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Materials Management Plan
High Street Outfall and 40th Avenue Storm Sewer System

Vasquez Boulevard/Interstate 70 Site, Operable Unit #2

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TABLE OF CONTENTS

1 INTRODUCTION 1
1.1 OBJECTIVES AND GOALS 1
1.2 PLAN ORGANIZATION 2
2 WASTE MATERIAL AND COMPOUNDS OF CONCERN 3
2.1 WASTE MATERIAL AND VISUALLY-IMPACTED SOILS 3
2.2 GROUNDWATER 3
3 REGULATORY CRITERIA 4
3.1 WASTE MATERIAL AND VISUALLY-IMPACTED SOILS 4
3.1.1 Solid Waste 4
3.1.2 Hazardous Waste 4
3.1.3 Asbestos-Containing Material 6
3.2 GROUNDWATER 9
3.2.1 Release to the South Platte River or Sand Creek 9
3.2.2 Off-Site Disposal 10
4 MATERIALS MANAGEMENT 11
4.1 WASTE MATERIAL AND VISUALLY-IMPACTED SOIL 11
4.2 GROUNDWATER 12
4.3 INVESTIGATIVE-DERIVED AND DECONTAMINATION WASTE 12
5 REFERENCES 14

LIST OF TABLES

Table 1 Preliminary Waste Material Screen Against TCLP Toxicity and CDPHE Contained-Out Criteria for Restricted Use
Table 2 Preliminary Discharge Limits for South Platte River, Segment 14
Table 3 Preliminary Discharge Limits for South Platte River, Segment 16c (Sand Creek)

LIST OF FIGURES

Figure 1 Conceptual Plan View of Stormwater Drainage System
Figure 2 Conceptual Stormwater Channel Cross-section
Figure 3 Waste/Soil Material Compounds of Concern
Figure 4 Groundwater Compounds of Concern

LIST OF APPENDICES

Appendix A Summary of Environmental Conditions
Appendix B Regulatory Criteria
Appendix C Mobile Water Treatment Equipment

LIST OF ACRONYMS

ACM	Asbestos-Containing Material
AoC	Agreement and Order on Consent
bgs	Below ground surface
BMPs	Best Management Practices
CCoD	City and County of Denver
CCR	Construction Completion Report
CDOT	Colorado Department of Transportation
CDW	Construction Dewatering
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Compound of Concern
EMSI	Engineering Management Support, Inc.
EPA	Environmental Protection Agency
ESD	Explanation of Significant Difference
FSP	Field Sampling Plan
HASP	Health and Safety Plan
LEL	Lower Explosive Limit
mg/kg	milligram per kilogram
MMP	Materials Management Plan
PAHs	Poly-aromatic Hydrocarbons
% v/v	percent by volume
OU-2	Operable Unit #2
QAPP	Quality Assurance Project Plan
RACS	Regulated Asbestos-Contaminated Soil
RAWP	Response Action Work Plan
RD/RA/O&M	Remedial Design/Remedial Action /Operations and Maintenance
ROD	Record of Decision
RPM	Remedial Project Manager
RTD	Regional Transportation District

SAP	Sampling and Analysis Plan
SoW	Statement of Work
SVOCs	Semi-volatile Organic Compounds
TCRA	Time-Critical Removal Action
TSDF	Treatment, Storage, and Disposal Facility
VOCs	Volatile Organic Compounds

1 INTRODUCTION

This Materials Management Plan (MMP) was prepared on behalf of the City and County of Denver (Respondent) pursuant to Section II.4.b of the Statement of Work attached as Exhibit ___ to the Administrative Settlement Agreement and Order on Consent for Removal Action in a Proceeding Under Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622 regarding the Vasquez Boulevard/Interstate 70 (VB/I70) Site Operable Unit 2 (OU2).

The VB/I70 OU2 Removal Action involves removal of waste material, visibly-impacted soils, and groundwater encountered during construction of a stormwater sewer system that will pass through and west of the Denver Coliseum parking lot. A conceptual alignment of the open channel conveyance structure is illustrated on Figure 1. A conceptual cross-section of the structure is illustrated on Figure 2.

Construction of the open channel stormwater conveyance system will involve excavation through and removal of waste material and visually-impacted soils down to approximately 20 feet below the current land surface; extraction, treatment and disposition of groundwater encountered during construction; construction of a barrier system, including an impermeable liner that prevents stormwater contact with groundwater – this includes importation and placement of "clean fill" beneath and above the liner; and construction of a surface drainage feature that will convey storm water and sustain a riparian habitat. Removal Action components under the Consent Order consist of 1) excavation and removal of waste material and visually-impacted soils; 2) pumping, treatment, and disposition of the dewatered groundwater; and 3) construction of barrier system with supporting subgrade beneath it, and ballast above it.

1.1 Objectives and Goals

Objectives of this MMP consist of providing for safe handling and disposal of waste material and visibly-impacted soils, and management of groundwater and perched liquids that are encountered during construction. These solids and liquids are to be managed in a manner that complies with applicable environmental regulations, EPA guidelines, and applicable or relevant and appropriate requirements (ARARs). Accordingly, this plan describes the handling, treatment, and disposal procedures that pertain to these media.

Specific goals consist of:

- Removal and disposal of waste material and visually-impacted soils as soon as possible following excavation to minimize health risk involved in onsite storage;

2016-010025-0001286

- Minimize the volume of liquids that need to be managed by routing non-contact stormwater around the construction area and expediting excavation and backfilling of material below the groundwater table; and

- Maximize use of onsite water treatment with discharge to the South Platte River or Sand Creek to reduce risks associated with off-site disposal.

1.2 Plan Organization

This MMP contains five sections, including this introduction. Compounds of concern associated with waste material and visually-impacted soils, and groundwater are described in Section 2. Applicable regulatory criteria are presented in Section 3. Management of waste material and visibly-impacted soils, groundwater, and investigative-derived wastes is presented in Section 4, and references are presented in Section 5.

The text is followed by three appendices that contain:

Appendix A: Summaries of known environmental conditions
Appendix B: Regulatory criteria
Appendix C: Mobile water treatment equipment

2016-010025-0001287

2 WASTE MATERIAL AND COMPOUNDS OF CONCERN

2.1 Waste Material and Visually-Impacted Soils

Waste material and visibly-impacted soils beneath and west of the Denver Coliseum parking lot have been characterized by EMSI, 2009; Brown and Caldwell, 2010; and CTL Thompson, 2011. Summary results from their investigations are presented in Appendix A.

Within the limits of the open channel alignment illustrated on Figure 1, waste material and visibly-impacted soils are present from approximately two feet below the ground surface to as much as 20 feet below ground surface (bgs). Inferred thicknesses of the waste material and visibly-impacted soils along the alignment range from zero to approximately 15 feet (Figure 1). Note: Additional waste material or visibly-impacted soils may be present in the Globeville Landing Park area located west of the Coliseum parking lot, but their areal extent, thickness and depth are not known at this time.

Compounds of potential concern consist of volatile organic compounds (VOCs), poly-aromatic hydrocarbons (PAHs), arsenic, lead, and asbestos. Concentrations of VOCs, PAHs and metals in waste material and soils within and adjacent to the channel alignment are shown on Figure 3.

Asbestos was detected in waste material collected from HS-2 (Figure 3) at a concentration of 0.5 percent of the total sample analyzed (CTL Thompson, 2011). This may be considered a trace amount, but its presence raises concern that asbestos may be randomly present in the waste material.

2.2 Groundwater

Groundwater quality was also been characterized by EMSI, 2009; Brown and Caldwell, 2010; and CTL Thompson, 2011. Summary results from their investigations are also presented in Appendix A.

Within the limits of the open channel alignment, groundwater depths below the ground surface were measured in 2010 (Brown and Caldwell, 2010) and 2011 (CTL-Thompson, 2011). Their single-point readings indicate depths below ground surface of approximately 11.5 feet at CTL MW-4; 10.7 feet at HS-02; 13.7 feet at HS-08; and 23.8 feet at HS-01. Adjacent to the alignment, groundwater depths are approximately 12.0 feet at CTL MW-5 and 23.5 at MW-1. These depths will vary over time, but the single-point data provide a general indication of the depth to groundwater for construction planning purposes.

As shown on Figure 4, compounds of potential concern in groundwater consist of volatile organic compounds (VOCs), arsenic, cadmium, copper, lead, manganese, and zinc.

2016-010025-0001288

3 REGULATORY CRITERIA

3.1 Waste Material and Visually-Impacted Soils

Based on the samples of waste material and visually-impacted soils collected to date, these media do not appear to be characteristically hazardous, nor TCLP toxic. However, there is a potential for encountering hazardous and/or asbestos-containing material (ACM) within the buried waste. If encountered, this material will need to be handled separately. Regulations governing the handing non-hazardous solid waste, hazardous waste, and ACM are discussed below:

3.1.1 Solid Waste

A preliminary screen of the compounds of concern in buried material that is anticipated to be excavated was conducted to assess whether 1) the material may be characteristically hazardous, and 2) to assess the whether the material can be disposed at the Denver Arapahoe Disposal Site (DADS) as a "Contained-Out, Restricted" media under CDPHE's Contained-Out policy for environmental media (https://www.colorado.gov/pacific/sites/default/files/HM_corrective-action-app2-contained-out-determination.pdf, as updated in Appendix B). To the latter screen, media are non-hazardous for restricted use (disposal into a RCRA Subtitle D landfill) if the media concentrations are: A) less than or equal to USEPA Regional Screening Levels for Residential Soils times 100 (Criteria A); **and** B) are equal to or less than TCLP limits (Criterial B-1) **or** Colorado Basic Standards for Groundwater x 100 (Criterial B-2). In the case where no B-1 criteria are available, B-2 criteria do not apply. In addition, the material must not fail Land Disposal Restriction (LDR) criteria, which equate to EPA's Universal Treatment Standards times a multiplier.

Results of the screen using an average concentration of the analytical results from the borings shown on Figure 3 are presented in Table 1. They indicate that 1) none of the compounds of concern exceed Contained-Out Criteria A; 2) only lead might exceed Contained-Out Criteria B-1 or B-2, and 3) none of the values exceed LDR criteria. It should be noted that the possible B-1 exceedance for lead is based on a synthetic TCLP value, which was derived by dividing the Total lead value by 20. This is likely to be overly conservative in that the actual Total lead-to-TCLP lead ratio may be closer to 187, as evidenced by results from HS-02, shown on Figure 3. So for planning purposes, lead is not expected to exceed its TCLP value. Nonetheless, additional samples of waste material and visually-impacted soils will be characterized during the Design Investigation and results will be screened against TCLP and Contained-Out criteria in the manner discussed above, as a basis for acceptance of the material for disposal at DADS.

3.1.2 Hazardous Waste

To the extent that hazardous waste may be encountered, regulations concerning the identification and listing of hazardous waste are specified under 40 CFR Parts 260 through

2016-010025-0001289

261, and 6 CCR 1007-3 Parts 260 through 261. Applicable portions of these regulations include the definition of hazardous waste (Part 261.3); hazardous waste exclusions (Part 261.4); and the characteristics of hazardous waste, including ignitability (Part 261.21), corrosivity (Part 261.22), reactivity (Part 261.23), and toxicity (Part 261.24). Based on the age of the landfill material present within OU-2, and on the characterization data available to date, buried material will probably not be listed hazardous waste.

Regulations concerning standards applicable to generators of hazardous waste are specified under 40 CFR Part 262, and 6 CCR 1007-3 Part 262. Applicable portions of these regulations include the hazardous waste determination requirements in accordance with Part 262.11.

Should hazardous wastes be present at the site, a hazardous waste generator identification number will need to be obtained from CDPHE. This number will be applied to all offsite shipments of hazardous waste in accordance with Part 262.12. Similarly, use of manifest documents as described in Part 262.20; packaging, labeling, marking, and placarding requirements described in Parts 262.30 through 262.33; and recordkeeping and reporting requirements described in Parts 262.40 through 262.42 will be applicable in the event that hazardous wastes are sent offsite for disposal.

Regulations pertaining to the operating and performance standards for container storage of hazardous waste are specified in 40 CFR Part 264, Subpart I; and 6 CCR 1007-3 Part 264, Subpart I. Containers holding hazardous waste, such as drums, will be in good condition or will be overpacked if discovered to not be in good condition (Part 264.171). Drums specified for use in Subsection 4.6 of this plan are constructed with materials that are compatible with the wastes being stored (Part 264.172). Containers will be kept closed during storage, and will not be handled in a manner that may rupture the container or cause it to leak (Part 264.173). Weekly inspections of containers stored onsite will need to be performed (Part 264.174). Containers with ignitable or reactive waste (if encountered) will be stored more than 50 feet from the site property line (Part 264.176), and incompatible waste will not be placed in the same container, in an unwashed container that previously held an incompatible waste or material, or stored near other containers of incompatible wastes or materials (Part 264.177).

Regulations concerning the handling of potentially incompatible wastes are specified in 40 CFR Part 265.17, and 6 CCR 1007-3 Part 265.17. Precautions should be taken to prevent accidental ignition or reaction of wastes, and incompatible wastes (if encountered) will be separated and protected from sources of ignition or reaction (Part 265.17).

Regulations concerning LDRs are specified in 40 CFR Part 268, and 6 CCR 1007-3 Part 268. These regulations will apply to offsite treatment and disposal of hazardous wastes.

Procedures for planning and implementing offsite response actions under CERCLA are specified in 40 CFR Part 300.44, known as the Offsite Rule. This regulation applies to offsite treatment and disposal of hazardous wastes that cannot be managed onsite. The Offsite Rule indicates that EPA will determine the acceptability of any offsite facility that has been selected for treatment, storage or disposal of CERCLA wastes. The proposed receiving facility must be operating in compliance with all applicable federal, state, and local regulations, and there must be no relevant violations affecting the receiving unit. In addition, there must be no releases from the receiving unit, and contamination from prior releases at

2016-010025-0001290

the receiving unit must be addressed as appropriate. Releases from other units located within the receiving facility boundaries must also be addressed as appropriate.

Respondent will, prior to any offsite shipment of waste material from the site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator of such shipment of waste material. However, this notification requirement does not apply to any offsite shipments when the total volume of all such shipments does not exceed ten (10) cubic yards.

Respondent will include in the written notification the following information, where available: (1) the name and location of the facility to which the waste material is to be shipped; (2) the type and quantity of the waste material to be shipped; (3) the expected schedule for the shipment of the waste material; (4) the method of transportation; and (5) the route to be traveled. The Respondent will notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the waste material to another facility within the same state, or to a facility in another state.

The identity of the receiving facility and state will be determined by the Respondent following the award of a services agreement for offsite transportation, treatment, storage, and disposal services. The Respondent will provide the name and location of the receiving facility(ies) to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator as soon as practicable after the award of the contract and no less than sixty (60) days before the waste material is actually shipped.

Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondent will obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent will only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulations cited in the preceding sentence.

3.1.3 Asbestos-Containing Material

The substantive requirements of CDPHE's Asbestos Contaminated Soil regulations and guidance are relevant to this site. The regulations are incorporated into Section 5.5 (Management of Regulated Asbestos-Contaminated Soil) of the State's Solid Waste Regulations and can be down-loaded from:
https://www.colorado.gov/pacific/sites/default/files/Part%201%20eff%2001-14-15.pdf.
Guidance documents can be found at:
https://www.colorado.gov/pacific/sites/default/files/HM_sw-asbestos-waste-disposal_0.pdf
and https://www.colorado.gov/pacific/sites/default/files/HM_sw-regs-sect-5-asbestos.pdf

Two types asbestos-containing material (ACM) may be encountered, consisting of Regulated Asbestos-Contaminated Soil (RACS), and non-RACS. Descriptions of each, as well as protocol for a RACS-Determination, are discussed below:

RACS is defined as:

Soil, ash or debris (plus six (6) inches in all directions of surrounding soil or other matrix material) containing:

1) Friable asbestos-containing materials (ACM) as determined in the field by a Certified Asbestos Building Inspector (CABI) through a RACS determination (defined below);
2) Previously non-friable ACM(s) that have been rendered friable as determined in the field by a CABI(s) through a RACS determination;
3) Non-friable ACM(s) that have a high probability of releasing fibers based on the forces expected to act upon the material during soil disturbance as determined in the field by a CABI(s) through a RACS determination;
4) Deteriorated non-friable ACM(s) that are in poor condition resulting in a high probability to release fibers due to weathering, historical mechanical impact, fire damage (by evidence of ACM within an ash layer) or other factors as determined in the field by a CABI(s) through a RACS determination; and
5) If determined by the CABI to potentially-contain ACM, the following broken, resized, or damaged material are also RACS:
    a. Asbestos cement materials;
    b. Plaster;
    c. Brittle caulking, glazing and sealants;
    d. Powdery Concrete Masonry Unit (CMU) sealant;
    e. Powdery floor leveling compound;
    f. Drywall/wallboard and associated joint compound material;
    g. Firebrick; and
    h. Other material as determined by CDPHE Solid Waste Division, at the request of the owner or person disturbing debris, to have a high probability to release fibers.

Non-RACS is defined as:

Soil or debris that contains only:

1) Intact non-damaged, non-friable ACM; or,
2) Damaged non-friable ACM(s) that do not have a high probability to release fibers based on the forces expected to act upon the material during disturbance as determined in the field by a CABI(s) through a "RACS Determination". The following ACM(s) are predetermined to be Non-RACS:
    a. Resin based materials including but not limited to phenolic-plastic (Bakelite), used in electrical and mechanical parts;
    b. Resilient flooring (vinyl, asphalt, rubber) excluding non-tar impregnated friable felt backing on sheet vinyl flooring (linoleum);

2016-010025-0001292

c. Tar impregnated or asphaltic materials in good condition that have not become brittle;

d. Elastic, pliable, or rubberized materials, including but not limited to:

i. Pliable duct sealant;

ii. Pliable fiberglass insulation sealant;

iii. Pliable fire-stop caulking /sealants; and

iv. Pliable window and door caulking.

v. Extremely hard materials, coatings and sealants including but not limited to:

- Laboratory countertops and sinks;
- Epoxy type Concrete Masonry Unit (CMU) coatings;
- Epoxy type panel adhesive;
- Duct sealant;
- Ceiling tile adhesive; and
- Other ACM(s) as approved by CDPHE Solid Waste Division at the request of the owner or person disturbing debris, to not have a high probability to release fibers.

A "RACS Determination" is defined as:

A determination, 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 that are expected to act on it during disturbance. Determinations of friability shall be based on the requirements for such determinations set forth in Air Quality Control Commission Regulation No. 8 (5 CCR 1001-10, Part B). Determinations of the probability for nonfriable ACM to release fibers during disturbance shall be based on the following:

1) The condition of the material prior to disturbance, based on observations of weathering, the integrity of the material, historical mechanical impact, or fire damage;

2) The potential for the material to be broken, resized or damaged during planned disturbance;

3) The material shall be considered RACS if the planned disturbance includes any of the following:

a. Augers;

b. Rotary style trenchers;

c. Driving on ACM lying on the surface (vehicles or equipment);

d. Blasting or other detonation;

e. Intentional burning;

f. Other types of direct mechanical impact which are:

2016-010025-0001293

i. In direct contact with ACM or result in observation of ACM after disturbance; and

ii. Causing damage to the ACM.

Section 5 of the Solid Waste Regulations (6 CCR 1007 - 2) includes regulations on packaging of asbestos for disposal and disposal criteria for landfills. Non - friable asbestos may be disposed at DADS in compliance with Sections 5.1 and 5.2 of the regulations. Friable asbestos, and non - friable asbestos damaged to the point of being friable, may be disposed at DADS in compliance with Sections 5.1 and 5.3 of the regulations. In either case, the landfill operator must be contacted for approval prior to disposal.

Friable asbestos waste and non - friable asbestos waste damaged to the point of being friable must be properly packaged before being sent to the landfill. It must be tightly sealed, while wet, in at least two 6 - mil, leak - tight polyethylene bags or in a wrapping or other container deemed equivalent by the CABI. The outermost layer of the packaging must 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. Additional requirements for: Establishment and Control of a Regulated Work Area; Personal Protective Equipment; Wetting; Wind Speed Monitoring; Air Monitoring; Work Practices; Loading and Placement of RACS; Onsite Staging, Stockpiling, and Storage of RACS; Decontamination; RACS Spill Response; Requirements for Exposed RACS Remaining in Place; and Documentation, are described in Section 5.5.7 of the Solid Waste Regulations.

3.2 Groundwater

If groundwater, which includes perched water, is encountered the excavation will require dewatering. Two management scenarios are considered. The first is release of the water to the South Platte River or Sand Creek under Colorado's Construction Dewatering general permit. The second is disposal of the water offsite as an industrial or hazardous waste in a licensed RCRA treatment, storage, or disposal facility (TSDF). Both options are discussed below.

3.2.1 Release to the South Platte River or Sand Creek

Under this option, coverage under Colorado's Construction Dewatering (CDW) general permit is required from the Water Quality Control Division (WQCD) of the Colorado Department of Public Health and Environment (CDPHE). Such coverage is required any time groundwater, including groundwater that is commingled with stormwater or surface water, is encountered during construction activities where the water needs to be discharged to surface water or back to the ground. It should be noted that if surface water is diverted around a construction area and no pollutants are introduced during the diversion, CDW permit coverage is not required. This applies to pumped diversions. However, if the diverted water enters the construction area and contacts pollutant sources (e.g., disturbed soil, concrete washout, etc.), CDW permit coverage is required.

A copy of the CDW General Permit and an application for coverage under the General

2016-010025-0001294

Permit are available at http:/www.cdphe.state.co.us/wq/PermitsUnit/Incustrial /Index.html. Additional information regarding application submittals, durations, fees, and conditions is available at https://www.colorado.gov/pacific/sites/default/files/cog070000faq.pdf.

Preliminary assessments of water quality limits that would be applicable to discharge to the South Platte River from an outfall at Globeville Park, or to Sand Creek are presented in Tables 2 and 3, respectively. Supporting information is provided in Appendix B.

The metals limits are based on CDPHE Regulation 38. For the South Platte River, the metals limits are based on an average water quality hardness of 250 mg/L in Segment 14 of the South Platte River. For Sand Creek, which is a component of Segment 16c of the Upper South Platte River basin, a water quality hardness of 400 mg/L is applied, which is the maximum hardness value allowed for the calculations, even though the actual hardness in this creek is much higher. Water quality limits for the VOCs of concern are based on Regulation 31 surface water quality standards.

3.2.2 Off-Site Disposal

If the construction waters cannot be cost-effectively treated and released to the South Platte River or Sand Creek, off-site disposal will be considered. The off-site disposal option involves an initial assessment of RCRA-hazardous or non-hazardous status. Based on historic and process knowledge, the construction waters are not listed wastes. Therefore, the hazardous determination will be based on RCRA characteristics and TCLP toxicity. Based on the characterization data collected to date (Appendix A and Figure 4), the TCLP toxicity parameters will be limited to VOCs, SVOCs, and eight RCRA metals. Note: additional characterization data collected during the Design Investigation may impact this determination.

If construction water is determined to be RCRA non-hazardous and cannot be treated to the limits required for release to the South Platte River or Sand Creek, it will be manifested as a non-hazardous waste, transported offsite to a Clean Harbors facility where it will be stabilized (solidified) for disposal in a RCRA Subtitle D landfill, or transported offsite to a RCRA Subtitle D landfill where it will be land-applied in accordance with the landfill's prescreening land-application criteria.

If construction water is determined to be RCRA hazardous it will be transported to Clean Harbor's Deer Trail facility for stabilization (solidification) and buried as a hazardous waste. If LDRs preclude such burial, the water may be treated in a Subtitle C facility, or incinerated at Clean Harbor's Kimball, Nebraska facility.

4 MATERIALS MANAGEMENT

4.1 Waste Material and Visually-Impacted Soil

The contractor removing the waste material and visually-impacted soils from OU-2 is responsible for placement of a competent person, whose qualifications include a CABI, on site to oversee all excavation activities to witness any variation in the exhumed waste that would require additional characterization prior to acceptance at DADS. The competent person performing the oversight should be equipped with instrumentation that can monitor changes in the waste stream for organic compounds and ACM, and maintain visual contact with the excavation to identify potentially hazardous wastes if they were encountered. Specific examples of materials that would require additional characterization include, but are not limited to:

- Potential ACM
- Battery casings
- Drums or barrels
- Materials with excessive odor or discoloration
- Tanks
- Transformers, including carcasses
- Materials with free liquids (can include waste materials with intrusive water)
- Containers greater than 5 gallons in size containing chemicals or unidentifiable waste material
- Previously uncharacterized petroleum contaminated materials or what appears to be industrial-type wastes
- Ash

Many of the wastes identified above may be acceptable at DADS. However, a specific profile with the necessary lab testing to demonstrate the material is non-hazardous, RACS, or non-RACs will be required.

As discussed in the previous sections, the bulk of the waste material and visually-impacted soils to be exhumed is likely to be non-hazardous and absent ACM. The Design Investigation, which will be performed prior to excavation, is anticipated to confirm this, and to adequately profile the waste for acceptance at DADS, without the need for additional characterization during excavation. A waste profile acceptance certification by DADS will include a provision for visually monitoring and screening the waste stream during excavation, as discussed above.

Should potential **hazardous waste** be identified during the Design Investigation or by the competent person monitoring waste removal, the material will be temporarily staged on-site and characterized for hazardous waste. If determined to be hazardous, it will be profiled,

packaged, manifested, and transported offsite to a RCRA-licensed TSDF in accordance with the regulations discussed in Section 3.1.2 of this MMP.

Should RACS or Non-RACS be identified during the Design Investigation or by the CABI during excavation the material will be temporarily staged onsite, sampled, and profiled. If the RACS Determination (discussed in Section 3.1.3) identifies the material as either RACS or Non-RACS and the material **contains putrescible material**, the material will be packaged, manifested, and transported to DADS for disposal within their municipal solid waste landfill in a special cell designated for asbestos disposal. RACS that **does not contain putrescible material** will be manifested as such, transported to DADS and disposed in their asbestos monofil. Non-RACS that **does not contain putrescible material** will be manifested as such, transported to DADS, and disposed in a designated area within the active solid waste landfill such that the material can be buried with minimal disturbance from heavy equipment. Alternatively, if the volume of the Non-RACS without putrescible material is relatively small, the landfill manager may elect to place the material in the asbestos monofil.

4.2 Groundwater

As shown in the Tables 2 and 3, treatment of construction water may be required to reduce VOCs and metals to meet surface water discharge limits. Treatment would consist of aeration, gravity settling to precipitate suspended solids, and filtration. All of these processes can be performed onsite using mobile treatment equipment. Examples of such equipment are presented in Appendix C. Secondary waste streams would be characterized for hazardous characteristics (ignitability, corrosivity, reactivity, reactive cyanides and sulfides, oxidizer, and paint-filter test), and TCLP toxicity, then manifested and disposed offsite in an appropriate RCRA-licensed TSDF.

Note: Additional groundwater characterization data consisting of potentiometric surface and groundwater quality will be obtained during the Design Investigation and applied to assess the potential presence and quality of groundwater that will need to be managed during construction. A final analysis of discharge limits should then be performed by a CDPHE WGCD permit writer. The collective characterization data and final permit limits should be compared to assess the type and amount and treatment that will actually be required.

4.3 Investigative-Derived and Decontamination Waste

Solid investigative-derived waste (IDW) and residual solids from decontamination activities will be collected and screened for hazardous characteristics (including TCLP toxicity) as discussed in Section 3.1.1 of this MMP, and for ACM as discussed in Section 3.1.3 of this MMP. Should screening results indicate the material is non-hazardous and does not contain ACM, the material will be manifested as a solid waste and disposed at DADS. Should hazardous characteristics be present, or ACM be suspected, the material will be managed as described in Section 4.1, above.

Liquid IDW and decontamination waters will be poured into a shallow, open-top stock tank where it will be allowed to evaporate. If the volume of liquids generated exceeds the rate of natural evaporation, the water will be characterized for hazardous constituents, then managed in accordance with the options discussed in Section 3.2 of this MMP.

2016-010025-0001298

5 REFERENCES

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TABLES

FIGURES

Appendix A

Summary of Environmental Conditions

- **Waste Material/Visually-Impacted Soils**
- **Groundwater**
- **Landfill Gas**

Appendix B

Regulatory Criteria

Appendix C

Mobile Water Treatment Equipment