor and Representative of Employee Safety.
H&S Committee Meetings	Attend H&S Committee Meetings and ensure record of meeting is made available to employees.
Meetings with Representative of Employee Safety (UK)	Meet monthly with the Representative of Employee Safety and record any items of concern.
Notices	All legally required notices such as H&S Law Poster (UK), H&S Committee Record, Insurance (UK), and URS material (4sight banner, Lessons Learned, etc.) on display.

URS SAFETY MANAGEMENT STANDARD

Noise and Hearing Conservation

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies where personnel may encounter noise exposures that may exceed 85 decibels, measured using an A-weighted scale (dBA), as an 8-hour time-weighted average (TWA).

2. Purpose and Scope

The purpose of this procedure is to protect employees from hazardous noise exposures and to prevent hearing loss.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 026 NA](#) – North America

[SMS 026 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 026 AP4 – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Noise and Hearing Conservation

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies where personnel may encounter noise exposures that may exceed 85 decibels, measured using an A-weighted scale (dBA), as an 8-hour time-weighted average (TWA).

2. Purpose and Scope

The purpose of this procedure is to protect employees from hazardous noise exposures and to prevent hearing loss.

3. Implementation

Implementation of this procedure is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. General

1. The use of hearing protectors is required in any location where powered or motorized equipment or any other noise source could reasonably be expected to exceed 85 dBA. Whenever information indicates that any employee's exposure may equal or exceed an 8-hour TWA of 85 dBA, the project manager or location manager will be responsible for enforcing the proper use of hearing protectors.
2. Implement a hearing conservation program in accordance with 29 Code of Federal Regulations (CFR) 1910.95(c) when applicable. Work not applicable to 29 CFR 1910.95(c) will assess hazards of noise exposure on a task basis, and implement engineering or administrative controls to reduce employee noise exposure.
3. Hearing protectors will be used in the event that administrative or engineering controls are either not effective or not feasible, and the following criteria will be applicable to selection of hearing protection devices.
 - a. Require that at least two types of hearing protectors are available to employees free of charge, and that the type of hearing protector is suitable to the task.

URS SAFETY MANAGEMENT STANDARD

Noise and Hearing Conservation

- b. Require that hearing protectors are used in accordance with manufacturer's specifications to effectively protect hearing.
- c. Evaluate the effectiveness of the hearing protectors chosen. The manufacturer's assigned noise reduction rating (NRR) for hearing protection devices can seldom be achieved in workplace conditions; therefore this rating must be attenuated for real world conditions and use. To do so, subtract 7 from the NRR of the protector provided by the manufacturer. Divide this result by 2, and then subtract the remained from the observed "A" scale sound level measurement collected in the employee's work area (see Section 4.B). If this number is below 85, the hearing protectors are adequate for use in the work area.

B. Noise Surveys

1. Noise surveys must be conducted in a manner that reasonably reflects the exposure of the affected employees. Surveys must be conducted under the supervision of a URS Health, Safety, and Environment (HSE) Representative.
2. Sound-level meters and audio dosimeters used to determine employee exposure to noise sources must be Type II (accurate to within +/- 2 dBA), operated in "slow" response, on the "A" scale, and be calibrated to factory guidelines (including periodic factory recalibration).
3. Attachment 026-1NA (Sound Level Survey) and Attachment 026-2NA (Noise Dosimetry Field Sheet) may be used to record noise surveys.

C. Noise Controls

Eliminate noise sources to the extent possible. Examples of controls that must be considered include:

1. Adding or replacing mufflers on motorized equipment.
2. Adding mufflers to air exhausts on pneumatic equipment.
3. Following equipment maintenance procedures to lubricate dry bearings and replace worn or broken components.
4. Isolating loud equipment with barriers.
5. Replacing loud equipment with newer and quieter models.

URS SAFETY MANAGEMENT STANDARD
Noise and Hearing Conservation

6. Using caution signs and Hearing Protection Required signs to designate noisy work areas.
7. Installing HPD-dispensing devices at the entrance to noisy work areas.

D. Audiometric Exams

1. Tests

- a. Details on the medical surveillance program (including audiometric testing) are included in SMS 024 – Medical Screening and Surveillance.
- b. Audiometric tests will be performed by a person meeting the requirements described in 29 CFR 1910.95(g)(3). Within 6 months of an employee's first exposure at or above the action level, a valid baseline audiogram will be established, against which subsequent audiograms can be compared. Testing to establish a baseline audiogram will be preceded by 14 hours without exposure to noise. Hearing protectors may be used as a substitute for the requirement that a baseline audiogram will be preceded by 14 hours without exposure to workplace noise. The medical surveillance provider will notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination. For multi-year projects, an annual audiogram will be obtained for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.
- c. Each employee's annual audiogram will be compared to that employee's baseline audiogram to determine if the audiogram is valid, and if there is a standard threshold shift (STS). A standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 hertz (Hz) in either ear. If the annual audiogram shows that an employee has suffered an STS, the employer will obtain a retest within 30 days, and consider the results in assessing an STS as the annual audiogram. The audiologist, otolaryngologist, or physician will review problem audiograms, and will determine whether there is a need for further evaluation. If an STS has occurred, the medical surveillance provider will notify the employee within 21 days of the determination.

URS SAFETY MANAGEMENT STANDARD

Noise and Hearing Conservation

E. Standard Threshold Shifts

If an employee's test results show a confirmed STS, their hearing protection will be evaluated and refitted, and a medical evaluation may be required.

F. Training

Verify that each employee who must work in a noisy environment is current on required Hearing Conservation Training. At a minimum, training shall be conducted before initial assignment and annually. Training must include the following topics:

1. The effects of noise on hearing.
2. The purpose of hearing protectors.
3. The advantages and disadvantages of various types of hearing protectors.
4. The attenuation of various types of hearing protection.
5. The selection, fitting, care, and use of hearing protectors.
6. The purpose of audiometric testing.
7. An explanation of the audiometric testing procedure.

5. Documentation Summary

The following documentation will be maintained:

- A. Noise surveys, when applicable.
- B. Training records.
- C. Audiometric tests (must be maintained by the Company's medical record retention vendor (e.g., WorkCare)).

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) Standard – [Occupational Noise Exposure – 29 CFR 1910.95](#)

URS SAFETY MANAGEMENT STANDARD
Noise and Hearing Conservation

- B. U.S. OSHA Construction Standard – [Occupational Noise Exposure – 29 CFR 1926.52 and 1926.101](#)
- C. U.S. MSHA – Occupational Noise Exposure [30 CFR 62](#)
- D. U.S. FRA – Occupational Noise Exposure [49 CFR 227](#)
- E. [U.S. OSHA Technical Links – Noise and Hearing Conservation](#)
- F. American Industrial Hygiene Association: [Protect Yourself from Noise-Induced Hearing Loss](#)
- G. [National Hearing Conservation Association web site](#)
- H. [SMS 024](#) – Medical Screening and Surveillance
- I. [Attachment 026-1NA](#) – Sound Level Survey
- J. [Attachment 026-2NA](#) – Noise Dosimetry Field Sheet



Health, Safety and Environment
SOUND LEVEL SURVEY

Attachment 026-1 NA

Issue Date: July 2000
Revision 7: March 2012

Location: _____ Date: _____

Conducted By: _____

Sound Level Meter: _____ Serial #: _____

Calibrator Model: _____ Serial # _____ Class: 1 2

Battery Check Completed: Date of Factory Calibration: _____

Test No.	Description Location/Equipment	Distance	dBA	Hearing Protection Required?		Comments
				Yes	No	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
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				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	



Health, Safety and Environment

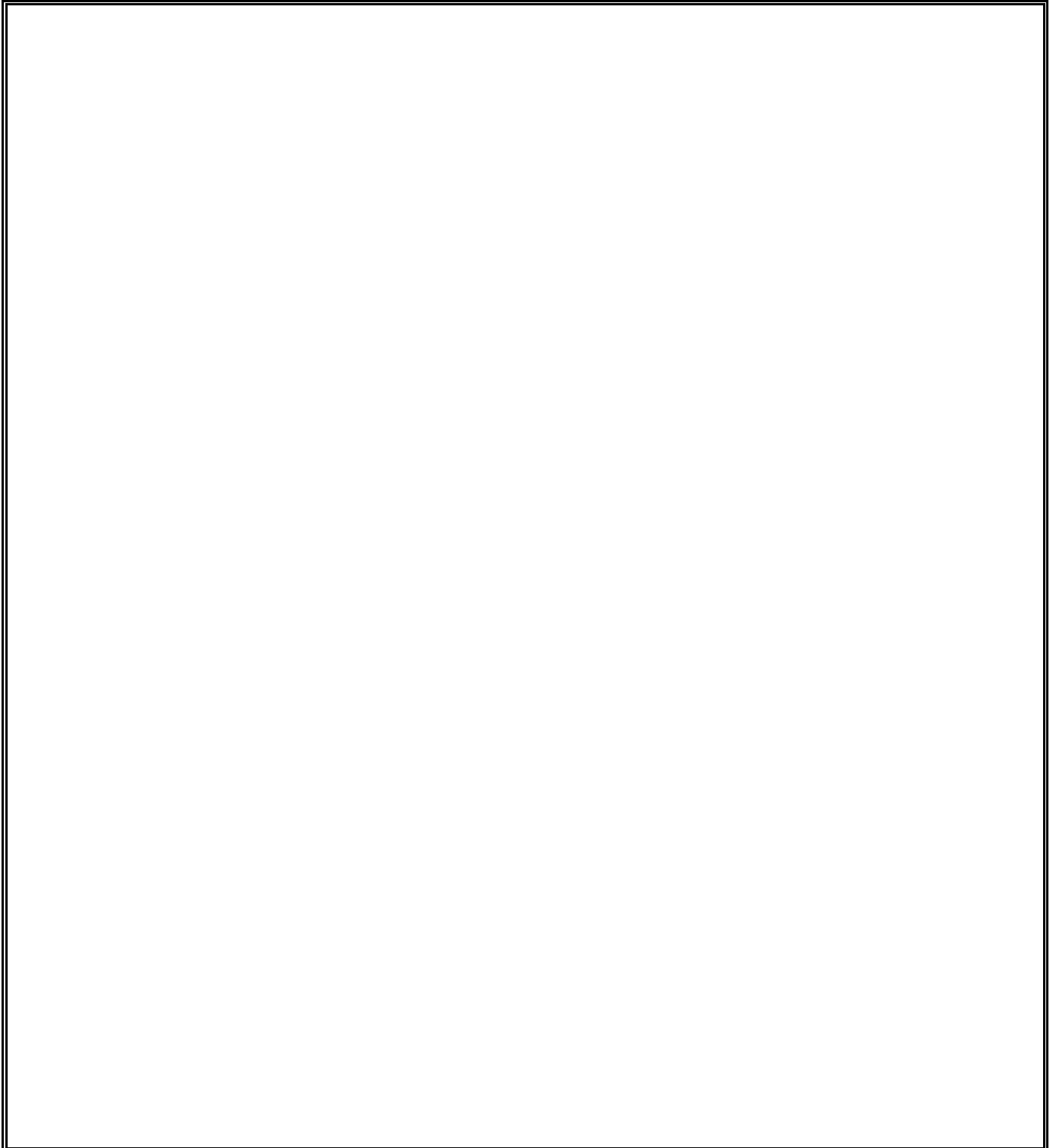
Attachment 026-1 NA

SOUND LEVEL SURVEY

Issue Date: July 2000
Revision 7: March 2012

Drawing of Equipment or Work Layout

Reference Numbers refer to the Test Numbers on Page 1





**NOISE DOSIMETRY
FIELD SHEET**

Sample Identification

Sample #: _____ Date: _____
Employee Monitored: _____ Employee #: _____
Job: _____ Location: _____

Dosimeter Information

Model: _____ Serial # _____
Criterion Level (in dBA): _____ Threshold (in dBA): _____ Exchange Rate (in dBA): _____
Calibration (in dBA): _____ Initial _____ Final _____
Weighting: Fast Slow

Calibrator Information

Model: _____ Serial #: _____ Class 1 2
Battery Check Completed: Date of Factory Calibration: _____

Sample Information

Time On: _____ Time Off: _____ Total Run Time (in min): _____
Time Weighted Average (in dBA): _____ %Dose: _____ Est. %Dose: _____
Average Sound Level (L_{avg}): _____ Peak Sound Level (L_{pk}): _____
Maximum Sound Level (L_{max}): _____ Minimum Sound Level (L_{min}): _____

Workplace Conditions

Scheduled Hours per Shift: _____ Operations: Normal? Abnormal?
Explain: _____

Hearing Protection: Type _____ % of Time Worn _____

Work Description/Comments

Sampled By: _____

URS Safety Management Standard

Personal Protective Equipment

1. Applicability

This standard applies to all operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to provide information on recognizing those conditions that require PPE. PPE is designed to protect the employee from health and safety hazards that cannot be practically removed from the work environment.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 029 NA – North America](#)

[SMS 029 EU – UK and Ireland, Europe, and Middle East](#)

[SMS 029 AP6 – Asia Pacific](#)

URS Safety Management Standard

Personal Protective Equipment

1. Applicability

This standard applies to all operations of URS Corporation and its subsidiary companies where the use of personal protective equipment (PPE) is anticipated.

2. Purpose and Scope

The purpose of this standard is to provide information on recognizing those conditions that require PPE. PPE is designed to protect the employee from health and safety hazards that cannot be practically removed from the work environment.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

- A. Perform hazard assessments for those work activities that are likely to require the use of PPE.
 - 1. Use Attachment 029-1 NA to perform the assessment.
 - 2. Reevaluate completed hazard assessments when job conditions or duties change.
- B. Eliminate the hazards identified in Attachment 029-1 NA, if possible, through engineering or administrative controls.
- C. Select PPE that will protect employees if hazards cannot be controlled or eliminated.
 - 1. See Attachment 029-1 NA for recommended PPE.
 - 2. Review Material Safety Data Sheets for chemicals used for PPE recommendations.
 - 3. If needed, consult with the applicable safety representative for assistance in selecting PPE.
- D. Provide required PPE to employees free of charge (excluding, in some instances, components of standard work attire such as steel-toed boots and prescription safety glasses), assuring proper fit and providing a choice

URS Safety Management Standard **Personal Protective Equipment**

if more than one type of PPE is available. Where applicable, the local policy (office or project) regarding reimbursement for PPE will prevail.

- E. Provide the employees with the appropriate PPE whenever a hazard is recognized and PPE is required. However, when PPE is not required and the employee elects to wear his or her own PPE, the manager directing activities must ensure that the employee is properly trained in the fitting, donning, doffing, cleaning, and maintenance of his or her employee-owned equipment.
- F. Make employees aware that they are responsible for PPE maintenance, care, and proper use. Employees must inform their supervisors when a need arises to use PPE for which the employee has not received training, or when a condition exists where adequate PPE is not available.
- G. Conduct and document employee training.
 - 1. Train all employees who are required to wear PPE.
 - 2. Require that training includes:
 - a. When PPE is to be worn.
 - b. The type of PPE necessary for the task to be completed.
 - c. How to properly don, doff, adjust, and wear PPE.
 - d. Limitations of PPE.
 - e. Proper care, maintenance, useful life and disposal of PPE.
 - 3. Conduct training before PPE is assigned.
 - 4. Provide refresher training when:
 - a. The workplace changes, rendering previous PPE and training obsolete.
 - b. New types of PPE are assigned to the worker.
 - c. The worker cannot demonstrate competency in PPE use.
 - 5. Keep written records of the employees trained and type of training provided, including the date of training.

URS Safety Management Standard
Personal Protective Equipment

H. PPE Specific Information

1. Head Protection

- a. Use hard hats in areas where there is the possible danger of head injury from the impact of falling or flying objects, striking against objects, electrical shock and/or burns, or any combination of these hazards. Hard hats will be worn when required by site safety procedures, client/site requirements, or when posted as an entry requirement.
- b. Adjust the hard hat suspension to fit the wearer and to keep the shell a minimum of 1.25 inches (3.2 cm) above the wearer's head. Do not store materials in the suspension. Cold weather liners and perspiration control bands may be utilized within the hard hat unless specifically excluded by the manufacturer.
- c. Wear hard hats in the forward position unless written verification and instructions from the hard hat manufacturer indicate your hard hat model has been tested and found to be compliant when worn backwards.
- d. Type I helmets are designed to protect the employee from impact and penetration caused by objects hitting the top of the head; Type II helmets extend this protection to the sides of the head as well.
- e. Class G (General) helmets provide protection against impact, penetration, and limited electrical hazards up to 2,200 volts. Class E (Electrical) helmets meet the same criteria, but electrical protection is increased to 20,000 volts. Class C (Conductive) helmets only provide impact and penetration protection.
- f. Do not use bump caps as protection against head injury.
- g. Do not alter hard hats in a way that will downgrade their efficiency. Typical prohibited alterations include painting, drilling holes in shell, application of metal jewelry, etc. Replace hats with these alterations or with excessive scratches.

URS Safety Management Standard
Personal Protective Equipment

- h. Wear integral chinstraps when working in high-wind conditions or near helicopters.
 - i. Inspect hard hats before use and remove from service if any of the following are observed: cracking, tearing, fraying, chalking, and flaking.
 - j. Remove hard hats and their components from service and replace as recommended by the manufacturer. Hard hats must be replaced after no more than 5 years.
2. Hearing Protection
- a. Provide hearing protection in any location where powered or motorized equipment or any other noise source could reasonably be expected to exceed 85 dBA. Each task in the work area will be evaluated for potential worker noise exposure as required.
 - b. Review SMS 026 – Noise and Hearing Conservation – for additional information.
3. Eye and Face Protection
- a. Use eye and/or face protection when machines or operations create the risk of eye and/or face injuries due to physical, chemical, and/or radiation sources. Safety glasses will be worn when required by site safety procedures, client/site requirements, or when posted as an entry requirement.
 - b. Provide safety glasses that can be worn over corrective spectacles for employees whose vision requires the use of corrective lenses. Employees will consult with the applicable safety representative or project managers for policies on reimbursement for prescription safety glasses.
 - c. Do not use of sunglasses in place of required safety glasses. Heavily tinted safety glasses will only be used in outdoor areas with suitable lighting. Colored or lightly tinted or gradient lenses may be used indoors as appropriate to the work conditions.
 - d. Tasks requiring grinding, cutting, power washing, or handling corrosive chemicals will require face shields over safety

URS Safety Management Standard
Personal Protective Equipment

glasses. For welding tasks, refer to Supplemental Information B for lens selection criteria.

- e. Consult Supplemental Information A for additional information on types of eye and face protection and their various uses.

4. Hand Protection

- a. Wear gloves when the hands are exposed to hazards such as, but not limited to, chemical absorption, cuts or lacerations, abrasions, punctures, chemical burns, thermal burns, vibration, or temperature extremes.
- b. Gloves must always be provided to workers for tasks with potential hand hazards.
- c. Identify hand hazards during job or task hazard analysis. A supply of appropriate gloves in various sizes must be provided to workers assigned to work on that task.
- d. Inspect chemical gloves for degradation or tears prior to use. Do not remove chemical gloves from the work area if it is visibly contaminated. Chemical gloves may be decontaminated or disposed of according to specified procedures. In some cases, inner disposable chemical gloves (e.g., nitrile) will be required for protection of hands during removal of contaminated gloves.
- e. Select chemical-resistant gloves using manufacturer's hazard-based selection programs or other published guides that identify compatibility of glove material with chemical hazards. Selection must also consider physical requirements of the task with regard to puncture resistance and need for flexibility and dexterity in performing the task.
- f. Review SMS 064 – Hand Safety – for additional information.

5. Foot Protection

- a. Wear appropriate specialized protective footwear in the following environments:
 - i. Using harmful corrosive substances or processes.

URS Safety Management Standard
Personal Protective Equipment

- ii. Having a high probability of puncture or crushing injuries.
 - iii. Performing regular assembly or disassembly of heavy system components.
 - iv. Working in wet conditions.
 - v. Working in extreme cold.
 - vi. Working around exposed electrical wires or connections.
 - vii. When using hand-operated compactors, snow blowers, pressure washers, or steam cleaners.
 - viii. Other activities or areas as designated by supervisors or safety personnel.
- b. Employees assigned to field projects who are not required to wear specified protective footwear (e.g., steel-toed boots, metatarsal protection, rubber boots, insulated boots, etc.) will wear substantial leather, high-sided work boots. Shoes (leather, canvas, tennis, deck, or other types of material), sandals, high-heeled shoes, etc., are not allowed on field project sites.
- I. Maintain Protective Equipment
- 1. Check PPE for damage, cracks, and wear prior to each use. Replace or repair equipment not found in good condition.
 - 2. Decontaminate non-disposable PPE with appropriate cleaner, as necessary, to prevent degradation of the equipment. Staff will remove any non-impermeable PPE/clothing that becomes contaminated with hazardous substances. These instructions are reiterated in the emergency decontamination procedures in the Health and Safety Plans.
- J. Periodically inspect worksites where employees are using PPE using Attachment 029-2 NA. Regularity of inspections should be determined by the project manager and/or site safety representative.

URS Safety Management Standard **Personal Protective Equipment**

5. Documentation Summary

The following information will be maintained in the project file:

- A. Completed Hazard Assessment Certification Forms (Attachment 029-1 NA).
- B. Completed Personal Protective Equipment Inspection Sheet (Attachment 029-2 NA).
- C. Documentation of employee training.

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) Standards – [Personal Protective Equipment – 29 Code of Federal Regulations \(CFR\)1910, Subpart I](#)
- B. U.S. OSHA Construction Standard - [Personal Protective Equipment – 29 CFR 1926 Subpart E](#)
- C. [U.S. OSHA Technical Links – Personal Protective Equipment](#)
- D. American National Standards Institute – [ANSI Z89.1-2003](#), Protective Headwear
- E. American National Standards Institute – ANSI Z87.1-2003 – Eye and Face Protection
- F. American National Standards Institute /International Safety Equipment Association, ANSI/ISEA 107 - 2004 – Standard for High-Visibility Safety Apparel
- G. American Society for Testing and Materials, [ASTM F13-WK4519](#), Specification for Personal Protective Footwear
- H. *Quick Selection Guide to Chemical Protective Clothing*, K Forsberg and S.Z. Mansdorf, Wiley Interscience, 2002
- I. Best Manufacturing Co. <http://www.bestglove.com/>. Information on chemical resistant gloves.
- J. [SMS 040](#) – Fall Protection

URS Safety Management Standard
Personal Protective Equipment

- K. [SMS 026](#) – Noise and Hearing Conservation
- L. [SMS 064](#) – Hand Safety
- M. [Attachment 029-1 NA](#) – Hazard Assessment Form
- N. [Attachment 029-2 NA](#) – Personal Protective Equipment Inspection Form

7. Supplemental Information

- A. [Eye and Face Protector Selection Guide](#)
- B. [Welding Lens Selector](#)
- C. [Traffic Control Class Guidelines and Scenarios](#)



Health, Safety and Environment
**HAZARD ASSESSMENT
CERTIFICATION FORM**

Attachment 029-1 NA

Issue Date: July 2000
Revision 6: December 2009

Location: _____ Job No.: _____

Date: _____ Assessment conducted by: _____

Specific tasks performed at this location: _____

If any of the indicated hazards are present, eliminate the hazard or use the indicated PPE.

Overhead Hazards

- | | | |
|---|--|---|
| 1. Suspended/elevated loads, beams, or objects that could fall or strike head | <input type="checkbox"/> Yes <input type="checkbox"/> No | Hard hat, ANSI Z89, Class G, E or C |
| 2. Flying objects that could strike head | <input type="checkbox"/> Yes <input type="checkbox"/> No | Hard hat, ANSI Z89, Class G, E or C |
| 3. Energized wires or equipment that could strike head | <input type="checkbox"/> Yes <input type="checkbox"/> No | Hard hat, ANZI Z89, Class G or E (dependent on potential voltage) |
| 4. Sharp objects or corners at head level | <input type="checkbox"/> Yes <input type="checkbox"/> No | Hard hat, ANSI Z89, Class G, E or C |

Eye Hazards

- | | | |
|--|--|---|
| 5. Chemical splashes or irritating mists | <input type="checkbox"/> Yes <input type="checkbox"/> No | See Supplemental Information A for additional information |
| 6. Excessive dust | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety glasses or goggles |
| 7. Smoke and/or fumes | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety goggles |
| 8. Welding operations | <input type="checkbox"/> Yes <input type="checkbox"/> No | Welding goggles; See Supplemental Information A and B for additional information |
| 9. Lasers/optical radiation | <input type="checkbox"/> Yes <input type="checkbox"/> No | Have URS HSE Representative assist you in proper selection |
| 10. Projectiles | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety glasses or goggles plus face shield |
| 11. Sawing, cutting, chipping, and/or grinding | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety glasses or goggles plus face shield; See Supplemental Information A for additional information |

Face Hazards

- | | | |
|---|--|---|
| 12. Chemical splashes or irritating mists | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety goggles; See Supplemental Information A for more information; add face shield if irritating or corrosive |
| 13. Welding operations | <input type="checkbox"/> Yes <input type="checkbox"/> No | Welding goggles or welding helmet; see Supplemental Information A and B for additional information |
| 14. Projectiles | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety glasses or goggles plus face shield |

Hand Hazards

- | | | |
|----------------------------------|--|--|
| 15. Chemical exposure | <input type="checkbox"/> Yes <input type="checkbox"/> No | Use chemical-resistant gloves specific to hazard; consult MSDS, chemical hazard guide, or HSE Representative |
| 16. Sharp edges, splinters, etc. | <input type="checkbox"/> Yes <input type="checkbox"/> No | Leather or Kevlar gloves |
| 17. Temperature extremes – heat | <input type="checkbox"/> Yes <input type="checkbox"/> No | Leather gloves, welder's gloves, hot mill gloves |



Health, Safety and Environment
**HAZARD ASSESSMENT
CERTIFICATION FORM**

Attachment 029-1 NA

Issue Date: July 2000
Revision 6: December 2009

If any of the indicated hazards are present, eliminate the hazard or use the indicated PPE.

- | | | |
|--|--|---|
| 18. Temperature extremes – cold | <input type="checkbox"/> Yes <input type="checkbox"/> No | Insulated gloves |
| 19. Blood, fungus, biological agents | <input type="checkbox"/> Yes <input type="checkbox"/> No | Nitrile gloves |
| 20. Exposure to live electrical currents | <input type="checkbox"/> Yes <input type="checkbox"/> No | Electrical gloves; consult HSE representative |
| 21. Sharp tools, machine parts, etc. | <input type="checkbox"/> Yes <input type="checkbox"/> No | Leather or Kevlar gloves |
| 22. Material handling | <input type="checkbox"/> Yes <input type="checkbox"/> No | Leather gloves |

Foot Hazards

- | | | |
|---|--|--|
| 23. Heavy materials (greater than 50 pounds) handled by employees | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety shoes or boots |
| 24. Potential to crush whole foot | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety shoes or boots with metatarsal guard |
| 25. Sharp edges or points (puncture risk) | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety shoes or boots |
| 26. Exposure to electrical hazards | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety shoes or boots with:

Conductive - Protects the wearer in an environment where the accumulation of static electricity on the body is a hazard.

Static dissipative - Reduces the accumulation of excess static electricity by conducting body charge to ground while maintaining a sufficiently high level of resistance.

Electrical hazard - Provides a secondary source of protection against accidental contact with live electrical circuits, electrically energized conductors, parts or apparatus, and is manufactured with non-conductive electrical shock resistant soles and heels. |
| 27. Slippery conditions | <input type="checkbox"/> Yes <input type="checkbox"/> No | Rubber-soled boots or grips |
| 28. Chemical contamination | <input type="checkbox"/> Yes <input type="checkbox"/> No | Rubber, PVC, or polyurethane boots or boot covers with puncture and protective toe if task required |
| 29. Wet conditions | <input type="checkbox"/> Yes <input type="checkbox"/> No | Rubber boots or boot covers |
| 30. Construction/demolition | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety boots with metatarsal guard if foot-crushing hazard exists |

Fall Hazards

- | | | |
|---|--|---------------------------------------|
| 31. Elevations above 4 feet (general industry) or 6 feet (construction) without guardrails | <input type="checkbox"/> Yes <input type="checkbox"/> No | ANSI A-10.14 Type 1 full-body harness |
| 32. Suspended scaffolds, boatswain's chairs, float scaffolds, or suspended staging | <input type="checkbox"/> Yes <input type="checkbox"/> No | ANSI A-10.14 Type 1 full-body harness |
| 33. Working in trees | <input type="checkbox"/> Yes <input type="checkbox"/> No | ANSI A-10.14 Type 1 full-body harness |
| 34. Working in vehicle-mounted elevating work platforms (e.g., bucket trucks, aerial lifts) | <input type="checkbox"/> Yes <input type="checkbox"/> No | ANSI A-10.14 Type 1 full-body harness |



Health, Safety and Environment
**HAZARD ASSESSMENT
CERTIFICATION FORM**

Attachment 029-1 NA

Issue Date: July 2000
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Water Hazards

35. Working on or above water where a risk of drowning exist Yes No U.S. Coast Guard approved personal floatation device; Type I, II, or III

Excessive Heat or Flame

36. Full body chemical protective clothing in temperatures greater than 80 °F Yes No Cooling vest
37. Work around molten metal or flame Yes No Nomex or heat reflective clothing
38. Welding activities Yes No Welding leathers for those areas that are exposed to flame, spark, or molten metal

Respiratory Hazards

39. Airborne particulates, gases, vapors, or mists in excess of established exposure limits Yes No Refer to SMS 042 or URS HSE Representative for respirator selection guidance

Excessive Noise

40. Exposure to noise Yes No Ear plugs, muffs or both

Body and Leg Protection

41. Chemical exposure Yes No Contact URS HSE Representative for assistance in proper selection
42. Using chainsaw, cutting brush Yes No Chainsaw chaps
43. Exposure to snakes Yes No Snake chaps
44. Exposure to vehicle traffic or heavy equipment Yes No See SMS 032 and SMS 029 NA – Supplemental Information C for additional guidance

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on: _____

Name _____ Signature _____



Health, Safety and Environment
PERSONAL PROTECTIVE EQUIPMENT
INSPECTION SHEET

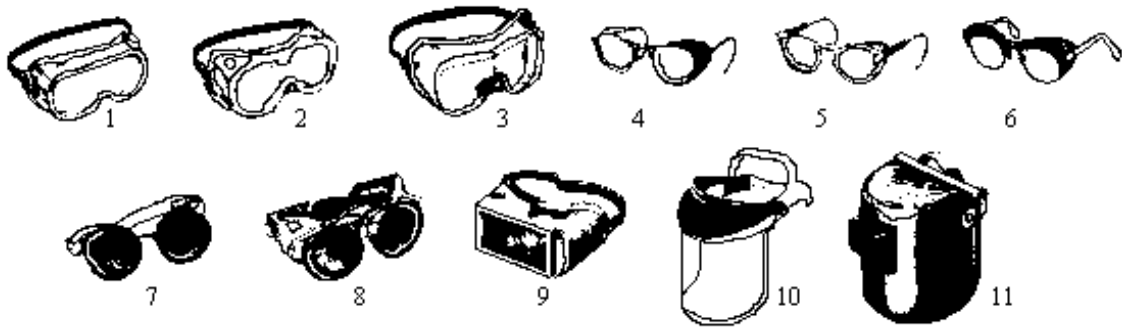
Attachment 029-2 NA

 Issue Date: July 2000
 Revision 6: December 2009

Name of Inspector _____ Date Inspected _____

Hard Hats	
1. The brim or shell does not show signs of exposure and excessive wear, loss of surface gloss, chalking, or flaking.	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Suspension system in hard hat does not show signs of deterioration, including cracking, tearing, or fraying.	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. The brim or shell is not cracked, perforated, or deformed.	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Employees use hard hats in marked areas.	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Areas requiring hard hat usage are marked.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety Shoes	
6. Safety shoes used by employees do not show signs of excessive wear.	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Areas requiring safety shoes are marked.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Work Gloves	
8. Gloves are available and worn when needed.	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Gloves are appropriate for the task.	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Gloves do not show signs of excessive wear such as cracks, scrapes, or lacerations, thinning or discoloration, or break-through to the skin.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Protective Clothing	
11. Protective clothing (including traffic control apparel) is worn by employees when required.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Hearing Protection	
12. Noise hazard areas are posted.	<input type="checkbox"/> Yes <input type="checkbox"/> No
13. Employees are using earplugs or muffs when using noise producing equipment or working in posted noise hazard areas.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety Glasses	
14. Eye hazard areas are marked or posted.	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. Employees use safety glasses when working in eye hazard areas or working with equipment that produces an eye hazard.	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. Face shields are used when required and worn over safety glasses.	<input type="checkbox"/> Yes <input type="checkbox"/> No

REMARKS (All "No" answers indicate a hazard which needs to be fixed.)



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. GOGGLES, Flexible Fitting, Regular Ventilation 2. GOGGLES, Flexible Fitting, Hooded Ventilation 3. GOGGLES, Cushioned Fitting, Rigid Body 4. SPECTACLES, Metal Frame, with Sideshields 5. SPECTACLES, Plastic Frame, with Sideshields 6. SPECTACLES, Metal-Plastic Frame, with Sideshields | <ol style="list-style-type: none"> 7. GOGGLES, Eyecup Type (Tinted Lenses – Welding; Clear Lenses – Chipping) 8. GOGGLES, Coverspec Type (Tinted Lenses – Welding; Clear Lenses – Chipping) 9. WELDING GOGGLES, Coverspec Type, Tinted Plate Lens 10. FACE SHIELD (Plastic or Mesh Window) 11. WELDING HELMETS |
|--|---|

APPLICATIONS		
OPERATION	HAZARDS	RECOMMENDED PROTECTORS Bold Type Numbers = Slightly Preferred Protection
ACETYLENE – BURNING ACETYLENE – CUTTING ACETYLENE – WELDING	SPARKS, HARMFUL RAYS, MOLTEN METAL, FLYING PARTICLES	7,8,9
CHEMICAL HANDLING	SPLASH, ACID BRUNS, FUMES	2,10 (For severe exposure, add 10 over 2)
CHIPPING	FLYING PARTICLES	1,2,4,5,6,7,8
ELECTRIC (ARC) WELDING	SPARKS, INTENSE RAYS, MOLTEN METAL	9,11 (11 in combination with 4,5,6 in tinted lenses, advisable)
FURNACE OPERATIONS	GLARE, HEAT, MOLTEN METAL	7,8,9 (For severe exposure, add 10)
GRINDING – LIGHT	FLYING PARTICLES	1,3,4,5,6,10
GRINDING – HEAVY	FLYING PARTICLES	1,3,7,8 (For severe exposure, add 10)
LABORATORY	CHEMICAL SPLASH, GLASS BREAKAGE	2 (10 when in combination with 4,5,6)
MACHINING	FLYING PARTICLES	1,3,4,5,6,10
MOLTEN METALS	HEAT, GLARE, SPARKS, SPLASH	7,8 (10 in combination with 4,5,6 in tinted lenses)
SPOT WELDING	FLYING PARTICLES, SPARKS	1,3,4,5,6,10

Non-side shield spectacles available for limited hazard use requiring only frontal protection.



Health, Safety and Environment
WELDING LENS SELECTION

SMS 029 NA
Supplemental Information B
Issue Date: February 2009
Revision 1: December 2009


Operations	Electrode Size (1/32")	Arc Current	Minimum Protective Shade
Shielded metal arc welding (SMAW)	Less than 3	Less than 60	7
SMAW	3 – 5	60 – 160	8
SMAW	5 – 8	160 – 250	10
SMAW	More than 8	250 – 550	11
Gas metal arc welding and flux cored arc welding		Less than 60	7
Gas metal arc welding and flux cored arc welding		60 - 160	10
Gas metal arc welding and flux cored arc welding		160 – 250	10
Gas metal arc welding and flux cored arc welding		250 - 500	10
Gas tungsten arc welding		Less than 50	8
Gas tungsten arc welding		50 – 150	8
Gas tungsten arc welding		150 - 500	10
Air carbon arc cutting	(light)	Less than 500	10
Air carbon arc cutting	(heavy)	500 – 1000	11
Gas tungsten arc welding		Less than 20	8
Gas tungsten arc welding		20 – 100	8
Gas tungsten arc welding		100 – 400	10
Gas tungsten arc welding		400 – 800	11
Plasma arc cutting	(light)	Less than 300	8
Plasma arc cutting	(medium)	300 – 400	9
Plasma arc cutting	(heavy)	400 -800	10
Torch blazing			3
Torch soldering			2
Carbon arc welding			14
Gas welding			5 – 6
Oxygen cutting			3 - 5

A. Class 1 Safety Apparel

1. Class 1 safety apparel provides the minimum amount of required material to differentiate the wearer from the work environment.
2. At a minimum, this shall include 217 square inches (in²), or 0.14 square meters (m²), of fluorescent yellow-green, orange-red, or red background materials combined with 155 in² (0.10 m²) retro-reflective material. As an alternative, the apparel can have 310 in² (0.20 m²) of combined-performance material (i.e., materials that are both retro-reflective and fluorescent).
3. Class 1 safety apparel typically consists of a sleeveless traffic vest with retro-reflective bands no less than 0.98 inches (25 mm) in width.
4. Those occupational activities under which Class 1 safety apparel is typically used:
 - a. Permit full and undivided attention to approaching traffic;
 - b. Provide ample separation of the pedestrian worker from conflicting vehicle traffic; and
 - c. Permit optimum conspicuity in backgrounds that are not complex with vehicle and moving equipment speeds not exceeding 25 miles per hour (mph), or 40 kilometers per hour (kph).
5. Examples of pedestrian workers who could work in these situations may include:
 - a. Workers directing vehicle operators to parking/service locations;
 - b. Workers exposed to the hazards of warehouse equipment traffic;
 - c. Roadside "right-of-way" or sidewalk maintenance workers; and
 - d. Delivery vehicle drivers.

B. Class 2 Safety Apparel

1. Class 2 safety apparel provides superior visibility for the wearers by the additional coverage of the torso and is more conspicuous than Class 1.
2. At a minimum, this shall include 775 in² (0.50 m²) of fluorescent yellow-green, orange-red, or red background materials combined with 201 in² (0.13 m²) retro-reflective material. Combined-performance materials may not be used without background materials in Class 2.
3. Class 2 safety apparel typically consists of a full-torso sleeveless traffic vest with retro-reflective bands no less than 1.38 inches (35 mm) in width.
4. Those occupational activities under which Class 2 safety apparel is typically used:
 - a. Greater visibility is desired during inclement weather conditions;
 - b. Complex backgrounds are present;
 - c. Employees are performing tasks which divert attention from approaching vehicle traffic;

	<p style="text-align: center;">Health, Safety and Environment</p> <p style="text-align: center;">TRAFFIC CONTROL CLASS GUIDELINES AND SCENARIOS</p>	<p style="text-align: right;">SMS 029 NA Supplemental Information C</p> <p style="text-align: right;">Issue Date: February 2009 Revision 1: December 2009</p>
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- d. Work activities take place in close proximity to vehicle traffic; and
 - e. Vehicle and moving equipment speeds exceed 25 mph (40 kph).
5. Examples of pedestrian workers who could work in these situations may include:
- a. Roadway construction workers;
 - b. Utility workers;
 - c. Survey crews;
 - d. Railway workers;
 - e. Forestry workers;
 - f. Parking and/or toll gate personnel;
 - g. Airport baggage handlers/ground crew;
 - h. Emergency response personnel;
 - i. Law enforcement personnel; and
 - j. Accident site investigators.

C. Class 3 Safety Apparel

1. Class 3 safety apparel offers greater visibility to the wearer in both complex backgrounds and through a full range of body movements. Visibility is enhanced beyond Class 2 by the enhancement of background and reflective materials to the arms and/or legs.
2. At a minimum, this shall include 1240 in² (0.80 m²) of fluorescent yellow-green, orange-red, or red background materials combined with 310 in² (0.20 m²) retro-reflective material. Combined-performance materials may not be used without background materials in Class 3.
3. Class 3 safety apparel typically consists of a coveralls, jumpsuits, long or short-sleeved jackets, or long-sleeved shirts with retro-reflective bands no less than 1.97 inches (50 mm) in width. A sleeveless garment or vest alone shall not be considered Class 3 apparel.
4. Those occupational activities under which Class 3 safety apparel is typically used:
 - a. Workers are exposed to significantly high vehicle speeds and/or reduced sight distances (note that several sources have interpreted the vehicle speed requirements as 50 mph (80 kph) or more);
 - b. The worker and vehicle operator have high task loads, clearly placing the worker in danger; or
 - c. The wearer must be conspicuous through a full range of body motions at a minimum of 1280 feet (390 m) and must be identifiable as a person.
5. Examples of pedestrian workers who could work in these situations may include:
 - a. Roadway construction personnel;
 - b. Utility workers;

- c. Survey crews;
- d. Emergency response personnel; and
- e. Flagging crews.

D. Class E Safety Apparel

1. Class E apparel includes trousers or shorts which are part of a Class 3 apparel ensemble. Frequently a Class 2 vest is paired with Class E trousers, creating an overall ensemble which meets Class 3 apparel requirements. Class E garments are not intended to be worn without Class 2 or 3 garments.
2. At a minimum, Class E trousers shall have 465 in² (0.30 m²) of fluorescent yellow-green, orange-red, or red background materials combined with 108 in² (0.07 m²) retro-reflective material. Retro-reflective material shall encircle each leg (360° of visibility) and be placed not less than 1.97 inches (50 mm) above the bottom leg of the trouser.
3. At a minimum, Class E shorts shall have 465 in² (0.30 m²) of fluorescent yellow-green, orange-red, or red background materials combined with 108 in² (0.07 m²) retro-reflective material. Retro-reflective material shall encircle each leg.

E. Headwear

1. Headwear is considered an important accessory and compliments the overall visibility of the wearer. High-visibility headwear enhances visibility to the head of a moving worker in daylight and helps define the shape of the human form during nighttime exposures.
2. At a minimum, high-visibility headwear shall have 78 in² (0.05 m²) of fluorescent yellow-green, orange-red, or red background materials combined with 10 in² (0.0065 m²) retro-reflective material. As an alternative, the headwear can have 78 in² (0.05 m²) of combined-performance material.

URS SAFETY MANAGEMENT STANDARD

Sanitation

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to provide employees with appropriate personal hygiene facilities, including toilets, wash rooms, and eating facilities, to protect employees from unsanitary conditions.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility or site.

4. Requirements

A. Prior to the start of site activities, ensure the availability of adequate toilet and wash facilities. Note: Mobile crews having transportation readily available (within 5 minute travel time) to nearby toilet facilities need not be provided with facilities.

1. Flush toilets will be used where available.
2. For job sites without flush toilets readily available, one of the following must be provided:
 - a. Chemical toilets.
 - b. Combustion toilets.
 - c. Recirculation toilets.
3. Other than construction sites, toilets will be provided for employees of each sex at sites according to the following ratio:

Number of Employees	Minimum # of toilets ⁽¹⁾
1 to 15	1
16 to 35	2
36 to 55	3
56 to 80	4
81 to 110	5
111 to 150	6
Over 150	⁽²⁾

Notes:

(1) Where toilet facilities will not be used by women, urinals may be provided instead of the minimum specified.

(2) One (1) additional fixture for each additional 40 employees.

URS SAFETY MANAGEMENT STANDARD
Sanitation

- B. A means for washing hands must be provided next to or near toilet areas.
- C. For facilities under URS control:
 - 1. Maintain toilets and toilet area in good repair and in a clean and sanitary condition. Refer to SMS 021 – Housekeeping.
 - 2. Provide paper towels and soap or other suitable sanitizing material for washing hands.
 - 3. Construct toilets so that the interior is lighted, by artificial or natural light, adequate ventilation is provided, and all windows and vents are screened.
- D. Maintain availability and cleanliness of drinking (potable) water.
 - 1. Use backflow prevention devices, testing, and administrative controls for all potable water supply branches. Maintain backflow prevention devices in a sanitary condition.
 - 2. Keep water coolers and water dispensers in a sanitary condition and filled only with potable water. Clearly mark potable drinking water containers as “Drinking Water.”
 - 3. Clean and sanitize water containers daily. Tightly close, seal, date, and mark containers as to the contents. Provide containers with a tap, and refill daily.
 - 4. Provide fountain-type dispensers or one-use cups at each water dispenser. Provide a waste receptacle where disposable cups are used.
 - 5. Do not use common drinking cups.
 - 6. Conspicuously post outlets for non-potable water such as water for industrial or firefighting purposes (e.g., Danger – Water Unfit for Drinking, Washing, or Cooking).
 - 7. Laboratory-test drinking water obtained from streams, wells, or other temporary sources in accordance with federal, state, or local regulations, or often enough to ensure it is suitable for consumption. Maintain records of testing reports and results.

URS SAFETY MANAGEMENT STANDARD
Sanitation

E. Eating Facilities

1. Operate and maintain food dispensing facilities established by URS in compliance with applicable health and sanitation regulations.
2. Ensure that buildings housing these facilities are floored completely, painted, well lighted, heated, ventilated, fly proof, and sanitary. Equip doors and windows with screens.
3. Use microwave ovens for food only.
4. Use refrigerators designated for food storage for food only (i.e., no chemical or samples storage).
5. Prohibit workers from eating or storing foods in areas where there is a potential for contamination.
6. Take positive control measures for protection against vermin, insects, and rodents.
7. Provide an ample supply of hot and cold water at all times in mess halls.
8. Clean break rooms /lunchrooms periodically. Refer to SMS 021 – Housekeeping.

F. Washing Facilities

1. Maintained each washing facility in a sanitary condition, and provide adequate water, soap, individual towels of cloth or paper, and covered receptacles for disposal of waste.
2. Provide emergency showers and eyewash facilities as required. Refer to SMS 065 – Injury Management.
3. Provide at least one shower for each 30 employees in construction camps. The use of a common towel is prohibited.

G. Waste Management:

1. Release sanitary sewage into sanitary sewer lines or to other proper disposal channels.
2. Do not dispose of garbage, refuse, or sewage in lakes, reservoirs, rivers, streams, or ditches.

URS SAFETY MANAGEMENT STANDARD
Sanitation

3. Do not discharge hazardous waste into the sanitary sewer or storm sewer system.
4. Collect garbage and trash daily.
 - a. Provide lids for garbage containers located outside buildings, and keep them closed. Transport garbage offsite at least weekly.
 - b. Remove garbage from the site daily at remote field sites where wild animals are a hazard. Do not let garbage remain on site overnight.

H. Change Rooms

Provide heated and ventilated change rooms for changing, hanging, and/or drying clothing for operations subjecting workers to prolonged wetting or contact with hazardous materials.

I. Sleeping Facilities

1. Keep temporary sleeping quarters heated, ventilated, lighted, and clean. Screen all doors and windows.
2. Keep clean and sanitary, and periodically disinfect bunkhouses, bedding, and furniture.

J. Notify property manager of sanitation issues for sites not under URS control.

K. Personal Hygiene

Wash hands and face before eating, drinking, smoking, and using facilities.

L. Inspect work sites periodically in accordance with Attachment 030-1 NA.

5. Documentation Summary

The following information will be maintained in the project file:

- A. Completed inspection sheets.

URS SAFETY MANAGEMENT STANDARD
Sanitation

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) Construction Standard – [Sanitation – 29 Code of Federal Regulations \(CFR\) 1926.51](#)
- B. U.S. OSHA General Industry Standard – [Sanitation – 29 CFR 1910.141](#)
- C. [SMS 021](#) - Housekeeping
- D. [SMS 065](#) – Injury Management
- E. [Attachment 030-1 NA](#) - Sanitation Inspection Sheet



Health, Safety and Environment
SANITATION INSPECTION SHEET

Attachment 030-1 NA
Issue Date: June 1999
Revision 3: February 2009

Location: _____ Job No: _____

Date Inspected: _____ Name of Inspector: _____

Toilets

- 1. Are there an adequate number of toilets on site? Yes No NA
1 to 15 employees = 1 toilet
16 to 35 employees = 2 toilets
36 to 55 employees = 3 toilets
56 to 80 employees = 4 toilets
81 to 110 employees = 5 toilets
- 2. Toilets are in clean condition. Yes No NA
- 3. Toilet paper is provided. Yes No NA
- 4. Toilet areas are clean and sanitary. Yes No NA

Hand Washing Facilities

- 5. Hand washing facilities are provided near toilets. Yes No NA
- 6. Paper towels and soap are provided. Yes No NA

Drinking Water

- 7. Drinking water is provided on site. Yes No NA
- 8. Disposable cups are provided or fountain-type dispenser is provided. Yes No NA
- 9. Drinking water containers are kept clean and tightly closed or covered. Yes No NA

Break Rooms

- 10. Break rooms or eating areas are kept clean. Yes No NA
- 11. Microwaves are used for food only. Yes No NA
- 12. Microwave ovens are kept clean. Yes No NA
- 13. Refrigerators are kept clean. Yes No NA
- 14. Refrigerators are used to store food only. Yes No NA

Vermin

- 15. Rats, mice, and other vermin are not living within buildings. Yes No NA
- 16. Cockroaches and fleas are not thriving within buildings. Yes No NA

Employee Compliance

- 17. Employees only eat/drink in areas free from contamination. Yes No NA
- 18. Employees wash hands/face prior to eating, drinking, smoking. Yes No NA

REMARKS:

URS SAFETY MANAGEMENT STANDARD

Utility Clearances and Isolation

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The primary purpose of this standard is to establish operating requirements that will permit employees to work safely in the vicinity of electrical, natural gas, fuel, water, and other utility systems and installations. The secondary purpose is to prevent economic damage to utility systems from operations associated with project-related activities.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 034 NA](#) – North America

[SMS 034 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 034 AP7 – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Utility Clearances and Isolation

1. Applicability

This standard applies to URS Corporation and its subsidiary companies where personnel may encounter subsurface or overhead utilities.

2. Purpose and Scope

Many field activities are conducted near aboveground and underground utilities. The primary purpose of this standard is to establish operating requirements that will permit employees to work safely in the vicinity of electrical, natural gas, fuel, water, and other utility systems and installations. The secondary purpose is to prevent economic damage to utility systems from operations associated with project-related activities.

The term *utility clearance* includes the following:

- A. The positive locating of utility systems in or near the work area.
- B. A signed statement by an appropriate representative attesting to the location of underground utilities and/or the positive de-energizing (including lockout) and testing of electrical utilities.

In some cases, utility representatives may deem it appropriate or necessary to use insulating blankets to isolate a power line. This is an acceptable alternative to positive de-energizing; however, only utility representatives can make the determination.

"Contact" with overhead power lines is considered to occur when equipment is closer to power lines than permitted by the criteria in the table in Section 4.C.2.b. (See note for operations in the United Kingdom).

On-site utilities, including emergency shut-off locations, shall be depicted on a utility drawing or plot plan. Emergency shut-off locations shall be verified before work activities commence.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

- A. Time for Completion

Complete utility clearances prior to the start of any work in the area of the utility that could feasibly result in contact with or damage to that utility.

URS SAFETY MANAGEMENT STANDARD

Utility Clearances and Isolation

B. Local Regulations

Research local and state codes and regulations regarding utility locating and isolation requirements. Utility companies and locating services are among the appropriate resources.

C. Overhead Power Lines

1. Proximity to Power Lines

No work is to be conducted within 50 feet (15 meters) of overhead power lines without first contacting the utility company to determine the voltage of the system and the height (at the lowest point) of the line has been measured. No aspect of any piece of equipment is to be operated within 50 feet (15 meters) of overhead power lines without first making this determination.

An exclusion zone shall be created at ground level beneath and 50 feet (15 meters) perpendicular to the overhead power lines on each side. This exclusion zone shall be demarcated with visual indicators (e.g., signage, flagging, paint, cones). No equipment shall enter the exclusion zone without approval from URS site management.

2. Operations adjacent to overhead power lines are *prohibited* unless one of the following conditions is satisfied:

- a. Power has been shut off, positive means (such as lockout) have been taken to prevent the lines from being energized, lines have been tested to confirm the outage, and the utility company has provided a signed certification of the outage.
- b. The minimum clearance from energized overhead lines is presented in the following table, or the equipment will be repositioned and blocked so that no part, including cables, can come within the minimum clearances listed in the table.

Minimum Distances from Power Lines	
Nominal System (kilovolt, kV)	Minimum Required Distance
0–50	10 feet (3 meters)
51–100	12 feet (3.6 meters)
101–200	15 feet (4.6 meters)
201–300	20 feet (6.1 meters)
301–500	25 feet (7.6 meters)
501–750	35 feet (10.7 meters)
751–1000	45 feet (13.7 meters)

URS SAFETY MANAGEMENT STANDARD

Utility Clearances and Isolation

Note: For operations in the United Kingdom, the specific safe distance is determined by the utility company.

- c. The power line(s) has been isolated through the use of insulating blankets, which have been properly placed by the utility. If insulating blankets are used, the utility will determine the minimum safe operating distance; get this determination in writing with the utility representative's signature.
3. All inquiries regarding electric utilities must be made in writing and a written confirmation of the outage/isolation must be received by the appropriate URS representative prior to the start of the task that may impact the utility.

D. Underground Utilities

1. Do not begin subsurface work (e.g., trenching, excavation, drilling, etc.) until a check for underground utilities and similar obstructions has been conducted. The use of as-built drawings must be confirmed with additional geophysical or other surveys. Attachment 034-1 NA may be used to verify all utilities have been located prior to performing subsurface work.
2. Contact utility companies or the state/regional utility protection service at least two (2) working days prior to excavation activities to advise them of the proposed work and to ask them to establish the location of the underground utility installations prior to the start of actual excavation. One Call utility location service is available throughout the United States by calling 811. Where these services are unavailable (e.g., private properties), contract with an independent utility locating service to perform an evaluation of subsurface utilities.
3. Obtain utility clearances for subsurface work on both public and private property. Clearances are to be in writing and signed by the party conducting the clearance.
4. Protect and preserve the markings of approximate locations of facilities until the markings are no longer required for safe and proper excavations. If the markings of utility locations are destroyed or removed before excavation commences or is completed, the URS representative must notify the utility company, utility protection service, or the utility locating service to inform them that the markings have been destroyed.

URS SAFETY MANAGEMENT STANDARD

Utility Clearances and Isolation

5. Do not conduct mechanical-assisted subsurface work (e.g., work using a powered drill rig, mechanical excavator, etc.) within five (5) feet (1.5 meters) of a confirmed or suspected utility or other subsurface structure. Confirm minimum distances for mechanical-assisted subsurface work with the utility owner, as distances beyond this five-foot minimum may be required.
6. Nondestructive clearance techniques (e.g., vacuum extraction or other hand clearing means) are required prior to drilling/excavating in higher risk locations, including chemical plants, retail service stations, or other locations with complex underground utility systems.
7. Subsurface work within five feet (1.5 meters) of a confirmed or suspected utility or other subsurface structure must be done by nondestructive clearing techniques to the point where the obstruction is visually located and exposed. Once the obstruction location is confirmed in this manner, mechanical-assisted work may begin.
8. Reference SMS 013 – Excavation Safety for additional information regarding subsurface operations.

E. Utility Strikes

1. Utility strikes (unplanned contact with utilities resulting in damage to the utility or its protective coating) shall be reported in accordance with SMS 049 – Injury/Illness/Incident Reporting & Notifications.
2. All damaged utilities shall be repaired by a qualified and/or licensed professional.

F. Training

Conduct a briefing for site employees regarding the hazards associated with working near the utilities and the means by which the operation will maintain a safe working environment. Detail the method used to isolate the utility and the hazards presented by breaching the isolation.

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Documents requesting utility clearance.
- B. Documents confirming utility clearance.

URS SAFETY MANAGEMENT STANDARD
Utility Clearances and Isolation

C. Training/briefing documentation of each isolation.

6. Resources

- A. Utility Locating Services (typically under "Utility" in the Yellow Pages)
- B. National Institute for Occupational Safety and Health (NIOSH) Alert – [Preventing Electrocutions from Contact Between Cranes and Power Lines](#)
- C. [One Call Utility Locating List](#)
- D. [National Utility Locating Contractor's Association](#)
- E. [Attachment 034-1](#) – Utility Clearance Checklist
- F. [SMS 013](#) – Excavation Safety
- G. [SMS 049](#) – Injury/Illness/Incident Reporting



Health, Safety and Environment
UTILITY CLEARANCE CHECKLIST

Attachment 034-1 NA

Issue Date: June 1999
Revision 6: September 2011

Project Name:	Project Number:
Project Location:	Client Name:
URS Project Manager Name:	Date Completed:

For any item answered 'No', Project Manager approval required before work can proceed.	
Within the last 10 days, and not less than 72 hours from the initiation of the task, contacts were notified that the public utility locate service (One Call) was made.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Available records have been referenced and a plot plan indicating the location of all underground utilities have been provided and are available for reference at the work site.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Completed Site Walk Over With Site Personnel (site manager, property owner or tenant representative)			
Site Personnel Name:	Site Personnel Signature:		
Does Site Personnel have any additional information regarding site utilities?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Comment:	
Building Utility Service Line Connections Identified:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Cleared:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Field Observations – Any ** responses must be explained in box below.	
Field walk completed and utilities identified on page 2 of this form are cleared?	<input type="checkbox"/> Yes <input type="checkbox"/> No**
Apparent saw cuts or patches in concrete/pavement?	<input type="checkbox"/> Yes** <input type="checkbox"/> No
Piping along building exterior? Identify purposed and layout.	<input type="checkbox"/> Yes** <input type="checkbox"/> No <input type="checkbox"/> N/A
Manholes, vault covers, drains, pipes present?	<input type="checkbox"/> Yes** <input type="checkbox"/> No
Piping inside of manholes correlate to utility markings?	<input type="checkbox"/> Yes <input type="checkbox"/> No** <input type="checkbox"/> N/A
Clear line-of-sight (equipment/vehicles/snow not blocking view or potential utilities)?	<input type="checkbox"/> Yes <input type="checkbox"/> No**
Work between potential utilities or manholes?	<input type="checkbox"/> Yes** <input type="checkbox"/> No
Work areas clear of overhead utilities?	<input type="checkbox"/> Yes <input type="checkbox"/> No**
All known utilities located on plot/site map for personnel to review?	<input type="checkbox"/> Yes <input type="checkbox"/> No**
Explanations:	

Public Utility Locate (OneCall)			
Date Called:		Called By:	
Ticket Number:		Valid Until:	
Area Requested To Be Cleared:			

Private Utility Locate		
Company Performing Locate:		Date Completed:
Area(s) Requested To Be Cleared (including distance around marked locations):		
Method(s) Used (e.g., GPR, EM):		
Confirm Area(s) Cleared:		



UTILITY CLEARANCE CHECKLIST

OneCall Utilities			Field Observation
Utility	Notified by	Comments	Marked (mains and services)
Electric (Red)	<input type="checkbox"/> OneCall <input type="checkbox"/> Other		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above
Gas/Petroleum Pipeline (Yellow)	<input type="checkbox"/> OneCall <input type="checkbox"/> Other		<input type="checkbox"/> Yes <input type="checkbox"/> No
Sewer/Drainage (Green)	<input type="checkbox"/> OneCall <input type="checkbox"/> Other		<input type="checkbox"/> Yes <input type="checkbox"/> No
Water (Blue)	<input type="checkbox"/> OneCall <input type="checkbox"/> Other		<input type="checkbox"/> Yes <input type="checkbox"/> No
Communications (Orange)	<input type="checkbox"/> OneCall <input type="checkbox"/> Other		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above
Other	<input type="checkbox"/> OneCall <input type="checkbox"/> Other		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above

Utilities Not Identified By OneCall (Includes both Public and Private along with Regional and Site Utilities)			Field Observation
Utility (Colors may vary)	Owner / Contact / Phone #	Notified	Marked
Communications: (Orange) TV, computer, phone, cell towers, site communication, cameras, security, etc.		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above
Electricity: (Red) Mains / Supplies / Interior / Exterior (signs, fuel pumps, low voltage security perimeters, gates, property light posts, equipment, substations, etc.)		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above
Gas: (Yellow) Mains / Supplies / Equipment / Pipelines (Natural, Process, Oil, Crude, Refined (Gas, Diesel, Jet), etc.)		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above
Steam (Yellow)		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above
Structures: Possible horizontally installed facilities, vaults, basements, tunnels, sub-grade structures, foundations, overhead obstructions, etc.		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above
UST Systems (Tanks / piping / electric)		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sewer: (Green) Sanitary, storm, combined, septic, drainage (parking, buildings, fields), irrigation		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Water: (Blue) Process, Plant, potable, well, cooling, return/makeup, fire, sprinkler, landscape irrigation, reclaim (Purple) other		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above
Other: Abandoned Lines, invisible dog fences, shopping cart perimeter monitoring, traffic lights		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Above

If subsurface work is within five feet (1.5 meters) of a confirmed or suspected utility or other subsurface structure, nondestructive clearing techniques (e.g., air knife, vacuum excavation, hand auger) must be completed to visually locate and expose the utility.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Precautions have been taken to prevent contact with overhead or underground utilities.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Printed Name of Person Completing Checklist:	Signature:
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URS SAFETY MANAGEMENT STANDARD

Respiratory Protection

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to protect employees (1) performing operations for which exposures cannot be controlled by use of conventional engineering or administrative controls and (2) prior to establishing a negative air exposure assessment. This standard is also used to select use, maintain, and store respiratory protection equipment in accordance with acceptable practices.

3. Implementation

The associated implementing regional procedures for this standard are included as attachments:

[SMS 042 NA – North America](#)

[SMS 042 EU – UK and Ireland, Europe, and Middle East](#)

[SMS 042 AP6 – Asia Pacific](#)

URS SAFETY MANAGEMENT STANDARD

Respiratory Protection

1. Applicability

This standard applies to URS Corporation and its subsidiary companies that may require the use of respiratory protection, including Immediately Dangerous to Life and Health (IDLH) and emergency conditions. This program also addresses the voluntary use of respirators.

2. Purpose and Scope

The purpose of this standard is to protect those employees performing operations for which exposures cannot be controlled by use of conventional engineering or administrative controls, and prior to establishing a negative air exposure assessment, and to require that respiratory protective equipment is selected, used, maintained, and stored in accordance with acceptable practices. This procedure establishes the minimum standard for respirator training, selection, and use during the performance of all work requiring such protection.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

- A. Before assigning hazardous jobs to employees, determine if respirators are required.
 - 1. Assign a project-specific Respiratory Protection Program administrator. This position shall be manned by a competent industrial hygienist or other technically qualified person who knowledgeable of the requirements of the URS and project-specific programs, have appropriate training in the principles and application of respiratory protection, and have the authority to conduct program evaluations.
 - 2. If the potential for respiratory hazards exists for any portion of a job, complete Attachment 042-1 NA – Identifying When A Respirator Is Needed.
 - 3. Contact a local Health, Safety, and Environment (HSE) Manager, Regional or Strategic Business Unit (RBU/SBU) HSE Manager, or URS Certified Industrial Hygienist (CIH) for assistance, as needed, if any of the questions in Attachment 042-1 are checked "yes."

URS SAFETY MANAGEMENT STANDARD

Respiratory Protection

4. Follow instructions in Attachment 042-2 NA – Voluntary Use or Respirators – for employees who wish to voluntarily use dust masks.
 5. Follow all the requirements of this standard for employees who wish to voluntarily use tight-fitting (e.g., air purifying) respirators.
 6. Required respirators will be paid for by URS and will be provided without cost to the employee.
 7. Control worker's exposure to air contaminants, where practicable, by engineering or administrative controls, or by substitution of process materials with less-toxic substances. Use respirators only when engineering or administrative controls are not feasible or completely effective.
- B. Select the proper respirator for the job.
1. Contact the appropriate HSE Manager or CIH for assistance in respirator selection for those jobs identified in Attachment 042-1 NA.
 2. Contact the appropriate HSE Manager for follow up if there are any problems implementing the recommendations made.
- C. Require employees who will use respirators to be medically qualified by a project medical consultant (PMC) before fit-testing and assigning them a respirator. The PMC should preferably be an occupational physician; however, the Occupational Safety and Health Administration (OSHA) allows any physician or licensed health care professional (PLHCP) to conduct evaluations of respiratory protection medical forms. The PMC, where required, will determine the physiological and psychological status that is relevant to wearing different types of respirators. The PMC will review all questionnaires and test results and verify in writing that workers are physically and psychologically able to perform work while using respiratory protective devices. These determinations will be made using guidelines established by the PMC.
1. For program details, refer to SMS 024 – Medical Screening and Surveillance.
 2. Require that employees have a current and accurate Medical Surveillance form (Attachment 024-2).
 3. Obtain a copy of the employee's Health Status Medical Report from the Office Health and Safety Representative. The consulting occupational physician of the medical service provider following each work-related

URS SAFETY MANAGEMENT STANDARD
Respiratory Protection

examination issues the Health Status Medical Report. Employees cannot be assigned respirators unless they are medically cleared for respirator use.

- D. Require respirator users to receive appropriate training.
 - 1. All respirator users must be trained:
 - a. Before they are assigned a respirator.
 - b. Annually thereafter.
 - c. Whenever a new hazard or job is introduced.
 - d. Whenever employees fail to demonstrate proper use or knowledge.
 - 2. Document training in accordance with the requirements of SMS 055 – Training.
 - 3. Training must address, at a minimum, the following:
 - a. Why the respirator is necessary, and what conditions can make the respirator ineffective.
 - b. What the limitations and capabilities of the respirators are.
 - c. How to inspect, put on and remove, and check the seals of the respirator.
 - d. What the respirator maintenance and storage procedures are.
 - e. How to recognize medical signs and symptoms that may limit or prevent effective use of the respirator.
 - f. The engineering and administrative controls being used and the need for respirators.
 - g. The hazards and consequences of improper respirator use.
 - h. How to recognize and handle emergency situations.
- E. Require respirator users to be fit tested.
 - 1. Any employee who has been assigned a reusable respirator must be fit tested on an annual basis (no more than 1 year may elapse between fit

URS SAFETY MANAGEMENT STANDARD

Respiratory Protection

tests), or when the employee is assigned a respirator of a different make, type, or size from that previously tested.

2. Qualitative or quantitative fit testing can be performed by contract or in-house personnel.
3. Obtain a signed, written copy of the fit-test results. The fit-test results should include:
 - a. Employee's name and employee identification number.
 - b. Respirator brand, model, and size fitted for.
 - c. Date fit tested.
 - d. Method of fit testing used.
 - e. Name and signature of fit tester.
 - f. Manufacturer and serial number of fit-testing apparatus (if used).

A fit test results form is available as Attachment 042-3 NA.

- F. The project-specific Respiratory Protection Program administrator will issue respirators to persons who must wear respirators for protection against harmful atmospheres should be given adequate training to ensure that the correct respirator is issued for each application. This training should include, but not necessarily be limited to, the following:
 1. Establishment of a working knowledge of the specific types of respirators to be issued, their limitations, and the importance of issuing only the respirators for which each user is specifically approved.
 2. Familiarization with the respirator maintenance and repair program in order to be able to identify any respirator that is improperly cleaned or needs repair.
 3. Familiarization with the procedures for respirator issue. Only persons trained to ensure that proper respirators are issued will be permitted to issue respirators to persons needing them.
- G. Where required by Section 2.C of SMS 043 – Personal Monitoring, conduct initial exposure assessments for contaminants of concern. Record collected air-monitoring data. Respiratory protection must be worn until such assessments have been conducted, and it is determined that respiratory protection is not warranted.

URS SAFETY MANAGEMENT STANDARD
Respiratory Protection

- H. Provide qualified employees with respirator(s) and adequate amounts of parts and cartridges.
 - 1. Assign employees whose duties require respirators their own respirator for which they have been fit tested.
 - 2. Provide special eyeglass inserts designed for the respirator if an employee must wear eyeglasses with a full-facepiece respirator. Contact lenses may be worn when wearing a full-facepiece respirator.
 - 3. Respirators and cartridges must be approved by the National Institute for Occupational Safety and Health (NIOSH). Military-issue respirators are approved under Military Standard AR 11-34.

- I. Require respirators to be used properly.
 - 1. Prohibit facial hair where the respirator-sealing surface meets the wearer's face.
 - 2. Require employees to perform a positive and negative fit check every time the respirator is put on.
 - 3. Employees will leave the area where respirators are being used:
 - a. Before removing the facepiece for any reason.
 - b. To correct any respirator malfunction.
 - c. To change the respirator and/or respirator cartridges.
 - d. The employee becomes ill (dizziness, nausea, etc.).
 - e. If any of the following is detected:
 - 1. Vapor or gas breakthrough
 - 2. Leakage around the facepiece
 - 3. Increased breathing resistance.
 - 4. Use cartridges with End-of-Service-Life indicators, or determine the respirator cartridge change-out schedule. See Supplemental Information A for guidance.

- J. Require respirators to be cleaned and stored properly.

URS SAFETY MANAGEMENT STANDARD

Respiratory Protection

1. Clean and disinfect respirators after each use.
 2. Store respirators in a plastic bag or case and in a clean location.
 3. Inspect respirators before use and after each cleaning.
- K. Address issues associated with special-use respirators (self-contained breathing apparatus; air-supply respirators; emergency escape respirators).
1. Self-Contained Breathing Apparatus

Inspect self-contained breathing apparatus monthly and after each use in accordance with manufacturer's instructions.
 2. Air-Supplied Respirators
 - a. Air used for atmosphere-supplying respirators must meet or exceed the requirements for Type 1 – Grade D breathing air. Never use oxygen.
 1. A certificate of analysis must accompany bottled air.
 2. Compressors used to supply breathing air must:
 - i. Prevent entry of contaminated air into the air supply.
 - ii. Minimize moisture content.
 - iii. Have suitable in-line sorbent beds and filter to provide appropriate air quality.
 - iv. Have a high-carbon-monoxide alarm that sounds at 10 part per million (ppm).
 - b. Couplings on air-hose lines must be incompatible with other gas system.
 3. Emergency Escape Respirators
 - a. Emergency escape respirators intended to be used only for emergency exit. This may include situations where IDLH atmospheres and oxygen-deficient conditions exist. These respirators may be used as stand-alone protection or in conjunction with air-supplied respirators.
- L. Require follow-up training and medical surveillance to be provided as directed.

URS SAFETY MANAGEMENT STANDARD
Respiratory Protection

1. Provide follow-up physical examinations as directed by the SMS 024-3 NA – Medical Screening and Surveillance Exam Protocol table.
 2. Provide follow-up physicals as directed by the Occupational Health Manager.
 3. Provide annual refresher training.
 4. Provide annual fit testing.
 5. Conduct regular evaluations to determine the effectiveness of the program's implementation. This should include interviews with employees regarding such topics as respirator selection, fit, and maintenance.
- M. Where required, implement procedures for dealing with entry into areas with IDLH conditions.
1. Ensure at least one employee or attendant is located outside the area with the IDLH atmosphere. This person must be equipped with:
 - a. Pressure demand or other positive pressure self-contained breathing apparatus (SCBA), or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either
 - b. Appropriate retrieval equipment to removing the employee within the IDLH atmosphere, or
 - c. Equivalent means of rescue.
 2. Maintain communication between the employee(s) in the area with the IDLH environment and the employee(s) or attendant(s) outside the area. Communication may include visual, voice, or signal lines.
 3. In an emergency situation, the manager overseeing operations must be notified before employee(s) outside the area with the IDLH atmosphere enter the space.

5. Documentation Summary

All Respiratory Protection Program documentation must be protected by the Privacy Act of 1974 (PL-93-579), and confidential medical information not required by OSHA may be protected under the Health Insurance Portability Accountability Act of 2003 (HIPAA).

URS SAFETY MANAGEMENT STANDARD

Respiratory Protection

The following information will be maintained in the office/project file by the Project Manager:

1. Identifying When A Respirator Is Needed – Attachment 042-1 NA.
2. Voluntary Use of Respirators – Attachment 042-2 NA.
3. Fit Test Record – Attachment 042-3 NA.
4. Employee Health Status Medical Report, including clearance for respirator use.
5. Employee Respirator Training Records.

6. Resources

- A. U.S. OSHA Standard - [Respiratory Protection](#) – 29 Code of Federal Regulations (CFR) 1910.134
- B. U.S OSHA Technical Links – [Respiratory Protection](#)
- C. [ANSI Z88.6-2006](#) – Respirator Use – Physical Qualifications for Personnel
- D. [AIHA](#), The Occupational Environment – Its Evaluation and Control
- E. [NIOSH Respirator Decision Logic](#)
- F. [NIOSH Guide to Industrial Respiratory Protection](#)
- G. [SMS 024](#) – Medical Screening and Surveillance Program
- H. [SMS 055](#) – Health and Safety Training
- I. [Attachment 042-1 NA](#) – Identifying When a Respirator is Needed
- J. [Attachment 042-2 NA](#) – Voluntary Use of Respirators
- K. [Attachment 042-3 NA](#) – Fit Test Record
- L. [Attachment 042-4 NA](#) – Respirator Standard Operating Procedure

7. Supplemental Information

- A. [Respirator Cartridge Change Schedule](#)
- B. [Hazard Analysis for Respirator Use](#)

URS SAFETY MANAGEMENT STANDARD
Respiratory Protection

- C. [Fit Testing Guidance](#)
- D. [Respirator Selection Guidance](#)
- E. [Inspection, Cleaning, and Storage Guidance](#)



Health, Safety and Environment
**IDENTIFYING WHEN A RESPIRATOR
IS NEEDED**

Attachment 042-1 NA

Issue Date: July 2000
Revision 4: December 2009

Site Location: _____ Date: _____

Name of Person Performing Evaluation: _____

Project: _____

Answer the questions below for the jobs you are to perform on site. If a 'Yes' response is checked, consult with an HSE Manager or a URS Certified Industrial Hygienist (CIH) to determine if a respirator is truly needed for the job; and if so, the type of respirator needed.

It is important to be aware of the respiratory protection requirements for any chemicals you are exposed to; these can be found on the Material Safety Data Sheets or chemical labels.

Material Used or Process to be Performed	Notes
Abrasive Blasting <ul style="list-style-type: none">Abrasive blasting (with any type of grit or material) will be performed <input type="checkbox"/> Yes <input type="checkbox"/> No _____Employee will fill abrasive blasting pots or perform clean-up activities <input type="checkbox"/> Yes <input type="checkbox"/> No _____Employee will be in a contained area where abrasive blasting is taking place <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
Acids <ul style="list-style-type: none">Liquid or powder acids will be used in a situation where acid vapors, mists, or dust may be breathed <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
Adhesives <ul style="list-style-type: none">Aerosols-propelled adhesives are to be used in areas where there is insufficient or no local exhaust ventilation <input type="checkbox"/> Yes <input type="checkbox"/> No _____Two-part adhesives (mix part one with two, let set, then use) are to be used in areas where there is limited ventilation <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
Alkalis/Bases/Caustics <ul style="list-style-type: none">Powdered alkalis will be used in a situation where an airborne dust may be breathed <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
Asbestos Abatement <ul style="list-style-type: none">Asbestos will be removed, repaired, or sampled <input type="checkbox"/> Yes <input type="checkbox"/> No _____Employees will be inspecting or overseeing areas where asbestos will be removed or disturbed <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
Cleaning Compounds <ul style="list-style-type: none">Degreasers or carbon removers will be used in areas where local exhaust ventilation is not provided <input type="checkbox"/> Yes <input type="checkbox"/> No _____Aerosol-propelled cleaning compounds will be used in areas where there is no local exhaust ventilation <input type="checkbox"/> Yes <input type="checkbox"/> No _____Entry into a vault, tank, silo, sewer, or other confined space that has been used for chemical storage, recently painted, or where inert gases may have been used without ventilation <input type="checkbox"/> Yes <input type="checkbox"/> No _____Degreasers or carbon removers will be used in voids, tanks, or other confined spaces <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
Corrosion-Preventive Compounds <ul style="list-style-type: none">Corrosion-prevention compounds, including chemical conversion compounds and corrosion inhibitors, will be used in areas where there is no local exhaust ventilation <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
Detergents/Soaps <ul style="list-style-type: none">Ammonia-based detergents will be used in large quantities (more than 5 gallons) in areas where local exhaust ventilation cannot be <input type="checkbox"/> Yes <input type="checkbox"/> No _____	



Health, Safety and Environment
**IDENTIFYING WHEN A RESPIRATOR
IS NEEDED**

Attachment 042-1 NA

Issue Date: July 2000
Revision 4: December 2009

Material Used or Process to be Performed	Notes
provided <ul style="list-style-type: none">Large quantities (5- or 55-gallon containers) of high pH powder detergent/soap will be used in a situation where dust may be breathed	<input type="checkbox"/> Yes <input type="checkbox"/> No _____
Fuels (including regular or unleaded gasoline, kerosene, diesel fuel, JP-5) <ul style="list-style-type: none">Employees will be inside unventilated fuel cells or other confined spaces containing fuels	<input type="checkbox"/> Yes <input type="checkbox"/> No _____
Grinding, Cutting, Sanding <ul style="list-style-type: none">Cutting, grinding, or sanding surfaces that have coatings containing beryllium, cadmium, chromium, lead, or zincCutting, grinding, or sanding surfaces that are concrete or glass without use of ventilation or water	<input type="checkbox"/> Yes <input type="checkbox"/> No _____ <input type="checkbox"/> Yes <input type="checkbox"/> No _____
Hazardous Waste Sites <ul style="list-style-type: none">Employees will be performing tasks on a hazardous waste site that requires the use of respirator (as indicated in the site health and safety plan)Employees will be performing site assessments on potential hazardous waste sites	<input type="checkbox"/> Yes <input type="checkbox"/> No _____ <input type="checkbox"/> Yes <input type="checkbox"/> No _____
Hydraulic Fluids (including petroleum-based fluids, synthetic fire-resistant fluids, and water-based fire-resistant fluids) <ul style="list-style-type: none">Hydraulic fluids and the vapors generated will not be exhausted using local exhaust ventilationSynthetic fire-resistant fluids or water-based fire-resistant fluids will be used in an area where the air is contaminated with visible mist or spray from hydraulic fluids	<input type="checkbox"/> Yes <input type="checkbox"/> No _____ <input type="checkbox"/> Yes <input type="checkbox"/> No _____
Inspection Penetrants (including Flouro-finder, water-indicating pastes, and penetrant removers) <ul style="list-style-type: none">An aerosol-propelled inspection penetrant will be used in an area where local exhaust ventilation cannot be provided, or in a situation where the solvent vapors can be breathed	<input type="checkbox"/> Yes <input type="checkbox"/> No _____
Lead Abatement Activities <ul style="list-style-type: none">Lead-containing materials will be disturbed, removed, or sampledEmployees will be inspecting or overseeing areas where lead will be removed or disturbed	<input type="checkbox"/> Yes <input type="checkbox"/> No _____ <input type="checkbox"/> Yes <input type="checkbox"/> No _____
Lubricants/Oils <ul style="list-style-type: none">Aerosol lubricants or oils will be sprayed with no immediate exhaust ventilation	<input type="checkbox"/> Yes <input type="checkbox"/> No _____
Oxidizers (materials that give off oxygen, including chlorine laundry bleach, calcium hypochlorite, calcium oxide, oxygen candles, lithium hydroxide, hydrogen peroxide, and sodium dichromate) <ul style="list-style-type: none">Oxidizers containing organic chlorine will be used in a situation where the dusts or vapors may be breathedPowdered oxidizers will be used in a situation where airborne dust may be breathed	<input type="checkbox"/> Yes <input type="checkbox"/> No _____ <input type="checkbox"/> Yes <input type="checkbox"/> No _____
Paint Materials (including paints, primers, thinners, enamels, lacquers, strippers, coatings, and varnishes) <ul style="list-style-type: none">Paint materials will be spray-applied in areas where there is no local exhaust ventilationTwo-part (mix part a with part b, let set, then apply) polyurethane or epoxy polyamide paints will be brush- or spray-applied	<input type="checkbox"/> Yes <input type="checkbox"/> No _____ <input type="checkbox"/> Yes <input type="checkbox"/> No _____



Health, Safety and Environment
**IDENTIFYING WHEN A RESPIRATOR
IS NEEDED**

Attachment 042-1 NA

Issue Date: July 2000
Revision 4: December 2009

Material Used or Process to be Performed	Notes
<ul style="list-style-type: none">• Paints containing beryllium, cadmium, chromium, lead, or zinc (refer to the MSDS) <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Paint materials will be applied in confined spaces <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
<p>Solvents (including hydrocarbon solvents such as acetone, methyl ethyl ketone, toluene, xylene, and alcohols, as well as mixed solutions like antifreeze, heat-transfer fluid, turpentine, pipe-dope, and naphtha thinner)</p> <ul style="list-style-type: none">• Local exhaust ventilation will not be provided and work will involve breathing solvent vapors <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Solvents will be used within confined spaces <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Solvents will be applied using aerosols <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
<p>Thermal Insulation (including asbestos and non-asbestos materials like pipe lagging, fiberglass insulation, boiler insulation, packing materials, and floor or ceiling tiles)</p> <ul style="list-style-type: none">• Insulation will be disturbed, removed, or sampled <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
<p>Water-Treatment Chemicals (includes corrosive chemicals such as tri-sodium phosphate, hardness buffer, titrating solution, morpholine, caustic soda, citric acid, and nitric acid, as well as toxic chemicals such as mercuric nitrate, hydrazine, EDTA, and sodium nitrate)</p> <ul style="list-style-type: none">• Morpholine, EDTA, or harness buffer/titrating solution is to be used in poorly ventilated spaces <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Powdered water-treatment chemicals will be used in a situation where chemical dusts may be breathed <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
<p>Welding/Brazing/Cutting</p> <ul style="list-style-type: none">• Welding will be performed in confined spaces <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Welding galvanized metal or stainless steel <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Brazing with cadmium or lead <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Torch-cutting on coated/painted materials <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
<p>For Any of the Above-Listed Activities</p> <ul style="list-style-type: none">• An employee will be in the immediate area – within 10 feet of the job or operation; or <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Employee will be inside confined space where activities are taking place; or <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Employee will be inside a “controlled area” such as found in asbestos abatement, lead abatement, radiation control area, or a hazardous waste site <input type="checkbox"/> Yes <input type="checkbox"/> No _____	
<p>Other</p> <ul style="list-style-type: none">• A chemical process procedure (e.g., hydrogen sulfide in refineries, ammonia as a refrigerant, chlorine in water disinfection, inert gas systems) required the use of a respirator or emergency escape respirator <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Mine operations require issuance of an emergency escape respirator <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Emergency response plan requires issuance of respirators to first responders <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Radiological controls require use of a respirator <input type="checkbox"/> Yes <input type="checkbox"/> No _____• Laboratory Chemical Hygiene plan requires issuance of respirators <input type="checkbox"/> Yes <input type="checkbox"/> No _____	



Health, Safety and Environment
VOLUNTARY USE OF RESPIRATORS

Attachment 042-2 NA

Issue Date: July 2000
Revision 4: December 2009

Instructions: Have the employee that is opting to use a respirator for non-overexposure conditions read this page, and then sign on the bottom of the page. Maintain a copy in the employee's training file.

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for employees. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the employee.

Sometimes employees may wear respirators to avoid exposures to hazards, even if the amount of the hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your own voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not pose a hazard.

1. Read and follow all instructions provided by the manufacture on use, maintenance, cleaning, and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH (the National Institute for Occupational Safety and Health) certifies respirators in the U.S. A label or statement of certification should appear on the respirator or respirator packaging; it will tell you what the respirator is designed for and how it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants against which your respirator is not designed to protect. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, fumes, smoke, or very small solid particles.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.
5. If you have any health conditions (asthma; high blood pressure; emphysema; heart disease) that could be aggravated by using a respirator, you should check with your doctor before using one.

I have read and understand this information: Date:

Employee's Name (Please Print):

Employee's Signature:



FIT TEST RECORD

Employee Name _____ Employee Number _____

Office/Project _____ Last Medical Exam _____

Fit Test Date _____ Corrective Lenses Needed Yes [] No []

Medically qualified to wear respirator? Yes [] No []

Briefed on fundamental principles of respiratory protection, use, selection, inspection, cleaning, maintenance, and storage of equipment? Yes [] No []

Test agent recognition: Yes [] No [] N/A []

RESPIRATOR 1

RESPIRATOR 2

RESPIRATOR 3

Equipment Type _____

Manufacturer's Name _____

Model _____

Size _____

Facepiece Composition (Rubber/Silicone) _____

TEST PERFORMED

RESPIRATOR 1

RESPIRATOR 2

RESPIRATOR 3

Negative Pressure Test: Pass [] Fail []

Positive Pressure Test: Pass [] Fail []

Isoamyl Acetate Test: Pass [] Fail []

Irritant Smoke Test: Pass [] Fail []

Bitrex: Pass [] Fail []

Saccharin: Pass [] Fail []

Generated Aerosol Quantitative Fit: P [] F [] Fit Factor _____

Ambient Aerosol Quantitative Fit: P [] F [] Fit Factor _____

Controlled Negative Pressure Quantitative Fit: P [] F [] Fit Factor _____

Examiner's Name (Please Print)

Examiner's Signature

Date

Employee's Signature

Date

	Health, Safety and Environment RESPIRATOR STANDARD OPERATING PROCEDURE	Attachment 042-4 NA Issue Date: July 2000 Revision 4: December 2009
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Job Task Reviewed: _____

Date Reviewed: _____

Task Review by: _____

ADMINISTRATIVE PROCEDURES

1. All respirator users must be medically qualified to use respirators.
2. Respirator users must be trained annually in respirator use, and must be fit-tested annually.
3. The respirator will be used only by the person to whom it was issued.
4. Persons using glasses who are required to use a full-face respirator may use contact lenses or eyeglass inserts designed for the respirator.

GUIDANCE FOR SELECTION OF RESPIRATOR AND CARTRIDGES/FILTERS

1. Respirators are currently being issued and used for the following job activities:

2. The respirator will be equipped with the following cartridges/filters:

3. Filters are to be changed when the breathing resistance increases.
4. Cartridges are to be changed _____ (frequency), or when the contaminant you are protecting yourself from can be smelled or tasted.

FIT TESTING & FIT CHECKING

1. Fit testing is required annually. To arrange for fit testing, call your local, project, or regional safety representative or qualified industrial hygienist.
2. Respirator users will “fit check” the respirator every time the respirator is put on:
 - **Negative Check** – Cover filters/cartridges with palms of hands and breath in: leakage should not be detected around the face seal of the respirator. Do not use if leakage is detected.
 - **Positive Check** – Cover the exhalation valve cover with palm of hand and blow out slightly: leakage should not be detected around the respirator seal.
 - **For Air Supply Respirators** – Kink or close off air supply hose and breath in: leakage should not be detected around the face seal of the respirator.

CLEANING AND MAINTENANCE OF RESPIRATOR

1. Clean and disinfect respirator after every use.
2. Inspect respirator at the end of work every day in use to ensure parts are not missing. Replace missing parts from stock supply.
3. Store clean respirator in labeled plastic bag out of direct sunlight.
4. Do not alter respirator in any way.

A cartridge change schedule must be developed for cartridges or canisters used with air purifying respirators that do not have an End of Service Life Indicator (ESLI). The purpose of this is to prevent contaminants from breaking through the respirator's sorbent cartridge(s), and thereby over-exposing employees. NIOSH has approved ESLIs for only four cartridges or canisters (mercury vapor, carbon monoxide, ethylene oxide, and hydrogen sulfide). Historically we have relied on the warning properties (odor, irritation) of a contaminant to dictate cartridge change. OSHA no longer allows this as the sole basis for changing respirator cartridges. In developing a change schedule the following factors should be considered:

- Contaminants
- Concentration
- Frequency of use (continuously or intermittently throughout the shift)
- Temperature and humidity
- Work rate
- The presence of potentially interfering chemicals.

The worst-case conditions should be assumed to avoid early breakthrough. This must be documented in the project health and safety plan or, in the cases of office or labs, in the site specific Respiratory Protection Program.

Sources of Help

OSHA provides assistance in developing respirator cartridge change schedules on its website at http://www.osha.gov/SLTC/etools/respiratory/change_schedule.html.

Most cartridge manufacturers maintain on-line interactive cartridge service life programs that can be used to evaluate the service life against many contaminants. Typically, these do not evaluate the service life against mixtures (multiple contaminants).

Because of the complexity in evaluating mixtures, OSHA offers the following guidance:

- When the individual compounds in the mixture have similar breakthrough times (i.e., within one order of magnitude), service life of the cartridge should be established assuming the mixture stream behaves as a pure system of the most rapidly migrating component with the shortest breakthrough time (i.e., sum up the concentration of the components).
- Where the individual compounds in the mixture vary by 2 orders of magnitude or greater, the service life may be based on the contaminant with the shortest breakthrough time.

Rule of Thumb (*"The Occupational Environment" - Its Evaluation and Control*)

- If the chemical's boiling point is >70 °C and the concentration is less than 200 ppm, you can expect a service life of 8 hours at a normal work rate.
- Service life is inversely proportional to work rate.
- Reducing concentration by a factor of 10 will increase service life by a factor of 5.
- Humidity above 85% will reduce service life by 50%.

OSHA Interpretation

The OSHA inspection procedures for the respiratory protection standard specifies that where contaminant migration is possible, respirator cartridges/canisters should be changed after each work shift where exposure occurs unless there is objective data to the contrary (description studies) showing the performance in the conditions and schedule of use/non-use found in the workplace.

- A. A hazard analysis of the workplace must be performed before selecting respirators. The analysis must consider inhalation hazards under routine and foreseeable emergency conditions. Other factors to consider when choosing respirators include skin and eye exposure, the effects of heat or cold, use of protective clothing, employee conditioning, and workload.
- B. Respiratory hazards that must be identified include:
1. Oxygen Deficiency
 2. Air Contaminants
 3. Particulates
 4. Toxic Gases

C. Evaluating Exposures

There are several options on how to evaluate exposures:

1. One option is to rely on personal monitoring data of employees. Representative exposure data provided by industry or laboratory studies is acceptable as long as it applies to similar tasks and conditions at the worksite.
2. The professional judgment provided by the Business, RBU, SBU, Office, or Project HSE Manager and/or as recommended by a qualified industrial hygienist or safety professional may be employed for the task.
3. If the exposure cannot be identified or estimated, then the atmosphere is considered immediately dangerous to life or health (IDLH). Atmospheres with levels of oxygen below 19.5% are also defined as IDLH.
4. Trained and qualified technical personnel shall perform assessment of the degree of respiratory hazard through sampling and testing of the work environment. Problems requiring special respiratory protection should be discussed with the Business or Regional HSE Manager or qualified industrial hygienist.
5. The Project HSE Manager shall establish procedures to control respiratory hazards through engineering or administrative controls, product/material substitution, respiratory protective devices, or a combination of these methods.
6. He/she shall also perform annual evaluations of the effectiveness of the project's respiratory protection program. These evaluations shall be documented.
7. The Project HSE Manager shall select and provide adequate respiratory protective devices for use on the project. This selection shall be based upon the specific type of air contaminant(s), the concentration of the contaminants(s) or oxygen deficiency in the work environment.
8. Establish a change schedule for air-purifying respirators based upon objective information or data that will ensure that cartridges are changed before the end of their useful life. OSHA has mandated that reliance on warning properties is no longer valid

- A. A quantitative fit-test provides the most accurate information; qualitative fit testing depends on the respirator wearer's sense of smell and taste (subjective response). OSHA's standard requires fit-testing for any face mask (full or half) designed to have a tight seal along the face, whether it is used in a positive or negative pressure mode, and whether it is disposable or not. If the required fit factor is greater than 100, then a quantitative fit-test must be performed.
- B. Each person will have a qualitative or quantitative fit test when first required to wear a respirator, every 12 months when respirators will be worn thereafter, or as hazards or respiratory needs change.
- C. Each person will have a qualitative or quantitative fit test for each specific make(s) and model(s) of respirator(s) for which the worker may wear.
- D. Under no circumstances shall a worker be allowed to use any respirator if the results of the qualitative fit test indicate that the worker is unable to obtain a satisfactory seal.
- E. The eight exercises required by OSHA under the respiratory protection standard, 29 CFR 1910.134, Appendix A, are as follows (note that these are not required controlled negative pressure (CNP) quantitative fit testing):
1. normal breathing
 2. deep breathing
 3. head side to side
 4. head up and down
 5. talking out loud
 6. grimacing (quantitative only)
 7. bending
 8. normal breathing
- F. Qualitative and quantitative fit testing must be performed in negative pressure mode for all tight fitting respirators, whether the respirator is positive or negative pressure demand.
- G. Qualitative and quantitative fit testing must be conducted according to one of the protocols found in 29 CFR 1910.134, Appendix A.
- H. Employees using respirators when not required under the standard (i.e., dust masks or comfort masks for nuisance type dust without a specified exposure level) must be aware of the potential hazards of using a respirator. See Attachment 042-2 of this standard or Appendix D of 29 CRF 1910.134 for information program requirement.

- A. Physical characteristics, functional capabilities, and performance limitations of various types of respirators shall be considered in the selection process.
- B. Specifics regarding hazard classification, descriptions of respirator types and modes of operation, and the capabilities and limitations of respirators are listed in ANSIZ88.2-1992.
- C. To select the correct respirator, the hazards must first be identified in the workplace and then follow these steps:
 1. Determine if the environment is IDLH.
 - a. All oxygen deficient atmospheres shall be considered IDLH.
 - b. If the employee exposure cannot be reasonably estimated, the atmosphere must be considered IDLH.
 2. Identify the contaminant(s) present in the atmosphere and answer the following questions:
 - a. What is the concentration?
 - b. Are they gaseous or particulate?
 - c. Are the contaminants IDLH?
 3. After completing the above steps select the appropriate respirator for the particular hazard(s).
 - a. IDLH – Provide a full facepiece NIOSH certified pressure demand SCBA with a minimum service life of 30 minutes or a full facepiece pressure demand airline respirator with an auxiliary self-contained air supply.
 - b. Non-IDLH – A respirator must be provided that is appropriate for the contaminant(s) identified.
 4. For protection against gases and vapors, either an atmosphere-supplying respirator or an air-purifying respirator equipped with a NIOSH certified end-of-service-life indicator (ESLI) for the contaminant must be used. In lieu of an ESLI, a change schedule for cartridges based on objective information or data may be used to ensure cartridges are changed before the end of their service life occurs (see Supplemental Information A). In most cases, respirator cartridge manufacturers provide a product specific on-line or CD-ROM based “Service Life Calculator” that allows determination of useful service life of a cartridge based on expected concentration and environmental and work conditions. If neither an ESLI or change schedule is available, a supplied air respirator must be used.
 5. For protection against particulates, an atmosphere-supplying respirator or an air-purifying respirator equipped with a NIOSH-certified high-efficiency particulate air (HEPA) filter under 30 CFR 11 or an air-purifying respirator equipped with a NIOSH certified filter for particulates under 42 CFR 84 must be used.

6. There are three classes of filters under NIOSH (N, R, and P series) with three levels of filter efficiency in each class – 95%, 99%, and 99.97% (classified as 100). All filters can be used regardless of aerosol size. The new filters are classified as follows:
 - a. N – For solid particulates and non-oil aerosols that do not degrade filter performance.
 - b. R – For solid particulates and degrading oil-based aerosols. R filters have “use limitations.”
 - c. P – For solid particulates and degrading oil-based aerosols. P filters generally have no “use limitations” other than those normally associated with particulate filters. The P100 filter is the replacement for the HEPA filter.
- E. Particulate filters are tested with 200 mg of loading but in many cases, these filters may exceed this capacity. Filtration efficiency may actually increase as the filter cake develops on the filter. Increased resistance to breathing or obvious taste or odor in the respirator would be cause to examine, re-evaluate and replace the filter cartridge

A. Inspection

Routinely used air-purifying and airline respirators should be checked as follows before and after each use:

1. Examine the facepiece for:
 - a. Excessive dirt.
 - b. Cracks, tears, holes or physical distortions of shape from improper storage.
 - c. Inflexibility of rubber facepiece (stretch and knead to restore flexibility).
 - d. Cracked or badly scratched lenses in full facepieces.
 - e. Incorrectly mounted full facepiece lenses, or broken or missing mounting clips.
 - f. Cracked or broken air-purifying element holder(s), badly worn threads or missing gasket(s) if required.
2. Examine the head straps or head harness for:
 - a. Breaks.
 - b. Loss of elasticity.
 - c. Broken or malfunctioning buckles and attachments.
 - d. Excessively worn serrations on head harness, which might permit slippage (full facepieces only).
3. Examine the exhalation valve for the following after removing its cover:
 - a. Foreign material, such as detergent residue, dust particles or human hair under the valve seat.
 - b. Cracks, tears or distortion in the valve material.
 - c. Improper insertion of the valve body in the facepieces.
 - d. Cracks, breaks or chips in the valve body, particularly in the sealing surface.
 - e. Missing or defective valve cover.
 - f. Improper installation of the valve in the valve body.
4. Examine the air-purifying element for:
 - a. Incorrect cartridge, canister, or filter for the hazard.
 - b. Incorrect installation, loose connections, missing or worn gasket or cross threading in the holder.
 - c. Expired shelf-life date on the cartridge or canister.
 - d. Cracks or dents in the outside case of the filter, cartridge or canister, indicated by the absence of sealing material, tape, foil, etc., over the inlet.
5. If the device has a corrugated breathing tube, examine it for:

- a. Broken or missing and connectors.
 - b. Missing or loose hose clamps.
 - c. Deterioration, determined by stretching the tube and looking for cracks.
6. Examine the harness of a front-or back-mounted gas mask for:
- a. Damage or wear to the canister holder, which may prevent its being held in place.
 - b. Broken harness straps for fastening.

B. Self Contained Breathing Apparatus (SCBA)

Follow manufacturer specifications for storage, maintenance and cleaning of SCBA systems.

C. Manual Cleaning

A generalized cleaning procedure is typically found in the manufacturer's manual. Read the respirator manual and follow the manufacturer's recommendations.

1. Remove canisters, filters, valves, straps and speaking diaphragms from the facepiece.
2. Wash facepiece and accessories in warm soapy water or a commercially available cleaner, following the manufacturer's instructions. Gently scrub the respirator.
3. Rinse parts thoroughly in clean water.
4. Air dry in a clean place or wipe dry with a lint less cloth.

D. Machine Cleaning

Machines may be used to expedite the cleaning, sanitizing, rinsing, and drying of large numbers of respirators. Read the machine-cleaning manual and follow manufacturer's recommendations.

1. Extreme care must be taken to ensure against excessive tumbling and agitation, or exposure to temperatures above those recommended by the manufacturer (normally 120°F maximum), as these conditions are likely to result in damage to the respirators.
2. Ultrasonic cleaners, clothes-washing machines, dishwashers, and clothes dryers have been specially adapted and successfully used for cleaning and drying respirators.

E. Disinfection

1. Disinfection is required when more than one person uses the respirator. Recommended NIOSH disinfection procedures include immersion of the respirator body for two minutes in a 50 ppm chlorine solution (about 2 ml bleach to 1 liter of water). Rinse thoroughly in clean water and dry.
 - a. Immersion times have to be limited to minimize damage to respirators. The solutions can age rubber and rust metal parts. Caution must be

taken to thoroughly rinse the respirator after cleaning and disinfection to prevent dermatitis.

- b. An alternate method is to purchase a commercially prepared solution for disinfection/decontamination and follow the directions recommended by the manufacturer.
2. Each person wearing a respirator shall examine the respirator before use in accordance with the training and instruction provided during fit testing.
3. After cleaning and sanitizing, each respirator shall be examined to determine if it is in proper working condition, if it needs replacement of parts or repairs, or if it should be discarded. Respirator inspection shall include, when applicable, a check for tightness of connections; for the condition of the respiratory inlet covering, head harness, valves, connecting tubes, harness assemblies, filters, cartridges, canisters, end-of-service life indicator, and shelf life date(s), and for the proper function of regulators, alarms, and other warning systems.
4. Each rubber or other elastomeric part shall be inspected for pliability and signs of deterioration. Each air and oxygen cylinder shall be inspected to ensure that it is fully charged according to the manufacturer's instructions.

F. Repair

Only persons trained in proper respirator assembly and correction of possible respirator malfunctions and defects shall do replacement of parts or repairs. Replacement parts shall be only those designed for the specific respirator being repaired. Reducing or admission valves, regulators, and alarms shall be returned to the manufacturer for repair or adjustment. The valve, regulator, or alarm manufacturer must approve instrumentation for valve, regulator, and alarm adjustments and tests.

G. Storage

Respirators shall be stored in a convenient, clean and sanitary location. The purpose of good respirator storage is to ensure that the respirators will function properly when used. Respirators shall be stored in a manner that will protect them against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Respirators shall be stored to prevent distortion of rubber or other elastomeric parts. This can be done by storing the respirators in hermetically sealed plastic bags, or plastic bags capable of being sealed. Emergency and rescue use respirators that are placed in work areas shall be quickly accessible at all times, and the storage cabinet or container in which they are stored shall be clearly marked.

URS SAFETY MANAGEMENT STANDARD

Subcontractor Health and Safety Requirements

1. Applicability

This procedure is applicable to subcontractors retained by URS Corporation and its subsidiary companies. This procedure is applicable to the operations of subcontractors and sub-subcontractors of any tier.

This procedure does not apply to third-party contractor operations where there is no subcontract relationship between the contractor and URS Corporation. Health, Safety, and Environment issues regarding third-party contractor operations are governed by project-specific contracts, and are not covered by this standard.

2. Purpose and Scope

This procedure provides requirements on the pre-evaluation of subcontractor safety programs. The attached procedures detail the manner in which this is accomplished by region.

3. Procedures

The associated procedures for this standard are included as attachments:

<i>Infrastructure & Environment; Federal Services</i>
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[SMS 046 NA](#) – North America

[SMS 046 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 046 AP8 – Asia Pacific

<i>Energy & Construction</i>

[SMS 046 EC](#)

URS SAFETY MANAGEMENT STANDARD

Subcontractor Health and Safety Requirements

1. Applicability

This standard is applicable to subcontractors retained by the Infrastructure & Environment and Federal Services businesses of URS Corporation and its subsidiary companies that perform:

- Intrinsically higher-risk construction-related activities (e.g., drilling, excavation, surveying, demolition, electrical contracting, steel erection etc.).
- Significant building or infrastructure alteration, demolition, and/or repair activities using their own workforce or equipment.
- Activities on hazardous waste sites.
- Activities in government services operations (e.g., aviation repair, vehicle repair, warehousing, facility operations, and maintenance) where the annual cost of the subcontract exceeds \$1,000,000.
- An activity where URS Corporation does not supervise the day-to-day activities and work efforts of subcontractor workers, **and** the subcontractor has a designated Supervisor on the work site.

This procedure is applicable to the operations of subcontractors and sub-subcontractors of any tier.

This procedure does not apply to third-party contractor operations where there is no subcontract relationship between the contractor and URS. Health, Safety, and Environment issues regarding third-party contractor operations are governed by project-specific contracts, and are not covered by this standard.

2. Purpose and Scope

This procedure provides requirements on the pre-evaluation of subcontractor safety programs; contractual risk management; subcontractor safety performance on the job site; and the responsibilities of the Project Manager with respect to subcontractor jobsite safety performance.

Each URS subcontractor must be evaluated at least annually using Attachment 046-1 NA, "Subcontractor Safety Evaluation Form," or equivalent client or URS International Operations form, in order to perform work on any new URS projects.

URS SAFETY MANAGEMENT STANDARD

Subcontractor Health and Safety Requirements

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Pre-qualification of Subcontractor – The Project Manager will complete the following procedures for all subcontractors retained on projects covered by this standard (the PM should also require subcontractors to follow these procedures with respect to pre-qualification of sub-subcontractors of any tier):

1. Request all subcontractor candidates to complete the attached Subcontractor Safety Evaluation Form (Attachment 046-1 NA).
2. Conduct an assessment of each subcontractor's qualifications with respect to the subcontractor health and safety evaluation criteria contained in Attachment 046-2 NA.
3. If the subcontractor does not meet the criteria established in Attachment 046-2 NA, and URS must retain the contractor, the Subcontractor Variance Form (Attachment 046-3 NA) must be completed and approved by a Regional, or Strategic Business Unit (SBU) Health, Safety, and Environment (HSE) Manager.
4. Verify that subcontractors meet the insurance requirements as stated in URS' agreement with the subcontractor, or as approved by URS Legal Counsel or Contracting Manager/Officer.
5. If the subcontractor has been successfully evaluated within the last 12 months, that evaluation may be substituted.
6. For long-term operations, update this evaluation within 12 months of the previous evaluation.

B. Contractual and Risk Management Requirements of Subcontractors

1. Ensure that the subcontractor is contractually bound to comply with applicable client and URS HSE Program requirements.
2. Ensure that subcontractor is contractually bound to develop additional safety procedures for work that is exclusive to their activities on the site, and for which they may have superior knowledge.

URS SAFETY MANAGEMENT STANDARD

Subcontractor Health and Safety Requirements

3. Assess compliance of subcontractor's insurance with the URS Corporation subcontract requirements (including, but not limited to, necessary types and amounts of coverage, URS Corporation additional insured endorsement, etc.).
4. Ensure that URS has the right in its subcontract, without liability to URS, to stop the subcontractor's work in the event of any violations of the applicable Health and Safety Plan.

C. Subcontractor Safety Representative

1. Require each subcontractor to appoint a Subcontractor Safety Representative (SSR) who:
 - a. Is knowledgeable of the subcontractor's activities.
 - b. Understands the safety requirements of the subcontractor's activities.
 - c. Has the ability to recognize and the authority to correct safety deficiencies and execute a stop work order should an imminent danger arise.
 - d. Has the responsibility for the administration of the subcontractor Health and Safety Program.
 - e. Will serve as the direct contact with URS Corporation regarding resolution of health and safety issues.

D. Communication

1. Provide the SSR with information regarding Site Safety Program including but not limited to:
 - a. Client Requirements
 - b. URS HSE Program
 - c. Site Hazard Communication Program
 - d. Site Emergency Action Plan
 - e. Any additional safety information from other contractors or subcontractors working on the site.

URS SAFETY MANAGEMENT STANDARD

Subcontractor Health and Safety Requirements

2. Provide the SSR with the name of the URS project or site contact and alternate for addressing site health and safety issues.
 3. Require the participation of subcontractors in all Site Safety Briefings.
 4. Require subcontractor compliance with all safety directives and/or stop work orders issued by the URS site representatives.
 5. Require the subcontractor to notify the URS project or site manager when they will utilize short service employees (i.e., employees with less than six months of experience) to perform on-site activities. The URS project or site manager must approve the use of any short service employees by the subcontractor prior to mobilization. Site management will interact with the short service employee to verify their level of competency.
- E. Subcontractor Safety Performance
1. To the extent reasonable in light of URS' scope of work under the client contract, visit the site and periodically observe subcontractor's operations (i.e., conduct spot checks) to assess whether subcontractor appears to be conducting their operations in accordance with applicable health and safety requirements. Periodically review any required subcontractor health and safety written documentation for compliance with applicable requirements.
 2. In the event that unsafe acts or unsafe conditions are observed, immediately stop work, and bring them to the attention of the SSR for resolution.
 3. Investigate all injuries/illnesses related to subcontractor operations to identify causes and effect corrective actions.
 4. In the event of serious and/or continuing subcontractor breaches of applicable health and safety requirements, contact legal counsel to assess whether formal contractual action is appropriate under the subcontract.
 5. Once a job is completed, a subcontractor's safety performance should be reviewed and feedback provided to subcontractor management.
- F. Subcontractor Database
1. A database is available to store Attachment 046-1 NA completed by subcontractors. The database is available to all URS Lotus Notes users.

URS SAFETY MANAGEMENT STANDARD

Subcontractor Health and Safety Requirements

2. A RBU or Regional HSE Manager can upload completed Attachment 046-1 NA. Contact your Office HSE Representative or Regional HSE Manager for information on how to access the database.

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Subcontractor Health and Safety Evaluation Form (Attachment 046-1 NA)
- B. Applicable and current Insurance Certificates
- C. Names and telephone numbers of SSR for each subcontractor
- D. Verification of Health and Safety documents transmitted to subcontractors and received from subcontractors
- E. Identified safety deficiencies as applicable for subcontractors and verification of correction of conditions
- F. All other safety related documentation between URS and subcontractor such as training certifications, etc.
- G. Subcontractor safety plan, incident reports, and resolution reports.

6. Resources

- A. "Occupational Injury and Illness Rates by SIC," Bureau of Labor Statistics, U. S. Department of Labor (<http://www.bls.gov/iif/oshsum.htm>)
- B. Managing Subcontractor Safety, Prepared by The Construction Industry Institute, Safety Task Force, Publication 13-1, The University of Texas at Austin, Austin, Texas, 1991 (<http://www.construction-institute.org/>)
- C. American National Standard Construction and Demolition Operations—Safety and Health Program Requirements for Multi-Employer Projects, ANSI A10.33-1992, National Safety Council, Itasca, Illinois 60143-3201 (<http://www.nsc.org>)
- D. "Liability, OSHA, and the Safety of Outside Contractors," Professional Safety, American Society of Safety Engineers, January 1993 (<http://www.asse.org>)

URS SAFETY MANAGEMENT STANDARD
Subcontractor Health and Safety Requirements

- E. "Proactive Construction Management; Dealing With the Problem of Subcontractor Safety," Professional Safety, American Society of Safety Engineers, January 1990 (<http://www.asse.org>)
- F. [Attachment 046-1 NA](#) – Subcontractor Safety Evaluation Form
- G. [Attachment 046-2 NA](#) – Subcontractor Evaluation Criteria
- H. [Attachment 046-3 NA](#) – Subcontractor Variance Form



Health, Safety and Environment
SUBCONTRACTOR SAFETY
EVALUATION FORM

Attachment 046-1 NA
 Issue Date: July 1999
 Revision 8: September 2011

It is the policy of URS to provide a safe and healthful environment for all of its employees through the prevention of occupational injuries and illnesses. As such, URS considers safety as paramount and requests the following information of all subcontractors.

Company Name: _____	Date: _____
Address: _____	Contact Name: _____
_____	Title: _____
City: _____	Telephone: _____
State/Province: _____	Fax: _____
Zip/Postal Code: _____	Email: _____

Type of services performed: _____

Has your company previously performed work as a subcontractor to URS? Yes No

If "Yes" explain the nature of the work, project location, and project date, and URS Project Manager and telephone number.

How many years has your organization been in business under your firm's name? _____

If applicable, what was your organization's previous name(s)? _____

1. WORKERS' COMPENSATION EXPERIENCE INFORMATION

(United States Only)

Insurance Carrier(s): _____

Contact for Insurance Information: _____

Title: _____ Telephone: _____ Fax: _____

A. For U.S. operations - List your firm's Interstate Worker Compensation Experience Modification Rate (EMR) for the three most recent years: (Information is available from your workers compensation insurance carrier.)

For international operations - List the applicable performance rating (e.g., NEER Performance Index in Canada) for your company.

<u>Year</u>	<u>EMR Interstate (or international equivalent)</u>
_____	_____
_____	_____
_____	_____

B. We require verification of your EMR (or international equivalent). Please attach the endorsement page from your policy listing your rating, or have your insurance carrier or broker provide this information on their letterhead.

C. If your rating exceeds 1.0 for any one or more years above, please explain:

Comments: _____

2. SAFETY PERFORMANCE

A. Please consolidate your firm’s injury and illness data for the last 3 years and complete the table below. The information provided must be for your company as a whole, not an individual office location. **For U.S. operations, provide copies of your OSHA 300 and 300A logs for the last 3 years.**

	YEAR	YEAR	YEAR
A. Average Number of Employees			
B. Number of Fatalities			
C. Number of cases that involved days away from work, or cases with job transfer or restriction, or both			
D. Other Recordable Cases – Medical Only (Number of cases without lost or restricted workdays)			
E. Total Recordable Cases			
F. Total hours worked			
G. Total Recordable Incident Rate $\frac{\text{(E above)} \times 200,000}{\text{Employee Hours Worked (Given Year)}}$			
H. Lost Workday Case Incident Rate $\frac{\text{(C above)} \times 200,000}{\text{Employee Hours Worked (Given Year)}}$			

B. For each fatality, please attach a description of the accident, including cause, lessons learned, actions taken resulting from that fatality, actions taken to prevent future fatalities, and corporate management summary of their actions and attitudes.



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EVALUATION FORM**

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- C. Has your company been issued any health and safety related citations/orders from any federal, state, province, or local regulatory agency during the past 3 years? Yes No

If "Yes", please explain the nature of the citation/order, classification, and final fine (if applicable) in an attachment to your evaluation form submittal.

3. RISK MANAGEMENT / INSURANCE DATA

- A. Are you able to provide URS with insurance certificates naming URS, and if requested, URS' client as an additional insured? Yes No
- B. Please provide proof of current Workers' Compensation and Employer's Liability Insurance coverage or proof of exemption. (For U.S. operations, *attach certificate naming URS as Additional Insured*).

4. HEALTH AND SAFETY PROGRAM

- A. Does your company maintain a written Health and Safety program? Yes No
If "Yes," please include a copy of the Table of Contents.
- B. Is your company capable of preparing safety procedures specific to the work proposed for this project? Yes No
- C. Does your firm have a safety officer? Yes No
If "Yes," please provide name and telephone number.

Name: _____ Telephone: _____

- D. Do you hold jobsite safety meetings?
1. How Often?
- Daily Weekly Bi-Weekly Monthly Less Often, As needed
2. Are the health and safety meetings documented? Yes No
- E. Does your firm have the following policies/procedures? *If "Yes," please provide copies of the policies/procedures.*
1. Stop Work? Yes No
2. Short Service Employee? Yes No
3. Fitness for Duty? Yes No
- F. Is a program in place for the reporting and correction of workplace hazards? Yes No
- G. Are workers encouraged to intervene when unsafe conditions are observed? Yes No

URS	Health, Safety and Environment SUBCONTRACTOR SAFETY EVALUATION FORM	Attachment 046-1 NA Issue Date: July 1999 Revision 8: September 2011
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H. Have the safety and health hazards associated with your job activities been identified? Yes No

1. Has a risk assessment been performed on these hazards? Yes No

5. ACCIDENT/INCIDENT REPORTING, INVESTIGATION, AND INJURY MANAGEMENT

A. Does your company have a process in place for immediate reporting, investigation, and follow-up of incidents, near-misses and occupational injuries? Yes No

If "Yes," who receives copies of the report? (Job Title) _____

(Job Title) _____

(Job Title) _____

B. Who is responsible for investigation and completion of your incident report forms? (Job Title) _____

Please provide your company's incident reporting procedures.

Please provide a copy of an investigation report conducted within the last year.

C. Does your company have an injury management procedure? Yes No
If "Yes," provide a copy of the injury management procedure.

D. Does your injury management procedure include the use of occupational clinics (for non-critical injuries) as a preferred method of medical care? Yes No

E. Does your company have a nurse or doctor on staff? Yes No

F. Does your company use a third party to provide medical advice to injured employees? Yes No

If "Yes," which third-party company is used? _____

6. HEALTH AND SAFETY TRAINING

A. Do you have or provide company paid safety/health training to your employees? Yes No

B. Does your company have a formal safety orientation program for new employees? *If "Yes," submit a copy for evaluation.* Yes No

Are records kept? Yes No

If "Yes," who conducts the orientation? (Job Title) _____



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If "No," how are new employees informed of safety policies and procedures and expectations?

C. Do you have additional safety and health training for newly hired or promoted foremen/superintendents? Yes No

Topics Covered:

D. Do you maintain a record of all employees' training? Yes No

E. Are your employees enrolled in a Defensive Driving Training Program? Yes No

If "Yes," describe the training, including the training provider, who receives the training, and course length.

Please provide a copy of training records from a recent HSE training course.

7. MEDICAL / DRUG TESTING

A. Does your company have a Drug/Alcohol policy or program? Yes No

If "Yes," does your drug and alcohol program include the following:

Pre-employment testing Yes No

Testing for Cause Yes No

Post-accident testing Yes No

Random testing Yes No

B. Does your company have an ongoing medical surveillance program as required by applicable governmental regulations? Yes No

Do you conduct medical examinations for:

Pre-employment Yes No



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- Pre-placement Job Capability
- Hearing Function (Audiograms)
- Pulmonary
- Respiratory

- Yes No
- Yes No
- Yes No
- Yes No

8. COMPLIANCE ASSURANCE

- A. Does your company conduct job site safety inspections? Yes No
 - 1. How often? _____
 - 2. Who conducts the inspection? (Job Title) _____
 - 3. Who receives the reports? (Job Title) _____
 - 4. Are inspections documented? *If "Yes," provide an example.* Yes No

Comment on any other areas of your company's safety program and policies that you think will be appropriate in our evaluation.

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VERIFICATION OF DATA

Please have an officer of the Company sign below certifying that the information provided in this document is current and correct. Misrepresentation of data requested is grounds for immediate termination of contracts and disqualification from future consideration.

Name	Title
Signature	Date

REQUIRED INFORMATION SUBMITTAL
<p>Please provide copies of the following documents with the completed evaluation form. If the following information is not included, provide a written reason for the failure to do so.</p> <ul style="list-style-type: none"> <input type="checkbox"/> EMR documentation, or international equivalent, from your insurance carrier <input type="checkbox"/> U.S. Only - OSHA 300 and 300A Logs (Past 3 Years) – <i>Employee names must be removed.</i> <input type="checkbox"/> Description for any fatalities (if applicable) <input type="checkbox"/> Insurance Certificate(s) – <i>Naming URS as Additional Insured</i> <input type="checkbox"/> Safety, Health, and Environmental Program (Table of Contents) <input type="checkbox"/> Stop Work, Short Service Employee, Fitness for Duty Policies/Procedures <input type="checkbox"/> Accident/Incident Reporting Procedure <input type="checkbox"/> Example of an Investigation Report conducted within the past year <input type="checkbox"/> Injury Management Procedure <input type="checkbox"/> Safety, Health & Environmental Orientation for New Hires (Outline) <input type="checkbox"/> Example of Safety, Health and Environmental Training Records <input type="checkbox"/> Example of Job Site Safety Inspection conducted within the past year

THIS PAGE IS TO BE COMPLETED BY URS CORPORATION.

Subcontractor Name: _____


Project or Site Manager Evaluation:

- Pass Subcontractor meets the criteria established in Attachment 046-2 NA, and no further action is required.
- Fail Subcontractor does not meet the criteria established in Attachment 046-2 NA. If a unique business need exists, then a subcontractor variance must be initiated using Attachment 046-3 NA. The variance must be submitted to a Corporate, Regional, or Strategic Business Unit (SBU) HSE Manager for evaluation.

Project or Site Manager Name: _____

Signature: _____

Date: _____

	<p align="center">Health, Safety and Environment</p> <p align="center">SUBCONTRACTOR EVALUATION CRITERIA</p>	<p align="right">Attachment 046-2 NA</p> <p align="right">Issue Date: July 1999 Revision 8: September 2011</p>
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Prior to engaging a subcontractor on a project, Project Managers are required to ensure that the contractor has an effective safety program, is capable of conducting its operations in a safe manner, and has appropriate insurance coverage. The following criteria shall be followed in determining whether the subcontractor may be used on a URS Corporation project.

Note: Some questions/answers (Sections 4 through 8) from Attachment 046-1 NA are not discussed in the evaluation criteria below. These questions are asked and the answers are intended to help the Project Manager understand the safety culture and/or safety priority of the subcontractor.

GENERAL INFORMATION

If subcontractor has performed work for URS previously, check safety performance history with previous URS Corporation Project Manager.

The numbers in this section directly correspond to the questions in Attachment 046-1 NA.

WORKERS' COMPENSATION EXPERIENCE INFORMATION

1.A. For any EMR, or international equivalent, listed as greater than 1.0, the contractor has failed the sub-evaluation. Further consideration may not occur without referral to a URS Regional, or Strategic Business Unit (SBU) Health, Safety, and Environment (HSE) Manager in your Region for further assessment.

If all EMRs listed are 1.0 or below, continue with the evaluation.

SAFETY PERFORMANCE

2. For any Total Recordable Incident Rate (line G in table) listed as greater than 4.0, the subcontractor has failed the evaluation. Further considerations may not occur without referral to a URS Regional or SBU HSE Manager in your Region for further assessment.

If the Total Recordable Incident Rates are at or below 4.0, continue with the assessment.

2.B. If the contractor has had a fatality, further consideration may not occur without referral to a URS Regional or SBU HSE Manager in your Region.

2.C. In the U.S., determine the subcontractor's citation history at <http://osha.gov/pls/imis/establishment.html>. Query Case Status Open and Closed. Compare the published data to the subcontractor questionnaire. The subcontractor must explain any discrepancies.

For international operations, consult a URS Regional or SBU Manager to evaluate citations/orders a subcontractor has disclosed.



**SUBCONTRACTOR
EVALUATION CRITERIA**

Look for willful, serious, and repeat violations. If they suggest a problem, request information and refer to a URS Regional or SBU HSE Manager in your Region for further assessment.

RISK MANAGEMENT/INSURANCE DATA

- 3.A. The ability to provide Insurance Certificates naming URS Corporation as an additional insured is required. Refer any questions to the URS Legal Department.
- 3.B Proof of Workers' Compensation Insurance (or proof of exemption) is required. Refer any questions to the URS Legal Department.

HEALTH AND SAFETY PROGRAM

For Sections 4 through 8, if a subcontractor answers 'No' to any of the questions, the Project Manager needs to consider the type of work the subcontractor will be performing (e.g. HAZWOPER work required medical surveillance exams) to determine if the answer is acceptable.

- 4.A. A "No" answer should be referred to a URS Regional or SBU HSE Manager in your Region for further assessment. For small subcontractors, a 'No' answer may be acceptable with good incident and insurance rate statistics. Generally, some minimal program is expected depending on the breadth and complexity of the work. Contact a URS Regional or SBU HSE Manager in your Region for further assessment if you have any questions or doubts.
- 4.B. It is expected that a subcontractor being hired to perform services on the project site should be the best prepared to address safety issues for their operations, especially when specialty work is being conducted, or for work in which the subcontractor possesses superior knowledge of their operations.

A "No" answer should be referred to a URS Regional or SBU HSE Manager in your Region for further assessment.

Exception:

If the subcontractor does not meet the other requirements outlined above, the decision will be that the subcontractor will not be used. However, if a unique business need exists (e.g., subcontractor is a specialty subcontractor), the Project Manager should initiate a Subcontractor Variance (Attachment 046-3 NA). The Subcontractor Variance must be approved by a Regional or SBU HSE Manager.



Health, Safety and Environment
SUBCONTRACTOR VARIANCE FORM

Attachment 046-3 NA
Issue Date: July 1999
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Subcontractor Name: _____

Project or Site Location: _____

Description of Work to be Performed:

Explain any of the following conditions that apply to the subcontractor:

- EMR greater than 1.0
- TRIR greater than 4.0
- Fatalities within the past 3 years
- Willful, serious, or repeat OSHA citations

Why should we use this subcontractor?



Health, Safety and Environment
SUBCONTRACTOR VARIANCE FORM

Attachment 046-3 NA
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Have other similar subcontractors been evaluated? If so, please explain.

Mitigations by URS to manage the risks.

Review:

Project or Site Manager Requesting Variance

HSE Manager Approval

Name: _____

Date: _____

Signature: _____

URS SAFETY MANAGEMENT STANDARD

Biological Hazards

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to reduce or eliminate illnesses and injuries transmitted by plants, insects, animals, and pathogenic agents.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 047 NA](#) – North America

[SMS 047 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 047 AP7 – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Biological Hazards

1. Applicability

This standard applies to URS Corporation and its subsidiary companies where job activities are performed primarily in outdoor environments.

2. Purpose and Scope

The purpose of this standard is to provide information that will help eliminate or reduce illnesses and injuries transmitted by plants, insects, animals, and pathogenic agents. Although there are many animals and insects that are potentially harmful to humans (e.g., bees, spiders, bears, and rodents), this standard focuses on six common biological hazards: ticks, poison plants, mosquitoes, snakes, Valley Fever, and water-borne pathogenic agents. Refer to SMS 051 – Bloodborne Pathogens for additional information.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Ticks

1. Precautionary Measures

- a. Background information: Ticks do not jump, crawl, or fall onto a person. They are picked up when clothing or hair brushes a leaf or other object the tick is on. Ticks are generally found within 3 feet of the ground. Once picked up, they will crawl until they find a likely site to feed. Often they will find a spot at the back of the knee, near the hairline, behind the ears, or at pressure points where clothing presses against the skin (underwear elastic, belts, neckline). The best way to prevent tick-borne diseases is not to be bitten by a tick. Ticks can carry a number of diseases, including the following:
 - i. *Lyme Disease* is an infection caused by the corkscrew-shaped bacteria *Borrelia burgdorferi* that is transmitted by the bite of deer tick (ixodes) and western black-legged ticks. The disease occurs in the forested areas of North America, Europe, and Asia. Symptoms that occur within 3 to 30 days following a tick bite include: a spreading ‘bulls-eye’ rash, fever, fatigue, headache, and joint and muscle aches. Prompt treatment with antibiotics is essential in order to prevent more serious complications that may occur if left untreated.

URS SAFETY MANAGEMENT STANDARD
Biological Hazards

- ii. *Rocky Mountain Spotted Fever* is an infection caused by the bacteria *Rickettsia rickettsii*. The disease occurs in North, Central, and South America. Other *Rickettsia* organisms cause disease worldwide (Mediterranean, Japan, Africa, North Asia). Symptoms which occur 2-6 days following a tick bite include: fever, nausea, vomiting, diarrhea, rash, muscle and joint pain. The disease is treated with antibiotics.
- iii. *Babesiosis* is caused by hemoprotozoan parasites of the genus *Babesia*. It is transmitted by the ixodid tick. The geographic distribution is worldwide. Symptoms include fever, chills, fatigue, muscle aches, and an enlarged spleen and liver. The disease is treated with anti-protozoan drugs.
- iv. *Ehrlichiosis* is caused by several bacteria of the genus *Ehrlichiae*. The geographic distribution is global, primarily in temperate regions. Symptoms which occur 5-10 days following a tick bite include fever, headache, fatigue, muscle aches, nausea, vomiting, diarrhea, confusion, and occasionally a rash. The disease is treated with antibiotics.

b. Avoidance of tick habitats

Whenever possible, persons should avoid entering areas that are likely to be infested with ticks, particularly in spring and summer when nymphal ticks feed. Ticks favor a moist, shaded environment, especially which provided by leaf litter and low-lying vegetation in wooded, brushy, or overgrown grassy habitat. Both deer and rodent hosts must be abundant to maintain the life cycle of the tick.

c. Personal Protective Equipment

- i. Wear light colored clothing or white Tyvek® to allow you to see ticks that are crawling on your clothing.
- ii. Tuck your pant legs into your socks or boots, wear high rubber boots, or use tape to close the opening where they meet so that ticks cannot crawl up the inside of your pant legs.
- iii. Wear a hat, and tie back long hair.
- iv. Apply repellents to discourage tick attachment. Repellents containing permethrin can be sprayed on boots and clothing, and will last for several days. Repellents containing DEET (n,n-diethyl-m-toluamide) can be applied to the skin, but will last only a few

URS SAFETY MANAGEMENT STANDARD

Biological Hazards

hours before reapplication is necessary. Apply according to Environmental Protection Agency guidelines to reduce the possibility of toxicity.

d. Tick Check

- i. Change clothes when you return from an area where ticks may be located.
- ii. Shower to wash off any loose ticks.
- iii. Check your entire body for ticks. Use a hand held or full-length mirror to view all parts of your body.
- iv. Place clothing worn in tick infested areas into the dryer for at least 30 minutes in order to kill any ticks.

2. Tick Removal

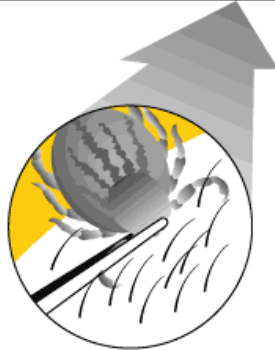
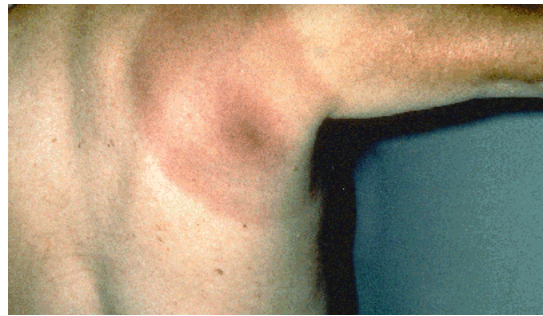
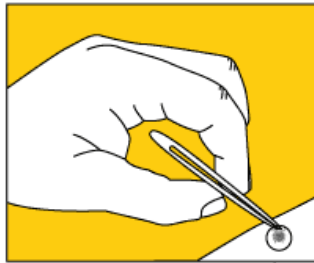
Because it takes several hours of attachment before microorganisms are transmitted from the tick to the host, prompt removal of attached or crawling ticks is an important method of preventing disease. Remember, folklore remedies of tick removal to do not work! Methods such as the use of petroleum jelly or hot matches may actually make matters worse by irritating the tick and stimulating it to release additional saliva or regurgitate gut contents, increasing the chances of transmitting disease.

The best method to remove an attached tick is with a set of fine tipped tweezers.



URS SAFETY MANAGEMENT STANDARD

Biological Hazards



- a. Use fine-tipped tweezers. When possible, avoid removing ticks with bare hands.
- b. Grasp the tick as close to the skin surface as possible and pull upward with steady, even pressure. Do not twist or jerk the tick; this may cause the mouthparts to break off and remain in the skin. If this happens, remove mouthparts with the tweezers.
- c. Do not squeeze, crush, or puncture the body of the tick because its fluids (saliva and gut contents) may contain infectious organisms.
- d. After removing the tick, thoroughly disinfect the bite site and wash your hands with soap and water.
- e. Disinfect the tweezers.
- f. Save the tick for identification in case you become ill. This may help the doctor make an accurate diagnosis. Place the tick in a vial or plastic zip lock bag and put it in the freezer. Write the date of the bite on a piece of paper with a pencil and place it in the bag.

3. Reporting and Medical Follow-Up

Tick bites must be reported and managed in accordance with SMS 049 – Injury/Illness/Incident Reporting and SMS 065 – Injury and Claims Management. In most circumstances, medical treatment of persons who only have a tick bite is not recommended. However, individuals who are

URS SAFETY MANAGEMENT STANDARD

Biological Hazards

bitten by a tick should seek medical attention if any signs and symptoms of tick-borne disease develop over the weeks following the tick bite.

B. Poisonous Plants

1. Background Information

Poison ivy and poison oak plants are the most common cause of allergic contact dermatitis in North America. These poisonous plants can be a hazard for many various outdoor activities at work, home, and play. Skin contact with the oleoresins (urushiol) from these plants can cause an itchy, red, oozing, blistered rash in sensitive individuals. Oil content in the plants is highest in the spring and summer; however, the plants are even hazardous in the winter when they have dropped their leaves. There are three types of exposure:

- a. Direct contact: An initial skin exposure is necessary to “sensitize” the individual. Subsequent contact in a sensitized person will result in a rash appearing within 4 to 48 hours. Approximately 50 to 70 percent of the population is sensitized. Poison plant dermatitis is usually characterized by areas of linear or streaked patches where branches of the plant brushed the skin.
- b. Indirect contact: Skin exposure can happen indirectly. Clothing, shoes, tools, personal protective equipment, and other items can be contaminated with the oils and maintain potency for months.
- c. Airborne smoke contact: Never burn poison plants. Droplets of oil can be carried by smoke and enter the respiratory system, causing a severe internal outbreak.

Poison plant rash is not contagious. Skin contact with blister fluid from an affected individual will not cause dermatitis in another sensitized person. Scratching the rash can only spread it to other parts of your body if the oil is still on your skin. After the oil has been washed off or absorbed by the skin, scratching will not spread the rash.

The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each and are green in the summer and red in the fall. Both plants also have greenish-white flowers and berries that grow in clusters. All parts of these plants are toxic.

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Biological Hazards

Poison Ivy grows as a small plant, vine, and as a shrub. Leaves always consist of three glossy leaflets.



Poison Oak grows as a shrub or vine. It has three leaflets that resemble oak leaves.



Poison Sumac grows as a woody shrub or small tree from 5 to 25 feet tall. It has 7 to 13 leaves that grow opposite each other with a leaflet at the tip. Poison sumac grows in wet soils, typically in swamps and bogs.



Poison Sumac

2. Precautionary Measures

- a. The best approach is to learn to identify the plants and avoid them.
- b. Wear long pants and long sleeves, boots, and gloves.
- c. Barrier skin creams may offer some protection if applied before contact.

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Biological Hazards

- d. Avoid indirect contact with tools, clothing, or other objects that have come into contact with a crushed or broken plant. Don't forget to wash contaminated clothing and clean up contaminated equipment.
- e. If you can wash exposed skin areas within 3 to 5 minutes with cold running water, you may keep the urushiol from penetrating your skin. Proper washing may not be practical in remote areas, but a small wash-up kit with pre-packaged alcohol-based cleansing tissues can be effective.

3. Reporting and Medical Follow-Up

Exposure to poisonous plants must be reported and managed in accordance with SMS 049 – Injury/Illness/Incident Reporting and SMS 065 – Injury and Claims Management.

Home treatment: Calamine lotion and an oatmeal (1 cup to a tub full of water) bath can help relieve itching. To prevent secondary skin infection, scratching is not helpful, and the finger nails should be cut to avoid damage to the skin. Over-the-counter hydrocortisone cream can decrease inflammation and itching; however, read the label and use according to directions.

When to see the doctor: Severe cases may require further treatment. A physician should be seen if the rash appears infected, is on the face or other sensitive body areas, or is too extensive to be easily treated at home.

C. Mosquito-Borne Diseases

1. Background Information

- a. Arboviral encephalitis is a viral illness causing inflammation of the brain, and is transmitted to humans by the bite of infected mosquitoes. Globally, there are several strains, including: Eastern equine, Japanese, La Crosse, St. Louis, West Nile, and Western equine encephalitis. Some of the strains have a vaccine. Symptoms of infection are nonspecific and flu-like: fever, headache, and tiredness. Fortunately, only a small proportion of infected people progress to encephalitis. Treatment is supportive, antibiotics are not effective.
- b. Malaria is a serious but preventable disease spread by the bite of an infected anopheline mosquito. It is caused by four species of the parasite *Plasmodium* (*P. falciparum*, *P. vivax*, *P. ovale*, and *P. malariae*). Malaria-risk areas include primarily tropical areas of Central

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Biological Hazards

and South America, Africa, India, Southeast Asia, and the Middle East. Symptoms of malaria, which occur 8 days to 1 year after infection, include fever, shaking, chills, headache, muscle ache, tiredness, jaundice, nausea, vomiting, and diarrhea. Malaria can be cured with prescription drugs.

- c. Dengue Fever is a potentially life-threatening viral illness transmitted by the bite of the Aedes mosquito, found primarily in urban areas. The disease is found in most of tropical Asia, the Pacific Islands, Central and South America, and Africa. There are four dengue virus serotypes. Symptoms include sudden onset, high fever, severe headache, joint and muscle pain, rash, nausea, and vomiting. There is no specific treatment and no vaccine.
- d. Yellow Fever is a viral disease transmitted between humans by mosquitoes. It occurs only in Africa and South America. There is a vaccine that confers immunity lasting 10 years or more. Symptoms begin 3 to 6 days after the mosquito bite, and include fever, nausea, vomiting, headache, slow pulse, muscle aches, and restlessness. Treatment is symptomatic.
- e. West Nile virus is a viral disease transmitted by mosquitoes. It occurs in North America, Europe, Africa, west and central Asia, and the Middle East. There is no vaccine for West Nile virus. Symptoms include nausea, vomiting, and diarrhea.

2. Precautionary Measures

- a. Insect Repellent: Use insect repellants that contain DEET. The effect should last about 4 hours. Always use according to label directions. Use only when outdoors and wash skin after coming indoors. Do not breathe in, swallow, or get into the eyes. Do not put on wounds or broken skin.
- b. Protective Clothing: Wear long-sleeved shirts and long pants, especially from dusk to dawn. Avoid going outdoors during these hours.
- c. Mosquito netting: Travelers who will not be staying in well-screened or air conditioned rooms should use a pyrethroid-containing flying insect spray in living and sleeping areas during evening and nighttime hours. Sleep under mosquito netting (bed nets) that has been sprayed with permethrin.

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- d. Malaria prophylaxis medications may be prescribed; however, they do not provide complete protection. The type of medication given depends on the area of travel.

D. Poisonous Snakes

1. Background Information

No single characteristic distinguishes a poisonous snake from a harmless one except the presence of poison fangs and glands. Only in dead specimens can you determine the presence of these fangs and glands without danger. Most poisonous snakes have both neurotoxic and hemotoxic venom; however, one type is dominant and the other is weak.

- a. Hemotoxic venom. The folded-fang snakes (fangs can raise to an erect position) have venoms that affect the circulatory system, destroying blood cells, damaging skin tissues, and causing internal hemorrhaging.
- b. Neurotoxic venom. The fixed-fang snakes (permanently erect fangs) have venoms that affect the nervous system, making the victim unable to breathe.
- c. Poisonous snakes in the Americas: copperhead, coral snake, cottonmouth, and rattlesnake.
- d. Poisonous snakes in Europe: adder, viper.
- e. Poisonous snakes in Africa and Asia: viper, cobra, adder, green mamba.
- f. Poisonous snakes in Australia: copperhead, adder, taipan, tiger snake.

2. Precautionary Measures

Bites occur when you don't hear or see the snake, when you step on them, or when you walk too close to them. Follow these simple rules to reduce the chance of accidental snakebite:

- a. Don't put your hands into dark places, such as rock crevices, heavy brush, or hollow logs, without first investigating.
- b. Don't step over a fallen tree. Step on the log and look to see if there is a snake resting on the other side.
- c. Don't walk through heavy brush or tall grass without looking down. Look where you are walking.

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- d. Do not pick up any live snake. If you encounter a snake, walk around the snake, giving it plenty of room. A snake can strike half its length.
- e. Don't pick up freshly killed snakes without first severing the head. The nervous system may still be active and a dead snake can deliver a bite.

3. Reporting and Medical Follow-Up

Snake bites must be reported and managed in accordance with SMS 049 – Injury/Illness/Incident Reporting and SMS 065 – Injury and Claims Management.

If you are bitten by a snake, the primary goal is to get to a hospital as soon as possible to receive professional medical evaluation, and possible treatment with anti-venom if warranted. Initial first aid should include: Washing the bite with soap and water; immobilizing the bitten area and keeping it lower than the heart. Try to remain calm. If you are unable to reach a hospital within 30 minutes, a bandage, wrapped 2 to 4 inches above the bite, may help slow the venom. The bandage should not cut off blood flow from a vein or artery; make sure the bandage is loose enough that a finger can slip under it.

Research has shown the following to be potentially harmful: DO NOT apply ice, use a tourniquet, or make incisions into the wound.

E. Valley Fever

1. Background Information

Valley Fever is an illness that results from exposure to a fungal spore (*Coccidioides immitis*). It is endemic to the San Joaquin Valley in California, as well as areas of the Southwestern U.S., Mexico, and Central and South America, although it has been found in many other areas. It is particularly associated with arid soils that are not cultivated. Exposure is generally by inhalation of spores, though it may also enter through broken skin. Approximately 2 weeks after inhalation exposure, severe weakness and flu-like symptoms develop; severe pneumonia may occur. It may also affect the brain, bones, and joints causing disability, spinal meningitis, or death. Dermal forms of the infection can form disfiguring fungal lesions.

2. Precautionary Measures

Because it is associated with arid soils, personnel should avoid locations and activities that create dust. Persons at risk of exposure include

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geologists, surveyors, excavators, archaeologists, etc. Dust suppression methods should be employed and the use of particulate respirators should be considered for areas known to harbor the fungus. At one phase of the fungus' life cycle, cottony, spider-web-like growths may be seen on the soil surface. If observed, these growths must not be disturbed, and work should be relocated if possible.

3. Reporting and Medical Follow-up

Exposure to fungal spores must be reported and managed in accordance with SMS 049 – Injury/Illness/Incident Reporting and SMS 065 – Injury and Claims Management.

Approximately 60 percent of exposed persons will not have symptoms. Persons that have been in areas associated with Valley Fever should be alert to the development of flu-like symptoms, fatigue, or skin rashes 2 to 4 weeks later. Valley Fever can be treated with anti-fungal medication. Early treatment is critical, as disseminated forms of the disease can result in chronic disease or death.

F. Pathogenic organisms

1. Background Information

Employees who perform certain activities, such as disaster response, may be in areas where water-borne pathogens may be present. A partial list of agents includes: E. coli, Hepatitis A, typhoid, and cholera. Chemical hazards and molds and fungus may also be present. Refer to SMS 051– Bloodborne Pathogens for additional information.

2. Precautionary Measures

All work must be performed within the scope of either a Health and Safety Plan or Safe Work Plan that identifies the task hazards, and specifies appropriate controls. A medical exam and/or inoculations may be required. See SMS 024 – Medical Screening and Surveillance, or contact the Occupational Health Manager for assistance.

Where contact with water or wet materials may occur, personnel must use protection such as impervious coveralls, boots/waders, faceshields, etc, as specified in the project Health and Safety Plan or Safe Work Plan. Personnel must protect any areas of broken skin, eyes, nose, and mouth from contact with potentially infectious materials, and practice good personal hygiene before eating, drinking, etc.

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3. Reporting and Medical Follow-up

Exposure to pathogenic organisms must be reported and managed in accordance with SMS 049 – Injury/Illness/Incident Reporting and SMS 065 – Injury and Claims Management.

Medical evaluation and/or an inoculation schedule may be required prior to beginning work. Because early evaluation and treatment is more successful, personnel should be alert to signs and symptoms of possible pathogenic organisms and seek prompt medical evaluation if illness develops or is suspected.

G. Natural disaster relief efforts

1. Natural disaster relief efforts present a variety of hazards, including biological hazards. Biological hazards potentially encountered during relief efforts include mold, sewage-contaminated water, various building materials that may puncture the skin and create various types of infections, and displaced animals and insects. Before work begins, each disaster relief site should be evaluated for the various types of biological hazards that may be encountered. Control measures must be developed to address the biological hazards.

5. Documentation Summary

Complete and distribute a URS Incident Report form 049-1 for all work-related biological exposure incidents.

6. Resources

- A. Centers for Disease Control <http://www.cdc.gov>
- B. U. S. Occupational Safety and Health Administration <http://www.osha.gov>
- C. U.S. Food and Drug Administration - Treating and Preventing Venomous Snake Bites
http://www.fda.gov/fdac/features/995_snakes.html
- D. ENature – Identify plant and animals hazards in a specific area.
<http://enature.com/zipguides/index.asp?choice=poisonous>
- E. [SMS 051](#) – Bloodborne Pathogens
- F. [SMS 024](#) – Medical Screening and Surveillance

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- G. [SMS 049](#) – Injury / Illness / Incident Reporting & Notifications
- H. [SMS 065](#) – Injury and Claims Management
- I. [ORC Pandemic Planning Guide](#)

URS SAFETY MANAGEMENT STANDARD

Injury / Illness / Incident Reporting & Notifications

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to provide guidance for the timely reporting of work-related injuries, illness, and incidents. This procedure also defines incident notification procedures for URS employees. For incidents involving motor vehicles, the reporting and notification requirements of URS SMS 057 – Vehicle Safety Program – may also apply.

For significant incidents (e.g., fatality, serious injury, injury to members of the public), SMS 066 – Incident Investigation – is also required.

3. Procedures

The associated procedures for this standard are included as attachments:

<i>Infrastructure & Environment and Federal Services</i>

[SMS 049 NA](#) – North America, UK and Ireland, Europe, and Middle East

SMS 049 AP11 – Asia Pacific

<i>Energy & Construction</i>

[SMS 049 EC](#)

URS SAFETY MANAGEMENT STANDARD

Injury / Illness / Incident Reporting & Notifications

1. Applicability

This standard applies to the operations of the Infrastructure & Environment and Federal Services businesses of URS Corporation (URS) and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to provide guidance for the timely reporting of work-related injuries, illness, and incidents. This procedure also defines incident notification procedures for URS employees. For incidents involving motor vehicles, the reporting and notification requirements of SMS 057 – Vehicle Safety Program – may also apply.

For significant incidents (e.g., fatality, serious injury, injury to members of the public), SMS 066 – Incident Investigation – is also required.

Note that this standard will also be used for investigation of critical injuries as defined by Canadian provincial regulations. See Supplemental Information A for definitions of critical injuries.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Reporting: All employees must immediately notify their appropriate level of management (line, project, and/or office) of a reportable incident. A reportable incident includes the following:

1. An injury or illness to any URS employee or subcontractor, even if the injury does not require medical attention.
2. An injury to a member of the public, or clients, occurring on a URS-controlled work site.
3. Illness resulting from suspected chemical exposure.
4. Chronic or re-occurring conditions such as back pain or cumulative trauma disorders (e.g., carpal tunnel syndrome).
5. Fire, explosion, or flash.

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6. Any vehicle accidents occurring on site, while traveling to or from client locations, or with any company-owned, rented, or leased vehicle (including personal vehicles used for company business).
7. Property damage resulting from any URS or subcontractor activity.
8. Structural collapse or potential structural hazards.
9. Unexpected release or imminent release of a hazardous material.
10. Unexpected chemical exposures to workers or the public.
11. A safety-related complaint from the public regarding URS activities.
12. Incidents that could result in adverse public media interest concerning URS or a URS project.
13. Any incident that could or does result in an actual investigation by state, federal, provincial, or local regulatory or law enforcement agencies.
14. Any other significant occurrence that could impact safety, including a near-miss.

Note: A near-miss is defined as an incident having the potential to cause significant injury or property damage as listed above, but did not. Examples of a near-miss include:

- a. A worker steps off a ledge, falls 3 feet (1 meter) to the floor, and is uninjured.
- b. A crane drops a 1,000-pound (454-kilogram) beam during a lift. Nobody is hurt, and no equipment is damaged.
- c. A work crew is conducting a survey along the highway. A vehicle leaves the roadway (driver asleep) and the vehicle enters the survey area at 50 miles per hour (80 kilometers per hour). The vehicle misses an employee by 3 feet (1 meter); the driver recovers control of the vehicle and leaves the area.

B. Actions: The following actions will be taken following a reportable incident:

1. Employees:
 - a. If necessary, suspend operations and secure and/or evacuate the area.

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Injury / Illness / Incident Reporting & Notifications

- b. Immediately notify your supervisor and/or project manager.
 - c. Contact appropriate emergency services and obtain appropriate medical attention, as required or directed by your supervisor. For additional information, refer to SMS 065 – Injury and Claims Management.
 - d. Record information pertaining to the incident (e.g., time, date, location, name and company of person(s) involved, witnesses, description of event, and actions taken) and initiate Attachment 049-1 NA – Incident / Near Miss Report. (Note: The international operations of the Infrastructure & Environment business will complete an on-line Incident Report instead, using the appropriate Health, Safety, and Environment (HSE) and Quality Improvement database).
 - e. Submit this information to your supervisor and/or Project Manager within 24 hours of the incident.
 - f. Assist with incident investigation as directed by management.
 - g. Implement corrective actions as directed by management.
 - h. *Do not* discuss the incident with members of the news media or legal representatives (except URS legal counsel or your personal legal advisor) unless directed to do so by URS management.
 - i. *Do not* make statements pertaining to guilt, fault, or liability.
2. Line/Project Management Responsibilities (U.S. and Mexico Operations)
- a. For instances involving employee or subcontractor death or hospitalization, or equipment damage to Company or customer equipment valued at more than \$100,000 (USD), immediately notify by telephone or other direct means URS Operations and the HSE team in the order listed below. If any level of contact is unsuccessful, continue down the list in sequence. After notification has been made, a detailed follow-up, via email, is required.
 - i. Appropriate corporate leadership for the affected program up to the Regional Business Unit (RBU) or

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Injury / Illness / Incident Reporting & Notifications

Strategic Business Unit (SBU) Vice President for the affected Operations.

- ii. The URS Occupational Health Manager (OHM).
- iii. Appropriate RBU and SBU HSE Manager for the affected Operation.

Follow-up notification should be made by forwarding Attachment 049-1 NA to the OHM within 24 hours. See Attachment 049-1 NA for methods of distribution. Also, assure copies of the report are distributed as outlined on the form. For the international operations of the Infrastructure & Environment business, this follow-up notification is not required.

Business Vice President/Director of HSE (or designee) will make notification to federal and state authorities as appropriate.

- b. For minor incidents involving only first aid treatment, minor damage to vehicle or equipment, etc., make notifications to a supervisor and OHM immediately and submit Attachment 049-1 NA to the OHM. See Attachment 049-1 NA for methods of distribution. Also, assure copies of the report are distributed as outlined on the form.
- c. For a near-miss incident, complete Attachment 049-1 NA and submit to the OHM as soon as reasonable. Also, ensure copies of the report are distributed as outlined on the form.
- d. Review circumstances (i.e., who, what, when, where, and how) of the incident with applicable employee(s) to determine apparent causes and to develop recommended corrective actions.
- e. Discuss with department or project staff the circumstances surrounding the incident and corrective actions taken.

3. Line/Project Management Responsibilities (Canadian Operations)

- a. If notified of an incident that is a critical injury (see Supplemental Information A for definition), serious accident, or other significant consequence:
 - i. Immediately contact URS Canada Human Resources

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Injury / Illness / Incident Reporting & Notifications

- at (905) 882-4401.
 - ii. Review circumstances (i.e., who, what, when, where, and how) of the incident with applicable employee(s) to determine apparent causes and to develop recommended corrective actions.
 - iii. Follow up notification by completing, signing, and delivering/faxing Attachment 049-1 NA to URS Canada Human Resources within 24 hours.
 - iv. URS Canada Human Resources will make notification to provincial authorities as appropriate.
- b. If notified of an incident that is not a critical injury, nor a serious accident or other significant consequence:
- i. Review circumstances (i.e., who, what, when, where, and how) of the incident with applicable employee(s) to determine apparent causes and to develop recommended corrective actions.
 - ii. Complete, sign, and deliver/fax Attachment 049-1 NA to URS Canada Human Resources within 24 hours.
 - iii. URS Canada Human Resources will make notification to provincial authorities as appropriate.
- c. If notified of a near-miss incident:
- i. Review circumstances (i.e., who, what, when, where, and how) of the incident with applicable employee(s) to determine apparent causes and to develop recommended corrective actions.
 - ii. Complete, sign, and deliver/fax Attachment 049-1 NA to URS Canada Human Resources as soon as practicable.
- d. Discuss with department or project staff the circumstances surrounding the incident and corrective actions taken.
4. Local Office, Project, and/or Certified HSE Representative
- a. Assist with incident evaluation.

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- b. With management, identify cause(s) of incident and identify corrective actions needed to avoid recurrence.
 - c. Review injury/incident report or the near-miss report for completeness and accuracy. Ensure the reports are distributed properly.
 - d. Ensure notifications are made in a timely manner.
 - e. Ensure that the injured employee is properly counseled/advised as directed by SMS 065 – Injury and Claims Management. Communicate with the OHM.
 - f. Note that “Certified” HSE Representatives are those who have received special training in occupational safety and health and have been certified by the Ontario Workplace Safety and Insurance Board. Certified HSE Representatives should be used at larger Canadian project sites where joint worker/employer safety committees are developed.
5. Occupational Health Manager
- a. Report work-related injuries and illness to workers’ compensation carrier.
 - b. Ensure that the employee’s injury is managed in accordance with SMS 065 – Injury and Claims Management. Provide guidance for the affected office, project, and/or Certified HSE Representative.
 - c. Periodically disseminate near-miss reporting summary information to the Regional and RBU/SBU HSE Managers.
6. URS Human Resources (Canadian Operations Only)
- a. Receive incident notifications from staff.
 - b. For incidents involving critical injuries, serious accidents, or other significant consequences:
 - i. Verbally notify the Office Manager immediately, via cell phone if necessary.
 - ii. Notify the Certified HSE Representatives (management and worker) as soon as possible (where necessary).

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- iii. Notify the OHM as soon as possible. Notification to the OHM should in no case occur later than the end of the work shift.
- iv. Follow up notification by receiving from staff and forwarding Attachment 049-1 NA to the OHM within 24 hours. Also, assure copies of the report are distributed as outlined on the form.
- c. For minor incidents involving only first aid treatment, minor damage to vehicle of equipment, etc.:
 - i. Notify the OHM as soon as reasonable during normal business hours.
 - ii. Receive from staff and forward Attachment 049-1 NA to the OHM within 24 hours.

Ensure copies of the report are distributed as outlined on the form.

- d. Report work-related injuries and illness to the Workplace Safety and Insurance Board or appropriate workers' compensation carrier and other provincial or federal authorities as appropriate.
 - e. Ensure, in conjunction with the Office HSE Representative, that the employee's injury is managed in accordance with SMS 065 – Injury and Claims Management. Provide guidance for the affected Certified or Project HSE Representative.
 - f. Periodically disseminate near-miss reporting summary information to the Regional and RBU/SBU HSE Managers.
7. Business HSE Management
- a. Notify URS management of any significant occurrence, including lost-time injuries, deaths, or other serious result or circumstance.
 - b. The OHM will review all reported incidents to determine OSHA reporting and recording requirements with input from the appropriate Business HSE Manager. For a determination of recordability in those infrequent instances

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Injury / Illness / Incident Reporting & Notifications

where there is not a clear answer, the Business Vice President/Director HSE will make the final determination. All decisions will be based strictly on current U.S. Occupational Safety and Health Administration (OSHA) regulations.

- c. Official records (including required reports and logs for all reported incidents) will be maintained at one central location by the OHM.
 - d. Each January, the OHM will prepare and distribute the appropriate government injury/illness reports to each URS establishment. These reports will summarize all required government information for incidents that occurred during the preceding calendar year.
8. If an incident occurs on a client-controlled site, Project Management will ensure that appropriate client notifications are made within the required time frames. These notification requirements will be documented in project-specific planning documents.
9. All notifications to external agencies (e.g., OSHA) will be made by the Business Vice President/Director HSE (or designee) in accordance with regulatory requirements.

5. Documentation Summary

File Attachment 049-1 NA in the appropriate safety files. Note that the international operations of the Infrastructure & Environment business will use the appropriate HSE and Quality Improvement database.

6. Resources

A. Occupational Health Managers (OHMs)

Infrastructure & Environment	Federal Services
Jeanette Schrimsher, RN COHN-S (866) 326-7321 (Toll Free-U.S.) (512) 656-0203 (Cell) (512) 419-6413 (Confidential Fax)	BJ (Johnson) Heinrich, RN, BSN, COHN-S (866) 344-1415 (Toll Free-U.S.) (877) 878-9525 (Toll Free-International) (512) 656-8502 (Cell) (512) 419-5252 (Confidential Fax)

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Injury / Illness / Incident Reporting & Notifications

- B. [SMS 057](#) – Vehicle Safety Program
- C. [SMS 065](#) – Injury and Claims Management
- D. [SMS 066](#) – Incident Investigation
- E. [Attachment 049-1 NA](#) – Injury/Near Miss Report Form

Per the Ontario Occupational Health and Safety Act, R.R.O. 1990, Regulation 834, a Critical Injury is defined as an injury of a serious nature that:

- a. Places life in jeopardy;
- b. Produces unconsciousness;
- c. Results in substantial loss of blood;
- d. Involves the fracture of a leg or arm but not a finger or toe;
- e. Involves the amputation of a leg, arm, hand or foot, but not a finger or toe;
- f. Consists of burns to a major portion of the body; or
- g. Causes the loss of sight in an eye.

Per the British Columbia Workers Compensation Act, RSBC 1996, Chapter 492, a Critical Injury is defined as injury of a serious nature that includes the following:

- a. Any incident that kills, causes risk of death, or seriously injures a worker;
- b. Any blasting accident that results in injury, or unusual event involving explosives;
- c. A diving incident that causes death, injury, or decompression sickness requiring treatment;
- d. A major leak or release of a dangerous substance;
- e. A major structural failure or collapse of a structure, equipment, construction support system or excavation; and any serious mishap.



Health, Safety and Environment
INCIDENT / NEAR MISS REPORT FORM

Attachment 049-1 NA

Issue Date: May 2001
Revision 8: December 2009

ADMINISTRATIVE INFORMATION

Database Office ID:

<input type="checkbox"/> Infrastructure & Environment	<input type="checkbox"/> Federal Services
RBU:	SBU:
Region:	SBE Director:
Client Sector:	Program:

NOTIFICATION / LOCATION DATA

Site or Office:	Customer/Client Name:
Date of Event:	Time of Event:
Date Supervisor Notified:	Time Supervisor Notified:
Time Employee Started Work:	Name of Employee Submitting Report:
Client Notification Completed (if required)? <input type="checkbox"/> Yes <input type="checkbox"/> No	Project/Order Number:

TYPE OF EVENT (Check all applicable items)

Illness (Check one) <input type="checkbox"/> Employee <input type="checkbox"/> Subcontractor <input type="checkbox"/> Other	Injury (Check one) <input type="checkbox"/> Employee <input type="checkbox"/> Subcontractor <input type="checkbox"/> Other	Near Miss (Check the potential consequences): <input type="checkbox"/> Injury <input type="checkbox"/> Equipment Damage <input type="checkbox"/> Property Damage <input type="checkbox"/> Environmental release <input type="checkbox"/> Other (describe)
NAME of Injured/III Employee: _____		
Property Damage (Check one) <input type="checkbox"/> Company (owned, leased, rented) <input type="checkbox"/> Client/Customer <input type="checkbox"/> Other	Vehicular Accident (Check one) <input type="checkbox"/> Company (owned, leased, rented) <input type="checkbox"/> Client/Customer <input type="checkbox"/> Other	<input type="checkbox"/> Fire <input type="checkbox"/> Explosion <input type="checkbox"/> Flash <input type="checkbox"/> Other (describe): _____

EVENT SUMMARY

Briefly state the facts contributing to the event. Attach additional pages and supporting information, as necessary. Avoid use of employees' names. *If this is an injury or illness, supply additional information as required on Page 2.*

ROOT CAUSE DETERMINATION

Root Cause (State the root or primary cause, then select the most appropriate cause category from Page 4):

CONTRIBUTING FACTORS

Contributing Causes (Describe any contributing causes, then select the applicable cause categories from Page 4):

CORRECTIVE ACTIONS

List methods of preventing/avoiding this type of incident/near miss in the future. There must be one or more corrective actions for each root cause.

NOTE: *If this is a near miss report, no further information is required. Submit only the first page of the form. The preferred method of distribution of near miss reports is by e-mail attachment either in Word, or scanned to PDF. Forward URS near miss reports to incidentreport@urscorp.com. Alternatively, reports may be faxed to 512.419.6413.*

Additional Distribution: Office/Site Manager Regional/SBE/SBU HSE Manager Office/Site HSE Representative



Health, Safety and Environment
INCIDENT / NEAR MISS REPORT FORM

Attachment 049-1 NA
Issue Date: May 2001
Revision 8: December 2009

FOR INJURIES/ILLNESS ONLY

Employee Information

What was the employee's location when the injury/illness occurred (include city and state)?

What was the employee doing when the injury/illness occurred? Describe the activity as well as the tools, equipment, or material you were using.

What happened? Describe how the injury/illness occurred.

What was the injury or illness? Describe the part of the body that was affected and how it was affected. Use the Incident pick lists on Page 4 to aid in your description.

What level of medical treatment was received? First Aid Clinic/Physician Emergency Room Refused/None

List witnesses and/or other employees involved. Attach statements where applicable.

Do you feel URS provided you with the proper safety instructions (including PPE usage) for the task you were performing at the time of the incident? Yes No (Explain below)

How do you think this type of incident could be prevented or avoided in the future?

Mark all PPE being used when the incident occurred:

- | | | | |
|---|---|--|--|
| <input type="checkbox"/> Safety Glasses | <input type="checkbox"/> Safety Goggles | <input type="checkbox"/> Face Shield | <input type="checkbox"/> Safety Shoes |
| <input type="checkbox"/> Half-face Respirator | <input type="checkbox"/> Full-face Respirator | <input type="checkbox"/> Protective Gloves | <input type="checkbox"/> Chemical Gloves |
| <input type="checkbox"/> Hard Hat | <input type="checkbox"/> Hearing Protection | <input type="checkbox"/> Other (describe): | |

Injured/III Employee Signature: _____ Date: _____

Name of Injured/III Employee (Please print clearly): _____

Employee Number: _____ Contact Phone Number: _____

Additional Sheets Attached? Yes No (Include photos, maps, and/or diagrams when possible.)



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Supervisor Information

Describe any additional/different details other than those provided on the previous page. Avoid use of employees' names, where possible. Attach additional sheets, drawings, or photos, as needed.

Were the required tools available at the time of the injury? Yes No (Explain below)

At the time of the injury, was the employee using the correct tools for the task? Yes No (Explain below)

Was the employee sent for substance screening? Yes No (Explain below)

How do you think this type of incident could be prevented or avoided in the future?

Supervisor Signature: _____ Date: _____

Supervisor Name (Please print clearly): _____

HSE Representative Comments

Signature: _____ Date: _____

Supervisor Name (Please print clearly): _____

Site/Office Manager Comments

Signature: _____ Date: _____

Supervisor Name (Please print clearly): _____

DISTRIBUTION

NOTE: The preferred method of distribution of this report is by e-mail attachment either in Word, or scanned to PDF. Forward URS injury/illness reports to incidentreport@urscorp.com. Alternatively, reports may be faxed to 512.419.6413. Initial reports must be delivered within 24 hours of incident. More detailed follow-up reports may be submitted later.

Additional Distribution: Program/Client Sector Manager Regional/SBE/SBU HSE Manager Office HSE Representative

ROOT CAUSE CATEGORIES

Check all cause categories that apply to the incident/near miss, then choose the root cause (or causes) category from the boxes checked. Enter where indicated on Page 1.

PHYSICAL/ENVIRONMENT

- Extreme cold/ice
- Extreme heat
- Working/walking surface unfavorable
- Inadequate lighting
- Excessive noise
- Chemical exposure
- Biological hazards (animal/plant)
- Other weather
- Other

SYSTEMS

- Inadequate training/instruction
- Inadequate management system
- Missing or incorrect procedures or planning
- Inadequate management emphasis on safety
- Corporate/operations procedures not communicated
- Other

PHYSICAL/EQUIPMENT, TOOLS, and PPE

- Failure due to improper maintenance
- Failure due to improper design
- Other

HUMAN

- Failure to adequately recognize hazards
- Failure to follow procedures
- Failure to recognize condition change
- Impaired state (drug, alcohol, other)
- Physical/psychological limitation for task
- Inadequate communications (i.e., supervisor/employee)
- Carelessness by affected person(s)
- Carelessness by other person(s)
- Improper selection of equipment/tool/PPE
- Improper use of equipment/tool/PPE
- Other

INCIDENT PICK LIST

NATURE OF INJURY/ILLNESS

- Amputation
- Burn
- Concussion
- Contusion/Abrasion
- Corneal Abrasion
- Dental
- Dermatitis
- Fatality
- Fracture
- Hearing Loss
- Heat-Related Illness
- Hernia
- Insect Bite
- Laceration/Puncture
- Other
- Respiratory Disorder
- Sprain/Strain

BODY PART

- Ankle/Foot
- Arm/Elbow
- Back
- Eyes
- Head
- Hip/Groin
- Internal Organs/Blood
- Leg/Knee
- Multiple Body Parts
- Neck/Cervical
- Respiratory
- Shoulder
- Trunk
- Wrist/Hand

DIRECT CAUSE

- Animal/Insect Contact
- Biological Agent
- Caught Between
- Ergonomics/Repetitive Trauma
- Exposure To
- Miscellaneous
- Motor Vehicle Wreck
- Overexertion
- Poisonous Plant
- Slips/Trips/Falls
- Struck Against
- Struck By

URS SAFETY MANAGEMENT STANDARD

Toxic and Hazardous Substances

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to provide guidance in controlling potential employee exposures to toxic and hazardous substances specifically regulated by the U.S. Occupational Safety and Health Administration (OSHA). These substances include:

Acrylonitrile Asbestos Benzene Cadmium Chromium (VI) Coke Oven Emissions Cotton Dust Ethylene Oxide Formaldehyde Hydrogen Sulfide Inorganic Arsenic Lead Methylene Chloride Methylenedianiline Vinyl Chloride 1,2-dibromo-3-chloropropane 1,3-Butadiene	13 Carcinogens: 4-Nitrobiphenyl alpha-Naphthylamine Methyl chloromethyl ether 3,3'-Dichlorobenzidine bis-Chloromethyl ether beta-Naphthylamine Benzidine 4-Aminodiphenyl Ethyleneimine beta-Propiolactone 2-Acetylaminofluorene 4-Dimethylaminoazobenzene N-Nitrosodimethylamine
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Note: Hexavalent Chromium is covered in SMS 083.
Lead in construction activities is covered in SMS 022.
Bloodborne pathogens is covered in SMS 051.
Ionizing radiation is covered in SMS 052.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 050 NA](#) – North America, UK and Ireland, Europe, and Middle East

[SMS 050 AP5](#) – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Toxic and Hazardous Substances

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies where employees may be exposed to concentrations of specific chemical hazards potentially exceeding permissible exposure limits.

2. Purpose and Scope

The purpose of this standard is to provide guidance in controlling potential employee exposures to toxic and hazardous substances specifically regulated by the U.S. Occupational Safety and Health Administration (OSHA). These substances include the following:

Acrylonitrile Asbestos Benzene Cadmium Chromium (VI) Coke Oven Emissions Cotton Dust Ethylene Oxide Formaldehyde Hydrogen Sulfide Inorganic Arsenic Lead Methylene Chloride Methylenedianiline Vinyl Chloride 1,2-dibromo-3-chloropropane 1,3-Butadiene	13 Carcinogens: 4-Nitrobiphenyl alpha-Naphthylamine Methyl chloromethyl ether 3,3'-Dichlorobenzidine bis-Chloromethyl ether beta-Naphthylamine Benzidine 4-Aminodiphenyl Ethyleneimine beta-Propiolactone 2-Acetylaminofluorene 4-Dimethylaminoazobenzene N-Nitrosodimethylamine
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Note: Hexavalent Chromium is covered in SMS 083.
Lead in construction activities is covered in SMS 022.
Bloodborne pathogens is covered in SMS 051.
Ionizing radiation is covered in SMS 052.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Identification of Hazardous Substances

URS SAFETY MANAGEMENT STANDARD
Toxic and Hazardous Substances

1. Determine whether there is potential for exposure to any of the hazardous substances (identified in Section 2 of this SMS) in the work area prior to performing any work that may involve handling of one or more of the chemicals, or may result in exposure through production, research, or process activities or through activities such as drilling, excavation, demolition, alteration, salvage, repair, restoration, welding, brazing, grinding, or other surface-disturbing activities.
 2. Determination may include the evaluation of material safety data sheets (MSDSs) where any hazardous substance(s) are part of a mixture.
- B. Determine the Potential for Employee Exposure to the Hazardous Substance
1. If any of the substances are identified, conduct an exposure assessment based on the type of work to be performed to determine whether employees have the potential to be exposed above any action level identified in the substance-specific regulations. This assessment must be reviewed and approved by a Certified Industrial Hygienist (CIH) approved by a Health, Safety, and Environment (HSE) Manager.
 2. Include the results of the initial exposure assessment in the facility or site health and safety plan and/or facility or site health and safety file.
- C. Controlling Potential Employee Exposures
1. Where the initial exposure assessment identifies the potential for employee exposures above an established action level or permissible exposure limit, develop a facility or site-specific program to address all required regulatory concerns for that substance(s). Completed programs and/or guidance documents are to be included in the facility or site-specific health and safety plans.
 2. Toxic and Hazardous Substance Checklist – Attachment 050-1 NA provides a general checklist to be used in conjunction with the substance-specific standard and to ensure that the program covers all required areas of concern.

URS SAFETY MANAGEMENT STANDARD
Toxic and Hazardous Substances

D. Compliance Programs

When compliance programs are required by a specific standard, the following outline will be used unless otherwise directed by the standard:

1. Description of work activities that expose personnel.
2. Engineering controls and personal protective equipment to be used and procedures to be followed during exposure activities.
3. Employee job responsibility and crew size during exposure activities.
4. Work practice program (e.g., protective work clothing and equipment, housekeeping, change areas, hygiene practices).
5. Maintenance and decontamination practices to be followed for servicing and cleaning equipment and disposing of waste.
6. Specific instructions on how to set up engineering controls (e.g., ventilation, containment).
7. Procedures to be followed in regulated areas where the chemical hazards are present (e.g., restricted access, signage and instruction, contamination control, emergency procedures).
8. Exposure monitoring data from the initial assessment.
9. Exposure monitoring data from ongoing monitoring as required by the specific standard.
10. Medical surveillance program requirements. Refer to SMS 024 – Medical Screening and Surveillance for additional information.
11. A detailed work schedule for implementation.
12. Recordkeeping requirements.

URS SAFETY MANAGEMENT STANDARD
Toxic and Hazardous Substances

13. A description of arrangements made among contractors on multicontractor sites with respect to informing affected employees of potential exposure.
14. Name of competent person who will be responsible for performing regular inspections of the job site, materials, and equipment during the job.

A HSE Manager must approve all compliance programs.

E. Training Requirements

1. All employees with potential exposure to the substances covered by this SMS must receive appropriate training prior to performing activities that could result in exposure. This training must be performed initially, upon any substantial changes to the operation covered, and annually. In general, the training should cover the following topics unless otherwise indicated by the specific standard:
 - a. Basic Employee Training
 - Regulated areas: authorizations, entrance restrictions.
 - Signs and warnings.
 - Container contents identification.
 - Nature of the specific hazards, including local and systemic toxicity.
 - Specific nature of the operations that could result in exposure.
 - Medical surveillance program and, as appropriate, methods for self-examination.
 - Personal protective equipment and procedures.
 - Engineering controls.
 - Hygiene practices and procedures.
 - Decontamination practices.
 - Respiratory protection requirements and program, if applicable.
 - Emergency practices and procedures.

URS SAFETY MANAGEMENT STANDARD
Toxic and Hazardous Substances

- Employee's specific role in emergency procedures.
 - Recognition and evaluation of potential hazardous situations.
 - Employee's specific duties and responsibilities.
 - Employee's rights to access records.
 - First aid procedures and practices.
- b. Supervisor Training (in addition to basic employee training)
- Operations reports required.
 - Incident reports required.
 - Medical surveillance program.
 - Medical examinations.
 - Recordkeeping.
 - Training program and outline.
2. All training performed as part of this SMS will be documented and tracked in accordance with SMS 055 – Health and Safety Training.
3. These training records will be maintained for a minimum of 5 years.
4. Staff potentially exposed to lead at or above 30 ug/m³ time-weighted average (TWA) for more than one year will attend refresher training each year this potential exposure exists. After a lapse of more than one year, staff will be retrained prior to working on sites with the potential to exceed 30 ug/m³ TWA.

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Hazardous substance list.
- B. Approved exposure assessment(s).

URS SAFETY MANAGEMENT STANDARD
Toxic and Hazardous Substances

- C. Completed Toxic and Hazardous Substance Checklist – Attachment 050-1 NA, along with any required guidelines and/or programs.
- D. Approved Compliance Program.
- E. Training Records.

6. Resources

- A. 13 Carcinogens – [29 Code of Federal Regulations \(CFR\) 1910.1003](#) and 29 CFR 1926.1004-1016
- B. Acrylonitrile – [29 CFR 1910.1045](#) and 29 CFR 1926.1145
- C. Asbestos – [29 CFR 1910.1001](#) and 29 CFR 1926.1101
- D. Benzene – [29 CFR 1910.1028](#) and 29 CFR 1926.1128
- E. Cadmium – [29 CFR 1910.1027](#) and 29 CFR 1926.1127
- F. Chromium (VI) – [29 CFR 1910.1026](#) and 29 CFR 1926.1126
- G. Coke Oven Emissions – [29 CFR 1910.1029](#)
- H. Cotton Dust – [29 CFR 1910.1043](#)
- I. Ethylene Oxide – [29 CFR 1910.1047](#) and 29 CFR 1926.1147
- J. Formaldehyde – [29 CFR 1910.1048](#) and 29 CFR 1926.1148
- K. Hydrogen Sulfide – [Sampling and Analytical Methods](#)
- L. Inorganic Arsenic – [29 CFR 1910.1018](#) and 29 CFR 1926.1118
- M. Lead – [29 CFR 1910.1025](#) and 29 CFR 1926.62
- N. Methylene Chloride – [29 CFR 1910.1052](#) and 29 CFR 1926.1152
- O. Methylenedianiline – [29 CFR 1910.1050](#)
- P. Vinyl Chloride – [29 CFR 1910.1017](#) and 29 CFR 1926.1117
- Q. 1,2-dibromo-3-chloropropane – [29 CFR 1910.1044](#) and 29 CFR 1926.1144

URS SAFETY MANAGEMENT STANDARD
Toxic and Hazardous Substances

- R. [1,3-Butadiene – 29 CFR 1910.1051](#)
- S. [SMS 008](#) – Asbestos Operations
- T. [SMS 022](#) – Lead in Construction
- U. [SMS 024](#) – Medical Screening and Surveillance
- V. [SMS 043](#) – Personal Monitoring (Industrial Hygiene)
- W. [SMS 055](#) – Health and Safety Training
- X. [SMS 083](#) – Chromium (VI) Inhalation Exposure Protection
- Y. [Attachment 050-1 NA](#) – Toxic and Hazardous Substance Checklist

7. Supplemental Information

- A. [Benzene Handling Policy and Procedure](#)



Health, Safety, and Environment
**TOXIC AND HAZARDOUS SUBSTANCE
CHECKLIST**

Attachment 050-1 NA

Issue Date: November 2000
Revision 4: February 2009

1. Have hazardous substances present in the workplace been identified?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
2. Is there a potential for employee exposure above an established action level?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
3. List hazardous substances identified: _____ _____ _____			
4. If the response to Question 2 is "Yes," have you completed a program or developed guidelines to address the following compliance concerns, where applicable, for each identified hazardous substance?			
• Permissible Exposure Limits	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Exposure Monitoring	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Regulated Areas/Signs	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Compliance Program	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Respiratory Protection	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Protective Clothing	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Hygiene	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Hazard Communication	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Training Program	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Housekeeping	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Medical Surveillance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Medical Removal	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Recordkeeping	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Reporting	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Standard Operating Procedures	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Contamination/Waste disposal	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Emergency Response	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
• Engineering Controls	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA

Attach all program and/or guidance material for items checked "Yes" to this checklist (or indicate where the information can be found in the facility or site health and safety plan).

Prepared by: _____ Date: _____

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____



APPLICABILITY

This is a policy and procedure document for Benzene Handling and Exposure monitoring. This procedure applies to the US-based operations of URS Corporation and its subsidiary companies where Benzene, CAS 71-43-2, is known to be present in the work environment, unless exempted in whole or in part by the scope of 29 CFR 1910.1028, or previously implemented portions of these standards. It can serve as a supplement to a URS-written Health and Safety Plan (HSP) or Safe Work Plan, but should not be considered a substitute for either of those documents.

PURPOSE AND SCOPE

This policy and procedure document provides guidance in controlling potential employee exposure to Benzene as regulated by OSHA standard 29 CFR 1910.1028.

IMPLEMENTATION

Implementation of this standard is the responsibility of the manager directing activities of the facility or site.

PERMISSIBLE EXPOSURE LIMITS AND ACTION LEVEL

The Permissible Exposure Limits are 1 ppm (part per million) calculated as an 8-hour time-weighted average (TWA), and the Short-Term Exposure Limit (STEL) is 5 ppm as averaged over any 15 minute period. The action level, defined as an airborne concentration of Benzene calculated as an 8-hour time-weighted average, is 0.5 ppm. Benzene has a "skin" designation in California. The Action Level is below the typical PID monitoring equipment sensitivity.

REGULATED AREA

The regulated area is defined as any area where airborne concentrations of Benzene exceed or can reasonably be expected to exceed the permissible exposure limits, either the 8-hour time-weighted average exposure of 1 ppm or the short-term exposure limit of 5 ppm for 15 minutes. Access to regulated areas shall be limited to authorized persons.

EXPOSURE MONITORING

Determinations of employee exposure to Benzene shall be made from representative breathing zone air samples. Representative 8-hour TWA employee exposures shall be determined on the basis of one full shift exposure sample in the work area.

Determinations of STEL compliance shall be made from 15-minute employee breathing zone samples. These samples shall be taken at work areas where it is reasonable to expect higher Benzene concentrations, such as:

- Where tanks are opened, filled unloaded or gauged;
- Where containers or process equipment are opened, and
- Where Benzene is used for cleaning or as a solvent in an uncontrolled environment.

The remaining elements of monitoring, such as minimum time frames for initial and periodic monitoring and employee notification shall be at least as stringent as OSHA 29 CFR 1910.1028(e)(2) through (e)(7).

Air monitoring options include:

- Benzene-specific instruments such as the UltraRae Benzene PGM-7200 or Draeger CMS;
- Detector tubes (i.e., Draeger); and
- Sample media for subsequent laboratory analysis.

BENZENE HANDLING AND INFORMATION

Physical and Chemical Characteristics: Benzene is a clear, colorless liquid with a distinctive sweet aromatic odor. Its boiling point is 176 degrees F and its flash point is 12 degrees F. The flammable limits in air are 1.3% - 7.5%. Benzene is a flammable liquid. Its vapors can form explosive mixtures. All ignition sources must be controlled when Benzene is used, handled, or stored. Where liquid or vapor may be released, such areas shall be considered as hazardous locations. Benzene vapors are heavier than air; thus the vapors may travel along the ground and be ignited by open flames or sparks at locations remote from the site at which Benzene is handled. Benzene is typically found combined with other petroleum hydrocarbons, i.e., gasoline or other fuel fractions.

Synonyms: Benzol, benzole, coal naphtha, cyclohexatriene, phene, phenyl hydride, pyrobenzol. (Benzin, petroleum benzin and Benzine do not contain Benzene).

Work Practices: Proper handling of Benzene - containing materials (those materials containing 0.1 percent or more of benzene) can greatly reduce exposure, the need for regulated areas, and the use of protective equipment. The following good work practices must be followed:


- When draining equipment containing Benzene materials, draining must be performed in a closed system;
- Equipment containing Benzene materials must be cleaned by appropriate method prior to opening; and
- Use Benzene-free purchased products when possible. Types of products, which may contain Benzene, include paints, thinners, degreasers, cleaners, etc. Under no circumstances are aerosol products containing Benzene allowed to be used. Consult the Materials Safety Data Sheet (MSDS) to determine if the product is Benzene-free.

SYMPTOMS OF EXPOSURE

Benzene can affect your health if you inhale it, or if it comes in contact with your skin or eyes. Benzene is also harmful if you happen to swallow it. It has poor warning properties since the mean odor threshold is reported as 34 ppm.

Effects of Overexposure

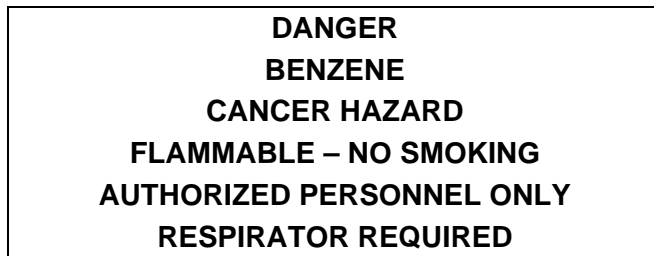
1. Short-term (acute) overexposure: If you are overexposed to high concentrations of Benzene, well above the levels where its odor is first recognizable, you may feel breathless, irritable, euphoric, or giddy; you may experience irritation in eyes, nose, and respiratory tract. Locally, irritation and reddening of the skin may occur and in severe cases the skin may blister. You may develop a headache, feel dizzy, nauseated, or intoxicated. Severe exposures may lead to convulsions and loss of consciousness / coma.

	<p align="center">Health, Safety and Environment BENZENE HANDLING AND EXPOSURE POLICY AND PROCEDURE</p>	<p align="right">SMS 050 NA Supplemental Information A Issue Date: February 2009</p>
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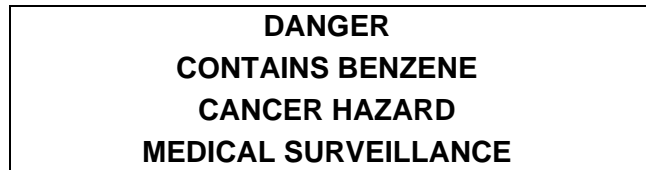
2. Long-term (chronic) exposure: Repeated or prolonged exposure to Benzene, even at relatively low concentrations, may result in various blood disorders, ranging from a plastic anemia to leukemia, an irreversible, often fatal disease. Many blood disorders associated with Benzene exposure may occur without overt symptoms.
3. Target organs / areas of the body:
 - Blood forming systems / bone marrow;
 - Central Nervous System; and
 - Eyes, skin, respiratory system.

SIGNAGE

The following sign shall be posted at entrances to any Benzene regulated area:



Containers of Benzene in the workplace shall bear the following forms of warning:



Medical surveillance shall be made available for any employee who is or may be exposed to Benzene at or above the action level for 30 or more days per year. Medical surveillance shall also be made available for employees that are or may be exposed to Benzene at or above the PELs for 10 or more days per year, or for any employee exposed to Benzene in an emergency situation. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician. An accredited laboratory shall conduct all laboratory tests. All medical examinations and procedures will be provided by URS to its employees without cost, and at a reasonable time and place.

Additional elements of medical monitoring, such as examinations, referrals, and physician's opinions shall be at least as stringent as OSHA 29 CFR 1910.1028(i)(2) through (i)(7).

Medical Removal Plan: When a physician makes a referral to a hematologist/internist, the URS employee will be removed from areas where exposures may exceed the Action level until such time as the physician makes a medical determination. Additional elements of the medical removal plan, such as follow-up examinations and medical removal protection benefits shall be at least as stringent as OSHA 29 CFR 1910.1028(i)(8) through (i)(9).



WRITTEN COMPLIANCE PLAN

Engineering controls and work practices shall be instituted whenever feasible, to reduce and maintain employee exposures to Benzene at or below the PEL, except to the extent that URS can establish that the controls are not feasible per OSHA 29 CFR 1910.1028(f)(1)(iii) or (g)(1).

When any exposures are over the PELs, URS shall develop a written compliance program to reduce employee exposure to or below the PELs primarily by means of engineering and work practice controls. The compliance program will be at least as stringent as OSHA 29 CFR 1910.1028(f). This compliance program will be included as part of the project and site-specific HSP or Safe Work Plan.

PERSONAL PROTECTIVE EQUIPMENT / RESPIRATORY PROTECTION

Personal Protective Equipment (PPE): PPE shall be worn where appropriate to prevent eye contact and limit dermal exposure to liquid Benzene. Eye and face protection shall meet the requirements of OSHA 29 CFR 1910.133. Appropriate protective equipment shall include such items as boots, gloves, sleeve, aprons, etc. Splash-proof safety goggles shall be provided if it is possible that Benzene liquid could get into the eyes. Details shall be provided in the written project and site-specific HSP or Safe Work Plan.

Respiratory Protection: Respirators are required for those operations in which engineering controls or work practice controls are not feasible to reduce exposure at or below the PELs (8-hour TWA of 1 ppm or STEL of 5 ppm for any 15-minute period). However, where it can be documented that Benzene is used or present in the workplace less than 30 days a year, respirators may be used in lieu of engineering controls or work practice controls. If respirators are worn, they must have certification by the National Institute for Occupational Safety and Health (NIOSH), and respirator cartridge or canisters must be replaced before the end of their service life, or the end of the shift, whichever occurs first. All employees wearing a respirator must be a part of the medical surveillance program. Additionally, they must have undergone respirator protection program training and a respirator fit test prior to work assignment.

HAZARD COMMUNICATION

URS will provide access to its employees, of any Material Safety Data Sheet (MSDS) that addresses the Benzene content in the workplace, complying with OSHA 29 CFR 1910.1200(g)(8).

Employees who work with Benzene shall be Hazard Communication trained, in accordance with OSHA 29 CFR 1910.1200(h)(1). Additionally, they shall be informed of any areas in their workplace where Benzene is present, and the location and availability of a written Hazard Communication program. In California, employees will also be informed of the provisions of Proposition 65.

TRAINING

Information and training shall be provided to employees at the time of initial assignment to a work area where Benzene is present. For those employees who work in areas known or expected to be above the Benzene Action level, information and training shall be provided upon their initial assignment in the work area, and annually thereafter.

	<p style="text-align: center;">Health, Safety and Environment BENZENE HANDLING AND EXPOSURE POLICY AND PROCEDURE</p>	<p style="text-align: right;">SMS 050 NA Supplemental Information A Issue Date: February 2009</p>
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Additionally, URS shall provide to its employees an explanation of the contents of the Benzene Occupational Safety and Health Standard – OSHA 29 CFR 1910.1028, including Appendices A and B, and shall inform its employees of:

- Where the standard is available;
- A description of URS' medical surveillance program; and
- An explanation of the information contained in Appendix C of the standard.

RECORDKEEPING

URS will establish and maintain records regarding employee exposure, monitoring and sampling, exposure levels, and respiratory devices to be worn. URS will retain these records for at least 30 years, in accordance with OSHA 29 CFR 1910.1028(k) and OSHA 29 CFR 1910.1020.

PROJECT AND SITE-SPECIFIC BENZENE HANDLING INFORMATION

The following topics related to Benzene handling should be considered project and site-specific, and will depend on the details of the project involved. A HSP or Safe Work Plan shall be written for any project / work assignment involving Benzene and should address the following additional topics:

- Housekeeping and Hygiene;
- Emergency Response; and
- Benzene Contamination / Waste Disposal / Spill Reporting.

URS SAFETY MANAGEMENT STANDARD

Vehicle Safety Program

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

This standard applies to employees operating motor vehicles that are owned, rented or leased by the Company, and the use of personal or government supplied vehicles while on Company business.

This SMS does not apply to heavy equipment operations.

2. Purpose and Scope

This standard defines the policies that help URS minimize losses, injuries, and legal liabilities associated with improper vehicle use.

3. Procedures

The associated implementing procedures for this standard are included as attachments:

Infrastructure & Environment

[SMS 057 NA – North America, UK and Ireland, Europe, and Middle East](#)

[SMS 057 AP7 – Asia Pacific](#)

Energy & Construction

[SMS 057 EC](#)

Federal Services

[SMS 057 FS](#)

URS SAFETY MANAGEMENT STANDARD

Vehicle Safety Program

1. Applicability

This standard applies to the operations of Infrastructure & Environment business of URS Corporation and its subsidiary companies.

This standard applies to employees who operate motor vehicles that are owned, rented, or leased by URS and to employees who use personal, client or government-supplied vehicles while conducting URS business. This safety management standard (SMS) does not apply to heavy equipment operations (see SMS 019 – Heavy Equipment Operations).

2. Purpose and Scope

This standard defines the policies that help URS minimize losses, injuries, and legal liabilities associated with improper vehicle use. This policy also provides information for required training and makes all applicable employees aware of their respective duties and obligations when driving on URS business.

The standard applies to operations worldwide. For countries outside the United States, some terminology may need to be read in the context of local or national regulations.

3. Implementation

The overall responsibility for this standard implementation is with the URS Office Manager. Additional responsibilities are as follows:

Fleet Management Participation in the Vehicle Safety Program, vehicle acquisition, insurance claims reporting, controlling access to vehicles, maintenance of vehicles, and participation in the incident review processes.

Human Resources Documentation of driver's license upon hire, and participation in the incident review processes when necessary and any related performance management issues.

Health and Safety Employee safety training, maintenance of the Vehicle Safety Program, and participation in the incident review processes.

Employee Familiarization with URS Vehicle Safety Program and compliance with its requirements.

URS SAFETY MANAGEMENT STANDARD

Vehicle Safety Program

4. Requirements

A. Authorized Drivers

1. Authorized Drivers are those individuals permitted to drive URS-owned, -rented, or -leased vehicles, client vehicles, and employees driving a personal vehicle for work purposes.
2. The Authorized Driver must be at least 18 years of age (noncommercial license) or 21 years of age (commercial license) and have a current driver's license for the appropriate class of vehicle (unless more stringent requirements are established by the leasing/renting agency). Employees with conditional licenses are prohibited from operating vehicles on URS business.
3. Human Resources/Administration will conduct an authorized background check, which includes a driving record, and will obtain a copy of the state-issued driver's license for all Authorized Drivers during the new hire process. The employee will not be permitted to be an Authorized Driver if the background check indicates legal action involving alcohol or drug use (e.g. driving under the influence [DUI]), a driving without a license violation, or a hit-and-run/leaving the scene of an accident within the past two years.

URS employees that are Authorized Drivers will produce their driver's license upon request at any time. Authorized drivers who lose their driver's license through legal action or are otherwise unauthorized to drive *must* notify their Human Resources Representative immediately. The Human Resources Representative will notify the Fleet Manager, Office Manager, and Health, Safety and Environment (HSE) Representative of this employee's loss of authorization to drive for URS.

4. Authorized drivers must:
 - a. Review SMS 057 – Vehicle Safety Program.
 - b. Report any conviction for driving under the influence of drugs or alcohol to the Human Resources Representative responsible for the employee's office or operation.
 - c. Complete vehicle safety training, including the URS online training module and other sanctioned driving courses described in Section 4.B, Training.

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- d. Report all incidents in accordance with Section 4.E, Notifications.
 - e. Cooperate with any URS investigation concerning the incident.
 - f. Complete remedial driver safety training described in Section 4.B.3 as appropriate following an incident.
5. Non-URS employees (e.g., subcontractors, alliance partners) may operate URS-owned, -leased, or -rented vehicles or client vehicles only when this activity is specifically agreed to in the applicable contract and only within the parameters of the contract and project plans.
 6. For URS operations or offices that plan vehicle use that requires compliance with Federal Motor Carrier Regulations, the affected manager directing operations at the facility or site must obtain approvals from the Vice President/Director HSE and the Fleet Manager. This requirement typically applies to vehicles with a gross vehicle weight over 10,000 pounds, vehicles carrying more than 15 passengers, or vehicles used for hazardous materials transport. The driver must have an appropriate commercial driver's license and may be subject to specific training and medical surveillance (see SMS 024 – Medical Screening and Surveillance).
 7. Only Authorized Drivers can be reimbursed mileage for the use of their personal vehicle on URS business. Requests for reimbursements for mileage by nondesignated drivers may be denied.

B. Training

1. Within 1 month of their hire date, Authorized Drivers will complete basic driver safety training, including a review of the URS Vehicle Safety Program (SMS 057) and the 30-minute online Learning Management System (LMS) Vehicle Safety training module.
2. Authorized Drivers will complete the 4-hour web-based defensive driving training program provided through the National Safety Council (NSC). Other defensive driving training programs that are equivalent or exceed the NSC training (e.g., the Smith Driving System) may be substituted by approval of the Regional HSE Manager. The internet web site for the NSC training is located at

URS SAFETY MANAGEMENT STANDARD

Vehicle Safety Program

<http://www.safetyserve.com/urscorp>. Use **URSDDC** as the access code. *All URS Authorized Drivers will complete this web-based defensive driver training or equivalent training by year end 2010.*

3. Additional training is required for employees who have been involved in multiple work-related, at-fault vehicle incidents where \$2,000 in damages was sustained. This additional training will be determined by concurrent agreement from the URS Operating Unit Manager, the URS Fleet Manager, and the Vice President/Director HSE and may be in the form of a behind-the-wheel training equivalent to the Smith Driving System.
- C. General Operating Policy and Procedure (Applies to Authorized Drivers and Passengers Operating Motor Vehicles on Official URS Business)
1. Only properly licensed employees who are specifically authorized to drive URS vehicles may operate motor vehicles owned, rented, or leased by URS.
 2. **The use of cellular phones/devices, including cellular phones with hands-free devices, while driving is prohibited.** If you need to make a call on a cellular phone, pull over and park in a safe area. This prohibition includes text messaging and other wireless devices (e.g., Blackberries).
 3. Authorized drivers required to operate vehicles with special hazards (i.e., trucks carrying fuel cells, vehicles used to tow trailers, vehicles with limited visibility, etc.) will be thoroughly briefed on the hazards and control measures necessary for safe operation of the vehicle. The local URS operation will maintain documentation of the briefing.
 4. Drivers/operators will know and obey all federal, state, and local motor vehicle laws applicable to the operation of their vehicle.
 5. A driver will not permit unauthorized persons to operate a vehicle owned, rented, or leased by URS.
 6. URS policy regarding reimbursement and insurance coverage requirements for use of personal automobiles may be found in the Policies and Procedures Manual (Section 074.020). Only Authorized Drivers may be reimbursed mileage for the use of a personal vehicle.

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7. Personal vehicles driven by Authorized Drivers for business use must satisfy the state's registration and inspection requirements and may not be modified beyond manufacturer's specifications.
8. All cargo extending 4 feet or more beyond the end of a truck, trailer, or similar vehicle will be clearly marked with a red warning flag or cloth measuring no less than 16 inches square. Red lights must be used at night.
9. URS-owned, -rented, or -leased vehicles are for official business use only and are not to be used for personal activities. Exceptions to this requirement can be made only with the specific approval of a Business Manager, Senior Vice President, or the URS Fleet Manager.
10. Seat belts and shoulder harnesses (occupant restraint systems) will be worn or used whenever the vehicle is in operation. The vehicle may not move until all passengers have fastened their restraints. Vehicles are not to be operated or used by URS employees if seatbelts are not included as part of the vehicle's safety equipment.
11. When parking or leaving a vehicle, the following procedures must be followed: Shut off the engine, engage the transmission in park (automatic transmission) or first gear (standard transmission), set the parking brake, remove the ignition keys, and lock the vehicle.
12. The vehicle's engine is to be turned off during refueling. Smoking or cellular phone use is not allowed while refueling.
13. Drivers/operators will not drive or operate vehicles while under the influence of alcohol or illegal drugs. Additional details on the URS Substance Abuse Policy are available in the Policies and Procedures Manual (Section 034.030).
14. Drivers/operators will not drive or operate vehicles while under the influence of medications when told by a physician, another healthcare provider, or the manufacturer (i.e., instructions on the label) that the activity is unsafe.
15. Vehicle operators are responsible for any fines levied by law enforcement agencies for the operation of their vehicles.
16. Driver/operators may not deactivate or muffle any backup warning device.

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17. Distractions while driving are a major cause of incidents. Distractions include the use of cellular phones (including texting), eating, drinking, smoking, and engaging in intense conversations. URS Authorized Drivers must exercise proper control of the vehicle at all times, including the management of possibly distracting actions and behaviors. If you have to eat, pull over and park. If you become engaged in an intense conversation to the point of distraction, pull over and park or end the conversation.
18. The use of motorcycles on URS business is prohibited.

D. Field/Site Vehicle Safety

1. Define specific vehicle travel routes and parking areas at field sites. Use fencing, cones, or other markings to define roads and parking. SMS 032 – Work Zone Traffic Control provides additional information.
2. If parking on the shoulder of an active road, park as far off the road as possible.
3. If work (e.g., surveying) is required alongside an active road, park the vehicle behind the area of work to provide a barrier against out-of-control vehicles.
4. URS will not transport DOT-placard quantities of hazardous materials. However, small quantities of hazardous materials (e.g., sample coolers) may be transported if properly packaged. Take precautions to prevent chemical contamination of the vehicle. Further details on DOT shipping may be found in SMS 048 – Hazardous Materials/Dangerous Goods Shipping.
5. Nuclear density meters (e.g., Troxler units) may be transported only by employees who have been trained in the use of nuclear density meters (see SMS 044 – Radiation Safety for Portable Gauges). Nuclear density meters must be secured from movement and locked during transport. Nuclear Regulatory Commission (NRC) and state-specific regulations regarding transport documentation also apply.
6. When performing fieldwork that requires the blocking of traffic lanes (e.g., bridge inspection), follow SMS 032, the Manual on Uniform Traffic Control Devices for Streets and Highways (American

URS SAFETY MANAGEMENT STANDARD
Vehicle Safety Program

National Standards Institute D6.1), and local police requirements for barriers, cones, and flaggers.

7. No employee may ride in the bed of a pickup truck unless seating and restraints are provided for this specific use.
8. Articles, tools, equipment, etc. placed in vehicles will be stored so as not to interfere with vision or the proper operation of the vehicle in any way. All items in the vehicle must be secured to prevent them from flying about or out of the vehicle during sudden stops, turning, etc.
9. Trucks or vehicles with obstructed rearview mirrors must observe the following procedures when backing up: Position an employee to act as a spotter at the rear of the vehicles, in the driver's line of sight, to ensure that the area behind the truck is clear. If no other employee is present, then the driver must step out of the vehicle and check the area behind the vehicle before backing up. As an added precaution, avoid backing up whenever possible.
10. All uncontrolled intersections (no traffic lights or traffic signs) will be treated as a four-way stop. The driver will exercise extreme caution at uncontrolled intersections.
11. URS drivers carrying more than 15 passengers will perform route planning using Journey Management Plan – Attachment 057-2 NA. Route planning will address hazards associated along the intended route, including lack of traffic controls, speed, and hazards associated with road conditions, weather, visibility, and other threats. Route planning will be verified by the Office or Site Manager.
12. On buses and vehicles capable of carrying more than 15 passengers, no passengers may ride in a seat in the driver's row, which would otherwise impede the driver's lateral visibility.

E. Incident Response and Reporting

1. In case of injury, call or have someone else call 9-1-1 immediately for emergency assistance. If you are involved in an incident and are not injured, the following requirements apply:
 - a. Protect the scene.
 - b. Do not admit liability or place any blame for the incident.

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Vehicle Safety Program

- c. Provide only your name, address, driver's license number, and vehicle insurance information.
- d. Complete the Auto Claim Report – Attachment 057-1 NA and obtain the following information:
 - i. Name(s), addresses, and telephone number(s) of the owner(s).
 - ii. Name(s) of the driver and any occupants of other vehicle(s).
 - iii. The owner's insurance company.
 - iv. Driver's license number.
 - v. Year, make, model, and license number of the vehicle(s).
 - vi. Name(s) and addresses of any witnesses.
- e. DO NOT
 - Make any admissions of guilt or culpability.
 - Call the insurance company; the Fleet Manager's office will do this (unless the incident involves your personal vehicle).
 - Give a statement to the press.
 - Give a signed statement to the claims adjuster representing the other driver's insurance company.

Note: The Auto Claim Report for vehicles owned or leased by URS is located in the vehicle glove compartment. The driver must complete this form at the scene.

2. Notifications

All incidents with a URS-owned, -rented, or -leased vehicle or with a personally owned vehicle used for business must be reported to the Office Manager within 24 hours of the incident.

Incidents involving URS-owned, -leased, client vehicles or personally owned vehicles used for company business the Auto Claim Report, Attachment 057-1 NA, must be completed and distributed as instructed on the form. Incidents involving rental vehicles will be reported to the rental agency.

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Additionally, for motor vehicle incidents involving injured parties, the Incident/Near Miss Report Form – Attachment 049-1 NA must be completed.

Traffic violations received while operating a URS-owned, -rented, or -leased vehicle, client vehicle or with a personally owned vehicle used for company business must be reported to your Office Manager within 24 hours of the violation.

F. Incident Review

1. A violation of this vehicle safety standard is subject to disciplinary action, including termination. The Fleet Manager will review all incidents involving URS-owned, -rented, or -leased vehicles.
2. URS may suspend the privilege to operate vehicles on URS business because of noncompliance with the URS Vehicle Safety Program, involvement in a motor vehicle incident, or resulting citations or other legal actions associated with motor vehicle violations. Personnel authorized to suspend an employee's status as an Authorized Driver include the following:
 - a. A Project Manager with responsibility for dedicated vehicles on a site. The suspension is applicable to those site vehicles only.
 - b. A URS Operations Manager responsible for the employee.
 - c. The URS Fleet Manager.
 - d. The Vice President/Director HSE.
3. The employee's driving privileges *will be* suspended for any of the following:
 - a. Accidents or legal action involving alcohol or drug use (e.g., driving under the influence [DUI]).
 - b. Driving without a license.
 - c. Hit-and-run driving or leaving the scene of an accident.
 - d. Unauthorized use of URS vehicles (i.e., using a URS vehicle for moving personal items, carrying passengers who are not associated with work activities, etc.).

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4. The employee's driving privileges *may be* suspended for any of the following:
 - a. Two or more at-fault accidents involving the same Authorized Driver within a 12-month period.
 - b. Multiple complaints from other employees or members of the public about driving performance.
 - c. Any accident caused by a URS Authorized Driver where damages exceed \$2,000.
 - d. Failure to comply with the cellular phone use policy.
 - e. Gross misconduct or violation of policy.
5. An Authorized Driver's driving privileges may be reinstated as follows:
 - a. For any suspension resulting from law enforcement agency legal action involving drugs and alcohol on the part of the former Authorized Driver, driving privileges may be reinstated only by concurrent agreement from the URS Operating Unit Manager, the URS Fleet Manager, the Vice President/Director HSE, and the appropriate Human Resources Regional Manager.
 - b. For those Authorized Driver's privilege suspensions that are not related to driving under the influence of drugs or alcohol, privileges may be reinstated with concurrent agreement by the URS Operating Unit Manager, the Vice President/Director HSE, and appropriate Human Resources Regional Manager upon completion of required remedial training (see Section 4.B.3).
6. Disciplinary action may include the following:
 - a. Loss of URS driving privileges.
 - b. Additional driver safety training. Refer to Section 4.B, Training.
 - c. Disciplinary warning.
 - d. Termination.

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G. Inspection

1. The driver is responsible for inspecting the vehicle prior to use and not driving a vehicle with obvious safety defects.
2. Basic safety checks must include the following:
 - a. Tire condition/pressure.
 - b. Lights/turn signals.
 - c. A clean windshield and adequate window washer fluid.
 - d. Gauges/warning lights indicating a normal condition.
 - e. Mirrors properly adjusted.
 - f. Brakes with adequate pedal pressure for proper braking.

Any defects must be reported to the local office Fleet Representative or Office Administrator.

H. Vehicle Maintenance

1. The Office Administrator (or designee) is to ensure that all vehicles owned or leased by URS are properly maintained.
2. Routine maintenance must be performed in accordance with the schedule provided in the owner's manual stored in the vehicle.
3. Reported defects/problems with vehicles must be repaired promptly.

5. Documentation Summary

The following documentation will be maintained in the office/project file:

- A. Auto Claim Reports
- B. Journey Management Plans

6. Resources

- A. National Safety Council, Information on Defensive Driving Courses
<http://www.nsc.org/psg/ddc.htm>

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Vehicle Safety Program

- B. AAA Foundation for Traffic Safety
<http://www.aaafoundation.org/>
- C. Smith Driving System
<http://smith-system.com/>
- D. 4-Hour Defensive Driver Training
<http://www.safetyserve.com/urscorp> password: URSDDC
- E. American National Standards Institute (ANSI) D6.1 – Manual on Uniform Traffic Control Devices for Streets and Highways
- F. [SMS 019](#) – Heavy Equipment Operations
- G. [SMS 024](#) – Medical Screening and Surveillance
- H. [SMS 032](#) – Work Zone Traffic Control
- I. [SMS 044](#) – Radiation Safety for Portable Gauges
- J. [SMS 048](#) – Hazardous Materials/Dangerous Goods Shipping
- K. [SMS 049](#) – Injury/Illness/Incident Reporting and Notifications
- L. [Attachment 057-1 NA](#) – Auto Claim Report
- M. [Attachment 057-2 NA](#) – Journey Management Plan



AUTO CLAIM REPORT

To be used for **all** vehicle accidents involving URS-leased/owned vehicles, client vehicles and for personal vehicles used on company business.

Name of Employee Involved in Accident _____

Was the employee injured? Yes No **Job Title:** _____

Was anyone else injured? Yes No **Details:** _____

Office Location _____ **Date of Accident** _____

Employee Phone/Cell # _____ **Office Phone #** _____

Describe Injury (including medical treatment, if any):

Company Vehicle On Company business at the time of accident? Yes No
Personal Vehicle Vehicle Identification Number (company or personal):
Government or Client Vehicle _____

Accidents involving rental vehicles should be reported to the rental agency.

Year _____ Make _____ Model _____

Other Driver's Information

Name _____ Phone Number _____

Address _____

Insurance Co. _____ Policy # _____

License Plate # _____ Make _____ Model _____

Description of Accident

Time of Accident _____ Police Report # _____

Location of Accident _____ Police Department _____

Description (provide a clear, inclusive description of the accident):

Accidents should be reported immediately to the Office Manager, Regional HSE Manager and:

All accidents occurring in the US to company, client or personal vehicles will be reported to:
PHH
Phone 800 446 7052 Fax 410 771 6181

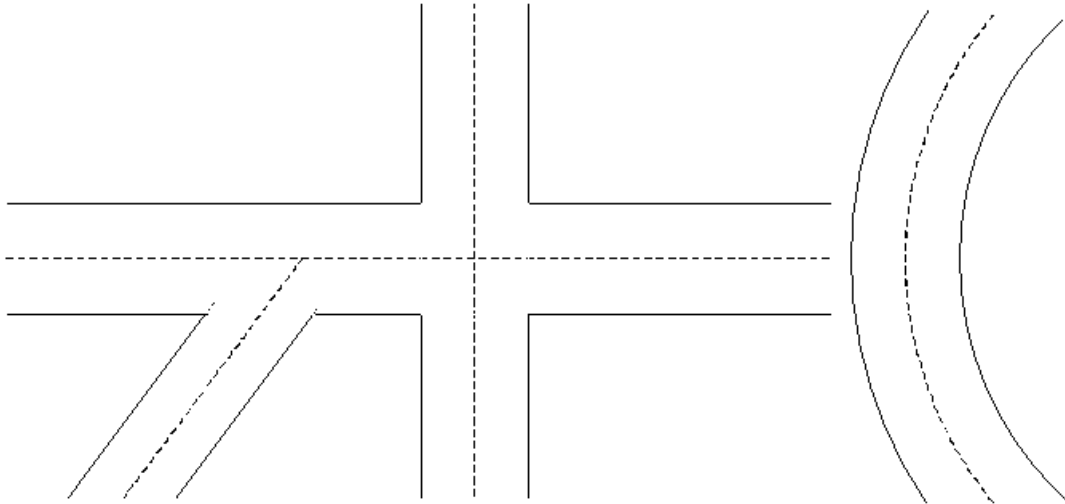
All accidents occurring outside the US will be reported to the Regional HSE Manager.



AUTO CLAIM REPORT

To be used for **all** vehicle accidents involving URS-leased/owned vehicles, client vehicles and for personal vehicles used on company business.

Draw a diagram showing the position of vehicles before and after the accident. Correct the diagram to fit your situation. Attach police report if available.



Check all applicable conditions on each subject

WEATHER

- Clear
- Cloudy
- Fog
- Rain
- Snow
- Sleet
- Other

LIGHTING

- Daylight Dark
- Dusk Dawn
- Dark - no street lights on
- Dark - street lights on
- Headlights
- Headlights on dim
- Headlights on bright
- No lights on

ROAD SURFACE

- Dry
- Wet
- Muddy
- Snowy
- Snow-covered
- Ice in places
- Ice -covered
- Other

ROAD DESCRIPTION

- Straight Curve
- Level
- Hill Up Down
- Paved Black top
- One-way
- Two-way
- Divided road
- Intersection

ACTION OF DRIVER

	You	Other
Exceeding safe speed	<input type="checkbox"/>	<input type="checkbox"/>
On wrong side of street	<input type="checkbox"/>	<input type="checkbox"/>
Did not have right-of-way	<input type="checkbox"/>	<input type="checkbox"/>
Disobeyed traffic signal	<input type="checkbox"/>	<input type="checkbox"/>
Passed illegally	<input type="checkbox"/>	<input type="checkbox"/>
Improper turning	<input type="checkbox"/>	<input type="checkbox"/>
Improper backing	<input type="checkbox"/>	<input type="checkbox"/>
Following too closely	<input type="checkbox"/>	<input type="checkbox"/>
Failure to signal	<input type="checkbox"/>	<input type="checkbox"/>
Improper lane change	<input type="checkbox"/>	<input type="checkbox"/>
Misjudged clearance	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>

What was speed limit?

_____ MPH

Traffic control

- Signal lights
- Caution lights
- Stop sign
- Police officer
- None Other

Witnesses?

- Yes No

Witness Name _____

Address _____

Name _____

Address _____



Health, Safety and Environment
JOURNEY MANAGEMENT PLAN

Attachment 057-2 NA
Issue Date: February 2001
Revision 7: December 2009

Commencement Point	Destination Point

Issue #: 1 Date:

<u>ROUTE DIRECTIONS</u>	<u>PERSONAL PROTECTIVE EQUIPMENT</u>
<u>TIME AND DISTANCE, ROUND TRIP</u>	<u>SPECIAL INSTRUCTIONS</u> 1. Do not use cell phone or two-way communication devices while driving. 2. Use three points of contact when entering/exiting the cab. 3. Everyone has the authority and responsibility to stop work if conditions are unsafe. 4. Do not drive while under the influence of medication, drugs or alcohol. 5. Do not drive when you are fatigued.
<u>SITE HAZARDS</u>	
<u>ROUTE HAZARDS</u>	<u>EMERGENCY INFORMATION</u>
<u>DESTINATION ENTRY INSTRUCTIONS</u>	<u>EMERGENCY CONTACT NUMBERS</u> Fire/Ambulance/Police:
<u>DESTINATION HAZARDS</u>	<u>SITE CONTACT NUMBERS</u> Site Manager:
	Safety Manager:
<u>DESTINATION EXIT INSTRUCTIONS</u>	<u>CURRENT TRIP INFORMATION UPDATE</u>
<u>RETURN JOURNEY</u>	



Health, Safety and Environment
JOURNEY MANAGEMENT PLAN

Attachment 057-2 NA

Issue Date: February 2001
Revision 7: December 2009

ROUTE MAP

URS SAFETY MANAGEMENT STANDARD

Cold Stress

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to protect project personnel from hypothermia and frostbite when working outdoors in damp and cool (below 50° F or 10°C) conditions or anytime temperatures are below 32°F or 0°C.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 059 NA](#) – North America

[SMS 059 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 059 AP7 – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Cold Stress

1. Applicability

This standard applies to URS Corporation and its subsidiary companies where field crews are working outdoors in damp and cool (below 50 degrees Fahrenheit [°F] or 10 degrees Celsius [°C]) conditions or anytime temperatures are below 32°F or 0°C.

2. Purpose and Scope

The purpose of this standard is to protect project personnel from hypothermia and frostbite.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

- A. Carefully plan work anticipated to be performed in cool or cold conditions. Include costs in project budgets for specialized equipment and supplies needed to complete the field activities.
- B. Monitor weather forecasts immediately prior to entering the field. If possible, schedule heavy work during the warmer parts of the day. Implement a work-warming regimen by taking breaks out of the cold.
- C. Observe and monitor weather conditions such as ambient temperature, wind speed, and precipitation while in the field. If needed, use Supplemental Information B to determine wind chill.
- D. Wearing the right clothing is the most important way to avoid cold stress. The type of fabric also makes a difference. Cotton loses its insulation value when it becomes wet. Wool, on the other hand, retains its insulation even when wet. Adequate insulating dry clothing will be required in air or wind chill temperatures below 40 °F (4.4 °C).
 1. Wear at least 3 layers of clothing to help prevent cold stress. It is important to preserve the air space between the body and the outer layer of clothing to retain body heat.
 2. Wear an outer layer to break the wind and allow some ventilation (e.g., Gortex[®] or nylon).

URS SAFETY MANAGEMENT STANDARD
Cold Stress

3. Wear a middle layer of down, wool, or similar materials to provide insulation.
 4. Wear an inner layer of cotton or synthetic weave to allow ventilation.
 5. Wear a hat or hardhat liner. Up to 40 percent of body heat can be lost when the head is left exposed.
 6. Wear insulated boots or other insulated footwear, and insulated gloves to help reduce the chance of frostbite.
 7. Keep a change of dry clothing available in case work clothes become wet.
 8. Do not wear tight clothing. Loose clothing allows better ventilation.
 9. Skin should not be left exposed on a continuous basis when air temperature or chill factors are below -17°F (-27°C).
 10. Drink plenty of liquids, avoiding caffeine and alcohol, which are vasoconstrictors. It is easy to become dehydrated in cold weather.
- E. Use the following work practices:
1. Use Supplemental Information C to establish work/rest cycles in cold weather.
 2. Drink plenty of warm liquids. It is easy to become dehydrated in cold weather.
 3. Avoiding caffeine and alcohol. Alcohol will accelerate loss of body heat.
 4. Eat high calorie snacks to help maintain body metabolism.
 5. If possible, heavy work should be scheduled during the warmer parts of the day. Take breaks out of the cold.
 6. Work in pairs to keep an eye on each other and watch for signs of cold stress.
 7. NEVER IGNORE SHIVERING. Persistent or violent shivering is a clear warning that you are on the verge of hypothermia.
 8. Avoid exhaustion.

URS SAFETY MANAGEMENT STANDARD
Cold Stress

- F. When possible, use the following engineering controls:
1. Provide shelter to escape cold, wind, and precipitation
 2. Provide a source of heat (such as warm packs or portable heaters).
 3. Use insulating materials on equipment handles when temperatures drop below 30°F (-1°C).
- G. Watch for symptoms and signs of hypothermia. Work in pairs to keep an eye on each other and watch for signs of cold stress.
- H. Treat cold stress illness as follows:
1. Hypothermia: Prompt treatment of hypothermia is essential. Once the body temperature drops below 95°F (35°C), the loss of temperature control occurs, and the body can no longer rewarm itself. Initial treatment includes reducing heat loss by moving the individual out of the wind and cold, removing wet clothing, applying external heat (such as a pre-warmed sleeping bag, electric blanket, or body-heat from other workers), and obtaining follow-up medical attention.
 2. Frost Bite: The initial treatment for frostbite includes bringing the individual to a warm location, removing clothing in the affected area, and, **if help is delayed**, placing the affected parts in warm (100° to 104°F or 38° to 40°C) water. Do not massage or rub the frostbite area. After the initial treatment, wrap the affected area loosely in sterile gauze and seek medical attention.

For further discussion on Cold Stress treatment, please refer to Supplemental Information A.

I. Hypothermia in Water:

Loss of body heat to the water is a major cause of deaths in boating and working near water incidents. Often the cause of death is listed as drowning; however, the primary cause is often hypothermia. It should also be noted that alcohol lowers the body temperature around 2 to 3 degrees by dilating the blood vessels. Do not drink alcohol around cold water. The following table shows the effects of hypothermia in water:

URS SAFETY MANAGEMENT STANDARD
Cold Stress

WATER TEMPERATURE	EXHAUSTION	SURVIVAL TIME
32.5°F (0°C)	Under 15 minutes	Under 15 to 45 minutes
32.5 to 40°F (0 to 4°C)	15 to 30 minutes	30 to 90 minutes
40 to 50°F (4 to 10°C)	30 to 60 minutes	1 to 3 hours
50 to 60°F (10 to 16°C)	1 to 2 hours	1 to 6 hours
60 to 70°F (16 to 21°C)	2 to 7 hours	2 to 40 hours
60 to 70°F (16 to 21°C)	3 to 12 hours	3 hours to indefinite
Over 80°F (27°C)	Indefinite	Indefinite

SOME POINTS TO REMEMBER:

1. Wear your PFD. Review SMS 027 – Work Over Water, SMS 053 – Marine Safety and Boat Operations and SMS 095 – Barge Operations.
2. If the water is less than 50°F (10°C), wear a wet suit or dry suit for work in water (e.g., wading), or if a significant potential to fall in water exists.
3. While in the water, do not attempt to swim unless to reach nearby safety. Unnecessary swimming increases the rate of body heat loss. Keep your head out of the water. This will increase your survival time.
4. Keep a positive attitude about your rescue. This will increase your chances of survival.
5. If there is more than one person in the water, huddling is recommended.

J. Training

Workers at risk of developing hypothermia or cold-related injury will be trained in:

1. Recognition of the signs and symptoms of cold injury or impending hypothermia;

URS SAFETY MANAGEMENT STANDARD

Cold Stress

2. Proper re-warming procedures and appropriate first aid treatment;
3. Proper use of clothing;
4. Proper eating and drinking practices; and
5. Safe work practices appropriate to the work that is to be performed.

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Cold stress training records.

6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) Fact Sheets – [“Protecting Workers in Cold Environments”](#)
- B. [OSHA Publication 3156 – Quick Reference Card](#)
- C. [SMS 027](#) – Work Over Water
- D. [SMS 053](#) – Marine Safety and Boat Operations
- E. [SMS 095](#) – Barge Operations

7. Supplemental Information

- A. [Signs of, and Treatment for, Cold Stress-Related Illnesses](#)
- B. [Wind Chill Index](#) (units in °F and miles/hour, and units in °C and Kilometers/hour)
- C. [Work/Warm-up Schedule for Outside Workers](#) based on a Four-Hour Shift

Hypothermia: Hypothermia results when the body loses heat faster than it can be produced. When this situation first occurs, blood vessels in the skin constrict in an attempt to conserve vital internal heat. Hands and feet are first affected. If the body continues to lose heat, involuntary shivers begin. This is the body's way of attempting to produce more heat, and it is usually the first real warning sign of hypothermia. Further heat loss produces speech difficulty, confusion, loss of manual dexterity, collapse, and finally death. Wet clothes or immersion in cold water greatly increases the hypothermia risk. The progressive clinical presentation of hypothermia is described in the table below.

Frostbite: Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite can be categorized into:

- **Frost Nip or Initial Frostbite:** (1st degree frostbite) Characterized by blanching or whitening of skin.
- **Superficial Frostbite:** (2nd degree frostbite) Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient. Blistering and peeling of the frozen skin will follow exposure.
- **Deep Frostbite:** (3rd degree frostbite) Tissues are cold, pale, and solid; extremely serious injury with possible amputation of affected area.

Frostbite can occur without hypothermia when the extremities do not receive sufficient heat. The toes, fingers, cheeks, and ears are the most commonly affected. Frostbite occurs when there is freezing of the fluids around the cells of the affected tissues. The first symptom of frostbite is an uncomfortable sensation of coldness, followed by numbness. There may be tingling, stinging, or cramping. Contact by the skin with tools or other metal objects below 20°F (-7°C) may result in contact frostbite.

Condition	Signs/Symptoms	Treatment
Hypothermia Mild (98° - 90° F) (36° - 32°C)	<ul style="list-style-type: none"> • shivering • lack of coordination • stumbling, fumbling hands • slurred speech • memory loss • pale, cold skin 	<ul style="list-style-type: none"> • move to warm area • stay active • remove wet clothes and replace with dry clothes or blankets • cover the head • drink warm (not hot) sugary drink
Hypothermia Moderate (90° - 86° F) (32° - 30°C)	<ul style="list-style-type: none"> • shivering stops • unable to walk or stand • confused and irrational 	<ul style="list-style-type: none"> • All of the above, plus • Call for an ambulance • Cover all extremities completely • Place very warm objects, such as hot packs or water bottles on the victim's head, neck, chest and groin
Hypothermia Severe (86° - 78° F) (30° - 26°C)	<ul style="list-style-type: none"> • severe muscle stiffness • very sleepy or unconscious • ice cold skin • death 	<ul style="list-style-type: none"> • Call for an ambulance • Treat the victim very gently • Do not attempt to re-warm -- the victim should receive treatment in a hospital
Frostbite	<ul style="list-style-type: none"> • Cold, tingling, stinging or aching feeling in frostbitten area; numbness • Skin color turns red, then purple, then white or very pale skin, cold to the touch • Blisters in severe cases 	<ul style="list-style-type: none"> • Seek medical attention • Do not rub the area • Wrap in soft cloth • If help is delayed, immerse in warm, not hot, water
Trench Foot	<ul style="list-style-type: none"> • Tingling, itching or burning sensation • Blisters 	<ul style="list-style-type: none"> • Soak feet in warm water, then wrap with dry cloth bandages • Drink a warm, sugary drink



WIND CHILL INDEX

Estimated wind speed	Actual temperature reading (°F/°C)											
	50/10	40/4	30/-1	20/-7	10/-12	0/-18	-10/-23	-20/-29	-30/-34	-40/-40	-50/-46	-60/-51
(mph/kph)	Equivalent wind chill temperature (°F/°C)											
0 (Calm)	50/10	40/4	30/-1	20/-7	10/-12	0/-18	-10/-23	-20/-29	-30/-34	-40/-40	-50/-46	-60/-51
5/8	48/9	37/3	27/-3	16/-9	6/-14	-5/-21	-15/-26	-26/-32	-36/-38	-47/-44	-57/-49	-68/-56
10/16	40/4	28/-2	16/-9	4/-16	-9/-23	-24/-31	-33/-36	-46/-43	-58/-50	-70/-57	-83/-64	-95/-71
15/24	36/2	22/-6	9/-13	-5/-21	-18/-28	-32/-36	-45/-43	-58/-50	-72/-58	-85/-65	-99/-73	-112/-80
20/32	32/0	18/-8	4/-16	-10/-23	-25/-32	-39/-39	-53/-47	-67/-55	-82/-63	-96/-71	-110/-79	-121/-85
25/40	30/-1	16/-9	0/-18	-15/-26	-29/-34	-44/-42	-59/-51	-74/-59	-88/-67	-104/-76	-118/-83	-133/-92
30/48	28/-2	13/-11	-2/-19	-18/-28	-33/-36	-48/-44	-63/-53	-79/-62	-94/-70	-109/-78	-125/-87	-140/-96
35/56	27/-3	11/-12	-4/-20	-20/-29	-35/-37	-51/-46	-67/-55	-82/-63	-98/-72	-113/-81	-129/-89	-145/-98
40/64	26/-3	10/-12	-6/-21	-21/-29	-37/-38	-53/-47	-69/-56	-85/-65	-100/-73	-116/-82	-132/-91	-148/-100
	LOW HAZARD Risk of exposed, dry skin being affected in less than one hour. Awareness of hazard low.				INCREASING HAZARD Danger from freezing of exposed flesh within one minute.				HIGH HAZARD Flesh may freeze within 30seconds.			

Note that wind speeds greater than 40 mph/64 kph have little additional effect.

Information in this table was originally developed by the U.S. Army Research Institute of Environmental Medicine, Natick, MA, and is further adapted from the 2004 *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, published by the ACGIH. The ACGIH publication provides the equivalent table with temperature in degrees Fahrenheit and wind speed in mph.

Equivalent wind chill temperatures identified require dry clothing to maintain core body temperature above 96.8°F (36°C).



Health, Safety and Environment
WORK / WARM-UP SCHEDULE FOR OUTSIDE WORKERS BASED ON A FOUR-HOUR SHIFT

SMS 059 NA
 Supplemental Information C
 Issue Date: February 2009

How fast a person's body cools in cold weather depends on: air temperature, wind speed, heat of the sun, and work being done. The fingers and toes usually feel cold first. Shivering then sets in. Shivering is the body's way of warning that it needs to be warm-up. |

The Work Warm-Up Schedule shows the warm-up breaks needed for work in cold conditions. It assumes that normal work practice provides for breaks in warm locations every two hours. The schedule provides for additional breaks as the wind velocity at the work site increases and/or the temperature drops. Warm-up breaks should begin when the temperature reaches -15° (-26° C) with winds of 10 mph (16 km/h) or greater. When the work involves riding on an unshielded vehicle or some other activity that generates wind, the number of breaks should be increases appropriately. If effective protection against the wind can be provided by shields or screens, work modifications or measures, then the work warm-up schedule for "No Noticeable Wind" would apply.

The information below applies to any four-hour period. Warm-up breaks are assumed to provide 10 minutes in a warm environment. These guidelines apply to workers wearing dry clothing.

Air Temperature - Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx.)	°F (approx.)	Max. work Period	No. of Breaks**	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-26° to -28°	-15° to -19°	(Norm breaks) 1		(Norm breaks) 1		75 min.	2	55 min.	3	40 min.	4
-29° to -31°	-20° to -24°	(Norm breaks) 1		75 min.	2	55 min.	3	40 min.	4	30 min.	5
-32° to -34°	-25° to -29°	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-35° to -37°	-30° to -34°	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-38° to -39°	-35° to -39°	40 min.	4	30 min.	5	Non-emergency work should cease					
-40° to -42°	-40° to -44°	30 min.	5	Non-emergency work should cease							
-43° & below	-45° & below	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease					

Note: All temperatures are approximate.

Apply the schedule one step lower for work with limited physical activity. For example, at -30° F (-35° C) with no noticeable wind, a worker with a job requiring little physical movement should have a maximum work period of 40 minutes with four breaks in a four-hour period.

If reliable weather reports are not available, us the following as a guide to estimate wind velocity:

- A 5 mph (8 km/h) wind will move a light flag
- A 10 mph (16 km/h) wind will fully extend the flag
- A 15 mph (24 km/h)wind will raise a newspaper sheet
- A 20 mph (23 km/h) wind will produce blowing and drifting snow.

Source: Saskatchewan Labour Occupational Health and Safety, January 2000.

URS SAFETY MANAGEMENT STANDARD

Railroad On-Track Safety

1. Applicability

This standard applies to URS Corporation and its subsidiary companies where personnel are working on or near railroad transportation systems and are engaged by or under contract to a railroad, transit authority, or private company.

2. Purpose and Scope

This standard is intended to protect personnel and equipment from being struck by a railroad train or other moving railroad equipment.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 063 NA](#) – North America

[SMS 063 INT](#) – International Operations (including Europe, Asia, South America and Africa)

[SMS AP7-063](#) –Australia / New Zealand

URS SAFETY MANAGEMENT STANDARD

Railroad On-Track Safety

1. Applicability

This standard applies to URS Corporation and its subsidiary companies where personnel are working on or near railroad transportation systems and are engaged by or under contract to a railroad, transit authority, or private company.

2. Purpose and Scope

This standard is intended to protect personnel and equipment from being struck by a railroad train or other moving railroad equipment.

Working near tracks requires compliance with specialized rail regulations (e.g., Federal Railroad Administration), meeting detailed railroad safety and training requirements, and recognizing the relevant hazards. Proper safety procedures protect the field employee, railroad employees, and members of the public.

3. Implementation

Implementation of this procedure is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Definitions

1. Fouling a track – Placement of an individual or an item of equipment in such proximity to a track that the person or equipment could be struck by a moving train or on-track equipment. Regardless of the situation, the minimum clear distance from the field side of the near-running rail must be 4 feet (1.2 meters) in order not to be considered fouling the track. Maintain 25 feet (7.6 meters) of clearance from the centerline of the track unless the work activities require personnel to enter this area, and specific instructions from the railroad employee in charge have been provided.
2. On-track safety – A state of freedom from the danger of being struck by a moving railroad train or other railroad equipment, provided by operating and safety rules that govern track occupancy by personnel, trains, and on-track equipment.

B. General

1. Employer Responsibility

URS SAFETY MANAGEMENT STANDARD
Railroad On-Track Safety

- a. URS is responsible for the on-track safety of URS employees and subcontractors, and any required training.
 - b. URS guarantees the absolute right for an employee to challenge, in good faith, whether the on-track safety procedures being applied at a job location comply with the rules of the operating railroad. URS also guarantees an employee's right to remain clear of the track until the challenge is resolved. On-track safety challenges are to be discussed with the employee in charge as defined in the site safety briefing. If resolution cannot be achieved, the railroad project representative will be contacted for further information regarding application of the on-track safety rules to the particular situation.
 - c. As required by the Federal Railway Administration, URS will adopt the on-track safety rules of the railroad being worked on. On-track safety can be achieved by several recognized methods that may vary by railroad entity and/or work project needs.
 - i. Project Managers must coordinate all activities in advance with the railroad project representative.
 - ii. Project Managers must prepare a Project Hazard Assessment, and a safety plan that meets the requirements of the railroad with which URS is working.
- C. Site Safety Briefing
- 1. Before beginning work and whenever work site conditions change, the Project Manager must contact or coordinate with the railroad project representative for information about current operational conditions. Along with job hazard topics related to the task to be performed, the briefing is to specifically include and document, as applicable:
 - a. Designation of the employee in charge;
 - b. Method of on-track safety;
 - c. Limits of authority (time, milepost-to-milepost);
 - d. Tracks that may be fouled; and
 - e. Control of movements on adjacent tracks.
 - 2. All employees must acknowledge that they understand fully the on-track safety provisions.

URS SAFETY MANAGEMENT STANDARD
Railroad On-Track Safety

D. Specific Precautions When Working on or near Live Rail

1. Wear personal protective equipment that is appropriate for the work situation. This will typically include a hard hat, steel-toed safety shoes or boots, safety glasses, hearing protection, and American National Standards Institute (ANSI) Class 2 vests.
2. When working around railroad facilities, remind staff to expect rail vehicle and train movement at any time and in either direction on any track. In addition, they must look in each direction prior to entering upon or standing close to the tracks. Employees will cross tracks at designated rail crossings except in those situations where project work requires them to cross elsewhere, in which case other precautions noted in Section 4.D.5 and 8 will be followed.
3. Do not work within 25 feet (7.6 meters) of any active track without authorization.
4. Stop at all railroad crossings.
5. Do not cross tracks immediately after a rail vehicle or train has passed; wait until all adjacent tracks can be observed for a safe distance in both directions.
6. Ensure that all crew members know where to go when it is necessary to clear the track for rail vehicle or train movement. All crew members must clear the track on the same side.
7. Check that all communication equipment is functional.
8. Do not sit, walk, step, or stand on the rail unless it is necessary to perform the work. When required to work in or along the track areas, walk on or cross the tracks on the cross-ties and ballast only. Do not cross tracks at turnout switch points.
9. When working at a stationary location, always ensure that a railroad flag person is present to warn on-coming rail equipment, trains, etc., to slow down or stop.
10. Do not spend unnecessary time fouling a track. Whenever possible, perform all preparations necessary for the work activity in a safe location.
11. Do not use personal radios, CD players, headphones, cell phones, etc.

URS SAFETY MANAGEMENT STANDARD
Railroad On-Track Safety

12. Do not cross tracks between, directly in front of, or behind railcars or locomotives that have stopped. Cross at least 25 feet (7.6 meters) in front of or behind the standing equipment.
13. Do not climb underneath railcars or take other shortcuts. When required by the work, face railroad equipment when getting on or off. Do not get on or off moving equipment.
14. Do not make any movement towards an oncoming train or make any equipment moves in a manner that may lead the train engineer to think that you are about to foul the track.
15. Do not leave unattended equipment within 25 feet (7.6 meters) of the track centerline, fouling the track, or within 250 feet (76 meters) of a crossing.
16. Keep all vehicles at least 15 feet (4.6 meters) away from any active track.
17. Do not wear any unnecessary PPE or clothing that could obstruct your vision or impair your hearing.
18. Do not assume that a train has already passed your location; it may just be late.
19. Keep all air hoses, electrical cords, and the like clear of the track(s). If an air hose, electrical cord, or similar equipment must be placed across any track, run it under the rail.
20. Some rails are conductors of electrical current and an integral part of the railroad operating system. Do not lay devices that could shunt current across rails.
21. In catenary systems, all overhead wires must be considered energized at all times. Watch for high loads; cranes and lifts may interfere with catenary systems.
22. Do not touch dangling wires, or foreign objects hanging from such wires, nor attempt to move them by any means. Immediately report their location to the supervisor; and, if possible, leave someone to protect such wires or foreign objects until their removal by a qualified employee. Other persons in danger of coming in contact must be warned of their location.

URS SAFETY MANAGEMENT STANDARD
Railroad On-Track Safety

23. Regard loose or broken impedance bond connections in the tracks as energized (live), and report immediately to the employee in charge.
24. Adequately insulate all tools used to work on or near electrical equipment or circuits. Use fuse pullers for removing and replacing fuses. De-energize electrical equipment and circuits before any work is done upon same, except when such de-energization interferes with the proper operation of the rail system. If work is to be performed on energized equipment, take all appropriate precautions.
25. Position yourself to be facing the train's directional approach instead of your back.
26. If you are unsure of any aspect of the on-track safety program implementation, stay in a safe location and seek further clarification before approaching the tracks.
27. Report hazardous conditions, safety issues, and security conditions to the railroad employee in charge.
28. Do not position any part of the body in a potential pinch point.

E. Training

1. All employees working near an active railroad will receive training on at least the following topics:
 - a. Recognition of railroad tracks and the space around them within which on-track safety is required.
 - b. Functions and responsibilities of various persons performing or responsible for on-track safety functions.
 - c. Proper compliance with on-track safety instructions given by persons performing or responsible for on-track safety functions.
 - d. Signals given by watchmen/lookouts and the proper procedures upon receiving a train approach warning from a lookout.
 - e. Hazards associated with working on or near railroad tracks, including review of on-track safety rules and procedures.
2. Employees with additional responsibilities, such as watchers or flaggers, will receive additional training and must demonstrate their proficiency to

URS SAFETY MANAGEMENT STANDARD
Railroad On-Track Safety

perform these duties. Under most circumstances, the railroad will provide flaggers when required.

3. Employees working alone near an active railroad will receive additional training, which will cover the following factors:
 - a. Detection of approaching trains and prompt movement to a place of safety upon their approach.
 - b. Determination of the distance along the track at which trains must be visible in order to provide the prescribed warning time. Extra precaution must be taken when sight distance is limited by curves, vegetation, tunnels, or other obstructions.
 - c. Rules and procedures prescribed by the railroad for individual train detection, establishment of working limits, and definite train location.
 - d. On-track safety procedures to be used in the territory on which the employee is to be qualified and permitted to work alone. For additional information, refer to SMS 084 – Lone Workers.
4. Training will be provided initially and at least once every calendar year for affected employees. Additional training will be provided when inadequacies in an employee's knowledge or performance indicate that they have not retained the requisite skill or understanding.
5. Client-specific training requirements will be met.

F. Utilities

1. Many utilities (both overhead and underground) use railroad rights-of-way. Excavation or drilling in these rights-of-way requires assurance of utility clearance before digging. Prior to beginning work, refer to SMS 034 – Utility Clearances and Isolation.
2. Railroad control and signal cables may be buried or above ground. Special care must be taken not to disturb or damage these cables due to their critical safety function.
3. Clearances from energized utilities are specified by the local railroad. When the voltage is not known, keep a minimum distance of 45 feet (13.8 meters).

URS SAFETY MANAGEMENT STANDARD
Railroad On-Track Safety

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Copies of employee training records
- B. Project Hazard Assessment(s)
- C. Job site safety briefings
- D. Safe Work Plan or Health and Safety Plan
- E. Any other related safety documentation/communication records

6. Resources

- A. 49 Code of Federal Regulations (CFR) 214 – [Railroad Workplace Safety](#)
- B. Federal Railway Administration (<http://www.fra.dot.gov/>)
- C. Canada Railway Safety Act (<http://www.tc.gc.ca/Railway/overview.htm>)
- D. [Railroad Industry e-RAILSAFE Course](#)
- E. [SMS 084](#) – Lone Workers
- F. [SMS 034](#) – Utility Clearance and Isolation

URS SAFETY MANAGEMENT STANDARD

Hand Safety

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

This standard is intended to protect employees from activities that may expose them to injury when working with materials or equipment that presents the potential for hand injury.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 064 NA](#) – North America, UK and Ireland, Europe, and Middle East

[SMS 064 AP7](#) – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Hand Safety

1. Applicability

This standard applies to URS Corporation and its subsidiary companies where the potential for hand injuries is present.

Appropriate gloves must be worn when persons work with materials or equipment that presents the potential for hand injury due to sharp edges, corrosives, flammable and irritating materials, extreme temperatures, splinters, etc.

2. Purpose and Scope

This standard is intended to protect employees from activities that may expose them to injury. This standard provides information on recognizing those conditions that require personal protective equipment (PPE) or specific work practices to reduce the risk of hand injury.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Hazard Assessment

1. Perform hazard assessments for those work activities likely to require PPE.
 - a. Use the PPE Hazard Assessment Certification Form – Attachment 029-1 NA to perform the assessment. The Hazard Assessment Certification Form will accompany URS personnel at jobsites for use in the event of a job or task change.
 - b. Reevaluate completed hazard assessments when the job or task changes.
2. If possible, eliminate the hazards identified through engineering or administrative controls. Examples of controls are chemical substitution, machine guarding, and use of different tools.
3. Select PPE that will protect employees if hazards cannot be eliminated.
 - a. Review Material Safety Data Sheets for project or task-specific chemicals to determine appropriate PPE. If needed, consult with a URS safety representative for assistance.

URS SAFETY MANAGEMENT STANDARD

Hand Safety

- b. Review glove manufacturer recommendations for both physical and chemical protection.
 - c. Obtain gloves of the correct size for project field staff.
 - d. When both chemical and physical protection is of concern, wear the chemical protection gloves (e.g., nitrile) inside the physical protection gloves (e.g., leather, Kevlar®).
 - e. Latex gloves are not recommended for chemical protection.
 - f. Do not wear metal or metal-reinforced gloves when working with electrical equipment or on electrical services. Proper leather and/or rubber gloves designed and tested for this purpose should be used.
4. Follow glove requirements in the project-specific safety plan.
- B. Guidelines for Working With and Around Equipment (Hand Tools, Portable Powered Equipment)
- 1. General
 - a. Employees should be trained in the use of all tools.
 - b. Keep hand and power tools in good repair and use them only for the task for which they were designed.
 - c. Inspect tools before use and remove damaged or defective tools from service.
 - d. Operate tools in accordance with manufacturer's instructions.
 - e. Do not remove or bypass a guarding device for any reason.
 - f. Keep surfaces and handles clean and free of excess oil to prevent slipping.
 - g. Wear proper PPE, including gloves, as necessary.
 - h. Do not carry sharp tools in pockets.
 - i. Clean tools and return to the toolbox or storage area upon completion of a job.
 - j. Before applying pressure, ensure that wrenches have a good bite.

URS SAFETY MANAGEMENT STANDARD

Hand Safety

- i. Brace yourself by placing your body in the proper position so you will not fall if the tool slips.
 - ii. Make sure hands and fingers have sufficient clearance in the event the tool slips.
 - iii. Always pull on a wrench, never push.
 - k. When working with tools overhead, place tools in a holding receptacle when not in use.
 - l. Do not throw tools from place to place or from person to person, or drop tools from heights.
 - m. Inspect all tools prior to start-up or use to identify any defects.
 - n. Powered hand tools should not be capable of being locked in the ON position.
 - o. Require that all power-fastening devices be equipped with a safety interlock capable of activation only when in contact with the work surface.
 - p. Do not allow loose clothing, long hair, loose jewelry, rings, and chains to be worn while working with power tools.
 - q. Do not use cheater pipes.
 - r. Make provisions to prevent machines from restarting through proper lockout/tagout (refer to SMS 023 – Lockout and Tagout Safety).
2. Cutting Tools
- a. Always use the specific tool for the task. Tubing cutters, snips, self-retracting knives, concealed blade cutters, and related tools are task specific and minimize the risk of hand injury. For more information about cutting tools, see Supplemental Information A.
 - b. Fixed open-blade knives (FOBK) are prohibited from use. Examples of fixed open-blade knives include pocket knives, multitools, hunting knives, and standard utility knives.
 - c. When utilizing cutting tools, personnel will observe the following precautions to the fullest extent possible:
 - i. Use the correct tool and correct size tool for the job.

URS SAFETY MANAGEMENT STANDARD

Hand Safety

- ii. Cut in a direction away from yourself and not toward other workers in the area.
 - iii. Maintain the noncutting hand and arm toward the body and out of the direction of the cutting tool if it were to slip out of the material being cut.
 - iv. Ensure that the tool is sharp and clean; dirty and dull tools typically cause poor cuts and more hazard than a sharp, clean cutting tool.
 - v. Store these tools correctly with covers in place or blades retracted, as provided by the manufacturer.
 - vi. On tasks where cutting may be very frequent or last all day (e.g., liner samples), consider Kevlar® gloves in the PPE evaluation for the project.
 - vii. Do not remove guards on paper cutters.
3. Moving/Rotating Equipment
- a. General Requirements for Rotating Equipment (feed augers, chippers, conveyors, etc.)
 - i. Never place hands, fingers, or extremities near hoppers and operational areas of machinery.
 - ii. When the equipment is rotating, stay clear of the rotating components and only operate equipment with proper machine guarding in place.
 - iii. Never clean a jammed piece of equipment unless the transmission is in neutral and the power source or the engine is off, and the moving parts of the equipment have stopped rotating. Refer to SMS 023 – Lockout and Tagout Safety.
4. Other Physical Hazards
- a. Activities such as drum handling, fencing, work near razor wire, manhole cover removal, and demolition also pose hazards to hands.
 - b. Plan work to avoid pinch points for hands when moving drums, moving manhole covers into position, and handling other heavy objects.
 - c. Work handling scrap metal or other sharp edges requires proper hand PPE (Kevlar® or leather gloves).

URS SAFETY MANAGEMENT STANDARD

Hand Safety

C. Ergonomics – Hand and Wrist Care

1. Keep your wrist in neutral. Avoid using your wrist in a bent (flexed), extended, or twisted position for long periods of time. Instead try to maintain a neutral (straight) wrist position. Ergonomic tools may be needed for long-term work.
2. Watch your grip. Gripping, grasping, or lifting with the thumb and index finger can put stress on your wrist. When practical, use the whole hand and all the fingers to grasp an object.
3. Minimize repetition. Even simple, light tasks may eventually cause injury. If possible, avoid repetitive movements or holding an object in the same way for extended periods of time.
4. Reduce speed and force. Reducing the speed with which you do a forceful, repetitive movement gives your wrist time to recover from the effort. Using power tools helps reduce the force.
5. Rest your hands. Periodically give your hands a break by letting them rest briefly. Or you may be able to alternate easy and hard tasks, switch hands, or rotate work activities.

D. Biological Impacts

1. Poisonous Plants

- a. Personnel in regions where there is the potential for contact with poisonous plants should be aware of the hazard.
 - i. Avoid contact with poisonous plants.
 - ii. Wear appropriate PPE.
 - iii. Clean hands thoroughly after contact before performing additional work tasks.

2. Further information can be obtained from SMS 047 – Biological Hazards.

E. Cleaning Hands

1. Avoid contamination of hands by proper use of gloves when contact with physical, chemical, or biological hazards is possible.

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Hand Safety

2. Use soap and water for normal hand cleaning. Do not use solvents for cleaning as they remove essential oils in the skin and may cause dermatitis. Do not use pressure washers for hand cleaning.
3. If the hands contact a corrosive (e.g., nitric acid), wash the area with water for fifteen minutes and then seek medical attention.
4. Use antibiotic ointment and skin protection on minor breaks/scratches of the skin.

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Hand tool training records, as applicable.

6. Resources

- A. U.S. OSHA Regulation - [29 Code of Federal Regulations \(CFR\) 1910.138](#) – Hand Protection
- B. Chemical resistant glove selection: <http://www.bestglove.com/>
- C. [SMS 016](#) – Hand Tools and Portable Equipment
- D. [SMS 023](#) – Lockout and Tagout Safety
- E. [SMS 029](#) – Personal Protective Equipment
- F. [SMS 047](#) – Biological Hazards
- G. [SMS 054](#) – Office Ergonomics
- H. [SMS 056](#) – Drilling Safety Guidelines

7. Supplemental Information

- A. [Safer Alternative Tools](#)

Types of safety knives or alternative cutting tools:

Self-retracting utility knives (brands – OLFA, Martor, Allway Tools)



Guarded utility knives (brands – The Safety Knife Co., Martor)



Shears, snips, scissors (brands – Ridgid, Craftsman, Wolfcraft)



Concealed blade cutters (brands – The Safety Knife Co., Martor)



Pipe cutters (brands – Ridgid, Empire)



Specialty cutter (brand – Geoprobe)



URS SAFETY MANAGEMENT STANDARD

Injury and Claims Management

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

This standard is designed to ensure that employees receive appropriate, immediate, and high-quality health care services that will minimize disability, promote rapid recovery, and save lives.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 065 NA – North America](#)

[SMS 065 EU – UK and Ireland, Europe, and Middle East](#)

[SMS 065 AP11 – Asia Pacific](#)

URS SAFETY MANAGEMENT STANDARD

Injury and Claims Management

1. Applicability

This standard applies to all operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

This standard is designed to ensure that employees receive appropriate, immediate, and high-quality health care services that will minimize disability, promote rapid recovery, and save lives.

3. Implementation

Implementation of this procedure is the responsibility of the manager directing activities of the facility, site, or project location.

4. Requirements

A. Pre-Injury Management

The following proactive plans and procedures will be in place before an injury or illness occurs.

1. Work Site Evaluation

Project and office locations will evaluate their location for first aid and medical requirements. The following factors should be considered:

- a. Types of accidents that could reasonably occur.
- b. Location of local clinics and hospitals.
- c. Response time for external emergency services.
- d. If corrosive or hazardous materials are in use.
- e. Any industry specific requirements.
- f. Types of training for employees and first aid responders.
- g. What first aid supplies should be available.

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2. First Aid Services

a. First Aid Responders

There will be a sufficient number (but not less than one) of employees on each shift trained in first aid to provide adequate first response medical care available at the work site if either of these conditions exist:

- i. If life-threatening injuries can reasonably be expected, trained personnel must be available within 3 to 4 minutes. This generally means that community emergency medical services cannot be relied on since their response time is usually greater than 3 minutes.
- ii. If no life-threatening injuries can reasonably be expected, the response time for trained personnel is extended to 15 minutes.

The trained first aid responders should be designated so that the other employees know who they are and how to contact them. The trained responders must have a current first aid certificate and be trained in Bloodborne Pathogens (see SMS 051 – Bloodborne Pathogens).

For certain long-term, heavily staffed, or high hazard projects, URS may opt to establish a first aid station on site. It should be staffed with a person who is a nurse, Emergency Medical Technician (EMT), or Emergency Medical Technician Paramedic (EMT-P) who may practice limited treatment under the direction of a physician.

Where clients provide the services of a first aid station, the project manager will determine the specific services provided and the administrative procedures involved. Employees requiring first aid treatment by a client-provided facility must obtain prior approval from the project manager.

b. First Aid Kits

- i. Each site will maintain a first aid kit in accordance with Attachment 024-9 NA – Field First Aid Kit Supply List.
- ii. First aid kits will be maintained in readily accessible locations on each job site. For mobile or vehicle-based operations in remote locations, first aid kits may be necessary in vehicles.

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- iii. Kits will be inspected prior to being sent to a work location and weekly while in use. Any items not approved for the kit will be removed during inspection.
- iv. At no time will over-the-counter medications such as antacids, aspirin, cold or cough drops, or other sundry items be stored in the kits without the written approval of the URS Occupational Health Nurse or a URS-approved health care professional.

c. Emergency Services

The project Health, Safety, and Environment (HSE) Representative, in conjunction with the project manager, will identify emergency service providers, including ambulance and hospital services. Each location will post a current list of emergency telephone numbers and maps to access local medical emergency providers (SMS 003 – Emergency Preparedness Plans). Advance contact with ambulance services to ensure they are familiar with location, access routes, and hospital locations is advised.

d. Eyewash and Safety Shower Facilities

A corrosive material is a highly reactive substance that causes obvious damage to living tissue. Corrosives act either directly by chemically destroying the part (oxidation) or indirectly by causing inflammation. A hazardous material is any substance or compound (including corrosives) that has the capability of producing adverse effects on the health and safety of humans. Review material safety data sheets for the health effects of compounds being used at the site to determine whether they meet the criteria defined previously.

If corrosive or otherwise hazardous materials are used, eyewash and body flush facilities must be provided. Where possible, these facilities should provide large quantities of clean water. The water source must be pressure controlled and clearly identified. Portable eyewash stations must contain a minimum of 1 gallon of potable water. See Supplemental Information A for additional guidance on eyewash and shower facilities.

e. Identification of Medical Facilities

The field and office location will identify a suitable local clinic, preferably specializing in occupational medicine, to treat nonemergency injuries and illnesses. In addition, a local hospital

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emergency room will be identified for treatment of life-threatening or after hours injuries. The URS Occupational Health Nurse, the Workers' Compensation Administrator, or the workers' compensation insurance carrier representative should be contacted to provide a listing of recommended medical facilities.

The project HSE Representative should visit the medical facility and meet with the medical provider to establish expectations. Clinics should be conveniently located, clean, professionally staffed, offer multiple services, and be supportive of early return to work practices.

Field/construction projects will make appropriate arrangements with local ambulance/emergency service providers prior to the start of work activities to ensure that appropriate transportation can be provided in the event of an emergency. These arrangements include establishment of an identifiable project address and emergency access point (i.e., location to meet emergency personnel).

The project HSE Representative will communicate the following with the designated hospitals/clinics:

- i. Physical requirements for each trade.
- ii. Policies regarding availability of suitable work for partially disabled employees.
- iii. Procedures for reporting of treatment diagnosis and treatment plans to the company and its workers' compensation insurance carrier.
- iv. Requirements for alcohol and substance abuse testing per company and/or client-required substance abuse policies (as needed).

B. Post-Injury Management

1. Transportation

When employees require urgent medical attention as the result of a work-related injury/illness, transportation will be provided to the doctor's office, clinic, or hospital. Employees should not be permitted to drive unless it is safe to do so.

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2. Emergency Injury/Illness Treatment

In all cases, critical injuries must be immediately referred for professional medical attention. The manner in which the referral is accomplished, and the person responsible for the referral, should be clearly defined in either a project safety plan and/or an office Emergency Preparedness Plan (SMS 003). Critical injuries/illnesses include, but may not be limited to, the following:

- a. Loss of consciousness.
- b. Unexplained chest pain.
- c. Breathing difficulty.
- d. Uncontrolled bleeding.
- e. Fractured bones.
- f. Suspected internal injuries.
- g. Suspected exposure to chemical/biological hazard.
- h. Second or third degree thermal or chemical burns (i.e., blistering).
- i. Electrocution.
- j. Unexplained change in mental state following an injury (may indicate shock or other internal injuries).

3. Nonemergency Injury/Illness Treatment

When a work-related incident results in a noncritical injury/illness, the primary objective is to provide appropriate medical services to diagnose and treat the injury/illness. Options available to the employee and project/office management in these situations include the following:

- a. First aid treatment and/or review by a qualified first aid responder.
- b. First aid treatment and/or review by a qualified first aid responder followed by a referral to an occupational health clinic.

Additional support for the employee and managers in these situations can also be obtained from a URS HSE professional.

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Attachment 065-1 NA – Injury Management Procedures Flow Chart provides a flow chart to assist employees and managers in determining the most appropriate option for obtaining medical services for nonemergency injuries/illnesses.

Note: Some states allow injured workers to choose their own initial medical provider. Employees are to be cautioned that not all medical providers accept workers' compensation insurance and coverage should be verified prior to treatment if an employee lives in a state that permits him/her to elect to see their personal doctor rather than the URS-recommended physician.

C. Workers' Compensation Case Management

1. Health and Safety

a. Occupational Health Nurse/Workers' Compensation Administrator will

- i. Evaluate and file workers' compensation claims for cases covered by the URS insurance program. Evaluate and provide consultation for injuries occurring in monopolistic states (Ohio, Washington, North Dakota, and Wyoming). Energy & Construction workers' compensation claims are filed by site personnel.
- ii. Provide date of injury support to employees and supervisors, including monopolistic state claims.
- iii. Coordinate regular follow-up of all cases, including monopolistic state claims, to ensure effective case management.
- iv. Offer pre-injury consultation for offices and project sites.
- v. Provide training and communication regarding the workers' compensation process.

b. The HSE Representatives will assist with the early return to work program by interfacing with the supervisor and employee to evaluate whether appropriate and safe temporary transitional work is available.

c. HSE Representatives will

- i. Provide support to ensure that the requirements of this SMS are in place.

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- ii. Provide training on this SMS.
- iii. Ensure proper reporting of incidents in accordance with SMS 049 – Injury/Illness/Incident Reporting and Notification.
- iv. Ensure that requirements of this SMS are incorporated into all project health and safety plans.

2. Human Resources

The HR Representatives will forward any external communication (e.g., clinic bills, monopolistic state forms) to the Occupational Health Nurse or Workers' Compensation Administrator upon receipt.

3. Supervisor

The Supervisor (or HR or HSE Representative) will

- a. Sign the Medical Treatment Referral form (Attachment 065-2 NA) prior to the employee leaving the site for medical treatment (this will not be necessary in an emergency). The employee will also be given the Medical Authorization Form (Attachment 065-3 NA) to be signed with copy provided to the employee, health care provider, and Occupational Health Nurse or Workers' Compensation Administrator.
- b. Provide transitional job assignments, with consultation and approval of the office manager, whenever possible to enable an injured worker to return to work (Return to Work Policy Attachment 065-4 NA). Transitional employment is defined as temporary modified or light duty work that covers the time from the injury until the release to full duty from the doctor. The return to work hierarchy includes the following:
 - i. Return to own job.
 - ii. Return to own job with accommodations/modifications.
 - iii. Return to another job at URS with or without accommodations/modifications.
 - iv. Placement in alternate jobs through telecommuting or other job assignments determined case by case.
- c. Provide, when requested by the treating physician or insurance carrier, the Description of Employee's Job Duties form (Attachment 065-5 NA).

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- d. Maintain regular contact with employees who are temporarily disabled (contact at least weekly by phone or email).

4. Employee

The employees will

- a. Report injuries immediately to their supervisors. Employees are encouraged to contact their supervisor and/or the Occupational Health Nurse or Workers' Compensation Administrator prior to seeking any medical services for nonemergency injuries and illnesses.
- b. Provide the Medical Treatment Referral form to the treating physician. If employees are unable to obtain the form prior to being treated (i.e., onset of symptoms during nonwork hours, work in remote locations), they must notify their supervisor as soon as possible on the next scheduled workday.
- c. Provide their supervisor with written return to work and follow-up paperwork from the treating physician immediately following each doctor appointment.

D. URS will follow the recordability requirements of U.S. Occupational Safety and Health Administration (OSHA) (29 CFR 1904 and 1952) for both U.S. and international operations.

- 1. For Infrastructure & Environment and Federal Services, the Occupational Health Nurse will maintain OSHA 300 logs for U.S. locations. For Energy & Construction, the Business Group HSE Managers will maintain OSHA 300 logs for U.S. locations. The OSHA 300 logs (with employee names deleted) will be distributed to the U.S. locations each January and posted from February 1 to April 30.
- 2. Sites working under the U.S. Mine Safety and Health Administration (MSHA) recordkeeping requirements will meet MSHA requirements, as well as track injuries using OSHA criteria for use in company HSE statistics.
- 3. For Infrastructure & Environment and Federal Services, the Occupational Health Nurse will make the initial decision on recordability of an injury/illness. For Energy & Construction, the Business Group HSE Manager will make the decision on recordability of an injury/illness.
- 4. For Infrastructure & Environment, a recordability review committee will be appointed by the Vice President HSE to review the recordable cases on a

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monthly basis. The review committee (based on OSHA regulations and information regarding the case) will make the final decision on recordability.

5. The injury/illness statistics (e.g., Total Recordable Incident Rate) will be calculated monthly and reported to URS management.

5. Documentation

A. The following documents will be maintained in the office/project safety file:

1. Posting of medical services providers and emergency phone numbers.
2. List of qualified first aid providers.
3. Documentation of coordination between URS and emergency service providers for field/construction projects.
4. Completed Injury/Illness/Incident Report Form (Attachment 049-1).
5. Description of Employee's Job Duties form.
6. Medical Treatment Referral form.
7. Medical Authorization Form.

B. The following documents will be maintained by the HR Representative and copied to the Occupational Health Nurse or Workers' Compensation Administrator.

1. Physician's First Report of Injury and follow-up reports.
2. Medical Treatment Referral form.
3. Medical Authorization Form.
4. Description of Employee's Job Duties form.

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6. Resources

- A. U.S. Occupational Safety and Health Administration (OSHA) [29 Code of Federal Regulations \(CFR\) 1910.151](#) – Medical Services and First Aid
- B. [OSHA 29 CFR 1910.1030](#) – Bloodborne Pathogens
- C. [OSHA 29 CFR 1926.50](#) – Medical Services and First Aid
- D. [OSHA 29 CFR 1904](#) – Recording and Reporting Occupational Injuries and Illnesses
- E. [OSHA 29 CFR 1952](#) – Approved State Plans for Enforcement of State Standards
- F. American National Standards Institute ([ANSI Z358.1-2004](#)) – Emergency Eyewash and Shower Equipment
- G. [OSHA Instruction CPL 2-2.53](#) – Guidelines for First Aid Programs
- H. [OSHA Safety and Health Topics: Medical and First Aid](#)
- I. Red Cross Health and Safety Services – www.redcross.org/services/hss/
- J. [SMS 003](#) – Emergency Preparedness Plans
- K. [SMS 024](#) – Medical Screening and Surveillance
- L. [SMS 049](#) – Injury/Illness/Incident Reporting and Notifications
- M. [SMS 051](#) – Bloodborne Pathogens
- N. Medical Services Provider – WorkCare™ 1-800-455-6155

URS SAFETY MANAGEMENT STANDARD
Injury and Claims Management

O. Contacts

Infrastructure & Environment	Federal Services	Energy & Construction
Occupational Health Nurse	Senior Occupational Health Nurse	Workers' Compensation Administrator
Jeanette Schrimsher, RN COHN-S (866) 326-7321 (Toll Free-U.S.) (512) 656-0203 (Cell) (512) 419-6413 (Confidential Fax)	BJ (Johnston) Heinrich, RN, BSN, COHN-S (866) 344-1415 (Toll Free-U.S.) (877) 878-9525 (Toll Free-International) (512) 656-8502 (Cell) (512) 419-5252 (Confidential Fax)	Terry Sower, CPCU, AIC, CWCP (208) 386-6038 (Office) (208) 890-3843 (Cell) (208) 386-5462 (Confidential Fax)

P. [Attachment 065-1 NA](#) – Injury Management Procedures Flow Chart

Q. [Attachment 065-2 NA](#) – Medical Treatment Referral form

R. [Attachment 065-3 NA](#) – Medical Authorization Form

S. [Attachment 065-4 NA](#) – Return to Work Policy

T. [Attachment 065-5 NA](#) – Description of Employee's Job Duties

7. Supplemental Information

A. [Emergency Eyewash and Shower Equipment](#)

A. Eyewash Equipment

Plumbed and self-contained eyewash units will meet the following specifications:

1. A controlled flow of flushing liquid will be provided to both eyes simultaneously at a velocity low enough so as to not cause injury to the user.
2. Spray nozzles will be protected from airborne contaminants. The removal of such protection during operation will not require a separate motion by the operator when activating the unit.
3. The eyewash will be designed and installed in such a manner that, once activated, it will not require the use of the operator's hands. The valve controlling the flow from the eyewash will remain open until it is intentionally closed.
4. Units will be constructed in such a manner that they will not corrode in the presence of the flushing fluid.
5. Stored flushing fluids will be protected against airborne contaminants.
6. Eyewash equipment will be capable of delivering flushing fluid to the eyes at a rate of not less than 0.4 gallons per minute (gpm), or 1.5 liters per minute (lpm), for 15 minutes.
7. The unit will be designed to provide sufficient room to allow the eyelids to be held open with the hands while the eyes are in the flushing stream.
8. The valve to open the eyewash flow will be simple to operate and will go from OFF to ON in 1 second or less.
9. The eyewash unit will be assembled and installed in accordance with the manufacturer's instructions.
10. The unit will be in an accessible location that requires no more than 10 seconds to reach. It will be on the same level as the hazard and the path of travel will be free of obstructions. For strong caustics or acids, the eyewash should be immediately adjacent to the hazard.
11. The unit will be located in an area identified with a highly visible sign positioned so that the sign will be visible within the area served by the eyewash. The area around the eyewash will be well lit.
12. The eyewash will deliver tepid flushing fluid.
13. Where the possibility of freezing conditions exists, equipment will be protected from freezing or freeze-protected equipment will be installed.

14. Plumbed eyewash equipment will be activated weekly to verify operation and ensure that flushing fluid is available. Self-contained eyewash equipment will be visually checked regularly to determine whether the flushing fluid needs to be changed or supplemented.
15. All eyewash units will be inspected annually for compliance with the requirements listed in this document.
16. Employees who may be exposed to hazardous materials will be instructed in the location and proper use of emergency eyewash units.

B. Shower Equipment

Plumbed and self-contained shower units will meet the following specifications:

1. A controlled flow of flushing liquid will be provided to both eyes simultaneously at a velocity low enough so as to not cause injury to the user.
2. The shower will be designed and installed in such a manner that, once activated, it will not require the use of the operator's hands. The valve controlling the flow from the eyewash will remain open until it is intentionally closed.
3. Units will be constructed in such a manner that they will not corrode in the presence of the flushing fluid.
4. Stored flushing fluids will be protected against airborne contaminants.
5. Shower equipment will be capable of delivering flushing fluid at a rate of not less than 20 gpm (75.7lpm) for 15 minutes.
6. The valve to open the eyewash flow will be simple to operate and will go from OFF to ON in 1 second or less.
7. The eyewash unit will be assembled and installed in accordance with the manufacturer's instructions.
8. The unit will be in an accessible location that requires no more than 10 seconds to reach. It will be on the same level as the hazard, and the path of travel will be free of obstructions.
9. The unit will be located in an area identified with a highly visible sign positioned so that the sign will be visible within the area served by the shower. The area around the eyewash will be well lit.
10. The shower will deliver tepid flushing fluid.
11. Where the possibility of freezing conditions exists, equipment will be protected from freezing or freeze-protected equipment will be installed.

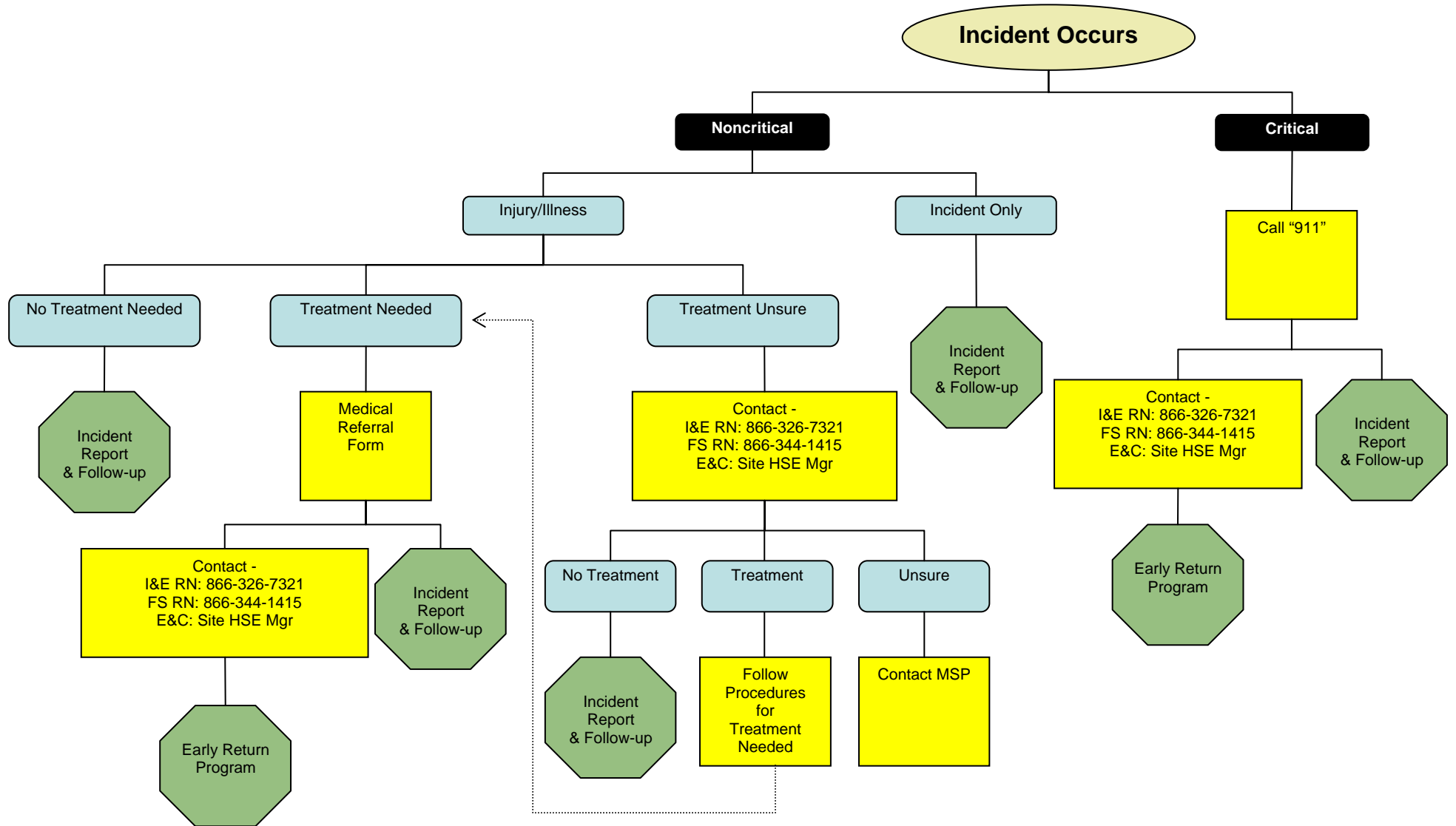
12. Plumbed shower equipment will be activated weekly to verify operation and ensure that flushing fluid is available. Self-contained shower equipment will be visually checked regularly to determine whether the flushing fluid needs to be changed or supplemented.
13. All eyewash units will be inspected annually for compliance with the requirements listed in this document.
14. Employees who may be exposed to hazardous materials will be instructed in the location and proper use of emergency eyewash units.

C. Eye/Face Wash Equipment

Eye/face wash equipment will meet all the criteria outlined in Section A, except the equipment will be capable of delivering flushing fluid at a rate of not less than 3.0 gpm (11.4 lpm) for 15 minutes.

D. Combination Units

Combination units (eyewash and shower assemblies served by a single source of flushing fluid) will meet all the criteria outlined in Section B.





Health, Safety, and Environment
MEDICAL TREATMENT REFERRAL

Attachment 065-2 NA
Issue Date: January 2003
Revision 4: December 2009

Date _____ Site Phone Number _____

URS Site Contact _____

Employee Name _____ Social Security # _____

Employee Signature _____

Brief Job Description _____

Date of Injury _____ Body Part Injured _____

Place of Injury _____

Post-accident drug and/or alcohol test required? Yes No

Medical Provider:

Name _____ Phone _____

Address _____

Employee Transported to Medical Provider by: _____

Workers' Compensation Claims Administrator: **Sedgwick CMS (see attached billing locations)**
(except for: Washington, Ohio, North Dakota, Wyoming)

For questions, please contact:

Infrastructure & Environment	Jeanette Schrimsher, RN	(866) 326-7321
Federal Services	BJ (Johnston) Heinrich, RN	(866) 344-1415
Energy & Construction	Terry Sower	(208) 386-6038

Early Return-to-Work and Transitional Employment Policy

To Medical Providers: URS Corporation values its employees and believes that it is helpful to an injured worker's recovery to return to work as soon as medically approved. Please contact us if you have any questions regarding releasing the employee to work either in a modified/light duty status or full duty clearance. Please send a work status report to the site contact listed above following the initial medical evaluation and each follow-up appointment.

Supervisor Name

Supervisor Signature



Health, Safety, and Environment
MEDICAL TREATMENT REFERRAL

Attachment 065-2 NA
Issue Date: January 2003
Revision 4: December 2009

Providers: Send medical bills to Sedgwick CMS at the office address indicated for the state where the claim is filed.

URS Corporation & Sedgwick Claims Management Services, Inc.

Workers' Compensation Claims Handling Offices

Albuquerque, NM	Anchorage, AK	Baltimore, MD	Boise, ID
<p><u>States Serviced</u></p> <p>New Mexico</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14489 Lexington, KY 40512-4489 Toll-Free: 800-255-4349 Tel: 800-255-4349 Fax: 505-256-1412</p>	<p><u>States Serviced</u></p> <p>Alaska</p> <p><u>Office Information</u> Sedgwick CMS PO Box 14518 Lexington, KY 40512-4518 Toll-Free: 866-853-0048 Tel: 907-868-2787 Fax: 907-868-3042</p>	<p><u>States Serviced</u></p> <p>DC, DE, MD PA, VA</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14491 Lexington, KY 40512-4491 Toll-Free: 800.285.3258 Tel: 410-773-4200 Fax: 410-773-4221</p>	<p><u>States Serviced</u></p> <p>Idaho</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14543 Lexington, KY 40512-4543 Toll-Free: 866-253-1074 Tel: 208-385-5523 Fax: 208-385-5586</p>
Charleston, WV	Columbia, SC	Dallas, TX	Denver, CO
<p><u>States Serviced</u></p> <p>West Virginia</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14480 Lexington, KY 40512-4480 Toll-Free: 877-393-0022 Tel: 304-347-9600 Fax: 304-347-9610</p>	<p><u>States Services</u></p> <p>AL, GA, KY MS, NC, SC, TN</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14480 Lexington, KY 40512-4480 Toll-Free: 800-426-9218 Tel: 803-551-2100 Fax: 803-750-2885</p>	<p><u>States Serviced</u></p> <p>Louisiana Oklahoma Texas</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14497 Lexington, KY 40512-4497 Toll-Free: 888-899-4694 Tel: 214-849-5000 Fax: 214-849-5201</p>	<p><u>States Serviced</u></p> <p>Arizona Colorado</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14493 Lexington, KY 40512-4493 Toll-Free: 800-507-9656 Tel: 303-713-6000 Fax: 303-713-6056</p>
Freeport, ME	Helena, MT	Honolulu, HI	Las Vegas, NV
<p><u>States Serviced</u></p> <p>CT, MA, ME NH, RI, VT</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14492 Lexington, KY 40512-4492 Toll-Free: 800-526-3721 Tel: 207-865-2568 Fax: 207-865-2599</p>	<p><u>States Serviced</u></p> <p>Montana</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14544 Lexington, KY 40512-4544 Toll-Free: 866-458-4737 Tel: 406-442-2202 Fax: 406-442-2865</p>	<p><u>States Serviced</u></p> <p>Hawaii</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14541 Lexington, KY 40512-4541 Tel: 808-523-3200 Fax: 808-523-3250</p>	<p><u>States Serviced</u></p> <p>Nevada</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14483 Lexington, KY 40512-4483 Toll-Free: 888-713-1112 Tel: 702-568-3800 Fax: 702-240-1962</p>
Memphis, TN	Omaha, NE	Portland, OR	Rochester, NY
<p><u>States Serviced</u></p> <p>Arkansas</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14423 Lexington, KY 40512-4423 Toll-Free: 866-856-4805 Tel: 901-566-3300 Fax: 901-566-3415</p>	<p><u>States Serviced</u></p> <p>IA, IL, IN, KS MI, MN, MO NE, SD, WI</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14513 Lexington, KY 40512-4513 Toll-Free: 800-486-2152 Tel: 402-496-2000 Fax: 402-496-6511</p>	<p><u>States Serviced</u></p> <p>Oregon</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14514 Lexington, KY 40512-4514 Toll-Free: 800-906-3147 Tel: 503-412-3948 Fax: 503-412-3990</p>	<p><u>States Serviced</u></p> <p>New Jersey New York</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14515 Lexington, KY 40512-4515 Toll-Free: 866-846-7757 Tel: 585-264-3400 Fax: 585-264-3410</p>
Roseville, CA	Salt Lake City, UT	Tampa, FL	
<p><u>States Serviced</u></p> <p>California</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14433 Lexington, KY 40512-4433 Toll-Free: 866-274-6586 Tel: 916-771-2900 Fax: 916-771-2990</p>	<p><u>States Serviced</u></p> <p>Utah</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14485 Lexington, KY 40512-4485 Toll-Free: 866-814-8220 Tel: 801-258-9700 Fax: 801-258-9730</p>	<p><u>States Serviced</u></p> <p>Florida</p> <p><u>Office Information</u> Sedgwick CMS P.O. Box 14437 Lexington, KY 40512-4437 Toll-Free: 888-390-9522 Tel: 813-287-4100 Fax: 813-282-6783</p>	



Health, Safety, and Environment

Attachment 065-3 NA

MEDICAL AUTHORIZATION FORM

Issue Date: January 2003
Revision 3: February 2009

**WORKERS' COMPENSATION
EMPLOYEE AUTHORIZATION LETTER**

To Whom It May Concern:

I, _____, hereby authorize any hospital,
Please Print Name
medical practitioner, clinic, other medical or medically related facility, pharmacy,
or insurance company to furnish to URS Corporation or its subsidiaries or
representatives (orally or in writing) information with respect to any work-related
injury or illness, including treatments, consultations, prescriptions, and copies of
applicable records that may be requested. I also authorize my employer to
disclose information needed to process my workers' compensation claim.

The information provided to URS Corporation, its subsidiaries, or representatives
is to be used solely for the administration of my workers' compensation claim.

A photocopy of this authorization is to be considered as valid as the original and
is effective for the duration of the claim.

Signature: _____ Date: _____

- Signed copies to:
- Employee
 - Medical Provider
 - URS Occupational Health Nurse/Workers' Compensation Administrator



Health, Safety, and Environment
RETURN TO WORK POLICY

Attachment 065-4 NA

Issue Date: January 2003
Revision 3: February 2009

Our primary goal in safety is the prevention of work-related injuries. When an injury does occur, it is the policy of URS to provide our employees with the best possible recovery program. A major component of any successful recovery program is returning the injured employee to the workforce as soon as medically possible. This type of Early Return Strategy has been shown to dramatically reduce the overall recovery time of injured workers, creating a benefit for the employee, his/her family, coworkers, and the firm.

As part of this policy, Operations; Human Resources; Health, Safety, and Environment; and our workers' compensation insurance carrier will work together with our employees and their treating physician to establish a recovery program that minimizes both the number of cases and total days away from work experienced by our employees. URS operations will accommodate transitional work (i.e., light duty or modified work) requirements for employees recovering from work related injuries, whenever possible. The work limits, as defined by the treating physician, will be strictly adhered to. Modified job assignments will be structured to meet the capacities and therapy needs of the injured employee.



Health, Safety and Environment
DESCRIPTION OF EMPLOYEE'S JOB DUTIES

Attachment 065-5 NA
 Issue Date: January 2003
 Revision 3: February 2009

Print Name: _____

Location: _____ Phone: _____

Job Title: _____ No. Hours/Day: _____ No. Days/Week: _____

General Job Description: _____

1. Check the frequency and number of hours a day the activity is performed:

Activity	Frequency		Number of Hours Per Day										
	Continuous	Intermittent	0	1	2	3	4	5	6	7	8	9+	
Sitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bending	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Squatting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climbing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kneeling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Twisting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Hand manipulation required? (If yes, complete 2 a, b, c, d) Yes No

2a. Simple grasping? Yes No Right Left

2b. Power grasping? Yes No Right Left

2c. Pushing and pulling? Yes No Right Left

2d. Fine manipulation? Yes No Right Left

3. Does the job require reaching at or above shoulder level? Yes No

4. Does the job require use of the feet to operate foot controls? Yes No

5. Are there special visual requirements? (Describe) Yes No

6. Are there special hearing requirements? (Describe) Yes No



Health, Safety and Environment
DESCRIPTION OF EMPLOYEE'S JOB DUTIES

Attachment 065-5 NA
 Issue Date: January 2003
 Revision 3: February 2009

7. Lifting and carrying (check weight lifted, frequency, and how far carried):

Weight	Frequency			Distance Carried
	Hourly	Daily	Weekly	
1-10 lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
11-25 lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
26-40 lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
41-60 lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
61-75 lbs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

8. Environmental conditions (check yes or no):

- 8a. Work near dust, gas, vapors, or fumes? Yes No
- 8b. Work in noisy environment? Yes No
- 8c. Work in extremely hot temperature? Yes No
- 8d. Work in extremely cold temperature? Yes No
- 8e. Work at heights? Yes No
- 8f. Walk on uneven surfaces? Yes No

9. Equipment operated (check yes or no):

- 9a. Computer and mouse? If yes, hours per day _____ Yes No
- 9b. Drive car, truck, or van? Yes No
- 9c. Operate forklift or heavy equipment? Yes No
- 9d. Other (please describe):

10. Comments:

Employee Signature: _____ Date of Hire: _____

Date: _____

URS SAFETY MANAGEMENT STANDARD

Manual Material Handling

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to prevent common injuries caused by the practice of manual materials handling (MMH). For this procedure, MMH is defined as the movement of items by lifting, lowering, pushing, pulling, carrying, holding, or restraining.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 069 NA](#) – North America

[SMS 069 INT](#) – International Operations (including Europe, Asia, South America and Africa)

SMS 069 AP7 – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Manual Material Handling

1. Applicability

This standard applies to URS Corporation and its subsidiary companies where personnel perform manual handling of materials. For this procedure, manual material handling (MMH) is defined as the movement of items by lifting, lowering, pushing, pulling, carrying, holding, or restraining.

2. Purpose and Scope

The purpose of this standard is to prevent common injuries caused by the practice of MMH. Immediate or short-term effects include lacerations, bruises, and muscle fatigue. Long-term effects include chronic pain, frequently in the lower back but also in limb joints and ligaments.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project.

4. Requirements

A. General

1. Prior to lifting, lowering, pushing, pulling, carrying, holding, or restraining an object of any significant size or weight, employees must evaluate the object and the required task to determine whether they can handle the object safely.
2. If the employee has any doubt about whether he or she can safely move the object alone, the employee should obtain additional manual or mechanical help.
3. Healthy employees with no physician-imposed restrictions should be able to lift and carry a maximum of 50 pounds (23 kilograms) using proper lifting and carrying techniques. Physical and workplace factors may reduce this recommended weight limit (RWL) significantly and should be considered prior to attempting lifts of this magnitude. Examples of physical and workplace factors may include the following:
 - a. Physical size of an object.
 - b. Slippery container surface or poor grip ability.
 - c. Sharp edges.
 - d. Slippery floors or obstacles on the floor.
 - e. Cold or hot objects surfaces.
 - f. Distance and route of travel.

URS SAFETY MANAGEMENT STANDARD

Manual Material Handling

4. An employee's personal "safe" MMH capability is defined as the employee's personal capability to manually lift, carry, push, or pull an object alone. This "safe" limit must consider the employee's past experience and training with MMH, health status, and any other personal or environmental characteristics affecting the employee's ability to perform these tasks. An employee's "safe" MMH capability is typically at or below the calculated RWL. In some cases, a trained and physically conditioned employee may exceed the MMH capability limit, but only after a complete hazard review of the task has determined an acceptable risk for minimizing injury.
5. An MMH task that exceeds an employee's personal "safe" MMH capability or RWL should be brought to the attention of the applicable manager or safety supervisor for the project.
6. If, due to a medical or health condition, the employee's physician or the employee has set a personal "safe" MMH capability, then appropriate medical documentation must be provided to the applicable manager to define these limits. The manager and appropriate safety supervisor should evaluate the tasks to which that employee is assigned and recommend a specific course of action to limit the potential for injury. This should include periodic monitoring of the employee and his/her work environment.
7. A recommended RWL can be calculated using the factors described in Supplemental Information A. The weight limit derived from these calculations is considered to be a load that over 99% of men and over 75% of women can safely handle without application of engineering or administrative controls. **Implementation of the calculations in Supplemental Information A should be attempted only with the assistance of a safety professional knowledgeable in the application of these factors. The calculations are intended to determine RWLs for repetitive lifting scenarios rather than occasional lifts.**
8. Prior to any manual lift, it is suggested that the employee warm up his or her muscles and joints using a combination of stretching and flexing.

B. Preplanning

1. Where MMH will be a necessary function of the task, the manager and/or safety supervisor should perform a thorough evaluation of the activities to determine ergonomic solutions to reduce or eliminate conditions that can cause or contribute to MMH injuries.

URS SAFETY MANAGEMENT STANDARD

Manual Material Handling

2. If a heavy object is to be moved to another location, the safest transport route should be determined prior to the activity.
3. The area around the object and the route over which it will be transported should be checked for slip, trip, and fall hazards. Hazards should be removed prior to initiation of the task.
4. The object to be moved should be inspected for grasping or handling hazards, such as slivers, sharp edges, grease, water, etc. Eliminate or abate any identified hazards where possible. Safe grasping or handling points on the object should be determined. Whenever possible, containers with carrying handles should be used for objects because they increase the manual grip strength for holding the object, thus providing better control and reduced muscle fatigue.
5. The distance to be traveled and the length of time that a grip on the object must be maintained should be considered before moving objects. If the travel distance is greater than 10 feet (3 meters) at maximum RWL, the employee should consider using an alternative method, rather than manually carrying the object.

C. Lifting/Lowering Guidelines

1. Reduce or eliminate manual lifting and lowering tasks where possible. Determine whether there are ways to abate the safety and ergonomic hazards associated with manual lifting.
2. The recommended technique for two-handed manual lifting/lowering involves five maneuvers:
 - a. Get a firm footing. Keep your feet apart for a stable base. Put one foot slightly in front of the other.
 - b. Bend your knees. Do not bend at the waist. When grasping the object, a firm grip should be obtained before lifting/lowering.
 - c. Lift/lower with your legs. Lift/lower the load slowly and in a straight line, avoiding sudden movements.
 - d. Keep the load close to the body. Generally, the closer the load is to the body, the less force it exerts on your back.
 - e. Keep your back straight, your head and shoulders up, and your stomach muscles tight. Do not add the weight of your body to the load. Avoid twisting.

URS SAFETY MANAGEMENT STANDARD

Manual Material Handling

3. When a turn or change of direction is necessary, the object should be lifted or lowered into a carrying position, then the whole body should be turned with the feet, avoiding any trunk twisting motion.
4. Objects to be lifted to shoulder height should first be lifted to waist height, then rested on a level surface so the grasping position can be changed prior to lifting to a higher level.
5. Employees should never lift a load above their head.

D. Carrying/Holding Guidelines

1. Manual carrying is an inefficient way of transporting materials in the work place. Where possible, reduce or eliminate manual carrying tasks.
2. Never carry a load above the head.
3. Carry an object close to the body using both hands. One-handed carries are awkward and tend to unbalance the employee.
4. Do not carry objects that are so large they will obstruct visibility.
5. Do not change grips on an object while carrying or holding an object. Rest the object on a secure surface prior to changing grip.
6. If an object is of a size, shape, or mass that it requires two people to carry, use two people of similar size and physique. Two-person lifts should be planned and coordinated before performing the lift. Lift the item in unison.
7. Avoid carrying objects on stairs, particularly where the line of sight may be obstructed or the object can interfere with leg movement. All travel on stairs requires use of a handrail at all times, so only carry objects that can be safely handled with one hand. Always maintain handrail contact when carrying an object up or down stairs.

E. Pushing/Pulling Guidelines

1. Check the condition of the floor, ground, or other surface prior to pushing or pulling an object across it.
2. Be aware of the "break out" force of the object; this is the force at which a push or pull overcomes the frictional force between the surface and object. Adjust posture to avoid losing balance when this point is reached.
3. Get assistance when moving or guiding a large load.
4. Where possible, always push rather than pull a load.

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Manual Material Handling

5. Never load the cart or load-carrying device in such a manner that visibility is obstructed in the path of travel.
6. When pushing or pulling an object on an inclined surface, be certain that you can control the load and direction of travel before proceeding. Obtain additional support to control the load if necessary.
7. Never leave carts or loads in an area that will present a hazard to other workers. Make sure carts or transport devices are secured in position before leaving them unattended.

F. Workplace Design

1. Store heavy or bulky materials at heights between the knee and shoulder to avoid the need to stretch or bend. Use step stools to access objects above shoulder height.
2. Pack or arrange items to be lifted to avoid shifting of weight in the package. If a box has hand cutouts (e.g., file archive boxes) do not load the box so full that the handles cannot be used for carrying the box.
3. Design work areas to avoid the need to lift, carry, push, or pull heavy or bulky materials for extended distances.
4. Design workplaces with the following in mind:
 - a. Lifts from the floor should be avoided.
 - b. The torso should never twist while handling loads.
 - c. Asymmetrical or unbalanced one-handed lifts should be avoided.
 - d. Loads should not be lifted with sudden movements.
 - e. Loads should not be lifted over obstacles.
 - f. Loads should not be lifted at extended forward or sideways reaches.
 - g. Uncomfortable or static postures should not be necessary throughout the work cycle.
 - h. Environmental factors (e.g., task lighting, dry work surfaces, heat or cold stress) should be considered.

G. Training

1. Personnel who may have MMH as part of their duties are required to receive training that includes the following topics:

URS SAFETY MANAGEMENT STANDARD

Manual Material Handling

- a. Showing personnel how to avoid unnecessary physical stress and strain during MMH operations.
 - b. Teaching personnel to become aware of what they can comfortably handle without undue strain.
 - c. Instructing personnel on the proper use of equipment.
 - d. Teaching personnel to recognize potential hazards and how to prevent or correct them.
2. This training must be completed prior to an employee being assigned to a task that involves MMH activities.
 3. Assistance with training or training materials is available through the HSE staff.

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Training rosters.
- B. Other proof of completion of MMH training.

6. Resources

- A. National Institute for Occupational Safety and Health (NIOSH) – Work Practices Guide for Manual Lifting <http://www.cdc.gov/niosh>
- B. Canadian Centre for Occupational Health and Safety <http://www.ccohs.ca/oshanswers/ergonomics/>
- C. Oregon OSHA – Ergonomics of Manual Materials Handling <http://www.cbs.state.or.us/external/osha/pdf/workshops/206w.pdf>
- D. North Carolina Department of Labor – A Guide to Manual Materials Handling and Back Safety <http://www.nclabor.com/osha/etta/indguide/ig26.pdf>

7. Supplemental Information

- A. [Recommended Weight Limit \(RWL\) Calculations](#)

This lifting equation, developed by the National Institute for Occupational Safety and Health (NIOSH), takes into account the weight of an object plus several other variables in lifting tasks that contribute to the risk of injury. For example, if the situation requires frequent lifts or lifting loads far away from the body, there is an increased risk of injury. Under these conditions, the weight limit would be reduced from a baseline weight or "load constant" (LC) to a recommended weight limit (RWL). A "load constant" (LC) of 23 kg (about 51 pounds) has been established by NIOSH as a load that, under ideal conditions, is safe for 75% of females and 90% of males.

To calculate the RWL, you must first measure or assess several variables related to the lifting task. The six variables that are considered in determining the RWL are:

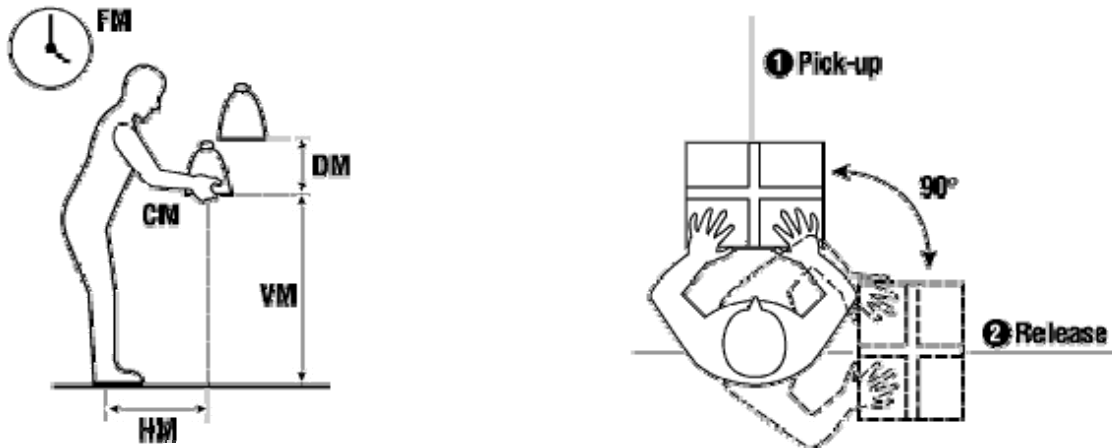
- The horizontal distance (H) the load is lifted (distance of hands from midpoint between ankles),
- The starting height of the hands from the ground (V),
- The vertical distance of lifting (D),
- The time between lifts or frequency of lifting (F),
- The angle of the load in relation to the body (e.g., straight in front of you or off to the side, A), and
- The quality of the grasp or handhold based on the type of handles available (hand-to-load coupling, C).

Each of these variables is then assigned a numerical value (multiplier factor) from look-up charts. The equation includes six multiplier factors to calculate the RWL:

$$RWL = LC \times HM \times VM \times DM \times FM \times AM \times CM$$

Where LC is the load constant (23 kg) and other factors in the equation are:

- HM, the "Horizontal Multiplier" factor,
- VM, the "Vertical Multiplier" factor,
- DM, the "Distance Multiplier" factor,
- FM, the "Frequency Multiplier" factor,
- AM, the "Asymmetric Multiplier" factor, and
- CM, the "Coupling Multiplier" factor.



Horizontal Multiplier is the distance the object is from the body. Measure (in centimeters) the distance from in between the person's ankles to their hands when holding the object. Write down this number. Next, look up the number on the accompanying chart and find the matching "multiplier factor". Use this factor in the lifting equation.

Vertical Multiplier is measured as the starting point of the lift and is the distance in centimeters of the hands up from the ground. Measure this distance and use the number to determine which value to use on the chart.

Distance Multiplier is the number of centimeters the load travels up (or down) from the starting position. Measure this distance and use the number to determine which value to use on the chart.

Frequency Multiplier is how often the lift is repeated within a certain time period. You need to determine if the lift is done while standing or stooping, for more or less than one hour (in total time for the shift), and how much time there is for rest between lifts.

Asymmetric Multiplier measures if the body must twist or turn during the lift. This measurement is done in degrees (with 360° being one complete circle).

Coupling Multiplier determines the "coupling" or type of grasp the person has on the container. It rates the type of handles as good (handles), fair (make-shift cut outs in cardboard boxes) or poor. You also need to know if the lift is done in a standing or stooping position.

When these multipliers are placed into the equation, determine the RWL. If the weight of the object to be lifted exceeds the RWL, the task is considered to be dangerous. Assess the relevant factors which contribute most to the risk (the lower the factor, the more it contributes to the risk) and redesign the handling task.

The lifting equation only applies in certain situations. It does not apply in situations where a person is lifting (or lowering):

- With one hand,
- For over 8 hours,
- While seated or kneeling,
- In a restricted work space,
- Objects that are unstable (such as buckets or containers of liquids),
- While pushing or pulling,
- With wheelbarrows or shovels,
- With high speed motion (faster than about 30 inches/second),
- Extremely hot or cold objects or in extreme temperatures, or
- With poor foot/floor coupling (high risk of a slip or fall).

This equation applies to most workers for:

- Two-handed lifting,
- Comfortable lifting postures, and
- Comfortable environments and non-slip floorings.

FACTORS USED IN RWL CALCULATIONS

Horizontal Multiplier (HM): Horizontal distance (H, in cm) from the midpoint between the ankles to the hands while holding the object.

H = Horizontal Distance (cm)	HM Factor
25 or less	1.00
30	0.83
40	0.63
50	0.50
60	0.42

Vertical Multiplier (VM): The vertical distance (V, in cm) of the hands from the ground at the start of the lift.

V = Starting Height (cm)	VM Factor
0	0.78
30	0.87
50	0.93
70	0.99
100	0.93
150	0.78
175	0.70
>175	0.00

Distance Multiplier (DM): The vertical distance (D, in cm) that the load travels.

D = Lifting Distance (cm)	DM Factor
25 or less	1.00
40	0.97
55	0.90
100	0.87
145	0.85
175	0.85
>175	0.00

Asymmetric Multiplier (AM): The twisting angle (A) of the body while lifting, measured in degrees.

A = Angle (degrees)	AM Factor
90°	0.71
60°	0.81
45°	0.86
30°	0.90
0°	1.00

Frequency Multiplier (FM): The frequency (F) of lifts and the duration of lifting (in minutes or seconds) over a work shift.

F = Time Between Lifts	FM Factor			
	Lifting While Standing		Lifting While Stooping	
	One Hour or Less	Over One Hour	One Hour or Less	Over One Hour
5 min	1.00	0.85	1.00	0.85
1 min	0.94	0.75	0.94	0.75
30 sec	0.91	0.65	0.91	0.65
15 sec	0.84	0.45	0.84	0.45
10 sec	0.75	0.27	0.75	0.27
6 sec	0.45	0.13	0.45	-
5 sec	0.37	-	0.37	-

Coupling Multiplier (CM): The quality of grasp (or coupling, C) classified as good, fair or poor and depends on the body position (either standing or stooping).

C = Grasp	CM Factor	
	Standing	Stooping
Good (handles)	1.00	1.00
Fair	1.00	0.95
Poor	0.90	0.90

URS SAFETY MANAGEMENT STANDARD

Behavior Based Safety

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to describe the URS approach to implementing our behavior based safety program.

Behavior based safety is a process that provides a higher level of safety excellence by promoting proactive responses, building ownership, and developing opportunities which relate to employee safety. A primary concept is that most accidents are due to unsafe behavior, and behavior changes may be made that significantly reduce accident risk.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 072 NA](#) – North America, UK and Ireland, Europe, and Middle East

[SMS 072 AP4](#) – Asia Pacific

URS SAFETY MANAGEMENT STANDARD

Behavior-Based Safety

1. Applicability

This standard applies to all operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

The purpose of this standard is to describe the URS approach to implementing our behavior-based safety program.

Behavior-based safety is a process that provides a higher level of safety excellence by promoting proactive involvement, building ownership, and fostering communication that relates to employee safety. A primary concept is that most accidents are due to at-risk behavior, and behavioral changes may be made that significantly reduce accident potential.

3. Implementation

Implementation of this procedure is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. Definitions

1. **At-Risk Behavior:** Individual actions that increase the chance of injury, despite knowledge of the hazard. An example is excessive speed while driving.
2. **Activators:** Items that are intended to produce desired behaviors. URS activators for safety include, but are not limited to, policy statements, safety management standards (SMS), training, safety slogans, posters and signs, health and safety plans, safe work plans, safety meetings, and rules and regulations.
3. **Behaviors:** Visible actions on the part of individuals and can be characterized as safe (following health and safety plans, using work practices that minimize risk, coaching others on safe behavior, having safety as a priority over speed and convenience, etc.), or at-risk.
4. **Consequences:** Result of safe and at-risk behaviors, and can therefore be positive or negative. Examples of consequences include self-approval, reprimand, peer approval, penalty, feedback, inconvenience, and comfort. The most effective consequences are positive, immediate, and certain.

URS SAFETY MANAGEMENT STANDARD

Behavior-Based Safety

B. Values of Behavior-Based Safety

1. Employees hold safety as a core value.
2. Each employee feels responsible for the safety of their coworkers as well as themselves, and takes action accordingly.
3. Each employee is willing and able to “go beyond the call of duty” on behalf of the safety of others.

C. Roles for Safe Behavior

1. Supervisor’s Role:
 - a. Provide clearly defined safety expectations and encourage/reinforce the implementation of safety observations using the SMS 072-1 NA checklist or equivalent.
 - b. Provide consequences for observed behaviors throughout the course of the work shift.
2. Co-Worker Role
 - a. Intervene when observing at-risk behavior.
 - b. Provide positive feedback for safe behavior.
 - c. Volunteer to be observed.

C. Identification of At-Risk Behaviors

Observations and review of incident and near miss data will be used by URS Safety Officers to help identify at-risk behavior.

1. Employee observations.
 - a. Observation checklists, either project-specific or Attachment 072-1 NA, will be used as a tool to help identify safe and at-risk behaviors and why the behavior(s) occurred.
 - b. Employees will be instructed on using the checklists.
 - c. Checklists will be included in the site-specific health and safety plan or the safe work plan.
 - d. The checklists will include the expected safe behaviors.

URS SAFETY MANAGEMENT STANDARD

Behavior-Based Safety

- e. Peers will complete the checklist for applicable work tasks.
- f. Checklists may change throughout the project to include additional behaviors.

E. Feedback to Employees

- 1. Observers will immediately provide one-on-one feedback to the observed, noting both safe and at-risk behaviors.
- 2. Observer and observee will discuss the identified barriers to safe behavior, and potential solutions.
- 3. Near-Miss and Incident Reports will be reviewed to identify at-risk behaviors and corrective actions.
- 4. Management and Health, Safety, and Environment staff will verify compliance with this standard.

F. Feedback Follow-up

- 1. Observation checklists will be collected and discussed at periodic safety meetings.
- 2. The manager will review the trends for at-risk and safe behavior, and report the trends to the employees.
- 3. Project-specific trends are analyzed and areas of additional action are identified.

5. Documentation Summary

The following documentation will be maintained in the project file:

- A. Behavior-Based Safety Checklists.

6. Resources

[Attachment 072-1 NA](#) – Behavior-Based Safety Checklist



**Health, Safety and Environment
BEHAVIOR BASED SAFETY
CHECKLIST**

Attachment 072-1 NA

Issue Date: September 2003
Revision 2: February 2009

Job Location: _____

Date: _____

Task/Work Observed: _____

Observer: _____

	<u>Safe</u>	<u>Unsafe</u>	<u>Comments *</u>
Personal Protective Equipment			
Head	<input type="checkbox"/>	<input type="checkbox"/>	_____
Hand	<input type="checkbox"/>	<input type="checkbox"/>	_____
Feet	<input type="checkbox"/>	<input type="checkbox"/>	_____
Eyes/Face	<input type="checkbox"/>	<input type="checkbox"/>	_____
Skin	<input type="checkbox"/>	<input type="checkbox"/>	_____
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	_____
Fall Protection	<input type="checkbox"/>	<input type="checkbox"/>	_____
Equipment / Tools			
Proper tool for the job	<input type="checkbox"/>	<input type="checkbox"/>	_____
Condition	<input type="checkbox"/>	<input type="checkbox"/>	_____
Proper Use	<input type="checkbox"/>	<input type="checkbox"/>	_____
Body Use / Position			
Lifting	<input type="checkbox"/>	<input type="checkbox"/>	_____
Pinch Point	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ladder / stairs	<input type="checkbox"/>	<input type="checkbox"/>	_____
Hand placement	<input type="checkbox"/>	<input type="checkbox"/>	_____
Travel path / speed	<input type="checkbox"/>	<input type="checkbox"/>	_____
Body position	<input type="checkbox"/>	<input type="checkbox"/>	_____
Work Practices			
Follow Safety Plan / Procedures	<input type="checkbox"/>	<input type="checkbox"/>	_____
Housekeeping	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other			
_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

* Use comment column when unsafe behavior / conditions were observed. Describe what was observed and why this occurred.

URS SAFETY MANAGEMENT STANDARD

Chromium (VI) Inhalation Exposure Protection

1. Applicability

This standard applies to operations of URS Corporation and its subsidiary companies where employees could be subject to the inhalation of Chromium (VI) [Hexavalent Chromium or Cr (VI)]. Such exposures could result from the application and removal of paint containing Chromium (VI), welding, and chrome plating.

2. Purpose and Scope

The purpose of this standard is to reduce employee exposures to Chromium (VI) by providing criteria for their recognition and control.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 083 NA](#) – North America; Australia / New Zealand

[SMS 083 INT](#) – International Operations (including Europe, Asia, South America and Africa)

URS SAFETY MANAGEMENT STANDARD

Chromium (VI) Inhalation Exposure Protection

1. Applicability

This standard applies to operations of URS Corporation and its subsidiary companies where employees could be subject to the inhalation of Chromium (VI) [Hexavalent Chromium or Cr (VI)]. Such exposures could result from the application and removal of paint containing Chromium (VI), welding, and chrome plating.

2. Purpose and Scope

The purpose of this standard is to reduce employee exposures to Chromium (VI) by providing criteria for their recognition and control.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location.

4. Requirements

A. General

1. This standard is based primarily on the Occupational Safety and Health Administration's (OSHA) Chromium (VI) protection requirements for general industry as codified in 29 Code of Federal Regulations (CFR) 1910.1026. The code is a minimal requirement for legal compliance and may be exceeded in this standard.
2. The Action Level for airborne Chromium (VI) is 2.5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) of air, calculated as an 8-hour time-weighted average (TWA).
3. The Permissible Exposure Limit (PEL) for airborne Chromium (VI) is 5.0 $\mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.
4. All levels of Chromium (VI) expressed with units of micrograms per cubic meter of air are 8-hour TWAs.
5. Employees exposed to Chromium (VI) levels at or greater than the Action Level and less than or equal to the PEL for more than 30 days each year must participate in a medical surveillance program.
6. The Material Safety Data Sheet (MSDS) is the reference to determine if Chromium (VI) is a material constituent. For example,

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if chromium trioxide, chromic acid, chromate, dichromate, polychromate, chrome VI, chromium 6, chromium (VI), Cr VI, Cr (VI), chromium anhydride, or hexavalent chromium is listed on an MSDS, the material will be treated as containing Chromium (VI).

7. An “Affected Employee” is one whose work requires their presence in an area containing airborne Chromium (VI) at or above the Action Level.
8. An “Affected Area” is one where levels of Chromium (VI) are at or above the Action Level.
9. An “Authorized Employee” is one given explicit permission to be in a specific area or to perform a specific task.
10. “Exposure” means the airborne Chromium (VI) concentration level that the employee would be exposed to if the employee were not using a respirator.
11. In a “Regulated Area” the airborne concentration of Chromium (VI) is, or can reasonably be expected to be, in excess of the PEL, and where access is limited to authorized employees.
12. A “Qualified Person” is one determined to be technically competent by the Director of Health, Safety, and Environment (HSE) to execute a specific task related to Chromium (VI) exposure abatement.
13. In an “Unregulated Area,” the airborne concentration of Chromium (VI) is less than the PEL, and access is not limited to authorized employees.

B. Procedure

1. Risk Assessment
 - a. Complete baseline assessments for Chromium (VI) levels at each applicable site as soon as reasonably possible after the start of work involving Chromium (VI) materials.
 - b. Ensure air-sampling methods are in compliance with 29 CFR 1910.1026 through an analysis by an AIHA-approved laboratory.

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- c. Ensure air sampling is conducted only by a qualified person. A Business HSE Manager must approve the sampling protocol prior to the sampling.
- d. Use air samplers that indicate the Chromium (VI) concentration in the affected employees' breathing zone.
- e. The quarterly, biannual, and baseline sampling protocols for each site must be approved by a Business HSE Manager.
- f. Within 15 working days of air sampling results being known, post the results in an appropriate location accessible to all employees at each applicable site. Alternatively, the site HSE Representative or Site Supervisor will notify each affected employee in writing of the results.
- g. Until demonstrated otherwise, assume that paint on military vehicles, aircraft, vessels, and other equipment contains Chromium (VI).
- h. Changes in the work activities, methods, or materials may indicate the need for a new Chromium (VI) baseline. For example, a change in the ventilation system where work is performed, or a change in the type of military vehicle serviced may elevate the Chromium (VI) levels and require a new baseline.
- i. Table 1 summarizes Chromium (VI) exposure levels of significance.

Table 1: Summary of Chromium (VI) Levels of Significance

Cr (VI) Exposure (E) ($\mu\text{g}/\text{m}^3$)	Work Area Designation	MSP ¹ Needed?	Air Monitoring Frequency	Respirator Needed?	Respirator Protection Factor
E < 2.5	None	No	N/A	No	N/A
2.5 < E ≤ 5.0	Affected	Yes	Every 6 months	No	N/A
E > 5.0	Regulated	Yes	Every 3 months	Yes	(See 4.B.4)
¹ . Medical Surveillance Program (4.B.3(d))					

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2. Engineering Controls

- a. Use engineering and work practice controls to reduce and maintain Chromium (VI) exposures below the PEL unless it is demonstrated that such controls are not feasible. Engineering controls must be in place before May 31, 2010.
- b. If employees are exposed at or above the PEL for less than 30 days per year, engineering and work practice controls are not required to be established.
- c. It is prohibited to rotate employees to different jobs to achieve compliance with the 30-day PEL limitation.

3. Administrative Controls

- a. Employees are encouraged to investigate materials substitution and process changes to avoid the use of products containing Chromium (VI).
- b. Affected areas will be decontaminated to prevent Chromium (VI) ingestion at the site, contamination of other work areas, and contamination of the employee's home.
- c. Only authorized employees are permitted in affected and regulated areas.
- d. Medical Surveillance Program (MSP)
 - i. All affected employees must be in a medical surveillance program administered by the Occupational Health Nurse (OHN).
 - ii. Employees exposed to Chromium (VI) levels greater than the PEL for more than 30 days each year must participate in a medical surveillance and respiratory protection program.
 - iii. All medical surveillance examinations must be coordinated with the OHN.
 - iv. Removal from the surveillance program must be done with the concurrence of the OHN.
- e. When Chromium (VI) levels have been documented at or above the Action Level, the associated work areas must be designated as regulated areas.

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- f. When Chromium (VI) levels have been documented at or below Action Level with air sampling conducted twice in a 30-day period, the regulated areas may be considered unregulated areas. With the concurrence of the OHN, medical surveillance and respiratory protection programs may be terminated.
 - g. Employees exposed to Chromium (VI) at or above the Action Level will be trained in its hazards annually.
4. Personal Protective Equipment
- a. The use of personal protective equipment (PPE) is only indicated when engineering and administrative controls have not reduced the airborne Chromium (VI) concentrations below the PEL.
 - b. A respirator is the PPE appropriate for reducing inhalation exposures to Chromium (VI). Respirator selection must be approved by a qualified person.
 - c. Respirator use is part of a respiratory protection program as described in 29 CFR 1910.134, Respiratory Protection.
 - d. All employees wearing a tight-fitting, air-purifying respirator (APR), supplied-air respirator (SAR), or hood will be trained in its use, fit-tested, and medically cleared annually.
 - e. All employees engaged in painting with paints containing Chromium (VI) must use a respirator with a protection factor of 50 or greater. Examples of such respirators include the full-face-piece APR and the half-mask powered APR.
 - f. Each APR used in painting must be fitted with a combination cartridge classified for organic vapors and particulates. A P100 High-Efficiency Particulate Air (HEPA) classification and a Volatile Organic Compound (VOC) classification are typically cartridges marked with magenta and black stripes. If using epoxy-based (or two-part paints) with Chromium (VI), use the cartridge specified by the manufacturer.
 - g. All employees engaged in paint removal activities must wear an APR or supplied air respirator with a protection factor of at least 10. Each APR must be fitted with a cartridge classified for particulate protection. A P100 HEPA cartridge is generally marked with a magenta stripe.

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- h. For all other operations where Chromium (VI) exposure indicates the use of a respirator, consult a qualified person for a recommendation.
- i. Where protective clothing is required, change rooms shall be provided with separate storage areas for street clothes and protective clothing.
- j. Where skin contact with Chromium (VI) is anticipated, washing facilities will be provided with hot and cold running water, hand soap, and individual hand towels.

5. Training

Employees shall be trained on the provisions of this standard, with special emphasis on appropriate control mechanisms and medical surveillance procedures.

6. Documentation Summary

The following documentation will be maintained in the project files:

- A. Exposure monitoring documents.
- B. Exposure results.
- C. Fit testing results.
- D. Training records.
- E. Communications with workers.
- F. Records of engineering and work practice controls.

Medical surveillance and medical clearance records will be maintained with due regard to confidentiality.

6. Resources

- A. U.S. OSHA Standard – Chromium (VI), [29 CFR 1910.1026](#)
- B. U.S. OSHA Standard – Respiratory Protection, [29 CFR 1910.134](#)
- C. U.S. OSHA Standard – Access to Employee Medical and Exposure Records, [29 CFR 1910.1020](#).

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- D. [SMS 002](#) – Hazard Communication (Worker Right-to-Know)
- E. [SMS 024](#) – Medical Screening and Surveillance
- F. [SMS 029](#) – Personal Protective Equipment
- G. [SMS 042](#) – Respiratory Protection
- H. [SMS 043](#) – Personal Monitoring (Industrial Hygiene)

URS SAFETY MANAGEMENT STANDARD

Managing Health, Safety, and Environment-Related Risks

1. Applicability

This standard applies to the operations of URS Corporation and its subsidiary companies.

2. Purpose and Scope

This standard requires hazard identification, risk evaluation, control measures, and written procedures to manage health, safety, and environment (HSE) risks on the job.

3. Procedures

The associated implementing regional procedures for this standard are included as attachments:

[SMS 086 NA](#) – North America

[SMS 086 INT](#) – International Operations (including Europe, Asia, South America and Africa)

[SMS AP5-086](#) – Australia / New Zealand

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Managing Health, Safety and Environment-Related Risks

1. Applicability

This standard is applicable to URS Corporation and its subsidiary companies.

2. Purpose and Scope

This standard requires hazard identification, risk evaluation, control measures, and written procedures to manage health, safety, and environment (HSE) risks on the job.

3. Implementation

Implementation of this standard is the responsibility of the URS manager directing activities of the facility, site, or project location. The term “manager” may include Office Manager, Project Manager, Program Manager, and/or Site Manager.

4. Requirements

- A. Each manager directing activities for a facility or project must evaluate the HSE-related risks, and then implement an approach that is consistent with managing these risks.

The primary documents used to define and implement the risk control measures are Health and Safety Plan (HASPs), Safe Work Plans (SWPs), and Job Safety Analysis (JSA) or Job Hazard Analysis (JHAs). (Note: JSA and JHA are often used interchangeably but both represent the same level of hazard analysis). These are discussed further in Section 4.E.

- B. Each HSE Manager will assess operations within their areas of responsibility to assure compliance with this SMS.
- C. All operational work entails risk. The risk may be minor (e.g., risk associated with travel and site assessments) or it might be significant (e.g., risks associated with construction, demolition, working at heights, working with chemicals or chemical contaminants, or confined-space entry). Many common project/site risks have associated Safety Management Standards (SMS) that apply; this standard does not replace or modify those SMS requirements in any way. Rather, the intent of this standard is to define a risk assessment strategy, and the written safety procedures to be developed as part of the overall strategy of managing risks.

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Managing Health, Safety and Environment-Related Risks

D. Risk Assessment Strategy

1. Hazard Identification

Hazard identification is the precursor to being able to assess risk. A hazard is something that has the potential to cause human injury or illness, property damage, damage to the environment, business interruption, or a combination of these.

Before undertaking any activity, the hazards have to be identified by persons competent to recognize them using professional experience and training including the following:

- a. Utilization of a formal hazard identification process;
- b. The proper use/care of protective equipment;
- c. Information from review and improvement processes;
- d. Consideration of hazardous materials required for task(s);
- e. Location of work and proximity to outside hazards or equipment;
- f. Anticipation or possible change of conditions;
- g. Consideration of risk of human error;
- h. Identifying level of training required for task; and
- i. Any other factors that can introduce hazard or risk into the activity.

Hazard identification should consider:

- a. Routine and non-routine activities;
- b. Activities of all persons having access to the workplace (including contractors and visitors);
- c. Human behavior and capabilities;
- d. Identified hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of URS within the workplace;
- e. Hazards created in the vicinity of the workplace by work-related activities under the control of URS;
- f. Infrastructure, equipment, and materials at the workplace, whether provided by URS or others;

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- g. Changes or proposed changes in the organization of URS, its activities, or materials;
- h. Modification to the HSE management system, including temporary changes, and their impacts on operations, processes, and activities;
- i. Any applicable legal obligations relating to risk assessment and implementation of necessary controls; and
- j. The design of work areas, processes, installations, machinery/equipment, operating procedures, and work organization, including their adaptation to human capabilities.

2. Risk Assessment

- a. Evaluate the work area for hazards as defined above. This applies to field, office, and travel settings. Use hazard recognition tools such as 4sight or the "Work Planning Guide" (Energy & Construction: SAFTRAIN 014-1/10) pocket hand book and the SMS Checklist to evaluate the job/task to be performed and the potential hazards that could be present.
- b. Determine whether identified hazards could affect employees, subcontractors, members of the public, visitors, or others.
- c. Assess the probability and consequence of any identified hazard occurring. This is generally based on experience, although incident statistics are available for most industries. The assessment of probability must also take into consideration the frequency with which exposure to a particular hazard will take place (e.g., the probability of occurrence is much greater if the activity is a daily event involving a number of individuals, compared with the same activity carried out twice a year by few individuals as part of a maintenance procedure). See 4.D.3 for a semi-quantitative risk table.
- d. Severity

Be realistic when considering how severe the result of exposure to a hazard could be. For example, it is remotely possible that someone tripping over a cable in an office may

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be killed, but the most probable result is bruising or a fractured bone. If, however, the cable is trailing across the top of a very busy stairway, a more severe injury is possible.

The following scale can be used to assist in severity estimation:

Severity	Rating	Examples
Catastrophic	5	May result in multiple fatalities, equipment or property destroyed.
Hazardous	4	May result in multiple serious injuries/illnesses, limited fatalities--Operations unable to perform or complete activities/missions. Serious impact to the community or customer.
Major	3	May result in serious occupational injury/illness. Reduction in ability to deal with adverse operating conditions. Impact to community or customer.
Marginal	2	May result in a minor injury/illness to be treated with first aid. Nuisance to operations. Use of emergency procedures. Minor incidents.
Negligible	1	Minimal threat to health, safety, security or the environment.

e. Likelihood

Determining the likelihood of a hazard actually causing harm can be much more difficult than determining the severity. An assessor's experience of actual incidents is usually limited. The factors affecting the analysis of likelihood are:

- i. The number of times the situation occurs
- ii. The position of the hazards
- iii. Distractions
- iv. The duration of exposure
- v. Quantities of materials involved
- vi. Environmental conditions
- vii. Competence of the people involved
- viii. Condition of equipment.

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Other important factors to take into account are the control measures already provided, or to be provided. However, in analyzing the likelihood of harm, it will be necessary to take into account the possibility of the control measures not being used because of human error, lack of maintenance, difficulty in compliance, complexity, etc. Any control measures included in the analysis must be referred to or recorded.

The following scale can be used to assist in likelihood estimation:

Likelihood	Rating	Examples
Frequent	5	Likely to immediately occur, highly probable during task/activity
Probable	4	Quite likely to occur, may occur during task/activity
Occasional	3	May occur in time or during the during the task/activity
Remote	2	Seldom occurs, unlikely to occur during task/activity
Improbable	1	Highly unlikely to occur, but possible during task/activity

3. Risk Rating Determination

A semi-quantitative risk rating can be derived for each hazard using the following table.

Likelihood	Severity				
	5 (Catastrophic)	4 (Hazardous)	3 (Major)	2 (Marginal)	1 (Negligible)
5 (Frequent)	3	3	3	2	2
4 (Probable)	3	3	2	2	1
3 (Occasional)	3	2	2	1	1
2 (Remote)	2	2	1	1	1
1 (Improbable)	2	1	1	1	1

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4. Risk Rating Table Use

Use of the semi-quantitative risk table shown above can help to determine whether or not the level of risk is tolerable. Attachment 086-1 NA may be used to document severity, likelihood, and the semi-quantitative risk rating for a project. This can assist in deciding priorities for action. In general, higher risks (the heavier shaded areas) may require the provision of considerable additional resources involving special equipment, training, high levels of supervision, and consideration of the most effective methods of eliminating or controlling hazards. Lower-level risks may be considered as acceptable, but actions should still be taken to try to reduce them further, if possible. The risk rating for a project should be revised if the scope of work changes and at a minimum, the risk rating should be re-assessed on an annually basis.

The risk table can be used to provide an initial breakdown of the hazards into categories as defined below. Note that further definitions and discussions of HASPs, SWPs, and JSAs are provided in Section 4.E.

- a. Acceptable Risks (Risk Rating of 1): In this category, the minimum level of written procedures should be an SWP with a completed JSA for each defined activity.
- b. Acceptable Risk with Mitigation (Risk Rating of 2): In this category, an HASP is required for the site or facility operations. A rigorous JSA process will be incorporated into the HASP, with JSAs required for all defined critical tasks.

All construction, demolition (excluding multi-story buildings), and hazardous waste operations sites fall into this category. Other examples of operations in this category include aviation and vehicle maintenance operations, warehouse operations, and activities that expose employees to the following hazards:

- i. Chemical, biological, or radiation hazards.
- ii. Falls from heights above 4 feet (1.2 meters) for general industry activities or above 6 feet (1.8 meters) for construction activities.
- iii. Entry into a permitted confined space.

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- iv. Lockout/tagout (energy management on equipment and facilities).
- v. Work in high-risk security or low-income countries (see SMS 036).
- vi. Work in excavations.
- vii. Entry into non-habitable structures.
- viii. Working in areas where wildlife has been disturbed (e.g., floods, hurricanes, earthquake, or other natural disaster area).
- ix. Working over/near water (see SMS 027 & 053).

A JSA will be implemented for each activity at the discretion of the applicable HSE manager responsible for the site.

- c. High Risk with Extensive Mitigation Efforts (Risk Rating of 3):
In this category, a detailed HASP with complimentary JSAs and oversight by a competent HSE professional with knowledge of the task and operations is required. Examples include:
 - i. Demolition of multistory structures; or
 - ii. Unexploded ordnance recovery or destruction operations of munitions larger than .50 caliber (130 millimeters).
 - iii. Work in areas involving extremely toxic chemicals or highly radioactive materials or potential IDLH or explosive conditions.

E. Written Procedures

Written procedures include HASPs, SWPs, and JSAs/JHAs. Templates and examples of each are available on the URS HSE website, or from HSE Managers.

Approvals for written procedures shall be valid for a maximum of one year. If the project continues past one year, the written procedures must be reviewed and reapproved.

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1. **Health and Safety Plan (HASP).** An HASP is required for work in any high-risk operation, such as construction, demolition, hazardous waste operations, or any activity specified as high risk by the appropriate HSE Manager. The HASP is often required by regulation, insurance policy requirements, or client requirement. A HASP template is provided in Supplemental Information A. A typical HASP includes the following components:
 - a. Descriptions of roles and responsibilities for the activity.
 - b. Hazard analysis for each task and operation found in the work plan.
 - c. Supervision.
 - d. Training requirements.
 - e. Personal protective equipment requirements for the separate tasks or operating areas.
 - f. Medical surveillance requirements (for chemical exposure, noise, radiation, etc.).
 - g. Frequency and types of monitoring for physical and chemical hazards.
 - h. Pre-entry briefings requirements for visitors and workers.
 - i. Emergency and routine medical treatment hospital/clinic locations.
 - j. Emergency action and fire protection procedures.
 - k. An HASP for hazardous waste operations may also include:
 - i. Site access and control measures
 - ii. Site specific information on chemical, biological or radiation hazards
 - iii. Decontamination procedures
 - iv. Emergency Response Plan
 - v. Confined Space Entry plan
 - vi. Spill containment Plan
 - vii. Waste management.
 - l. An HASP for construction activities may also include:
 - i. Traffic plan and site access controls

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- ii. Electrical and machinery protective measures
 - iii. Trench and excavation safety
 - iv. Fall protection and rescue plans
 - v. Storage for combustible and flammable materials
 - vi. Sediment and community noise control plans.
- m. An HASP for a demolition project may also include:
- i. Materials movement plan
 - ii. Critical task sequencing
 - iii. Explosives safety
 - iv. Dust control measures
 - v. Removal of asbestos and lead-containing materials.
- n. An HASP for work in a High Security Risk Country (see SMS 036) may also include:
- i. A security plan.
 - ii. Emergency procedures for evacuation or demobilization in the event of injury, death, or security threat.
 - iii. Immunization and prophylactic treatment requirements for disease prevention.
2. **Safe Work Plan (SWP).** An SWP is an abbreviated HASP and can be used for lower risk field activities. A SWP template is provided in Supplemental Information B. The SWP contains the following components:
- a. Descriptions of roles and responsibilities for the activity.
 - b. Emergency contacts and facilities (hospital and clinic).
 - c. Description of each task, the associated hazards, and the mitigations for each hazard.
 - d. Training requirements.
 - e. Personal protective equipment requirements.
 - f. Daily project review.

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3. **Job Safety Analysis (JSA).** A JSA describes the task being performed, the inherent risks, and the control measures for those risks. Typically, JSAs are completed before the task begins and are updated regularly based on task revisions and lessons learned. All workers involved in the task should participate in the JSA process so that best practices are shared and all possible hazards of the task are identified. Workers also feel ownership of the hazard control process when they are part of the analysis team. Workers should stop any work on a task if conditions change from the planned and agreed approach to the work. The JSA should be updated to reflect new conditions or changes in task methods.

JSAs may be completed as a stand-alone document, or may be incorporated into an HASP or an SWP. JSAs are similar to Activity Hazard Analysis (AHA), Job Hazard Analysis (JHA), and other terms and formats; however, unless otherwise indicated by client requirement, the URS JSA format should be followed. Various JSA template options are provided in Supplemental Information C-E and G.

4. **Task Safety Analysis (TSA).** A TSA is the most important element in an effective hazard identification and risk reduction program. A TSA shall be accomplished before every assigned task at the work location. The focus of the analysis shall be on the specific assigned task and the evaluation of risks and assignment of control measures based on actual work conditions. TSA shall be accomplished through the use of the URS 4sight method. 4sight can be used informally as a thought process by an individual or a conversation amongst a team or formally documented (Supplemental Information F may be used to document a TSA). 4sight empowers employees to ask 4 simple questions before beginning a task:

What am I about to do?

- Have I stepped through the task in my mind?
- Do I really understand the task?
- Have I done this task before?

What could go wrong?

- What could move slip or fall?
- Does the equipment need to be checked?
- Could something spill, splash or leak?

What could be done to make it safer?

- Should I get help with the task?

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- Do I have the right tools, PPE, or equipment?
- Do I need to review the JSA/Procedures?

What have I done to communicate the hazards?

- Have I spoken to my team about the hazards?
- Have I informed others in the area?
- Does someone know where I am and what I am about to do?

F. Preplanning for Development of Written Procedures

1. Coordination must be made by project management with representatives of the client, medical provider, regulatory authorities (if needed), and other appropriate personnel to determine and coordinate such items as:
 - a. Measures to protect the public and/or other persons exposed to the work operations.
 - b. Client, local, state, and/or federal laws and regulations that are applicable to the project.
 - c. Procedures for handling and reporting incidents, property damage, and other emergencies.
 - d. Disciplinary policies and management of restricted access for company employees and subcontractors/vendors.
2. As soon as possible, conduct an initial investigation of the project site and review the proposed work to determine, to the extent possible, existing or probable hazardous conditions and restricted areas.
3. Use a Pre-Project Startup Checklist (Attachment 086-2 NA) to plan for and establish the written project HSE documents. Note that client requirements and formats may have to be followed when completing written documents, specifically the HASP and JSA documents.
4. Contact the appropriate HSE Manager, the client's safety representatives, and/or other appropriate advisors or consultants for assistance when necessary.

G. Implementation of the Written Programs

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1. Establish adequate safety, fire prevention, medical, security, occupational health and environmental protection measures as required by the contract and mandatory regulations.
2. Make arrangements for hospital, doctor, ambulance, and fire-fighting and police services. Post the telephone numbers and/or other instructions for obtaining these services at the telephones in key project locations.
3. The active involvement of the project's managers and supervisors at all levels in HSE training, enforcement, inspection, and incident investigation activities are necessary to maximize the effectiveness of the HASP/SWP.
4. The site safety representative and other supervisors will inspect work areas at least daily. Inadequate and deficient protection measures and unsafe work practices that are noted will be immediately brought to the attention of the appropriate supervisor and/or the Project Manager for correction.
5. Restrict access to the work areas. Prior to the start of work, delineate the limits of the work areas. Supervisory personnel and subcontractors will be responsible for maintaining diligent surveillance to make certain that areas outside work limits remain undisturbed. The importance of enforcing the access restrictions should be periodically reviewed with the project team.
6. As soon as workplace hazards are discovered, take steps to eliminate or control these hazards. Control methods should be reviewed to determine that additional hazards will not be created as a result of implementation. General control methods include the following:
 - a. Substituting material that is dangerous to health with a less harmful product.
 - b. Changing or alternating a process to minimize worker contact.
 - c. Isolating or enclosing a process or work operation to reduce the number of persons exposed.
 - d. Using wet methods to reduce airborne particulate concentrations in dusty environments.

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- e. Removing or controlling contaminants at their source before they reach workers (e.g., local exhaust ventilation).
- f. Ventilating areas with clean air to provide a safe environment.
- g. Using personal protective equipment and monitoring devices.
- h. Maintaining good housekeeping. This includes the cleanliness of the work area, waste disposal, adequate washing, toilet and eating facilities, healthful drinking water, and control of insects and rodents.
- i. Whenever appropriate, using special control methods for specific hazards, such as reduction of exposure time, personal film badges or dosimeters, continuous or frequent area monitoring or personal sampling with monitoring device and medical programs to detect exposure to physical agents or the possible intake of toxic materials.
- j. Maintain an adequate training and education program to supplement engineering controls.

H. Key Elements in Risk Control on the Project Site

- 1. Regularly, or at least once per month, conduct safety meetings for supervisory personnel, including those of other contractors and subcontractors. Suggested action items for these meetings include:
 - a. Reviewing of the HSE procedures and policies applicable to the project.
 - b. Identifying responsibilities of the various parties, including contractor(s) and subcontractor(s) obligations.
 - c. Reviewing noted and anticipated hazards, and plan methods to eliminate or control them.
 - d. Discussing incidents and near misses to determine causes and steps necessary to prevent reoccurrence.
 - e. Discussing suggestions and ideas for improving the project's HSE program.

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- f. Maintaining a record of these meetings; this will be done by the safety representative or supervisor.
2. Include safety (tailgate) meetings for all project personnel in the project scheduling, with meetings at least weekly, and a clear responsibility for management of meetings. A record of the meetings will include the name of all attendees, items discussed, and date/time of meeting. Supplemental Information H or I may be used to document the meeting. The safety representative or supervisor will maintain records of the meeting.
3. Regular inspections of active work areas will be made by the project supervisors and the site safety representative. To be effective, such inspections should occur on all shifts, should be unannounced, and should occur at varied intervals.
 - a. Imminent danger situations must be corrected immediately.
 - b. Inadequate or deficient protective measures and unsafe or unhealthy work practices must be brought to the immediate attention of the appropriate supervisor and/or Project Manager for correction and disciplinary action, as required.
 - c. Inform the Project Manager of all deficiencies not immediately correctable, and/or that may result in damage to facilities, equipment, or work in progress, or that create hazardous exposures to employees or the public.
 - d. Inspect all flammable storage areas, explosives storage, shops, warehouses, and other facilities at regular intervals.
4. Appropriate mechanical safety inspections are a part of the equipment preventive maintenance program. These inspections will ensure:
 - a. Accurate and complete maintenance and repair records are an important part of the preventive maintenance program. These records will be accessible to the site safety representative, who will make periodic reviews to determine if the equipment is being maintained in a safe condition.
 - b. Pre-shift safety inspections will be made by the operators of equipment or by mechanics. These inspections will be documented and defective equipment tagged and removed from service until repairs are made.

URS SAFETY MANAGEMENT STANDARD

Managing Health, Safety and Environment-Related Risks

- c. Project management should note that federal, state and client stipulations for testing and inspections of equipment and vehicles may be required and these requirements should be identified as part of the HASP/SWP.
5. Signs and posters of appropriate size and design, and bearing standard pertinent regulations, will be used to convey warnings, directions, and instructions to personnel and the public, as required by the client and other applicable regulations. The observance of such safety and incident prevention signs will be strictly required of company employees and visitors while on the project site.
6. The project's organization will reflect the importance given to safety. It is important to plan for and provide adequate resources for the implementation of the project HASP/SWP to ensure for their effectiveness. The HSE staff must be provided with adequate transportation, telephone and/or radio units, suitable office and storage facilities, clean eating and change room areas, data entry or computer resources, training aids, testing equipment, and administrative support.
7. Consideration must be given to make the project environmental protection plan effective. The type and extent of the measures needed for pollution control, hazardous materials handling, hazardous waste control and disposal, and for relating occupational health issues will depend upon the contract stipulations, hazard involved, type of operation, and the mandatory requirements of regulatory authorities. Such measures will include appropriate control methods necessary to prevent or reduce to safe levels exposure to hazardous substances.
8. It is the practice of URS to commend and reward employees and their supervisors for achieving excellence in their field of work, particularly when that work is performed safely. Project management is encouraged to promote and participate in safety recognition programs by developing project-specific safety goals and including safety incentive programs in project budgets. Project goals should include proactive goals such as training participation and training support, safety observations conducted, and management participation in safety reviews (e.g., safety walk-downs).

URS SAFETY MANAGEMENT STANDARD

Managing Health, Safety and Environment-Related Risks

9. All employees are empowered and expected to stop work or not start work when it is unsafe. Employees will be trained on stop work authority upon initial assignment.

Any employee who believes a health, safety, or environmental violation exists or a situation poses physical harm or imminent danger, are expected to refuse to work under such conditions. An employee who exercises this right must immediately report the situation to their supervisor or an alternate member of management. The supervisor, or alternate member of management, will immediately investigate the situation to determine if there are reasonable grounds to believe that a violation or danger exists, and then take appropriate actions to correct the situation before work is allowed to proceed. Employees will not be reprimanded for stopping work when conditions are unsafe.

Stop work interventions will be documented in accordance with the project/site specific program. Stop work interventions will review be reviewed by the Project Manager or designee to determine how to prevent unsafe conditions/acts from reoccurring.

5. Documentation Summary

- A. Retain copies of the HASP, SWP, and JSA as appropriate for 3 years or longer if required by contract.

6. Resources

- A. [Attachment 086-1 NA](#) – HSE Risk Assessment Form
- B. [Attachment 086-2 NA](#) – Pre-Project Setup Checklist

7. Supplemental Information

- A. [Health and Safety Plan Template](#)
- B. [Safe Work Plan Template](#)
- C. [Job Safety Analysis Template #1](#)
- D. [Job Safety Analysis Template #2](#)
- E. [Job Safety Analysis Template #3](#)

URS SAFETY MANAGEMENT STANDARD

Managing Health, Safety and Environment-Related Risks

- F. [Task Safety Analysis](#)
- G. [Job Safety Analysis Template #4](#)
- H. [Tailgate Meeting Form #1](#)
- I. [Tailgate Meeting Form #2](#)



Health, Safety, and Environment
PRE-PROJECT SETUP CHECKLIST

Attachment 086-2 NA
Issue Date: June 2008
Revision 4: January 2011

This list may vary for different field operations and may not include all items required for your project. However, it does contain the essential elements for establishing an effective safety and loss prevention program.

Task	Assigned To	Date Completed
1. Select Safety Supervisor(s) or Representative.		
2. Determine medical requirements for project work, as necessary.		
3. Obtain and establish first aid facility and emergency vehicle, as necessary. Order first aid kits and supplies.		
4. Order required personal protective equipment (e.g., hard hats, eye and hearing protection, respirators, etc.).		
5. Plan and establish safety indoctrination and training program.		
6. Establish schedule for project HSE meetings.		
7. Evaluate project for inherent hazards or special requirements and develop specific project HSE rules and procedures.		
8. Plan and develop procedures for administering subcontractors' safety programs, including a pre-job safety conference.		
9. Determine requirements and conduct pre-work inspection for performance and load tests of cranes, derricks, hoists, etc., and similar equipment. Complete documentation is required.		
10. Establish and assign safety responsibilities and duties.		
11. Plan jobsite inspection program. Frequency of inspection, documentation requirements, and type of inspection should be included.		
12. Implement preventive maintenance program, as necessary		
13. Determine record-keeping and reporting requirements for regulatory authorities (OSHA, MSHA, USACE, etc.), client, and URS. Delegate tasks to responsible staff.		
14. Evaluate security requirements and the need to have security guards, perimeter fencing, and lighting. Arrange for planned security personnel and/or facilities.		
15. Evaluate the need for occupational health or environmental monitoring (e.g., noise, water, air and dust surveys, gas monitoring).		



Health, Safety, and Environment
PRE-PROJECT SETUP CHECKLIST

Attachment 086-2 NA
Issue Date: June 2008
Revision 4: January 2011

Task	Assigned To	Date Completed
16. Determine and establish safety enforcement and disciplinary sanctions for violations of HSE programs. Distribute this information to all employees.		
17. Plan and establish an emergency action plan for medical emergencies, fire, flooding, bomb threats, civil disturbances, hazardous material/waste, spills, releases of pollutants or toxic gases, etc.		
18. Plan and implement measures required for public safety (e.g., lighting, flag persons, traffic control devices, fences, and warning signs, etc.).		
19. Determine requirements to control and prevent unsafe conditions (e.g., scaffolding, standard guardrails, guards, access ways, ladders, lockout/tagout procedures, confined-space entry).		
20. Develop a fire prevention plan; determine fire extinguisher and fire protection requirements. Order and install equipment.		
21. Implement safety incentive and promotion program, as necessary. Post safety instruction signs, poster, and other promotional ideas.		
22. Determine accident investigation, environmental incident investigations and claims-handling procedures.		
23. Make contacts and establish working relationships with local medical personnel and facilities, local ambulance service, fire station, and client's safety representatives.		
24. Establish goals for safety performance, and methods to monitor and document progress.		
25. Develop and implement a hazard communications program to train employees and monitor health hazards.		
26. Determine environmental permit requirements and local, state, and federal environmental regulations. Establish an environmental protection program to prevent pollution.		
27. Order and place appropriate equipment and media for response to accidental spills or releases of hazardous materials, as necessary.		
28. Establish drug screening and EAP programs, as required.		



Health, Safety and Environment
HEALTH AND SAFETY PLAN TEMPLATE

SMS 086 NA
Supplemental Information A

Issue Date: August 2010
Revision 1: March 2012

This is a template designed for petroleum hydrocarbon sites however with more extensive editing (e.g., air monitoring section) it can be used for other hazardous waste operations or construction activities. Additional information must be provided (and non-applicable information deleted) before the template can be considered an acceptable site-specific health and safety plan. Site-specific information is required wherever blue text is found. Any experienced, environmental field person can use this document to develop a draft health and safety plan. However, a Health, Safety, and Environment Manager [HSEM] or designee, must review and approve the plan before it can be finalized. Note that many of our clients have specific requirements for health and safety plans that may not be covered by this template. This template is intended to address work activities conducted by URS personnel. Subcontractors are normally responsible for developing their own health and safety plans with the URS plan serving as minimum requirements.

This template also references a number of URS Safety Management Standards (SMSs). Referenced SMSs must be available for use in the field. These SMSs are available on the URS Health, Safety, and Environment web site. .

Please contact your Health, Safety, and Environment (HSE) Representative or HSEM if you have any questions.

Disclaimer:

This Health and Safety Plan, and each of its provisions, is applicable only to, and for use only by, URS Corporation, its affiliates, and its subcontractors. Any use of this Plan by other parties, including, without limitation, third party contractors on projects where URS is providing engineering, construction management or similar services, without the express written permission of URS, will be at that party's sole risk, and URS Corporation shall have no responsibility therefore. The existence and use of this Plan by URS shall not be deemed an admission or evidence of any acceptance of any safety responsibility by URS for other parties unless such responsibility is expressly assumed in writing by URS in a specific project contract.



Enter Site Name

HEALTH AND SAFETY PLAN

Enter Date

Prepared by:
URS Corporation
Enter office location

Approved:

Enter Name
URS Project Manager

Enter Date
Date

Approved:

Enter Name
URS Regional Health, Safety, and
Environment Manager

Enter Date
Date

THIS HASP IS TO BE USED FOR THE SPECIFIC PROJECT DESCRIBED HEREIN. IT IS NOT TO BE USED FOR ANY OTHER PROJECT. THIS PLAN MUST BE REVISED AS APPROPRIATE TO ADDRESS CHANGING SITE CONDITIONS OR MODIFIED SCOPE OF WORK.



Health and Safety Plan

1. Introduction

Enter Client Name and URS Corporation (URS) are committed to providing a safe and healthful work environment. Our goal is zero incidents, meaning that we strive to complete every project without injury, illness, property damage or environmental damage. Safety must always take precedence over expediency.

This Health and Safety Plan (HASP) summarizes health and safety hazard information for URS field activities associated with the *Enter Project Name and Location*. The URS HASP delineates procedures that will allow personnel to work safely and respond quickly and appropriately to site emergencies. All site work will be conducted in accordance with requirements of the URS Health, Safety and Environment Program and Management System that is available on the SoURSe. All site work will be conducted in accordance with Occupational Safety and Health Administration (OSHA) regulations in the Code of Federal Regulations (CFR), Title 29, Parts 1904, 1910, and 1926 as well as occupational health rules of *Enter State if work is to be conducted in an OSHA State Plan State*. Refer to SMS 005 *Injury and Illness Prevention Plan for work in California*.

A URS Health, Safety and Environment Manager (HSEM) reviewed this HASP to verify compliance with applicable requirements. The HSEM must approve any modifications to the procedures in this plan. The Project Manager is responsible for implementation of this plan.

2. Scope of Work

Activities covered under this HASP include all field activities associated with the *Enter Project Name and Location*. This plan has been developed for URS personnel only.

This plan is valid from *Enter Dates*. The Project Manager and Site Safety Officer(s) are responsible for implementation of this plan.

Scope of work and major tasks	<ul style="list-style-type: none">• Fill in this section
URS employees assigned	<ul style="list-style-type: none">• Fill in this section
Equipment needed	<ul style="list-style-type: none">• Fill in this section
Dates of the work	<ul style="list-style-type: none">• Fill in this section
What are the major hazards associated with each work activity?	See attached Job Safety Analysis (Attachment B).



Health, Safety and Environment
HEALTH AND SAFETY PLAN TEMPLATE

SMS 086 NA
Supplemental Information A

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3. Key Personnel - Fill in this section

Position	Name	Phone Numbers
URS Project Manager		
URS Field Supervisor		
Client Representative		
Office HSE Representative		
Regional HSE Manager		
Occupational Health Manager		

4. Task/ Operation Health and Safety Hazard Assessment

Site Location and History	Fill in this section
Chemical Hazards	Add specific information regarding site contamination; hazards must be addressed in job safety analysis
Physical Hazards	Edit to include specific hazards; hazards must be addressed in job safety analysis
Biological Hazards	Edit to include specific hazards; hazards must be addressed in job safety analysis
Hazard Controls	Chemical, physical, and biological hazards will be minimized through engineering controls, employee training, administrative controls, and when necessary, personal protective equipment (PPE). Site specific controls are addressed in the Job Safety Analysis (JSA) contained in Attachment B.
Client Requirements	Many clients have specific HSE requirements. Insert client specific requirements here.



5. Employee Medical Qualifications and Training Requirements

All personnel	<p>All personnel will participate in documented daily health and safety tailgate meetings to discuss site conditions, hazards, and hazard controls.</p> <p>All personnel who are not required by project activities to have HAZWOPER training must have current field safety training.</p>
Personnel entering the exclusion zone	<p>40-hour HAZWOPER training with a current 8-hour refresher and medical qualification</p> <p>Refer to SMS 024 <u>Medical Screening and Surveillance</u></p> <p>Refer to SMS 055 <u>Health, Safety, and Environment Training</u></p>
Field Supervisor and/or Site Safety Officer	<p>8-hour HAZWOPER Supervisor Training</p> <p>First Aid Training for remote sites</p> <p>Refer to SMS 055 <u>Health, Safety, and Environment Training</u></p>

6. Engineering and Administrative Controls

URS will implement engineering and administrative controls to reduce the spread of contamination, isolate contaminants, shield workers, prohibit access to hazardous areas, warn of physical hazards and/or otherwise minimize the likelihood of worker injury or exposure. Specific engineering and administrative controls for each URS activity are listed in the Job Safety Analysis (Attachment B).



7. Personal Protective Equipment

All site personnel	<ul style="list-style-type: none">• Work clothes as appropriate• Gloves specific for the task• Hardhat• Safety toe boots with good tread• Safety glasses with side shields• ANSI Class 2 high visibility apparel (Class 3 apparel is required for work at night or during periods of poor visibility)• Hearing protection – when voice communication becomes difficult due to noise• Refer to SMS 029 <u>Personal Protective Equipment</u>
All personnel working in areas where action levels are exceeded – see Section 8	<ul style="list-style-type: none">• Appropriate coveralls (Tyvek or equivalent)• Outer nitrile gloves• Full-face air purifying respirator with organic vapor cartridges. To use a respirator, employees must be trained, fit tested and medically qualified.• Refer to SMS 042 <u>Respiratory Protection Program</u>



8. Air Monitoring

Air monitoring will be conducted with a photoionization detector (PID) with a 10.2 or 10.6 eV lamp calibrated to isobutylene to evaluate concentrations of volatile organic compounds (VOCs). The monitoring equipment must be calibrated in accordance with the manufacturer's instructions. In addition, the results of daily instrument calibrations must be recorded in the field notes. Continuous monitoring is required during intrusive work. Document readings in the field notes. Additional monitoring may be required to enter an excavation or confined space (refer to Attachment B). The action levels below assume that no more than 4% of the VOCs present are benzene.

Air Monitoring Action Levels

Analyzer Reading	Location	Duration	Action	Personal Protective Equipment
< 10 ppm	Point of Operations/ Release Source point	_____	Continue periodic monitoring.	Minimum Site Ensemble (Hardhat, Steel-toed boots, eye protection, hearing protection)
> 10 ppm	Point of Operations/ Release Source point	>1 minute	Monitor OBZ; don protective clothing; establish work zones	Minimum Site Ensemble, Plus: Coveralls, Nitrile Outer Gloves, and Nitrile Inner (surgical) Gloves
< 10 ppm	OBZ	-----	No respirators required.	Same as above
> 10 ppm	OBZ	>1 minute	Improve engineering controls, if not effective Provide respiratory protection; establish decontamination area and contact the RHSEM	Add full-face air purifying respirators with organic vapor cartridges. Cartridges will be changed on a daily basis.
>100 ppm OR > 100 ppm	OBZ OBZ	>1 minute instantaneous	Stop work; move upwind while vapors dissipate. If elevated levels remain, cover boring and cuttings, evacuate upwind and notify RHSEM	As specified by RHSEM.

(OBZ - Operator's Breathing Zone)



9. Site Control and Decontamination

Site Control	Work area barricades may be used to prevent access by unauthorized persons. Yellow caution tape, traffic cones and/or sawhorse-type barricades can be used for this purpose. Formal work zones (i.e., exclusion zone, contamination reduction zone, and support zone) will be implemented if the PID reading exceeds 10 ppm for more than one minute at the point of operations. No eating, drinking, or smoking is allowed in potentially contaminated areas.
Coordination With Owners or Operators	URS must receive permission to access private property from land owners and site operators.
Personnel and PPE Decontamination	Personnel should wash hands and face after leaving the work zone and before eating. Formal decontamination procedures are required if the analyzer reading exceeds 10 ppm for more than 1 minute. Wash all reusable equipment with soap and water. Remove and containerize, and appropriately dispose of any disposable PPE in the contamination reduction zone.
Equipment Decontamination	Equipment decontamination will be performed as appropriate to limit the spread of contamination, limit worker exposure to contamination, and to meet Quality Assurance/Quality Control (QA/QC) requirements. Remove disposable PPE prior to leaving the work zone. Contain decontamination water as appropriate and comply with any applicable disposal requirements.



10. Emergency Contingency Plan

Prior to beginning work at the site, the client representative and URS field personnel will identify a site evacuation route and place of refuge as well as the best means of communication from the site (i.e., are cell phones allowed, do they work, can responders find our location, etc.). In the event of an emergency at the site, first contact the appropriate emergency services, next secure the site, and then notify the URS Project Manager. The URS Project Manager and/or HSEM will notify the client and other appropriate agencies. In the event of an incident, follow the reporting procedures in URS SMS 049, Injury/Illness/Incident Reporting and SMS 065, Injury Management.

Medical Emergencies

URS personnel may administer first aid on a voluntary basis if they are trained to do so. Remember to follow “universal precautions” if blood or body fluids are present (i.e., assume all blood and bodily fluids are contaminated and avoid contact with these fluids). Use nitrile or latex gloves when performing first aid. Contact the RHSEM if you are exposed to another individual’s blood or body fluids. For serious injuries or illnesses, transport the victim to the hospital via ambulance by calling 911 (see Figure 10-1).

If exposure to hazardous substances is suspected, or if any symptoms of exposure are experienced, leave the contaminated area. If a dermal or ocular exposure is suspected, wash the affected area with plenty of water for a minimum of 15 minutes. If symptoms are serious in nature seek medical assistance immediately.

In the event of any work-related injury or illness, contact the HSEM or the URS Occupational Health Manager at to report the incident (SMS 049-1) and to begin the Workers’ Compensation claims process, in accordance with SMS 065, Injury Management.

Emergency Medical Services

See the emergency phone numbers and maps below. Minor injuries should be treated at an occupational health clinic when possible. Significant injuries should be treated at the nearest hospital.

Emergency Equipment List

Each URS work area will be equipped with the following equipment:

- Cellular phone
- First aid kit
- Eye wash
- Fire extinguisher
- Drinking water
- Extra set of PPE



Health, Safety and Environment
HEALTH AND SAFETY PLAN TEMPLATE

SMS 086 NA
Supplemental Information A

Issue Date: August 2010
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10-1. Emergency Phone Numbers - Fill in this section

Organization	Name	Phone numbers
Police		911
Ambulance		911
Hospital		
Fire/HAZMAT		911
Poison Control Center		(800) 332-3073
URS Occupational Health Manager		
Client Representative		
Subcontractor Representative		
URS Project Manager		
URS HSE Representative		
URS HSE Manager		

Insert Medical Clinic Location, Route and Map

Insert Hospital Location, Route and Map



Health, Safety and Environment
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SMS 086 NA
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ATTACHMENT A
FORMS

Daily Tailgate Meeting Form –
SMS 086 NA – Supplemental Information H or I
(Shall be completed daily prior to work activities)



Health, Safety and Environment
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SMS 086 NA
Supplemental Information A

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Revision 1: March 2012

ATTACHMENT B
JOB SAFETY ANALYSIS



SAFE WORK PLAN

This is designed to assist the Project Manager and Project Team in the identification of potential hazards (Hazard Analysis) and in the development of a Safe Work Plan (SWP). Hazard analysis is accomplished in a six-step process that allows the project team to focus resources on those major definable features of work. The process also provides a means for the project team to continually recognize, evaluate, and control all potential hazards that may confront the team in the field. ***While this job aid can be used for all URS projects, please note that any work covered by the OSHA HAZWOPER standard must have a site specific Health and Safety Plan prepared in accordance with URS Safety Management Standard 017.***

Step 1: Scope of Work: Describe the overall scope and major definable features of work and the personnel involved.

Step 2: Emergency Contacts and Facilities: Provide all applicable emergency contacts and emergency facility information for project-related activities in Section 2.

Step 3: Applicable URS Safety Management Standards: The SMS Checklist is provided to assist the preparer in completing this section of the SWP.

Step 4: Job Safety Analysis: Use the Job Safety Analysis to identify specific hazards and control methods associated with each major definable feature of work. Hazards include those that could cause physical harm (e.g., fall hazards, excavation hazards, live electrical hazards) or those that require special consideration during the planning stages of the project due to regulatory and/or client constraints (i.e., potential exposure to airborne hazards that require respiratory protection, confined space entries, use of nuclear density gauges, hazardous material shipping/handling, etc.).

Step 5: Finalize the Safe Work Plan: The completed document must be approved by the Project Manager and an appropriate Health, Safety and Environment (HSE) Representative, HSE Manager, or H&S professional (CIH or CSP). If the work activities covered under this SWP pose a high risk (e.g., working at heights, excavation, demolition, confined space entry, work over water or drilling), the completed document must be approved by a HSE Manager.

Step 6: Review Hazards And Control Measures Prior To Actual Field Work: Prior to conducting any field work, the project team should review the final Safe Work Plan as part of the initial site safety briefing. Additionally, the field team supervisor and all team members should participate in the completion of the Daily Tailgate Meeting Form prior to each day's work.



SAFE WORK PLAN

Issue Date: August 2010
Revisions 1: March 2012

Project Name / Client: _____

Project Number: _____ Project Manager _____

Scope of Work	
Scope of Work and Major Tasks	
Job Location (Provide as much detail as possible)	
URS employees assigned	
Subcontractors and their scope of work	
Minimum Required Personal Protective Equipment	<ul style="list-style-type: none">• Hard hat• Safety glasses with side shields• Safety toed boots/shoes• ANSI Class 2 high visibility apparel for work near roads or heavy equipment (Class 3 apparel is required for work at night or during periods of poor visibility)• Gloves specific for the task• Refer to JSA for additional PPE requirements for specific tasks <p>Note: Downgrading/upgrading of the above mentioned PPE must be approved by the HSE manager or designee.</p>
Required Training	
Dates of the work	



SAFE WORK PLAN

Emergency Contacts and Facilities			
Fire			
Police			
Medical			
EMERGENCY Nearest Hospital	Name:	Phone Number:	
Address & Directions to Nearest Hospital (Map Attached? <input type="checkbox"/> YES <input type="checkbox"/> NO)	Address:	Directions:	
NON-EMERGENCY Nearest Occupational Health Clinic	Name:	Phone Number:	
Address & Directions to Nearest Occupational Health Clinic (Map Attached? <input type="checkbox"/> YES <input type="checkbox"/> NO)	Address:	Directions:	
Responsible Personnel			
Project Manager	Name	Office Phone #	Cell Phone #
Health, Safety, and Environment Representative	Name	Office Phone #	Cell Phone #
HSE Manager	Name	Office Phone #	Cell Phone #
Client	Name	Office Phone #	Cell Phone #
Subcontractor(s)	Name	Office Phone #	Cell Phone #
URS Occupational Nurse	Name	Office Phone #	Cell Phone #



Complete the SMS Checklist. Print all applicable SMS and attach to this plan

The following URS Safety Management Standards (SMS) generally apply to all field projects. Review the requirements of each SMS and determine appropriate steps to ensure project compliance with the requirements.

SMS CHECKLIST					
Determine the applicability of these SMS to your project	Yes	See SMS #	Determine the applicability of these SMS to your project	Yes	See SMS #
Emergency Preparedness Plan	Yes	003	Sanitation	Yes	030
Housekeeping	Yes	021	Regulatory Inspections	Yes	001
Vehicle Safety	Yes	057	Health, Safety, and Environment Training	Yes	055
New Employee HSE Orientation	Yes	025	Incident Reporting and Notifications	Yes	049
Significant Incident Investigation	Yes	066	Injury and Claims Management	Yes	065
Behavior Based Safety	Yes	072	Managing HSE Related Risks	Yes	086
Management of Change	Yes	098			

The following URS SMS only apply when specific activities are conducted by URS and URS subcontractor personnel. If you answer "Yes" to any of the questions below, review the SMS indicated and determine the appropriate steps necessary to ensure project compliance with the requirements.

SMS CHECKLIST							
Will project activities involve any of the following?	No	Yes	See SMS #	Will project activities involve any of the following?	No	Yes	See SMS #
Abrasive blasting or exposure to abrasive blasting media or waste?	<input type="checkbox"/>	<input type="checkbox"/>	006	Excavations or exposure to excavation hazards?	<input type="checkbox"/>	<input type="checkbox"/>	013
Potential exposure to ticks, snakes, poisonous plants, and other biological hazards?	<input type="checkbox"/>	<input type="checkbox"/>	047	Flammable or combustible materials used or stored which could constitute a fire hazard?	<input type="checkbox"/>	<input type="checkbox"/>	014,015
Use of aerial lifts?	<input type="checkbox"/>	<input type="checkbox"/>	007	Use of portable, gas powered, electric, and/or powder actuated hand tools?	<input type="checkbox"/>	<input type="checkbox"/>	016
Potential exposure to air contaminants in hazardous concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	043, 042, 050	Hazardous materials shipping?	<input type="checkbox"/>	<input type="checkbox"/>	048



SAFE WORK PLAN

SMS CHECKLIST

Will project activities involve any of the following?	No	Yes	See SMS #	Will project activities involve any of the following?	No	Yes	See SMS #
Asbestos surveys or abatement oversight?	<input type="checkbox"/>	<input type="checkbox"/>	008	Hazardous substances – chemical or health hazards?	<input type="checkbox"/>	<input type="checkbox"/>	002
Potential exposure to Bloodborne Pathogens (i.e. blood or other bodily fluids)?	<input type="checkbox"/>	<input type="checkbox"/>	051	Hazardous waste activities (investigative or remedial)?	<input type="checkbox"/>	<input type="checkbox"/>	017
Work over or near water?	<input type="checkbox"/>	<input type="checkbox"/>	027	Heat Stress potential to employees working in: <ul style="list-style-type: none"> • Hot environments; or • Impermeable Chemical Protective Clothing? 	<input type="checkbox"/>	<input type="checkbox"/>	018
California job activities?	<input type="checkbox"/>	<input type="checkbox"/>	005	Heavy equipment in use at this project site?	<input type="checkbox"/>	<input type="checkbox"/>	019
Corrosive materials used or handled?	<input type="checkbox"/>	<input type="checkbox"/>	009	Hot Work (welding, cutting, grinding)?	<input type="checkbox"/>	<input type="checkbox"/>	020
Confined space entries?	<input type="checkbox"/>	<input type="checkbox"/>	010	Industrial site access of any kind?	<input type="checkbox"/>	<input type="checkbox"/>	004
Cranes or hoists?	<input type="checkbox"/>	<input type="checkbox"/>	038,041	Lead exposures (lead paint removal, lead in dust, etc)?	<input type="checkbox"/>	<input type="checkbox"/>	022
Demolition activities of any type of structures?	<input type="checkbox"/>	<input type="checkbox"/>	011	International travel?	<input type="checkbox"/>	<input type="checkbox"/>	036
Drilling activities?	<input type="checkbox"/>	<input type="checkbox"/>	056	Use of Manbasket (Crane Suspended Personnel Platforms) for working at heights?	<input type="checkbox"/>	<input type="checkbox"/>	038, 041
Use of small watercraft (e.g., boats, canoes)?	<input type="checkbox"/>	<input type="checkbox"/>	053	Work on or near streets and/or roadways?	<input type="checkbox"/>	<input type="checkbox"/>	032
Exposure to chemical/physical/biological agents and/or activities that require Medical Surveillance? Examples would include exposures to; Noise, Asbestos, Lead, Hazardous Waste, High Altitudes, Carcinogens, Respirator Use.	<input type="checkbox"/>	<input type="checkbox"/>	024	Exposure to uncontrolled energy sources including electrical, fluid, pneumatic, fuel, steam, gravity, and hazardous material?	<input type="checkbox"/>	<input type="checkbox"/>	023
Noise exposures?	<input type="checkbox"/>	<input type="checkbox"/>	026	Potential exposure to subsurface and/or overhead utilities?	<input type="checkbox"/>	<input type="checkbox"/>	034
Ladder use?	<input type="checkbox"/>	<input type="checkbox"/>	028	Potential exposure to Unexploded Ordnance/Chemical Warfare agents?	<input type="checkbox"/>	<input type="checkbox"/>	039
Exposure to eye, head, hand, foot, or other hazards that require the use of personal protective equipment?	<input type="checkbox"/>	<input type="checkbox"/>	029	Underground Storage Tank investigation, removal, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	033



SMS CHECKLIST

Will project activities involve any of the following?	No	Yes	See SMS #	Will project activities involve any of the following?	No	Yes	See SMS #
Use of portable gauges (e.g., nuclear-density gauges) containing sealed radioactive source materials?	<input type="checkbox"/>	<input type="checkbox"/>	044	Work with live electrical systems?	<input type="checkbox"/>	<input type="checkbox"/>	012
Respiratory protection use – required and/or voluntary?	<input type="checkbox"/>	<input type="checkbox"/>	042	Work at altitudes greater than 7,000 feet (~ 2,100 meters)?	<input type="checkbox"/>	<input type="checkbox"/>	035
Scaffolding?	<input type="checkbox"/>	<input type="checkbox"/>	031	Working at heights of greater than 4 feet (1.22 meters) or 6 feet (1.83 meters) for construction/demolition?	<input type="checkbox"/>	<input type="checkbox"/>	040
Manual lifting and/or material handling?	<input type="checkbox"/>	<input type="checkbox"/>	069	Use of computer workstations for data entry, CADD, word processing, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	054
Work on or near railroad transportation systems?	<input type="checkbox"/>	<input type="checkbox"/>	063	Exposure to recognized hand hazards?	<input type="checkbox"/>	<input type="checkbox"/>	064
Work at a client site requiring compliance with the OSHA Process Safety Management Standard?	<input type="checkbox"/>	<input type="checkbox"/>	058	Are employees or contractors required to operate Powered Industrial Vehicles (i.e. forklift trucks)?	<input type="checkbox"/>	<input type="checkbox"/>	070
Subcontractors to perform high risk activities (including drilling and excavation) with their own personnel and/or equipment?	<input type="checkbox"/>	<input type="checkbox"/>	046	Potential exposure to ionizing radiation?	<input type="checkbox"/>	<input type="checkbox"/>	052
Potential personnel exposure to temperatures below 32°F?	<input type="checkbox"/>	<input type="checkbox"/>	059	Down-hole geologic logging operations associated with geotechnical explorations or caisson inspections?	<input type="checkbox"/>	<input type="checkbox"/>	077
URS personnel newly hired or transferred from another position?	<input type="checkbox"/>	<input type="checkbox"/>	078	Potential inhalation of chromium VI (hexavalent chromium)?	<input type="checkbox"/>	<input type="checkbox"/>	083
Diving activities?	<input type="checkbox"/>	<input type="checkbox"/>	085	Working alone in an area where they cannot be seen/heard by another person?	<input type="checkbox"/>	<input type="checkbox"/>	084
Work at a site regulated by the Mine Safety Health Administration (MSHA)?	<input type="checkbox"/>	<input type="checkbox"/>	037	Hoists, elevators or conveyors being used?	<input type="checkbox"/>	<input type="checkbox"/>	045
Coordinate building material storage on-site?	<input type="checkbox"/>	<input type="checkbox"/>	062	Tunnels, shafts and caissons?	<input type="checkbox"/>	<input type="checkbox"/>	082
Operating and testing compressed air systems?	<input type="checkbox"/>	<input type="checkbox"/>	087	Signs, signals or barricades will be used onsite?	<input type="checkbox"/>	<input type="checkbox"/>	088
Temporary floors being created?	<input type="checkbox"/>	<input type="checkbox"/>	089	Project security will be required?	<input type="checkbox"/>	<input type="checkbox"/>	090



SAFE WORK PLAN

Issue Date: August 2010
Revisions 1: March 2012

SMS CHECKLIST

Will project activities involve any of the following?	No	Yes	See SMS #	Will project activities involve any of the following?	No	Yes	See SMS #
Concrete will be poured or handled?	<input type="checkbox"/>	<input type="checkbox"/>	091	Installation of cofferdams being performed?	<input type="checkbox"/>	<input type="checkbox"/>	092
Steel erection activities being performed?	<input type="checkbox"/>	<input type="checkbox"/>	093	Use or handling of explosive or blasting agents?	<input type="checkbox"/>	<input type="checkbox"/>	094
Work on or transfer to/from marine transportation (e.g. barge, vessel)?	<input type="checkbox"/>	<input type="checkbox"/>	095	Mining operations are conducted or controlled by URS?	<input type="checkbox"/>	<input type="checkbox"/>	096
Working conditions or schedule (more than 12 hours/day) may increase worker fatigue?	<input type="checkbox"/>	<input type="checkbox"/>	060	Exposure to hazards associated with moving parts of equipment and machinery?	<input type="checkbox"/>	<input type="checkbox"/>	061

Person drafting this Safe Work Plan:

Name	Signature	Title	Date
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Project Manager Approval:

Name	Signature	Title	Date
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Health, Safety, and Environment Approval *

Name	Signature	Title	Date
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** Note: Approval must be by the designated Health, Safety and Environment (HSE) Representative, the HSE Manager, or any URS Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP). If the work activities covered under this SWP pose a high risk (e.g., working at heights, excavation, demolition, confined space entry, work over water, or drilling), the completed document must be approved by a HSE Manager.*

Plans are only valid for one year from the date of approval, unless otherwise noted.

- 1 Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2.
- 2 A hazard is a potential danger. What can go wrong? How can someone get hurt?
- 3 Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

**ATTACHMENT A
FORMS**

**Daily Tailgate Meeting Form –
SMS 086 NA – Supplemental Information H or I
(Shall be completed daily prior to work activities)**



Health, Safety and Environment

JOB SAFETY ANALYSIS

SMS 086NA
Supplemental Information C

Issue Date: August 2010

Job Safety Analysis

For those major tasks identified in the Scope of Work, complete the Job Safety Analysis below. Use additional sheets, as necessary.

Site: _____

Date: _____

Prepared By: _____

Approved By: _____

Work Activity:

Key Hazard (s)	Training Requirements	Protective Equipment Use
Equipment Required	Other Hazard Control Measures	

Work Activity:

Key Hazard (s)	Training Requirements	Protective Equipment Use
Equipment Required	Other Hazard Control Measures	



Health, Safety and Environment
JOB SAFETY ANALYSIS

SMS 086NA
Supplemental Information C
Issue Date: August 2010

Work Activity:		
Key Hazard (s)	Training Requirements	Protective Equipment Use
Equipment Required	Other Hazard Control Measures	

Work Activity:		
Key Hazard (s)	Training Requirements	Protective Equipment Use
Equipment Required	Other Hazard Control Measures	



Health, Safety and Environment
JOB SAFETY ANALYSIS

SMS 086NA
Supplemental Information E
Issue Date: August 2010

HAZARD EVALUATION

Site: _____

Date: _____

Prepared By: _____

Approved By: _____

Principal Steps	Potential Safety/Health Hazards	Initial RAC	Control Measures	Final RAC
List principle steps involved in the activity	Identify each safety or health hazard	1, 2, or 3	Identify engineering and administrative controls and any specific PPE that is required	1 required
STEP 1 –				
STEP 2 –				
STEP 3 –				
STEP 4 –				
STEP 5 –				
STEP 6 –				



Health, Safety and Environment
JOB SAFETY ANALYSIS

SMS 086NA
Supplemental Information E
Issue Date: August 2010

SPECIAL REQUIREMENTS

Step #	Equipment to be Used	Inspection requirements	Training Requirements
	List equipment to be used in work activity	List inspection/permit requirements for work activity	List training requirements including hazard communication
1			
2			
3			
4			
5			
6			

TEAM MEMBER SIGNATURES

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____



Health, Safety and Environment
JOB SAFETY ANALYSIS

SMS 086NA
Supplemental Information E
Issue Date: August 2010

INSTRUCTIONS AND RISK ASSESSMENT MATRIX

Hazard Evaluation – Identify principle steps of the task. Identify potential safety/health hazards for each step and determine initial Risk Assessment Code (RAC) using the matrix provided below. Identify control measures including PPE for each hazard. Re-evaluate hazard potential and assign a final RAC. If the final RAC is a 2 or 3 (medium/high risk), additional hazard controls shall be identified and applied until the final RAC is reduced to 1 (low risk). Add additional rows as required to cover all major steps/aspects of the activity.

Special Requirements – Identify equipment to be used including specific PPE required. Identify inspection requirements such as competent person, permit issue, documented task hazard analysis, etc. Identify training requirements such as hazard communication, scaffold user, fall protection, etc.

		High ←————→ Low				
		Hazard Severity				
Hazard Likelihood		Catastrophic - May result in multiple fatalities, equipment or property destroyed.	Hazardous - May result in multiple serious injuries/illnesses, limited fatalities. Operations unable to perform or complete activities/missions. Serious impact to the community or customer.	Major - May result in serious occupational injury/illness. Reduction in ability to deal with adverse operating conditions. Impact to community or customer.	Marginal – May result in a minor injury/illness to be treated with first aid. Nuisance to operations. Use of emergency procedures. Minor incidents.	Negligible – Minimal threat to health, safety, security or the environment.
High ↑ ↓ Low	Frequent Likely to immediately occur, highly probable during task/activity	3	3	3	2	2
	Probable Quite likely to occur, may occur during task/activity	3	3	2	2	1
	Occasional May occur in time or during the task/activity	3	2	2	1	1
	Remote Seldom occurs, unlikely to occur during task/activity	2	2	1	1	1
	Improbable Highly unlikely to occur, but possible during task/ activity	2	1	1	1	1
RAC 3 (red) are high risk , RAC 2 (yellow) are medium risk, and RAC 1 (green) are low risk						

Risk Assessment Code Matrix



Task Safety Analysis

INSTRUCTIONS: Complete and attach Task Safety Analysis to each job order. Company personnel performing the work should participate in the task hazard analysis and completion of this form.

Reference Number: _____

Task (Identify specific work requirements)

Hazards (Describe potential hazards associated with the work activity)

Specialized Operations (require additional hazard assessments, specialized training, permits, etc)

- Asbestos/Lead Confined Space Entry Crane Rigging Digging or Trenching
- Energized Electrical Fall Arrest/Restraint Flight/Flightline Ops Hazardous Waste
- Lockout/Tagout Scaffolding Welding (Hot Work) Other _____

Personnel Involved (list personnel assigned to task and designate one person in-charge)

Person In-Charge: _____

Workers: _____

Special Items of Concern (address under additional protective measures/work practices below)

- Animal/Insect/Reptile Hazardous Material Material Handling/Lifting Multi-Employer Site
- Remote Operations Temperature Extremes Site Control/Access Traffic Hazards
- Others _____

Personal Protective Equipment Requirements (check all that apply and list type and rating in space provided)

- Body: _____ Eye: _____
- Face: _____ Foot: _____
- Hand: _____ Head: _____
- Hearing: _____ Respiratory: _____
- Other: _____

Additional Protective Measures/Work Practices Required

Equipment/Tools Required

Person Completing Task Safety Analysis

Name: _____ Title: _____ Date: _____



Health, Safety and Environment
Daily Tailgate Meeting Form #1

SMS 086 NA
Supplemental Information H
Issue Date: January 2011
Revision 1: March 2012

Job Location:		Date:	
URS Site Supervisor:		Person conducting Tailgate Meeting:	

List activities to be performed today:		
Permitted Activities (specific permit to be competed):	<input type="checkbox"/> Not Applicable <input type="checkbox"/> Confined Space Entry (SMS 010) <input type="checkbox"/> Work on Live Electrical Systems (SMS 012) <input type="checkbox"/> Hot Work (SMS 020)	<input type="checkbox"/> Excavation/Trenching (SMS 013) <input type="checkbox"/> Hoisting/Rigging (SMS 038) <input type="checkbox"/> Lockout/Tagout (SMS 023) <input type="checkbox"/> Radiation Work (SMS 052) <input type="checkbox"/> Borehole Entry (SMS 077)

Muster Point:		Spill Kit Location:	
First Aid Kit Location:		Fire Extinguisher Location:	

Has the Site Manager / Owner been notified of our activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Was the Site Manager / Owner present during pre-work site walk?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Have all personnel reviewed and understand the site-specific safety plan?	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Are current JSAs in place for each of the tasks to be performed today and understood by all site staff?	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Does each subcontractor have JSAs for their activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A
Has a site walk been performed to identify additional hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Have any newly identified hazards been documented on the JSA?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A
Have all members of the work team confirmed understanding of the work, hazards, and controls/mitigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Have work areas been properly cordoned-off to protect workers, site staff, and the public?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A
Have equipment checks been completed, documented, and reviewed?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A
Do all site workers understand injury/ intervention reporting requirements including immediately notifying the URS Site Supervisor of any injury near miss, unsafe condition or hazard observation?	<input type="checkbox"/> Yes <input type="checkbox"/> No*
Personnel are wearing hardhat, high visibility vest, safety glasses, and safety shoes" for all work outside of vehicles and field offices?	<input type="checkbox"/> Yes <input type="checkbox"/> No*

** if No, then work cannot be performed until corrective action is completed and documented.*

Topics covered in today's tailgate meeting including specific JSAs:	
---	--

Other Items Discussed Today:	Stop Work Authority & Obligation
	<p>* All employees will stop the job any time anyone is concerned or uncertain about safety.</p> <p>* All employees will stop the job if anyone identifies a hazard or additional mitigation not recorded on the JSA.</p> <p>* All employees will be alerted to any changes in personnel or conditions at the worksite.</p> <p>* All employees will stop the job and reassess a task, hazards, and mitigations, and then amend the JSA as needed.</p>



Health, Safety and Environment
Daily Tailgate Meeting Form #1

SMS 086 NA
Supplemental Information H

Issue Date: January 2011
Revision 1: March 2012

SITE WORKERS (including URS Contractors and Subcontractors): By signing here, you are stating the following:

- * You have been involved in reviewing the JSAs and understand the hazards and control measures associated with each task you are about to perform.
- * You understand the permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
- * You are aware that no tasks or work (that is not risk-assessed) is to be performed.
- * You are aware of your authority and obligation to 'Stop Work'.

I arrived and departed fit for duty:

- * You are physically and mentally fit for duty.
- * You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
- * You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or fatigue issue you may have to the URS Site Supervisor.
- * You signed-out uninjured unless you have otherwise informed the URS Site Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed)

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

To be completed once field activities for the day have been concluded:

Were there any Incidents, Near Misses, Potential Incidents, or Positive Interventions today?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, details:
Were there any 'Stop Work' interventions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, details:
Were there any areas for improvement noted?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, details:
Has the Site Manager/Owner conducted a post-work site walk and/or are they happy with the way you left the site (including the location of waste drums or equipment)?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, details:
At the conclusion of the day, the job site is being left in a safe condition and there were no reports of injury or first aid.	<input type="checkbox"/> Yes <input type="checkbox"/> No	URS Site Supervisor Signature:



Health, Safety and Environment
Daily Tailgate Meeting Form #2

SMS 086 NA
Supplemental Information I
Issue Date: January 2011

Date:	Time:	Job number:
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Client:

Site location:

Task:

SAFETY TOPICS PRESENTED

Safety observations / lessons learned from previous day:

Physical hazards and controls:

Chemical hazards and controls:

Biological hazards and controls:

Job safety analysis review:

Other topics:

Emergency procedures review:

Remember that all employees have the responsibility to stop work if safety risks are identified.
Report all safety observations and near miss events.
Practice 4sight (What am I about to do; What can go wrong; What can be done to make is safer; and What have I done to communicate the hazard(s) to others?).

ATTENDEES

Printed Name	Signature	Company/Office

Meeting Conducted By:

Signature: