

STATE OF COLORADO

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Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department
of Public Health
and Environment

July 11, 2008

Mr. Brent Anderson
IRG Redevelopment I, LLC
7991 Shaffer Parkway, Suite 300
Littleton, CO 80127

Re: Lowry Vista – Conceptual (30%) Revised Closure Plan for Operable Unit 2 at the
Former Lowry AFB, Denver, CO

Dear Mr. Anderson:

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division) has received and reviewed the document listed above. The Division has the following comments to this document:

We understand that this is a preliminary document and we have identified several inconsistencies within the document.

3.0 Design Investigations

3.1 Geotechnical Borings

Paragraphs 2 and 3 of this section seem redundant and inconsistent. Paragraph 2 states the test holes will be drilled to depths of 15 to 30 feet and paragraph 3 states 15 to 20 feet. Additional information to be recorded during drilling activities should include visual discoloration and odors.

Investigation Derived Waste (IDW) Handling

The second sentence of this section does not make any sense. Obviously, soils in the top 2 feet (the current cover) of the landfill are not a concern, but soils below the cap need to be characterized and disposed of properly.

Borehole Abandonment

The second sentence mentions “wells”, but I do not believe any wells are being proposed in this plan.

3.2 Exploratory Test Pits

This section of the plan does not mention how long the test pits will remain open and how the landfill contents will be protected from water infiltration during this

period of time. These activities should be weather dependent and there should not be a need for the holes to stay open overnight.

All of these activities require the site to be managed as an operating landfill and therefore you must meet the following portions of the regulations:

“Adequate Cover” means:

- (a) Daily cover: At least six inches (6”) of earthen material or other suitable material placed over the exposed solid waste at the end of each operating day, or at such frequencies as needed to prevent or minimize nuisance conditions; and
- (b) Intermediate cover: At least one foot (1’) of earthen material or other suitable material placed over solid wastes in areas left temporarily unused for at least one month, but not finally closed; and
- (c) Final cover: Final cover design should be selected from alternatives presented in Subsection 3.5.3.

If any potential hazardous waste is excavated from the landfill, the material must be properly containerized, characterized and disposed of.

3.4 Exploratory Trenching

Same comments as above.

Discovery and Handling of Visually Impacted Materials

Potentially hazardous waste cannot be stockpiled. They must be properly containerized.

No soils should be stockpiled on the current landfill cover for more than 24 hours and again, leaving the pits or trenches open for any period of time creates the potential for water infiltration into the landfill mass. It is unclear why this would be necessary.

Leachate Collection

The creation of a sump within the current landfill cover is not acceptable. Again, soils should not be stockpiled on-site and therefore a sump should not be necessary.

Soil Containers

Technically, if the waste is a hazardous waste, it should be containerized and labeled as a hazardous waste from the moment of generation. If you suspect the soil is a hazardous waste, you should label it as hazardous waste and if the analysis comes back as non-hazardous, you can change the label at that point.

4.0 Draft Materials Management Plan

It is still unclear as to why the plan is presented here and also in the Appendix D where the same information is provided but with more detail. This section should just reference the Appendix rather than try to present portions of the plan.

4.1 Asbestos

It is unclear why you would test the soil surrounding the suspect material unless you are planning to remove it.

Limited Quantity Non-Friable Material Discovery

The APCD regulations do not apply in this situation. You need to follow the solid waste asbestos regulations. If the material contains any asbestos, it will fall into the solid waste regulations.

Limited Quantity Friable Material Discovery

Again, the solid waste asbestos regulations apply. Soils surrounding the discovery only need to be removed if excavation is going to continue.

4.2 Municipal Solid Waste

This section is inconsistent with previous sections which state that MSW will be placed back in the ground.

4.3 Construction Debris

Construction debris is not subject to special handling unless it has other waste, such as asbestos or lead-based paint associated with it.

4.4 Oily Soil/Petroleum Products

Only soils to be excavated need to be characterized.

4.6 Underground Storage Tanks

Again, only soils that are to be excavated need to be characterized. If a tank is encountered, it is unlikely it was operated at this location, so the soil sampling may not need to be as extensive as required by the UST regulations.

The Division has a general concern about how the landfill cover will be returned to design specifications after the intrusive test pit and test trench activities. It will not be possible to replace the soil with the same compaction of the original cover. If the entire cover was going to be redesigned within a 30-day period, it would not be a problem. But, the construction of a new cover will likely not happen until next year if it happens at all. Therefore, the current cover should not be disturbed unless it can be returned to a condition that is protective.

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In addition, the following comments have been provided by Larry Bruskin of our Solid Waste and Material Management Unit after he completed a brief review of this document.

General Comment

1. It is unclear what the objectives of the intrusive investigation really are. If the investigation is being performed to identify geotechnical parameters at the site, then lab testing of samples must be performed and should be described in the report. If the objective is to refine the location of all the waste and then assume other areas are “clean”, then that should be clearly described as well. As currently written, the Design Investigation would not achieve either of these goals.

Section 3.1, Geotechnical Borings

2. The first full paragraph on page 19 states that boreholes will be drilled and “perhaps” samples will be obtained. The third paragraph states that all boreholes will be continually sampled. This discrepancy needs to be clarified.
3. The 3rd paragraph on page 19 states that subsurface soils will be classified using ASTM D 2488 (Visual-Manual Procedure). Will this be done based on drill cuttings or actual sampling of the soil? Also, it is CDPHE’s experience that the visual-manual method is acceptable for general information purposes, but only samples that are tested and classified according to ASTM D 2487 (Classification of Soils for Engineering Purposes) can be considered accurate. CDPHE recommends that IRG obtain soil samples within all geotechnical borings, and, if desired, archive the sample for potential future testing.

Section 3.2, Exploratory Test Pits and Section 3.4, Exploratory Trenching

4. These sections state that after the test pit or trench is backfilled to within 2-ft of grade, the cap will be restored to “the design specifications”. The procedure to restore portions of a Subtitle D low-permeable barrier cap must be clearly described in detail and include appropriate drawings. Normally, a “stair-step” tie-in technique that assures proper bonding is used for this purpose, as shown in Figure 2.2 of EPA¹ guidance. This requires that the sides of the excavation be sloped back to allow in-place, “undisturbed” cover material to be exposed.

¹ EPA, 1993, *Technical Guidance Document, Quality Assurance and Quality Control for Waste Containment Facilities*, EPA/600/R-93/182.

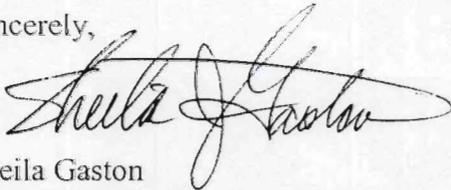
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Appendix E – Operations, Maintenance and Monitoring Plan

5. The Operations, Maintenance and Monitoring Plan contained in Appendix E is outdated and must be totally revised. Section 2.3 of the plan states that the “property use will be that of an open space/non-irrigated park.” Since that is not the current plan, additional information must be provided that accounts for all underground disturbances, planned or otherwise. Planned items such as underground utilities, different surface coverings (i.e., asphalt and concrete), irrigation, building construction, and drainage channels must be described. Unplanned activities such as utility repair and unauthorized disturbance of the cap should also be covered in the revised plan.

It is our understanding that we will receive separate and specific work plans for our review and approval before any intrusive work is performed on the current landfill cover. Please submit the work plans with sufficient time for our review prior to your scheduled field work. In addition, if you would like to schedule a meeting to discuss the comments provided in this letter, feel free to contact me at (303) 692-3332.

Sincerely,



Sheila Gaston
Remediation and Restoration Unit
Remediation Program
Hazardous Materials and Waste Management Division

cc: Pat Smith, EPA-Region 8
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