

NORTHWEST CORNER LANDFILL COVER

MATERIALS HANDLING PLAN

**DENVER FEDERAL CENTER
LAKEWOOD, COLORADO**

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PREPARED FOR

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TABLE OF CONTENTS

1.0	INTRODUCTION	1-1
1.1	Purpose and Objectives.....	1-1
1.2	Site Description and History.....	1-2
2.0	SURFACE WATER CONTROL	2-1
3.0	EXCAVATION BENEATH EXISTING COVERS	3-1
3.1	Development of a Waste Profile.....	3-1
3.2	Inspection and Characterization of Excavated Soil and Waste	3-2
3.3	Interim Closure of Work Areas	3-3
3.4	Fugitive Dust for Non-Asbestos Activities.....	3-3
4.0	SPECIAL WASTE HANDLING.....	4-1
4.1	Petroleum Contaminated Soil	4-1
4.1.1	Definition	4-1
4.1.2	Waste Occurrence	4-1
4.2	Hazardous Waste	4-1
4.2.1	Definition	4-1
4.2.2	Waste Occurrence	4-2
4.2.3	Regulatory Requirements	4-2
4.3	Polychlorinated Biphenyl Waste	4-3
4.3.1	Definitions	4-3
4.3.2	Waste Occurrence	4-3
4.3.3	Regulatory Requirements	4-3
4.4	Excavated Drums	4-4
4.4.1	Definition	4-4
4.4.2	Waste Occurrence	4-4
4.4.3	Regulatory Requirements	4-4
5.0	SOIL CHARACTERIZATION AND MANAGEMENT PLAN	5-1
5.1	Property Location	5-1
5.2	General Site Description.....	5-1
5.3	Proposed Soil Sampling or Soil Characterization.....	5-1
5.4	Training Requirements	5-2
5.5	Planned Soil-Disturbing Activities	5-2
5.6	Excavations in Support of Site Development	5-3
5.6.1	ACM Inspections	5-3
5.6.2	Wetting.....	5-3

5.7	Waste Segregation	5-4
5.8	Waste Disposal	5-4
5.8.1	Soil Piles	5-4
5.8.2	Open Excavations	5-4
5.8.3	Remaining RACS	5-5
5.8.4	Asbestos Contaminated Waste and Regulated Asbestos Contaminated Soil	5-5
5.9	Proposed Exposure Mitigation and Asbestos Fiber Control Measures	5-6
5.9.1	Site Access Restrictions	5-6
5.9.2	Air Monitoring Plan.....	5-6
5.9.3	Emissions Control Plan.....	5-8
5.9.4	Decontamination Procedures	5-9
5.10	Notification and Documentation.....	5-10
6.0	OPERATIONS PLAN	6-1
6.1	Waste Excavation	6-1
6.1.1	Solid Waste.....	6-1
6.1.2	Waste Tires	6-1
6.1.3	Nuisance Controls.....	6-1
6.1.4	Odor	6-1
6.1.5	Vector(s)	6-2
6.1.6	Dust Control during Non-ACM/RACS Activities.....	6-2
6.1.7	Blowing Debris	6-2
6.1.8	Lights and Illegal Dumping	6-2
6.2	Record Keeping	6-2
7.0	REFERENCES.....	7-1

ACRONYMS

ACM	asbestos containing material
AMS	air monitoring specialist
BMP	Best Management Practices
CCR	Code of Colorado Regulations
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CM	Corrective Measures
CMWP	Corrective Measures Work Plan
DFC	Denver Federal Center
DOT	U.S. Department of Transportation
ECC	Environmental Chemical Corporation
EPA	U.S. Environmental Protection Agency
GPS	global positioning system
GSA	General Services Administration
HASP	Health and Safety Plan
HMWMD	Hazardous Materials and Waste Management Division
IA	investigation area
LCA	Landfill Cover Area
MELCA	Maintain Existing Land Cover Area
mg/kg	milligrams per kilogram
mph	miles per hour
NIOSH	National Institute for Occupational Safety and Health
NPDES	National Pollutant Discharge Elimination System
PCBs	polychlorinated biphenyls
PCM	Phase Contrast Microscopy
PCS	petroleum-contaminated soil
Plan	Materials Management Plan
PPE	personal protective equipment
RACS	Regulated Asbestos Contaminated Soil
RCRA	Resource Conservation and Recovery Act
RTD	Regional Transportation District
SCMP	Soil Characterization and Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
TEM	Transmission electron microscopy
TSCA	Toxic Substances Control Act

1.0 INTRODUCTION

This report presents the Materials Handling Plan (Plan) for any activity that results in the disturbance or excavation of soil and/or waste in the Northwest (NW) Corner Landfill Cover area of the Denver Federal Center (DFC) in Lakewood, Colorado (the site) (See Figure 1). This Plan has been prepared as an attachment to the Notice of Environmental Use Restriction that has been recorded to the deed for the site property. This plan will also be included as an attachment to the Corrective Action Plan application to be submitted to the Colorado Department of Public Health and Environment (CDPHE) by any future prospective purchaser of the site property.

The Plan provides handling procedures for all waste and potentially contaminated soil in the Northwest Corner Landfill Cover area. The Northwest Corner Landfill Cover area has been broken into two (2) areas known as the Landfill Cover Area (LCA) and the Maintain Existing Land Cover Area (MELCA), both of which have restrictions on soil handling as described by this Plan. The difference between LCA and MELCA is the LCA has landfill cap consisting of a geo-textile overlain by 12 inches of clean fill while the MELCA does not have an engineered cap. The contaminated soil and waste in the MELCA are covered by existing concrete sidewalks, road base topped with asphalt, or vegetation. Waste and subsurface soils in the LCA and MELCA will be handled per requirements of this Plan. Surface soils of the MELCA have been cleared of surface contamination (chemical and asbestos), but soils at depth may be contaminated.

The Plan covers future soil disturbing activities. In the event that the Plan needs to be modified to fit new conditions, all modification shall be submitted to CDPHE for review and approval prior to any on site soil disturbing activities.

1.1 Purpose and Objectives

The purpose of this Plan is to provide comprehensive, but flexible, procedures for managing the removal, relocation, and/or disposal of materials that could reasonably be expected to be encountered during future remediation and/or development of the site. If the goal is to remediate the site, or portions of the site, to completely remove all waste from the site, or a portion of the site, with the intent of receiving a residential/unrestricted use/no-further-action determination, then a separate plan for that activity must be submitted to CDPHE for review and approval prior to implementation. Please note that chemical and asbestos confirmation sampling will required.

This Plan was designed to provide procedures for the following activities:

- Surface water management
- Soil excavation
- Waste management
- Special waste handling

1.2 Site Description and History

The DFC is located approximately seven miles west of downtown Denver and the city of Lakewood, a Denver suburb, surrounded the property. The DFC is bounded by Kipling Street on the east, Sixth Avenue on the north, private property along South Union Boulevard on the west, and West Alameda Avenue on the south. The DFC land area is approximately 690 acres, or slightly more than one square mile. The property began as a ranch, which was acquired by the Federal Government in 1941. The Denver Ordnance Plant was constructed on the site. Under contract with the Federal Government, Remington Arms operated the DOP as a small-arms ammunition plant from 1941 through 1945. After the end of World War II, the DOP was converted to the DFC, a federal government facility, currently operated by the General Services Administration (GSA) and used by multiple federal agencies for a variety of uses, including laboratories, materials testing and storage, maintenance facilities, and offices.

The NW Corner Landfill Cover area is located near the southeastern corner of 6th Avenue and Union Boulevard (Figure 1). Based on landmarks present at the time this Plan was prepared, the site is bounded to the east and west by the Regional Transport District (RTD) Light Rail and to the north by 6th Avenue. To the south, the boundary is created by the south rim of the concrete storm water channel adjacent to Fourth Avenue. The natural topography of the area slopes primarily from northwest to southeast.

2.0 SURFACE WATER CONTROL

A permit for storm water discharges shall be obtained prior to initiating any future soil disturbing activities in the NW Corner Landfill Cover area whenever an acre or more is disturbed (including haul roads, laydown yards, and construction boundaries). The storm water discharge permit will be obtained from the U.S. Environmental Protection Agency (EPA) while the property is owned by the federal government and from CDPHE after the property is transferred from the federal government inventory. A Storm Water Pollution Prevention Plan (SWPPP) shall be developed in accordance with 33 USC 1342, National Pollution Discharge Elimination System (NPDES). The SWPPP shall be based on the use of Best Management Practices (BMPs) which may include as appropriate:

- Silt fences around the horizontal extent of excavations
- Earth berms to redirect storm water flow away from excavated areas
- Soil stabilization: surface roughening, temporary seeding, mulching
- Erosion control blankets on slopes during improvements to the banks drainage areas
- Detention basin in northeast portion of site (permanent, to remain after work is complete)
- Rock construction exit (layer of aggregate to reduce sediment attached to tires)
- Wash basin for trucks, with wash effluent stored in a lined detention pond

Storm water or leachate controls during waste removal shall be sized based on construction duration and the potential damage from exceeding certain storm events. Excavation perimeter control structures are meant to control storm water run-on into excavation areas during waste excavation operations. Storm water run-on from upstream sub-basins includes both sheet flow and channel flow. Sheet flow shall be directed to the northeast, in accordance with the SWPPP. To minimize the impact of run-on to excavation areas, diversion structures (berms and/or channels) may be used to route storm water away from the excavation areas.

Temporary sediment control structures may be built to control sediment during excavation activities. The structures shall be designed and constructed to maintain water quality without allowing surface water to pond on-site. Details pertaining to the construction of the temporary structures are to be included in the SWPPP.

Within the excavation, berms or other means shall be employed to reduce the amount of precipitation that could contact the waste or run-off from the waste faces to areas previously excavated. Run-off/run-on control features shall be constructed to limit storm water contact with exposed waste or excavation areas.

3.0 EXCAVATION BENEATH EXISTING COVERS

This section describes the general activities that must be conducted whenever the soil and/or waste beneath the existing cover of the LCA or MELCA is disturbed or excavated.

All of the soil and waste within the LCA and the MELCA is considered to be solid waste at a minimum. As a result, it is critical that any soil excavated from the LCA and/or MELCA be properly managed in accordance with this plan. CDPHE has determined that excavated soil and waste from within the footprint of the NW Corner Landfill Cover area may be reused on-site within the existing footprint of the NW Corner Landfill Cover as long as the reuse activity does not adversely affect human health or groundwater and it is properly covered after relocation. See Section 5.3 of the Northwest Corner Landfill Cover Operations and Maintenance Plan for requirements for replacement covers. If the excavated soil and/or waste cannot, or will not, be reused within the footprint of the NW Corner Landfill Cover, then it must be properly disposed off-site.

3.1 Development of a Waste Profile

All excavated soil and waste that is not reused on-site must be sent off-site to a disposal facility licensed to accept the waste. Based on previously collected data it is unlikely that any of the soil and waste within the LCA or MELCA will be classified as hazardous waste. However, proper characterization of the soil and waste, via collection and analysis of samples for the toxicity characteristic leaching procedure (TCLP), will be required before the receiving disposal facility will accept the waste.

Based on documented evidence, it is possible that the soil and waste within the LCA and MELCA will contain Regulated Asbestos Contaminated Soil (RACS), as defined in the Regulations Pertaining to Solid Waste Sites and Facilities, 6 CCR 1007-2, Part 1, Section 1.2. Therefore, all sampling of the soil and waste in the LCA and MELCA must be conducted by a Colorado Certified Asbestos Building Inspector (CABI) trained in accordance with, 6 CCR 1007-2, Part 1, Section 5.5.3(D).

Waste characterization sampling should occur prior to the start of excavation activities in order to get the data needed to develop a general waste profile that will likely apply to a majority of the soil encountered. Pre-development and approval of a solid waste profile will allow for the direct loading of most of the excavated material directly into the truck that will transport the material to the disposal facility, thus reducing the need for double handling of material.

The specific number of waste characterization samples and the specific list of analytes required will vary depending upon the needs of the selected disposal facility. However, one TCLP sample for the full suite of toxicity characteristic constituents per 400 cubic yards is generally acceptable.

3.2 Inspection and Characterization of Excavated Soil and Waste

All material excavated from within the LCA and the MELCA shall be visually inspected during excavation to determine whether it fits the general waste profile for the project. Due to the potential to encounter RACS in all of the soil within the limits of the LCA and MELCA, the visual inspection must be conducted by a Colorado CABI that meets the requirements prescribed in 6 CCR 1007-2, Part 1, Section 5.5.3(D).

The CABI will be specifically looking for the presence of stained soil, non-soil industrial, or residential waste and suspect RACS. The CABI shall designate excavated soil into one of three main categories. These are: 1) non-RACS and other solid waste that meets the general waste profile, 2) solid waste containing suspect, assumed, or confirmed RACS that otherwise meets the general solid waste profile, and 3) material that contains stains or stained soil, drums or containers, or industrial waste that will require additional characterization to determine proper disposal.

Solid waste that does not contain RACS and meets the general waste profile may be loaded directly into trucks for transport to the disposal facility as long as the waste is not rendered RACS when managed and loaded. If the CABI sees suspect asbestos-containing material (ACM) at any time during soil disturbing activities, all soil disturbances in the area will immediately stop until a sample can be collected and analyzed to determine if the material actually contains asbestos. If the suspect material is not ACM, then work may continue. If the material is confirmed to contain asbestos and the CABI, through a RACS Determination, designates the material RACS then all further excavation must be conducted in accordance with Section 5.0 of this MHP.

RACS Determinations are conducted in the field by a CABI, of the friability of ACM and the probability of non-friable ACM to release fibers based on the condition of the material and the forces expected to act on it during disturbance. The ACM shall be determined RACS if the planned disturbance includes augers, rotary style trenchers or drills, vehicle or equipment driving or tracking over the ACM, or any other mechanical disturbance that significantly damages the ACM.

The following grid locations have documented evidence that confirm the presence of non-visible asbestos fibers in soil generally beneath a layer of vegetative fill and geofabric. These areas must be managed as RACS, in accordance with Section 5.0 of this MHP, until sampling confirms adequate remediation through removal. Figure 2 depicts asbestos inspection results.

105-2 (western portion), 127-5, 128-2, 128-3, 130-3, 130-6, 131-3, 131-6, 131-8, 155-1, 155-2, 155-3, 155-5, 155-7, 172-6, and 222-2 (at 4 – 5 feet below ground surface)

All stained soil, drums/containers or industrial waste will be placed into a lined roll-off dumpster or within a bermed, plastic-lined pad on the ground surface for further characterization, management and disposal shall be conducted in accordance with Section 4.0 of this plan.

3.3 Interim Closure of Work Areas

In accordance with 6 CCR 1007-2, Part 1, Section 5.5.7(F)(1)(b), in the event that excavation of waste and soil, containing RACS, is suspended for periods of time in excess of 12 hours, inactive work areas may be closed and covered with one or a combination of the following:

- Crusting agents (e.g., mag chloride)
- Anchored and secured Visqueen (polyethylene sheeting)
- Anchored and secured Geomembrane or Geofabric
- A minimum 3-inch loose lift thickness of soil appropriate for unrestricted use

If work is suspended in excess of 12 hours and a crusting agent is used to stabilize RACS, weekly inspection must be conducted and documented, and an inspection must be conducted no later than one calendar day following a storm event. Reapplication of the chemical stabilizer must be done as necessary to maintain its intended function of stabilization. If visqueen, geomembrane or geofabric is used it must be anchored and secured. These stabilizers require a daily inspection that's documented and an inspection no later than twelve hours following a storm event. The sheeting, membrane or fabric must be repaired/replaced/secured as necessary to maintain stabilization.

3.4 Fugitive Dust for Non-Asbestos Activities

In accordance with 5 CCR 1001-1, Air Quality Commission Regulations, the air's opacity shall be monitored to ensure that it does not exceed 20% at the site boundary. See Section 5 for dust control measures applicable during soil disturbing activities in asbestos areas.

Dust control practices that may be used to control air emissions and provide dust suppression at the site include the following:

- Cover inactive exposed faces of material with geomembrane, visqueen, or soil appropriate for unrestricted use
- Seal the exposed waste material by moisture conditioning and compacting
- Minimize the distance waste shall be pushed in connection with excavation and loading
- Minimize drop heights when dumping or transferring materials
- Treat surfaces with water spray, foam spray, hydro-mulch spray, or crusting agents.

A variety of control and monitoring methods are available. Material, equipment, and related items for monitoring and control shall be in place at the site prior to the start of excavation activities.

4.0 SPECIAL WASTE HANDLING

Visual characterization shall be utilized to identify special waste. The following subsections describe the categories of wastes that may be encountered at the site, define terms that are applicable for these waste materials, and summarize the associated regulatory requirements for each waste category. Unless noted, waste-related definitions provided herein are as described in 6 CCR 1007-2.

The following subsections provide definitions, waste occurrence, and regulatory requirements for special waste handling. Waste categories described herein have different requirements for packaging/handling, labeling, transportation, waste profiling, and/or disposal.

4.1 Petroleum Contaminated Soil

Petroleum-contaminated soil (PCS), based on analysis of total petroleum hydrocarbons, gasoline range organics, diesel range organics, and benzene, toluene, ethylbenzene, and total xylenes, were found during the Resource Conservation and Recovery Act (RCRA) Facility Investigation underlying North Avenue, and no petroleum storage tanks are known to have been placed or disposed of on the site. Nonetheless, if significant amounts of visually stained soil are encountered during soil disturbing activities or if potential PCS is encountered, based on visual observation of stained soils and/or olfactory or instrument detection of volatile organics, shall be handled similar to other excavated material.

4.1.1 Definition

Petroleum Contaminated Soil – Earthen material or artificial fill that has human or natural alteration of its physical, chemical, biological, or radiological integrity resulting from the introduction of crude oil, fraction or derivative thereof (such as gasoline, diesel, or motor oil), or an oil-based product (such as oil-based paint; CDPHE, 2003).

4.1.2 Waste Occurrence

PCS-contamination has not been determined to be present at the site.

4.2 Hazardous Waste

If visually encountered during excavation, suspect hazardous waste shall be characterized, a waste determination made, and the material transported off-site and disposed of at a licensed facility approved to accept the waste. At no time shall hazardous waste be reused or left onsite.

4.2.1 Definition

Hazardous Waste – A solid, a liquid, or a contained gaseous material that is no longer used or that no longer serves the purpose for which it was produced, and could pose dangers to human health and the environment after it is discarded.

4.2.2 Waste Occurrence

Although there is no specific evidence that hazardous wastes may have been disposed of at the site, there is a possibility of encountering hazardous waste. Historic data indicates that the facility was primarily used for the disposal of construction debris. The primary limitation with this description is that waste disposal occurred at the site prior to the definition of hazardous waste. As a result, both listed and characteristically hazardous waste may potentially be encountered during the removal of the waste from the site. Definitions of listed and characteristically hazardous waste are included below.

4.2.3 Regulatory Requirements

Solid wastes are considered non-hazardous unless they exhibit a hazardous “characteristic” (toxicity, reactivity, ignitability, or corrosivity), or have been specifically listed as hazardous waste by the EPA (known as a “listed waste”) Listed wastes are specific wastes or are mixtures or wastes derived from those listed wastes. These materials may be from nonspecific sources such as spent solvents or may be wastes from specific sources or wastes from discarded chemical products. It is very unlikely that listed hazardous waste will be encountered at this site.

If hazardous wastes are discovered at the site, these materials shall be packaged, manifested, characterized, transported, and disposed of in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/RCRA, Department of Transportation (DOT), and the Colorado Hazardous Waste Act regulations. Hazardous waste shipped from the site shall be packaged in accordance with DOT regulations 49 Code of Federal Regulations (CFR) Parts 173, 178, and 179, and 6 CCR 1007-3, Sections 262.30 through 262.33. Hazardous waste accumulation containers shall be labeled as “Hazardous Waste.” Regulations concerning hazardous waste containers are provided in 6 CCR 1007-3, Section 265 Subpart I. In accordance with 6 CCR 1007-3, Section 262, hazardous waste manifests shall note the EPA identification number of the generator, transporters of the waste, and the ultimate disposal facility. Regulations require generators to test the waste, or use process knowledge of the waste, to determine if the waste is restricted from land disposal and to certify that the wastes meet the treatment standards described in 6 CCR 1007-3, Section 268, Subpart D. RCRA-permitted hazardous waste disposal facilities located in the region include:

- *Clean Harbors Environmental Services, Inc.* Incinerator in Kimball, Nebraska (308-235-4012): This hazardous waste storage and treatment facility includes a thermal oxidation incinerator and an on-site incinerator ash monofill.
- *Lone Mountain Landfill* in Waynoka, Oklahoma (580-697-3500): This facility handles direct landfill disposal for solids (bulk and containerized) and provides solidification of waste liquid or waste containing free liquids prior to landfill disposal, as well as stabilization of metal constituents to meet applicable federal land disposal restrictions treatment standards.

- *Clean Harbors Deer Trail, LLC*, (aka Highway 36 Landfill), Adams County, Colorado (970-386-2293): This hazardous waste treatment, storage, and disposal facility has container storage, tank storage, a treatment building, and seven double-lined disposal cells.
- *Arlington Hazardous Waste Facility*, 17629 Cedar Springs Lane, Arlington, Oregon 97812.
- *Kettleman Hills Hazardous Waste Facility*, 35251 Old Skyline Road, Kettleman City, California, 93239. Kettleman Hills offers the following hazardous waste disposal services; asbestos, drum management-liquids, drum management-solids, lab pack services, macroencapsulation, microencapsulation, PCB Landfill (TSCA), PCB transformer/electrical services, and stabilization.

If ash is observed during site activities, one representative sample shall be collected for analysis of dioxins/furans and the ash shall be delivered off-site for disposal at a licensed facility. Certain facility acceptance limits may apply. If any building material or construction debris is comingled or associated with the ash a representative sample must be collected by a CABI, in accordance with Appendix 5A of 6 CCR 1007-2, Part 1, Section 5.5, and analyzed by polarized light microscopy at an accredited laboratory. If the ash contains asbestos, manage as RACS in accordance with the following Section 5.0.

4.3 Polychlorinated Biphenyl Waste

If visually encountered, polychlorinated biphenyl (PCB)-containing waste (specifically, non-petroleum oily soils/materials) shall be sampled and delivered off-site for disposal at a licensed facility.

4.3.1 Definitions

Light Ballasts – Small metal box-shaped devices in fluorescent lamps that control the flow of electricity to the light tube. Fluorescent light ballasts manufactured until 1979 contained PCBs.

PCBs – A fire resistant and thermally stable chemical often used as hydraulic and heat transfer fluid, commonly used in hydraulic systems and electrical capacitors (CDPHE, 1996).

4.3.2 Waste Occurrence

Based on the above definition and the age of the wastes disposed at the site, light ballasts encountered shall be assumed to contain PCBs. In addition, liquid PCBs may be present in equipment such as old transformers, voltage regulators, condensers, and circuit breakers that could conceivably have been disposed of as construction/demolition debris.

4.3.3 Regulatory Requirements

PCB-containing wastes are regulated by the EPA under TSCA. Leaking PCB ballasts are considered PCB waste and shall be properly packaged for transportation according to EPA and DOT regulations (CDPHE, 2002d). In accordance with EPA regulations, leaking PCB ballasts and other PCB-containing wastes shall be sent to a TSCA-permitted high temperature incinerator.

The reportable quantity of PCBs under CERCLA is one pound, which has been estimated by EPA to be equivalent to ten light ballasts. Liquids and solids (e.g., soils in contact with the leaking PCBs) containing PCBs greater than 50 parts per million shall be containerized, stored, transported, and disposed of in accordance with TSCA requirements. Permitted PCB disposal facilities in the region include the following:

- *Clean Harbors Environmental Services, Inc.* Incinerator in Kimball, Nebraska (308-235-4012): This hazardous waste storage and treatment facility includes a thermal oxidation incinerator that provides disposal services for PCB wastes, including transformers, capacitors, ballasts, and PCB liquids and solids.
- *Lone Mountain Landfill* in Waynoka, Oklahoma (580-697-3500): This facility handles PCB bulk product waste and PCB-contaminated soil and debris for direct landfill disposal.

4.4 Excavated Drums

If visually encountered during excavation, drums containing material shall be segregated, characterized, profiled, and disposed of off-site at a licensed facility.

4.4.1 Definition

Abandoned Drums and Containers – Abandoned drums include drums or containers located in the landfill area within the scope of the proposed excavations.

4.4.2 Waste Occurrence

Since there are no available records detailing what was disposed of at the site, it shall be assumed that drums and containers may be encountered during excavation of the waste.

4.4.3 Regulatory Requirements

Waste within the drums shall be characterized to determine if the material can be recycled or if the material shall be disposed of as a solid or hazardous waste.

Drummed or containerized material shall be evaluated visually to determine if the contents of the drum can be determined from the drum label. Drums or containers without labels shall be tested to determine if the material within the drum is a characteristically hazardous or listed waste. When possible, the material shall be returned to the manufacturer or recycled.

Intact drums shall be placed in roll-off type containers. Transfer shall be conducted with conventional drum handling equipment. Drums or containers that have a potential to release their contents shall be inspected, documented, numbered, and placed in an overpack at the excavation face prior to transfer to the roll-off.

Material classified as hazardous waste shall be disposed of in accordance with Section 4.3. Soil contaminated by spillage from drums determined to contain hazardous waste, if any, shall be excavated and disposed of off-site. Regulatory-required confirmation samples shall be collected from the base of the excavation area to determine compliance with Cleanup Levels.

5.0 Soil Characterization and Management Plan

This plan presents the asbestos management procedures required by 6 CCR 1007-2 Section 5.5. This Soil Characterization and Management Plan (SCMP), identifies the Standard Operating Procedures (SOP) for initiating work at the site, to document safe work practices during soil disturbing activities, and reduction of the potential for asbestos fiber release from work areas. This Plan is prepared and shall be implemented in accordance with 6 CCR 1007-2, Part 1, Section 5.5.5 and is structured similarly.

5.1 Property Location

The NW Corner Landfill Cover area is located in the northwestern corner of the DFC (Figure 1). South of North Avenue, the south rim of the concrete storm water channel creates the south boundary of the area. The site is bounded to the east and west by the Regional Transport District (RTD) Light Rail and to the north by the DFC property line south of the 6th Avenue. The natural topography of area slopes primarily from northwest to southeast.

5.2 General Site Description

The site is the location of a landfill used intermittently since the 1940's for disposal of miscellaneous debris, and soil from other locations on the DFC. Known and potential materials suspected of containing asbestos include boiler seal rope, asbestos-cement board, roofing materials, floor tile, and other building materials. RACS has been confirmed in surface and subsurface soil. The locations of known and assumed ACM on the ground surface and non-visible asbestos fibers in soil are shown on Figure 2.

As noted in Section 3.2 of this MHP, the following grid locations have documented evidence that confirm the presence of non-visible asbestos fibers in soil generally beneath a layer of vegetative fill and geofabric. The following grid areas must be managed as RACS until sampling confirms adequate remediation through removal.

105-2 (western portion), 127-5, 128-2, 128-3, 130-3, 130-6, 131-3, 131-6, 131-8, 155-1, 155-2, 155-3, 155-5, 155-7, 172-6, and 222-2 (at 4 – 5 feet below ground surface)

All other requirements for proper management of RACS and wastes will be triggered on a visual basis. If additional soil samples confirm non-visible asbestos fibers in soil, the area(s) in which the sample represents, contains documented evidence of RACS and that area must be managed as RACS until adequate removal occurs and soil sample(s) confirm the area free of asbestos contamination.

5.3 Proposed Soil Sampling or Soil Characterization

Surface and subsurface sampling for waste characterization purposes shall begin with identification of general health and safety hazards. Surface and subsurface asbestos sampling shall be conducted by a CABI, in accordance with Appendix 5A of 6 CCR 1007-2, Part 1, Section 5.5.

A copy of this MHP and Section 5.5 of 6 CCR 1007-2, Part 1 shall be available on site while soil is being disturbed.

Characterization includes continuous visual inspection to identify depth and extent of waste, debris, suspect ACM and fill during soil disturbing activities, and the collection of suspect ACM samples and soil samples for the purposes of determining asbestos content.

5.4 Training Requirements

Soil disturbing activities shall be conducted in the presence of a CABI. This CABI, as previously indicated, shall meet the requirements prescribed in Section 5.5.3(D) of the Solid Waste Regulations. All personnel within the established Regulated Work Area (RWA) must be trained in accordance with Section 5.5.3(A), 5.5.3(B), and 5.5.3(F) of the Solid Waste Regulations. A CABI shall be present at every ongoing soils disturbing work activity and shall be responsible for determining the waste types, engineering controls, and appropriate number of truck liners required for offsite transport of excavated materials. A site-specific health and safety plan shall be followed during this activity and shall include asbestos awareness training for onsite personnel, and other health and safety aspects. A copy of the health and safety plan shall be available on site.

5.5 Planned Soil-Disturbing Activities

Soil disturbing activities are digging, excavating, staging, loading, stockpiling, backfilling, compacting, grading, tilling, drilling, intrusive sampling and equipment or vehicle movement or any other mechanical activity, that when used, disturbs the surface and/or subsurface soil. Any disturbance or removal of debris and/or RACS is considered a soil disturbing activity. Therefore, hand removal of RACS (the non-visible asbestos fibers in soil, ash or debris, or the ACM plus twelve (12) inches of surrounding soil or material) is also considered a soil disturbing activity. Walking on or moving non-mechanized equipment (e.g., wheelbarrow, cart, etc.) across the surface does not constitute planned soil-disturbing activities; however, a CABI shall escort or conduct these activities to confirm that the proposed path is clear of visual ACM, in accordance with Section 5.9.3.2 below. Any equipment component(s), work attire or PPE that contact RACS shall be decontaminated before exiting the work area as described in Sections 5.9.4 and 5.9.4.2.

Prior to any soil disturbing activity involving RACS, a Regulated Work Area (RWA) shall be established. The RWA will be visually identifiable to all persons and will establish and fully define the extent of the work area(s) involving RACS disturbance. This boundary shall be demarcated with asbestos signage and controlled while soil disturbing activities involving RACS occur. All soil disturbing activities will cease if any person enters the work area and that does not meet the requirements in Section 5.5.3 of 6 CCR 1007-2, Part 1.

Any disturbance of RACS from the grid locations listed in Sections 3.2 and 5.2 of this MHP, and depicted in Figure 2, must adhere to the requirements in this SCMP. Since ACM may not be observed in those locations providing a visual trigger of contamination, protective and precautionary measures must be implemented to prevent the release or cross-contamination of the confirmed non-visible asbestos fibers in soil.

5.6 Excavations in Support of Site Development

Trucks and equipment shall be kept, to the extent feasible, off contaminated areas. Equipment and trucks leaving contaminated areas, and that contacted RACS, shall be decontaminated, as described in Section 5.9.4. Work shall be conducted in accordance with the following protocol.

5.6.1 ACM Inspections

Work areas shall be pre-inspected by the CABI prior to commencement of soil disturbing activities. During excavation, the CABI shall continuously conduct a visual inspection for asbestos material as soil disturbing activities occur. The CABI shall provide guidance to the personnel performing the excavations with regards to the level of emissions control (such as wetting) and waste management. CABI visual inspections for the purposes of clearance shall adhere to the requirements in Appendix 5A, Section 2.2(B)2) of the Solid Waste Regulations.

5.6.2 Wetting

Given the large areal extents of excavation likely associated with development of the site, pre-wetting is strongly recommended in the areas scheduled for excavation, for roughly 2-hours preceding excavation activities. Pre-wetting techniques could include three to four irrigation sprayers, root soakers, water hose operators, water trucks, etc. As the excavation progresses, pre-wetting techniques should be advanced to anticipated excavation areas. Pre-wetting is not necessary if soils are adequately wet. Application rate shall be monitored to prevent the potential of sheet wash occurring outside of the LCA and/or MECLA.

RACS and all materials containing RACS shall be adequately wet while being disturbed. Water shall be applied at low pressures in order to minimize dust and prevent visible emissions from leaving the work area boundary.

During excavation activities, hand-held and/or equipment-mounted water sprayers shall be used to suppress dust generation. Amending solution such as APSA 80 may be used to help with dust suppression. An amending solution, such as 50:50 mixture of polyoxyethylene ester or ether, or equivalent, must be used when friable ACM is being disturbed.

Water shall be applied to control dust without creating additional site hazards, such as run-off to surface water. Water mist shall be applied via hand-held or equipment-mounted sprayers or misters to prevent visible emissions during loading of waste for off-site disposal. Water shall be applied in quantities and at a pressure that does not cause splattering. Run-off water shall be constrained to the excavation areas. At no time shall inadequately wetted soil or waste be removed from the ground; the CABI shall notify the excavation personnel if soil or waste is inadequately wet, and the excavation personnel shall be responsible for applying additional water or amended water until the soil or waste is determined by the CABI to be adequately wet.

If inadequate wetting techniques occur and air monitoring results, see following Section 5.9.2, indicate the generation of airborne asbestos fibers, the wetting practices and other engineering controls and work practices shall be reviewed by the AMS, and with consultation from CDPHE, shall determine the changes to be made to provide protection of workers and possible off site

receptors. If air monitoring detects airborne asbestos fibers then Sections 5.5.7(E)(2)(f) and (g) of 6 CCR 1007-2, Part 1 shall be implemented.

5.7 Waste Segregation

Disposal of RACS shall be conducted in accordance with the requirements included in Section 5.5.8 of the Solid Waste Regulations (6 CCR 1007-2, Part 1). Waste disposal categorization does not diminish inspection requirements or exposure mitigation protocol.

- a) RACS containing visible friable asbestos, or material contaminated by friable ACM, or non-friable ACM rendered friable by mechanical destruction or by weathering, shall be disposed in a leak tight container and as friable asbestos waste in accordance with the requirements of Section 5.5.8(A)(1) of the Solid Waste Regulations. RACS containing visible nonfriable ACM that has not been rendered friable, as well as soil or ash containing non-visible asbestos, shall be disposed of in a leak tight container and as nonfriable asbestos waste in accordance with Section 5.5.8(A)(2) of the Solid Waste Regulations. Non-asbestos and non-RACS (that is not rendered RACS through mechanical disturbances) solid waste may be disposed of off-site at a permitted subtitle D disposal facility. Solid waste excavation shall be conducted utilizing the engineering controls included below; however, truck lining and disposal as RACS is not necessary.

5.8 Waste Disposal

The following protocol shall be utilized to manage RACS, non-RACS and non-asbestos solid waste disposal.

5.8.1 Soil Piles

Excavated materials not directly loaded into haul trucks shall be placed onto plastic sheeting or onto areas of known contamination. The piles shall be covered with plastic sheeting to prevent fugitive dust or shall be kept adequately wet. If plastic sheeting is used, it shall be secured and weighted down or anchored on the edges. When the excavation has been backfilled with clean fill material or the excavated materials otherwise properly disposed, the used plastic shall be bagged and/or packaged for disposal as asbestos contaminated waste.

The requirements in Section 5.5.7(H) of the Solid Waste Regulations must be met to temporarily stage, stockpile, and store RACS onsite.

5.8.2 Open Excavations

Exposed and active excavation faces with identified RACS may remain open overnight but shall be covered by anchored and secured plastic sheeting, geofabric membrane or covered with clean soils, or encapsulant, to prevent wind-blown asbestos fibers from emanating from the excavation area. Excavation faces shall be inspected daily and after high wind events (gusts greater than 20 mph or sustained winds of 12 mph or greater) to evaluate whether the coverings are securely in place; the coverings/stabilization methods shall be immediately reapplied, replaced, or reconstructed, if necessary.

5.8.3 Remaining RACS

Where friable and non-friable asbestos is visible in the sidewall, or the base of an excavation and the vertical and/or horizontal extent of the excavation is complete, the asbestos shall be covered with geotextile or visqueen and backfilled with soil or fill suitable for unrestricted use. The amount of soil or fill to be backfilled on a horizontal surface is 18 inches and then that surface shall be vegetated; or 6 inches of soil or fill may be backfilled atop the geofabric and then concrete or asphalt is to be established. For vertical faces, the RACS shall be covered with geofabric and then soil or fill suitable for unrestricted use to grade or 6 inches, whichever is greater. Caution shall be exerted during backfilling to minimize the potential for causing asbestos fibers to become airborne. Where ACM is identified in the bottom of the excavation or sidewall, the material does not require to be “chased.” However, as noted in Section 1.1 above, if the goal is to remediate the site, or portions of the site, with the intent of receiving a residential/unrestricted use/no-further-action determination, then a separate plan for that activity must be submitted to CDPHE for review and approval prior to implementation. In this scenario, chasing the contamination, removing it all followed by chemical and asbestos confirmation sampling will most likely be required.

5.8.4 Asbestos Contaminated Waste and Regulated Asbestos Contaminated Soil

Removed RACS and disposable Personal Protective Equipment (PPE) and materials (booties, protective coveralls, plastic sheeting, latex gloves, etc.) shall be disposed of as asbestos contaminated waste at a licensed landfill. RACS shall be disposed of in accordance with 6 CCR 1007-2, Section 5.5.8 of the Solid Waste Regulations.

Friable asbestos waste (friable ACM greater than 1% per load or greater than 1 pound per load) shall be properly packaged before being sent off-site for disposal. It shall be tightly sealed in two 6-mil, leak-tight polyethylene bags or in a wrapping or other container deemed equivalent by CDPHE, Hazardous Materials Waste Management Division (HMWMD), in accordance with Section 5.5.8 of the Solid Waste Regulations. Typical wrappings include two layers of 6-mil plastic sheeting “burrito wrapping” the friable waste in a haul truck, sealed with spray adhesive and then tape, and lastly secured by mechanical means (e.g., zip-ties). The outermost layer of the packaging shall be labeled with a waste shipment manifest label that gives the name and address of the generator of the waste and either of the following statements in letters at least 0.5 inches tall:

CAUTION
Contains Asbestos
Avoid Opening or Breaking Container
Breathing Asbestos is Hazardous to Your Health

DANGER
Contains Asbestos Fibers
Avoid Creating Dust
Cancer and Lung Disease Hazard

RACS containing non-friable ACM and/or soil or ash containing non-visible asbestos shall be properly packaged before being sent off-site for disposal. It shall be tightly sealed in one 6-mil, leak-tight polyethylene bag or in a wrapping or other container deemed equivalent by the

HMWMD. Typical wrappings include one layer of 6-mil plastic sheeting “burrito wrapping” the non-friable waste in a haul truck, sealed with spray adhesive and then tape, and lastly secured by mechanical means (e.g., zip-ties). It shall be labeled with a waste shipment manifest label that gives the name and address of the generator of the waste and either of the statements used for friable asbestos waste above.

While the U.S. Department of Transportation (DOT) does not regulate transportation of non-friable asbestos waste, DOT does regulate friable asbestos waste that meets or exceeds the reportable quantity of one pound in a package. The proper shipping description for friable asbestos is: RQ Asbestos, 9, NA 2212, PG 1H. Non-bulk friable asbestos packages (e.g., bags, barrels, and boxes) shall be labeled with this description, while vehicles carrying non-bulk packages of friable or non-friable asbestos are not required to be marked. Bulk packages of friable asbestos shall be marked on two sides with the NA 2212 identification number. Vehicles carrying bulk packages of friable asbestos inside a lined roll-off box shall be marked on four sides of the roll-off box.

RACS shall be transported and disposed in a leak tight container in accordance with the requirements of Section 5.5.8 of the Solid Waste Regulations. Documentation stating that the soil originating from the site shall not be used as a daily cover or sold as clean fill shall accompany each load of RACS removed from the site. Typically, the two disposal sites commonly used for RACS are Republic Services Foothills Landfill and the Denver Arapahoe Disposal Site.

5.9 Proposed Exposure Mitigation and Asbestos Fiber Control Measures

Air monitoring shall be conducted during mechanical soil disturbing activities that involve RACS. The air monitoring is described below.

5.9.1 Site Access Restrictions

In general, while material is disturbed beneath the LCA or MECLA clean fill, work or access onto the NW Corner Landfill Cover area should be avoided on windy days (sustained winds over 12 mph or gusts in excess of 20 mph). However, soil disturbing activities involving RACS must stop or not occur when wind gusts exceed 20 mph, winds are sustained over 12 mph (averaged over 10 minutes), winds interfere with ability of engineering controls to perform intended functions, or winds are creating visible emissions that leave the demarcated work boundary.

- “No Trespassing” signs shall be posted and “Do Not Enter” signs at approximately 150-foot intervals on the DFC side of the area.
- Each area that RACS disturbance is occurring shall be demarcated and identifiable to all persons. Smaller work areas may be grouped together to create one large work area.
- Labeling and asbestos warning signage shall be used along with authorized personnel only postings.
- Work areas that contain friable ACM shall be secured (fencing with locks/chains/etc.) and access regulated and controlled.

5.9.2 Air Monitoring Plan

Air monitoring shall consist of Equivalent Air Monitoring Collected on Personnel and Regulated Work Area (RWA) monitoring. The purpose of the RWA monitoring is to evaluate the

effectiveness of the engineering controls. During RACS disturbance a minimum of four samples shall be collected per day and analyzed in accordance with the protocol identified below. These four samples shall be positioned on the perimeter of the RWA in the four cardinal directions. Additional samples shall be collected for large perimeter RWAs (greater than 1 acre). RWAs greater than 1 acre shall require additional perimeter monitoring points be added at a rate of 1 additional sample every 200 linear feet or roughly ¼ acre.

5.9.2.1 Sampling Media

Air samples shall be collected by drawing air through a 25-millimeter mixed cellulose ester filter, 0.8 micron pore size, with an open-faced, long cowl using low-flow personal sampling pumps at approximately 2 liters per minute. The flow rate and the volume of air passed through the filter shall be determined based on the National Institute for Occupational Safety and Health (NIOSH) 7400 analytical method. Each pump shall be calibrated before and after the collection of each sample using a primary standard.

5.9.2.2 Sample Analysis

Sample analyses shall be performed by a microscopist and submitted for Phase Contrast Microscopy (PCM), analyzed according to NIOSH 7400 Method. The laboratory conducting this analysis shall successfully participate in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing Program or individual(s) certified through the AIHA Asbestos Analysts Registry Program. Analyses of Transmission Electron Microscopy (TEM) air samples shall be submitted to a National Institute for Standards and Technology National Voluntary Laboratory Accreditation Program accredited laboratory using TEM according to Asbestos Hazard Emergency Response Act protocol.

5.9.2.3 Air Monitoring Collection

The following air monitoring procedures shall be used on-site:

- a) Samples shall be collected continuously during soil disturbance operations and submitted the same day for PCM analysis. PCM samples shall be analyzed on a 2-hour turn-around, with verbal results as soon as practical after the start of the next business day. PCM results exceeding 0.01 fibers per centimeter (f/cc) shall be subsequently submitted for TEM analysis.
- b) If the RACS disturbance includes friable ACM, 2 additional downwind floating samples will be collected. The AMS shall shift these samples as work progresses and wind directions change, maintaining the sampling locations downwind from RACS disturbance. The AMS shall document when and where samples are shifted and wind directions.
- c) A minimum of 25% of the samples collected from each RWA shall be submitted for TEM analysis, per day, to evaluate engineering controls. These samples shall be analyzed by TEM during the first five days of each type of site activity. After 5 days of RACS disturbance with no asbestos detections by TEM analysis, the frequency of analysis by TEM may be reduced to once every 5 days. If asbestos fibers are detected via TEM analysis then you start over and analyze 25% of the total samples by TEM for the next 5 days.

- d) Samples selected for TEM analysis shall have the highest PCM result based on fiber concentration. If all samples have a concentration of Below Detectable Limit (BDL), then the samples with the highest fiber counts shall be submitted for TEM.
- e) TEM analysis shall be provided on a 24 hour turn around. Data shall be assessed to determine if adequate controls are in place. After five days of TEM sampling, the analytical results and engineering controls shall be evaluated for adequacy.
- f) Each time the activity type changes, the 5 days of TEM sampling shall be reinitiated. An example of type of change would be excavation of the southern drainage area with friable ACM to excavation and movement of non-friable RACS in the northern portion of LCA.
- g) CDPHE shall be immediately notified if TEM sample results show any concentration of asbestos fibers. If asbestos fibers are detected by TEM, soil disturbing activities shall be stopped and Sections 5.5.7(E)(2)(f) and 5.5.7(E)(2)(g) of the Solid Waste Regulations shall be implemented.
- h) If laboratory reports indicate a “cannot be read (CBR)”, “not analyzed (NA)”, or “rejected” sample due to loose debris or uneven loading, the AMS shall implement Section 5.5.7(E)(2)(d) of the Solid Waste Regulations.

5.9.3 Emissions Control Plan

In addition to ensuring all RACS is adequately wet while being disturbed and adequately stabilized while inactive, the following actions shall be implemented:

5.9.3.1 *Weather Conditions*

Wind speed measurements shall be taken during soil disturbing activities at 30 minute intervals for a duration of 10 minutes so that a 10 minute average wind speed can be determined, or more frequently if winds are approaching threshold values. The time and wind speed shall be logged. Wind speed measurements shall be taken with a hand held instrument in close proximity to, and representative of, the work area in which the soil disturbing activities are taking place. Soil disturbance operations shall not be conducted if any of the following four conditions occur at the work area:

- Wind gusts reach or exceed 20 miles per hour (mph), or
- Sustained wind speeds reach or exceed 12 mph averaged over a 10-minute period, or
- Winds produce visible emissions that leave the RWA, or
- Wind impacts the ability of engineering controls to work as designed.

Resume Conditions - Soil disturbance activities may resume after the following four conditions have been met:

- Wind gust readings for a period of 10 minutes drop below 20 mph as determined by hand-held instruments, and
- Sustained wind speeds are below 12 mph averaged over a period of 10 minutes, and
- Winds are no longer producing visible emissions that leave the RWA, and
- Winds are not impacting the ability of engineering controls to work as designed.

5.9.3.2 *Site Access and Vehicle Movement*

Vehicles moving within the area covered by the engineered landfill cover shall be allowed to move around the site without concern for grid coding. However, only appropriate construction equipment and vehicles (e.g., excavators, graders, front-end loaders, compactors, dump trucks, etc.) should be allowed to drive within the exposed landfill area; other vehicles (e.g., pickup trucks, delivery vehicles, etc.) should be restricted to access roads, laydown areas, and other areas outside of the landfill area. Vehicles and equipment shall be required to drive in a slow and cautious manner to avoid visible emissions and shall be under the oversight of a CABI. If any component of construction vehicles or equipment come into contact with RACS, that component shall be decontaminated prior to exiting the RWA.

5.9.4 Decontamination Procedures

A decontamination facility shall be installed at the site for wet decontamination of equipment and vehicles leaving the site that have come into contact with RACS. The surface of the decontamination pad shall be 10-mil poly or stronger, the surface/barrier shall be durable and non-permeable. The decontamination pad shall contain all wet decontamination liquids and solids. If the pad tears or otherwise is not performing its intended function of providing a barrier to underlying soils and containing decontamination wastes it will be immediately repaired or replaced.

Procedures outlined in Section of 5.5.7(J) of the Solid Waste Regulations shall be adhered to if RACS is spilled.

5.9.4.1 *Equipment Decontamination*

Equipment decontamination shall be performed using the following procedures, which may be refined as necessary for individual applications. Modifications shall receive CDPHE approval prior to implementation.

- a) Equipment that contacts RACS shall be decontaminated prior to leaving the RWA or when the equipment moves from a contaminated to a clean area. No tracking shall occur from the engineered cover areas to other areas unless the soils within the other areas are to be subsequently removed.
- b) If the equipment operates entirely within a contaminated area or within the engineered soil cover areas, the entire piece of equipment shall be considered contaminated. When moving this equipment from the contaminated area or the engineered soil cover areas, it shall receive a full wet decontamination. The rinsate from the decontamination shall be collected, filtered to 5 microns, and either discharged to the sanitary sewer or used on RACS that shall later be excavated or covered.
- c) If the equipment tracks require decontamination, the tracks will be wetted and personnel will use tools to remove the RACS. The machine shall roll forward onto a clean portion of the decontamination pad and the process repeated until the tracks are visually inspected and signed off by a CABI and/or AMS.
- d) Final decontamination of portions of the heavy equipment potentially exposed to contamination shall be washed using potable water at the decontamination facility.

Special attention shall be given to removing soil or other site-related foreign materials on the equipment. The rinsate from the final decontamination procedure shall be collected, filtered to 5 microns, and either discharged to the sanitary sewer or used on RACS that shall later be excavated or covered.

- e) Personnel shall wear the appropriate PPE during decontamination activities.
- f) At the end of the project, the materials associated with the equipment decontamination area shall be removed and disposed of as ACM.

The decontamination of the vehicles shall consist of having the tires and other parts that come into contact with RACS rinsed using a hand held wand or spray so that water runs off the part along with soils and potential asbestos fibers. If wands or sprays aren't enough to remove all RACS than physical hand methods using tools will be implemented. Decontamination shall be conducted within the decontamination facility atop the decontamination pad.

- g) Equipment and tools (e.g., decontamination equipment used, such as, wands, sprayers, picks, brushes, etc., and other tools, such as, wheelbarrows, shovels, etc.) shall be decontaminated with water prior to leaving the boundary of the site. PPE shall be discarded at the end of the work shift when personnel leave the site. The PPE shall be placed in properly labeled ACM 6-mil plastic bags for disposal at a licensed landfill permitted to accept this material.

5.9.4.2 Personnel Protective Equipment

The use of Personal Protective Equipment (PPE) will be used to prevent cross-contamination. Personnel will wear disposal booties or impermeable footwear, disposable gloves or impermeable gloves while working in the RWA. Disposable PPE will be discarded in appropriate containers prior to exiting the RWA or if the PPE is not performing its intended function. Disposable PPE shall be disposed of as asbestos contaminated wastes. Impermeable PPE will be decontaminated when workers exit the RWA. If RWAs contain friable ACM, disposable impermeable suits, or equivalent coveralls, will be donned by workers. All suits will be removed upon exiting the RWA and disposed of as asbestos contaminated waste.

In the event that work is in an area of identified RACS, appropriate respiratory protection shall be used by personnel potentially exposed to this material. At a minimum, this shall include the backhoe operator, the personnel spraying the working face, and others identified by the Site Health and Safety Officer.

5.10 Notification and Documentation

The CDPHE HMWMD shall be notified seven days in advance of project start-up. Additionally, changes to this Plan shall be submitted to, and approved by, the Division prior to implementation. Documentation, regarding RACS management, shall be created and maintained in accordance with Section 5.5.7(L) of the Solid Waste Regulations.

6.0 OPERATIONS PLAN

This section was developed in accordance with the requirements of 6 CCR 1007-2.

6.1 Waste Excavation

6.1.1 Solid Waste

Waste shall be excavated in accordance with this Plan. A CABI shall be present at each active excavation as described in Section 3.2. Wastes shipped off-site for disposal shall be profiled in accordance with the requirements of the disposal facility accepting the waste and in accordance with applicable laws. Waste shall be disposed of as RACS, non-asbestos solid waste, or hazardous or special waste if appropriate. The waste shall be excavated using tracked excavators, scrapers, front-end loaders, and/or other suitable equipment. The waste shall be placed into side or end-dump trucks for transport off site to an approved landfill. Each load of waste shall be manifested with bills of lading, nonhazardous waste manifests, or sequentially numbered truck tickets. If truck tickets are used to track loads of waste, one manifest or bill of lading shall include truck tickets to verify that the waste was delivered to the landfill. Inventory logs shall be used to track individual loads of waste leaving the site. Bucket scales on the excavator or loader may be used to minimize the potential for overloading the end-dump trucks and maximize efficiency of the equipment.

6.1.2 Waste Tires

Waste tires may be encountered during waste excavation. Waste tires shall be transported and disposed of in accordance with Section 10 of 6 CCR 1007-2. If tires are adjacent to RACS, they shall be decontaminated prior to disposal.

6.1.3 Nuisance Controls

The potential for fire or explosion to occur on-site shall be minimized by following applicable safety guidelines. Fire(s) or explosion(s) shall be extinguished using on-site materials and equipment, with assistance from the local fire department, if necessary. Equipment operators shall keep fire extinguishers on their machines to control small fires that do not require waste excavation and covering. The facility and/or fire department personnel shall use water, soil, or other suitable materials to extinguish the fire. Should a fire or explosion occur at the entrance of the facility or in a maintenance area, employees shall follow appropriate fire procedures.

6.1.4 Odor

Minimal odors are anticipated based on the type of activities being conducted at the site. These odors (if any) usually dissipate within a few hundred feet. Air quality shall be monitored at the site boundaries.

6.1.5 Vector(s)

The nature of the activities at the site makes the possibility of nuisance resulting from birds or other animals minimal. If necessary, the site shall operate bird and vector discouraging devices to control nuisances, or contract with a professional exterminator. Sonic bird repellents may be maintained/staged on-site and utilized as necessary to help discourage migratory scavenging birds. Prairie dogs shall be removed from the site prior to beginning work as specified in the CMWP for the site.

6.1.6 Dust Control during Non-ACM/RACS Activities

Facility personnel shall be responsible for controlling dust and particulate matter originating from winds, vehicular traffic, and operational equipment. During dry periods, the operator may have the option of using either chemical dust suppressants or water or both to minimize the amount of dust generated at the facility. Particulate monitors shall be placed at the site boundary to monitor for dust. This plan shall be modified as necessary for the site to address dust control.

Operations shall be suspended during high wind events, defined as sustained winds of forty miles per hour (40 MPH) or greater, or gusts of fifty-five miles per hour (55 MPH) or greater, expected to persist for one hour or longer, as defined by the National Weather Service. When the conditions meet the shutdown requirements, the order for shutdown shall be executed. The site may reopen as criteria are met.

6.1.7 Blowing Debris

During periods of high winds, no waste shall be excavated or delivered off-site, and additional care shall be taken to control backfill operations. Unloading operations shall be suspended as soon as practicable. Blowing debris and other wastes shall not be allowed to accumulate.

6.1.8 Lights and Illegal Dumping

Although the excavation schedule has not been determined, it remains a potential that excavation activities may be conducted at night. Therefore, initial equipment and facilities may require lighting, including yard lights near the gates, staging, and excavation areas.

Illegal dumping shall be prevented by properly maintaining and locking fencing and gates. Specific procedures shall be further evaluated if additional procedures are necessary.

6.2 Record Keeping

Records shall be maintained for the following items:

- a) Waste Handling and Disposition
- b) Type and loads of outgoing waste
- c) Waste Characterization
- d) Variations from approved operating procedures
- e) Air monitoring data
- f) Site meteorological monitoring data
- g) Litter cleanup records
- h) Dust monitoring at site perimeter

Permanent records shall be maintained on-site and shall include actual depth of excavation, as-built cross-sections, surveyed depths and horizontal extents of waste removal and placement, and surveyed final contours. A final report shall include the following information:

- i. Summary of the amount of wastes transported off-site or reused, and
- ii. Summary and description of activities during the construction period, which, at a minimum, should include:
 - a) Excavation details of special or unique wastes
 - b) Characterization procedures, results and disposition of waste
 - c) Litter complaints and policing activities
 - d) Fire or medical emergency calls
 - e) Stoppages of operations by type (wind, equipment failure, etc.), and
- iii. Performance review of drainage and erosion control plans, and
- iv. Material deviations from this Plan and CDPHE approvals

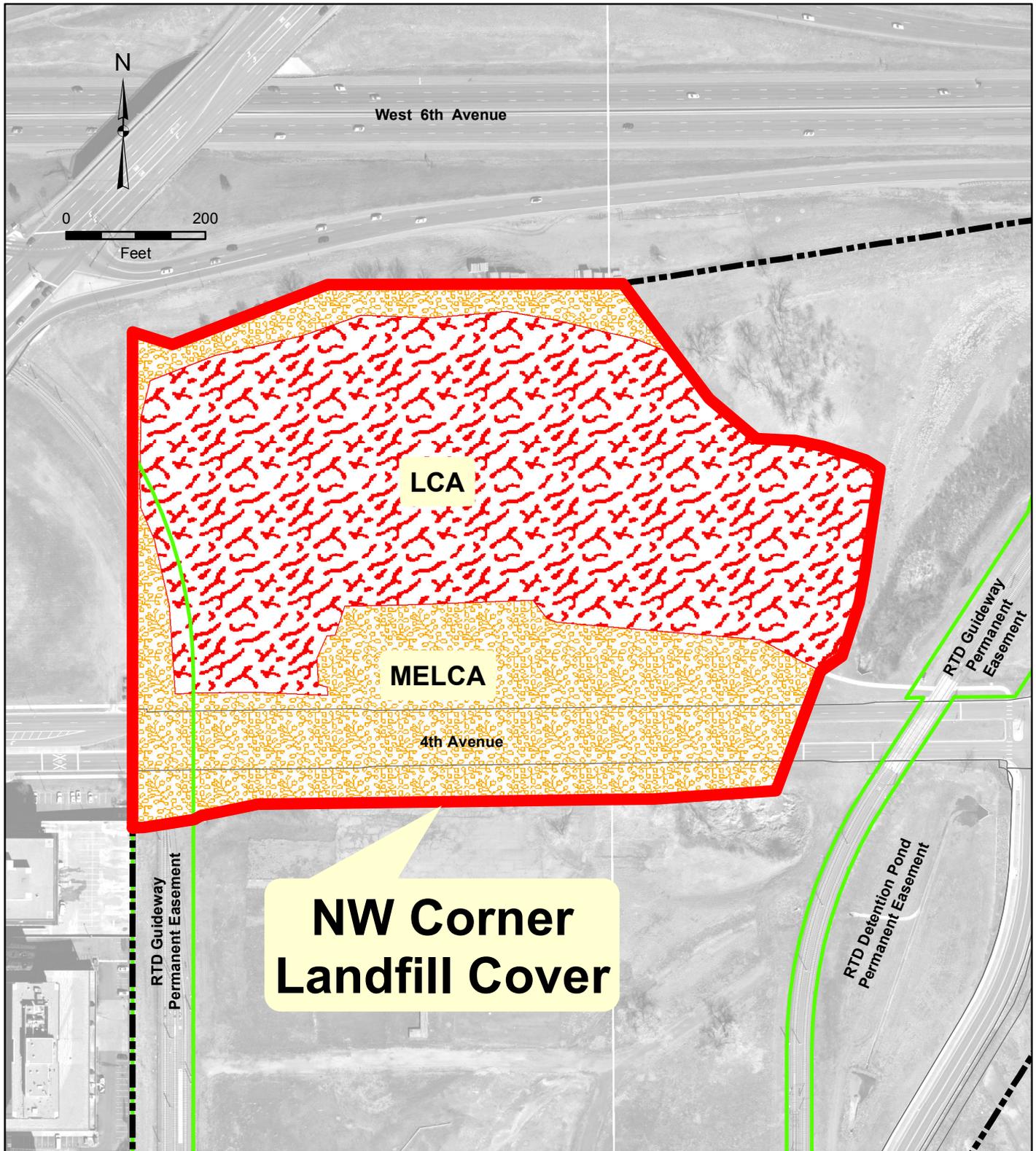
In addition, copies of reports relating to fire or medical emergency calls shall be provided to the Jefferson County Health Department and the Fire Department.

7.0 REFERENCES

- Colorado Department of Public Health and Environment (CDPHE), 2003. Information Regarding the Management of Petroleum Contaminated Soil. October.
- CDPHE, 2004. 6 CCR 1007-2. Regulations Pertaining to Solid Waste Sites and Facilities.
- CDPHE, 2006. 5 CCR 1001. Air Quality Control Commission Regulations.
- CDPHE, 2006. 5 CCR 1002-65. Regulation Controlling Discharges to Storm Sewers.
- CDPHE, 2007. 6 CCR 1007-3. Colorado Hazardous Waste Regulations.
- ERO. 2009 Final Corrective Measures Work Plan NRTD Expansion Areas (IA 7, IA 8, East IA 8, West IA 10N, North IA 11, IA 12N, and IA 17N July
- Tetrattech, 2007. Site-Wide RFI Quality Assurance Project Plan, Denver Federal Center. February.

FIGURES

C:\Files\DCFO\NwCornerSale\NW Corner Sale Survey\Projects\Fig02 NW Corner MELCA State Plane_ Revised.mxd



**NW Corner
Landfill Cover**

Legend

AreaName

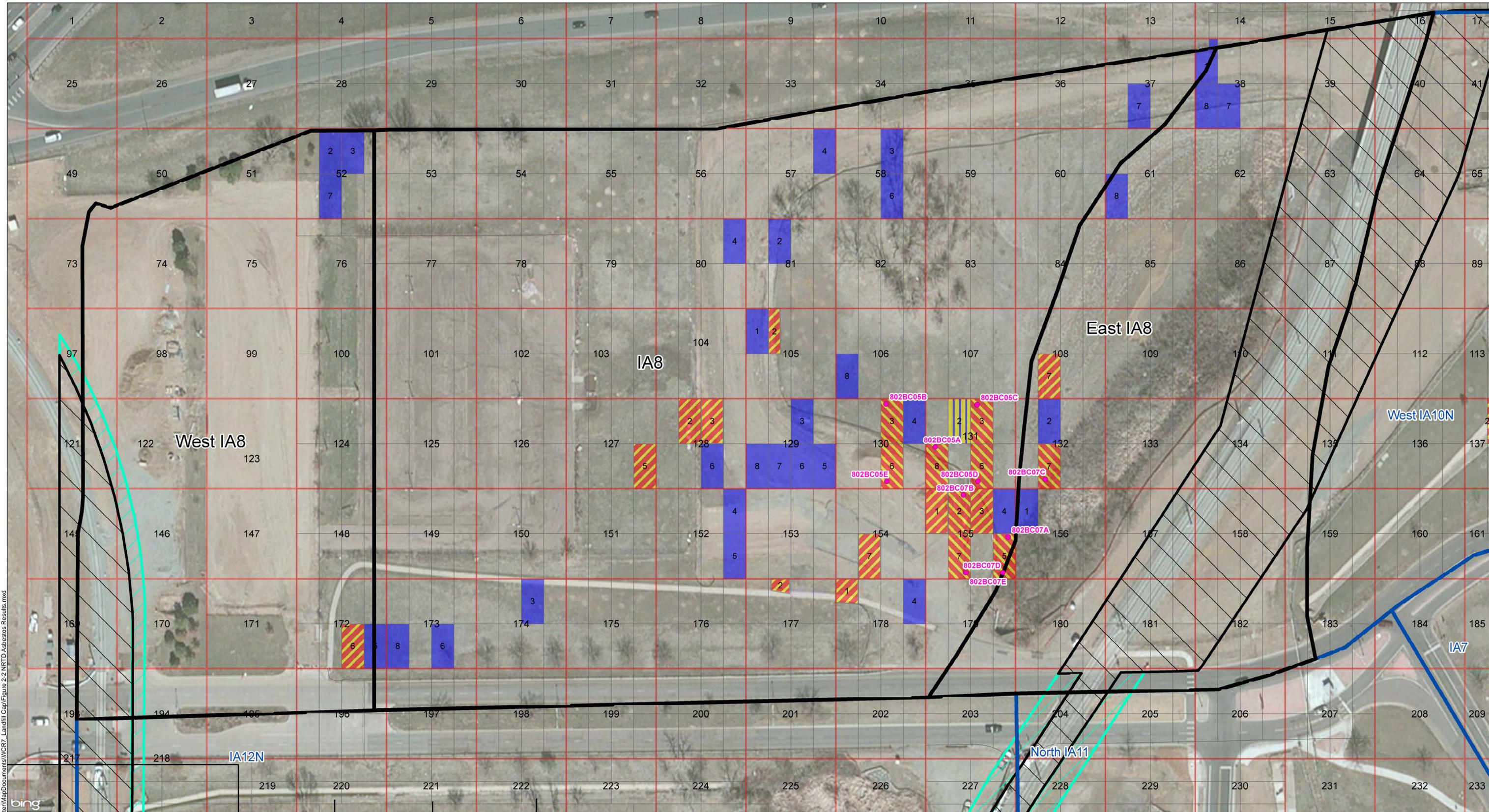
-  NW Corner Landfill Cover
-  Maintain Existing Land Cover Area (MELCA)
-  Landfill Cover Area (LCA)
-  Parcel Boundary
-  RTD Guideway Permanent Easement

**Figure 1
Northwest (NW)
Corner Landfill Cover**

URS
8181 East Tufts Avenue
Denver, CO 80237
(303) 694-2770

February 2017

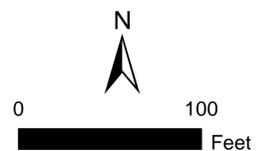
Denver Federal Center, Lakewood, Colorado
General Services Administration
Projection: Colorado State Plane, Central Zone
Horizontal Datum: North American, 1983 (NAD83)



Document Path: F:\Projects\Denver\Federal Center\MapDocuments\WCR7_Landfill Cap\Figure 2-2 NRTD Asbestos Results.mxd

Legend

- NRTD Sample
- IA8 IA8
- IA8 Investigation Areas
- Rail Construction Easement
- Rail Easement
- 100' x 100' Lots
- Asbestos Grids
- FACMNACS: Friable ACM cleared, soil ND.
- NFACMNACS>10<25: 10 to 25 pieces of non-friable ACM cleared, soil ND.
- NFACMNACS<10: 1 to 10 pieces of non-friable ACM cleared, soil ND.
- NACMNACSACS: No ACM, 10 point ACS sample ND, asbestos detected in 5 point borehole composite sample collected from 0-6".
- NACMACS: No ACM, asbestos detected in soil.
- FACMACS: Friable ACM and non-friable ACM cleared, asbestos detected in soil.
- NFACMACS>25: Greater than 25 pieces of non-friable ACM cleared, asbestos detected in soil.
- NFACM>25: Greater than 25 pieces of non-friable ACM, Not cleared, asbestos soil sample not collected.



Northern RTD North Half Expansion Areas
Denver Federal Center, Colorado

Figure 2 NRTD Asbestos Results (ERO, 2009)

Drawn by: M Johanson	Reviewed by:	Projection: North American Datum 1983 State Plane Colorado Central FIPS 5002 Units: Feet
Date: 8/19/2013	Date:	
Version:	Revision Date / Initials:	