



<i>Environmental Guideline</i> Groundwater Management	
<i>Document Identification Number:</i>	CCD-301.03.11
<i>Version:</i>	4.0
<i>Revision Date:</i>	May 1, 2009
<i>Contact Person:</i>	Dave Erickson (DEQ)
<i>Controlled Copy Location:</i>	Not applicable.

Activity Description
<p>Management of Ground Water - Many properties and Rights-of-Way (ROW) owned by the City and County of Denver (City) have been impacted by historic or current operations. Any City projects that require construction activities such as excavation or other intrusive operations into the subsurface may have an environmental review conducted depending on the size of the project. If groundwater contamination is suspected or dewatering anticipated, the groundwater must be characterized, for proper disposal or discharge. Soil screening levels protective of groundwater are preferred as described in the City's Soil Screening Levels and User's Guide dated September 2005, if soil remediation is required.</p> <p>Denver's position on ground water management for Denver Radium sites is that Denver will not implement any part of a remedy to ground water unless EPA or State provide funding and liability protection for Denver Remedial activities.</p>

Potential Environmental Risks
<p>The following environmental concerns are associated with this activity:</p> <ul style="list-style-type: none">• Air pollution & odors• Contamination of clean soils• Improper disposal of contaminated groundwater• Contamination of surface water• Improper discharge of contaminated groundwater
<p>Potential consequences from performing the activity incorrectly:</p> <ul style="list-style-type: none">• Property damage, personal injury, damage to the environment.• Possible regulatory non-compliance, Notice of Violation and related financial & non-financial penalties.• Environmental liability

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Critical Operating Requirements	
A. General Requirements	
Prohibited Activities <ul style="list-style-type: none">• Discharge or disposal of groundwater associated with a Denver Radium Site.• Pumping contaminated groundwater into any sewer system or waterway, or on to any soils.• Illegal/non-permitted discharge of groundwater.	
General Considerations <ul style="list-style-type: none">• Laboratory analytical may be required for proper characterization.• Construction dewatering should be permitted.	
Training Requirements <ul style="list-style-type: none">• Individuals that handle or manage groundwater dewatering or discharge should receive site-specific training in accordance with all applicable State and Federal requirements.• Site workers involved in investigation activities shall receive 40 hours minimum training in the management of contaminated materials for health and safety issues.• All samplers must be adequately trained in the proper sampling procedures and the requirements of the Sampling and Analysis Plan (SAP).• Denver Radium Sites require special radiation safety training.	
Storage & Material Handling Requirements <ul style="list-style-type: none">• Contaminated groundwater needs to be manifested for transportation.• Other non-manifest type groundwater discharge/disposal must be documented.• Investigation Derived Waste (IDW) should be containerized if contamination is suspected.• Maintain legible labels and markings on all containers.	
B. Planning Requirements	<i>Responsible: Environmental Specialist/Scientist</i>
B1. Ensure that the manager of the construction project understands the suspected contamination and proper documentation that is required prior to commencement of field activities.	
C. Critical Tasks	<i>Responsible: Environmental Specialist/Contractor</i>
C1. Dispose, recycle, containerize, or discharge groundwater according to applicable state and federal requirements.	
D. Emergency Response	<i>Responsible: Environmental Specialist/Contractor</i>
D1. If a spill occurs, refer to Environmental Guideline Spill Response. <ul style="list-style-type: none">• Call 311 immediately (during normal business hours) or at 303-206-0001 after normal business hours for all spills.	
D1. Containerize all contaminated groundwater and evaluate for labeling, storage and disposal.	
E. Inspection & Maintenance Requirements	<i>Responsible: Environmental Specialist/Contractor</i>
E1. Document all activities performed or observed.	

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<u>E. Inspection & Maintenance Requirements</u>	<i>Responsible: Environmental Specialist/Contractor</i>
E2. Ensure that if there is a permitted discharge, all monitoring requirements are met.	

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Expected Records / Outputs	
<u>Record / Output</u>	<u>Instructions</u>
Chain of Custody forms	<ul style="list-style-type: none"> Chain of Custody forms are provided by the contract laboratory.
Electronic and hard copies of analytical data	<ul style="list-style-type: none"> Electronic and hard copies of analytical data are provided by the analytical laboratories. Electronic and hard copies of analytical data are to be filed in the water files and kept in accordance with the DEH records retention policy.
Reports/Profile/Permit	<ul style="list-style-type: none"> Reports authorized by the City are provided in both electronic and hard copy. Other reports, which are provided by outside parties, may be either electronic and/or hard copy.
Manifests/Trip ticket	<ul style="list-style-type: none"> Hard copy from landfill or disposal facility. Documentation of permit requirements.

References
<p>Phone Numbers</p> <ul style="list-style-type: none"> 311 (for Spill Reporting during normal business hours).....3-1-1 DEH DEQ Emergency Response (after normal business hours)..... (303) 206-0001 DEH DEQ (about DEQ’s Site Assessment & Remediation services)..... (720) 865-5400 Alice Luhan (DEQ Environmental Scientist Supervisor)..... (720) 865-5431 Dave Erickson (DEH DEQ) (720) 865-5433

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References
<p><u>Guidance Materials (list not limited to the following)</u></p> <ul style="list-style-type: none">• Water Quality Program Quality Assurance Project Plan• City's Soil Screening Levels and User's Guide dated September 2005 and filed under City Clerk File Number 06-083-A (soil screening levels protective of groundwater)
<p><u>Training Materials (list not limited to the following)</u></p> <ul style="list-style-type: none">• Operating procedures training (On-the-Job)• Site specific training materials for handling contaminated materials
<p><u>Related Environmental Guidelines (list not limited to the following)</u></p> <ul style="list-style-type: none">• CCD-301.03.26 Spill Response• CCD-301.03.10 General Regulated Waste Management• CCD-301.03.25 Soils Debris Management
<p><u>Applicable Regulations (list not limited to the following)</u></p> <ul style="list-style-type: none">• 40 CFR Parts 100-135 Clean Water Act (CWA)• 40 CFR Parts 136-149 Safe Drinking Water Act (SDWA)• 40 CFR 122-124 NPDES Regulations for Storm Water Discharges• 40 CFR 239-299 Resource Conservation and Recovery Act (RCRA)• 40 CFR Parts 300-399 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)• 40 CFR Parts 300-399 Superfund Amendments and Reauthorization Act (SARA)• 5 C.C.R. 1002-1003 Water Quality Control<ul style="list-style-type: none">○ Regulation 31- Basic Standards and Methodologies for Surface Water○ Regulation 38- Classification and Numeric Standards for S. Platte River...○ Regulation 61- Colorado Discharge Permit System○ Regulation 65- Controlling Discharges to Storm Sewers○ Regulation 84-Reclaimed Domestic Wastewater Control• DRMC 19-1 to 19-29 Excavations• DRMC 24-8 Stormwater quality; surface water; re: stormdrains• DRMC 48-91 through 48-94 Unlawful disposal; re: stormdrains, embankments, waters, streams, or watercourses• DRMC 56-102 Disposal of wastes and use of public sewers• DRMC 56-102.5 Industrial Pretreatment• DRMC 24-231 through 24-232 Private Waste Disposal Systems• DRMC 37-5 Public Works Rules & Regulations on Sewerage Charges and Fee and Management of Wastewater• DRMC 48.43 Nuisances• Metro Wastewater Reclamation District Rules & Regulations
<p><u>Other Documents</u></p> <ul style="list-style-type: none">• CCD Water Quality Management Plan• CCD Lake Management and Protection Plan• Denver Radium Site Management Plans for OU-3and OU-7

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