

TASK PLAN

CSMRI SITE REMEDIATION

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Prepared for:

Colorado School of Mines
Golden, CO 80401

Prepared by:

New Horizons Environmental Consultants, Inc.
6585 S. Wright Street
Littleton, CO 80127

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TASK PLAN

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1.0 HISTORY / INTRODUCTION

This *Task Plan* addresses activities to be performed by or under the direction of New Horizons Environmental Consultants, Inc. (New Horizons) to complete the remediation of the former CSMRI facility located in Golden, Colorado (Site). Details of the tasks can be found in the appropriate project work plans.

The 6-acre Site is located on the south side of Clear Creek, east of U.S. Highway 6, in the northeast quarter of the northwest quarter of Section 33, Township 3 South, Range 70 West. The main entrance to the Site is located about 475 feet northwest of the intersection of Birch and 12th Street in Golden, Colorado. A chain-link fence restricts access to the Site, except for a small area located south of 12th Street known as the Clay Pits area.

Prior cleanup activities at the Site have included the removal and stockpiling of material from a former settling pond, off-site disposal of the stockpile, building cleanup and demolition, and removal of concrete and asphalt associated with floors and foundations of the former buildings. A soil characterization study was performed during 2002 through 2003. Results of the characterization were incorporated into an RI/FS that was published in January 2004. Following the formal review by the public and the Colorado Department of Public Health and Environment (CDPHE), a *Record of Decision* (March 2004) was published that specified the off-site disposal of the affected material. The purpose of this Task Plan is to control the remediation process for the off-site disposal of the metals and radionuclide affected soils and verify that remediation goals have been met.

The operational tasks of the project will include the following:

- Preparation of Project Work Plans,
- Mobilization,
- Material excavation (soil and minor amounts of debris),
- Materials transportation
- Material disposal,
- Demobilization,
- Preparation of a *Final Report*, and
- Ground- and surface-water monitoring to demonstrate natural attenuation.

The Task Plan is a planning document only and may be changed as necessary to meet project requirements.

2.0 PROJECT WORK PLANS

New Horizons will prepare a comprehensive set of work plans that will detail the removal activities to be conducted at the Site. In addition to this *Task Plan*, the following documents will be prepared:

- *Health & Safety Plan (HSP)*
- *Sampling and Analysis Plan (SAP)*
- *Quality Assurance Project Plan (QAPP)*
- *Storm-Water Pollution Prevention Plan (SWPPP)*
- *Materials Handling and Transport Plan (MHTP)*
- *Ground- and Surface-Water Monitoring Plan (GSWMP).*

3.0 MOBILIZATION

New Horizons will mobilize the necessary personnel, equipment and supplies to the site. An office trailer and a laboratory trailer will be set up on site to accommodate subsequent work activities. The laboratory trailer will include an on-site gamma spectroscopy unit to allow the use of ISOCS (In Situ Object Counting System) confirmation for excavation control.

4.0 MATERIAL EXCAVATION

4.1 Excavation of Class 1 (Most Affected) Area Material

The RI/FS identified a number of areas near the former buildings with material that had the most elevated radionuclide activity. These areas were designated Class 1 areas in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance. A Colorado registered Professional Land Surveyor (PLS) will use data generated during the RI/FS to re-establish the location of these Class 1 areas. The Class 1 areas also contained metals above the CDPHE proposed Tier 2 soil standards.

Class 1 area soil will be excavated and direct-loaded into Lift Liner™ bags to ensure material containment (i.e. "super sacks" with a nominal capacity of 106 ft³). The liners will then be lifted out of their metal frames for surveying operations. The exterior of the liner will be surveyed to confirm that removable radioactive contamination does not exceed 1,000 dpm/100cm², with maximum exterior survey results of 10 mrem/hr surface and 2 mrem/hr at a distance of one meter from the surface. Once the liners are surveyed, they will be temporarily stored in a designated clean area on polypropylene sheeting. This area may be designated the Contamination Reduction Zone.

On-site survey instrumentation and the ISOCS will control excavation control as described in the SAP. Samples of the Class 1 area material will be analyzed using the ISOCS and/or laboratory to verify the material meets transportation regulations and the landfill acceptance criteria (see SAP).

4.2 Excavation of Metals Affected / Class 2 Areas Materials

The RI/FS identified additional areas that contained metals above the CDPHE Tier 2 metals soil standards and areas that potentially contain somewhat elevated radionuclide activity. The areas containing potential radionuclide activity are designated Class 2 areas by MARSSIM. The licensed surveyor will use data from the RI/FS to re-establish the location of the remaining soils.

Metals affected / Class 2 soils will be excavated and stockpiled on-site. Soil stockpiles will be sampled to confirm that the landfill acceptance criteria designated in the CDPHE memorandum dated

February 25, 2004 are met (Subject: CSMRI soil cutoff values for planning and budgeting purposes, ANSI/HSP N13.12-1999 standard). Samples of the metals affected / Class 2 area material will be analyzed using the ISOCS and/or laboratory to verify the material meets the landfill acceptance criteria (see SAP).

On-site survey instrumentation and the ISOCS will control excavation control as described in the SAP. Verification samples will be collected following excavation to determine if the Site specific derived concentration guideline levels (DCGLs) have been met. Samples also will be collected to determine if the CDPHE proposed Tier 2 metals soil standards have been met. The Site specific soil standard for arsenic has been established as the upper confidence limit of the background concentration (13 milligrams per kilogram) instead of the published value.

The on site ISOCS instrumentation will be used to evaluate all of the soil samples to determine radionuclide activities. At least 20-percent of these samples will be sent to a certified, independent laboratory to verify the analysis. All of the metals samples will be sent to a certified laboratory for analysis. Analytical methods and procedures are described more fully in the SAP and the QAPP.

4.3 Personal and Perimeter Air Monitoring

Perimeter air monitoring will be conducted at a minimum during all working hours while excavation operations are in progress. The air-monitoring program is described more fully in the SAP.

5.0 TRANSPORT OF SOILS

New Horizons will implement the *Materials Handling and Transportation Plan* (MHTP) to govern the transport of soils over public roadways and railways. The MHTP describes the classification of material(s) to be transported, specify the transportation protocol for the material(s), and detail the emergency response plan for material(s) in transit.

The following guidelines will apply to all shipments.

- Each soil shipment will be accompanied by shipping papers that includes, at a minimum, the following information:
 - ◆ The name and address of the shipper, carrier, and destination
 - ◆ Emergency contacts and a 24-hour emergency phone number for the shipper
 - ◆ The total quantity of soil in the shipment
 - ◆ Certification by the carrier that the shipment conforms to DOT transportation requirements
- All shipments will be by closed or covered transport vehicle.
- All truck traffic will be required to enter and exit the site via the temporary access constructed at the W end of the Site onto U.S. Highway 6. Gravel tracking pads will be used to minimize the mud carried out onto the Highway in accordance with the SWPPP. Street cleanup will be performed on an as-needed basis (per SWPPP).

Material destined for American Ecology (Grand View, Idaho) will be transported by flat-bed trailers to the CAST transloading facility located in Henderson, CO. This material will be contained in the

previously described Lift Liner™ with up to four bags per trailer. Additional details of the transportation operation are provided in the MHTP.

Stockpiled material designated for BFI-Foothills (north of Golden, Colorado) or Waste Management - CSI (Henderson, Colorado) will be loaded into covered, long-bed dump trucks and transported to the designated landfill.

New Horizons has developed a response plan for potential accidents or spills that may occur during the transport of material to local landfills or transloading facility. Response activities on the Site will be covered in the project specific *HSP and MHTP*. Although New Horizons' selected carrier will have the primary responsibility for response operations in the event an accident and / or spill during the transportation of waste materials, New Horizons personnel also will respond with trained personnel and specialized equipment to assist in the prompt retrieval of any material spilled at the incident site. The carrier also will have access to external services for responding to potential spills and accidents that exceed the carrier's internal resources. These external services will be listed in the carrier's emergency response plan. The selected carrier will submit a copy of its emergency response plan prior to mobilization. The emergency response plan will contain, at a minimum, the following sections:

- Contractor's Responsibilities
- Emergency Notifications
- Response Equipment and Personnel
- Incident Review
- Field Operations Outline

6.0 DISPOSAL OF SOILS

6.1 Class 1 (Most Affected) Areas Soils

Soils excavated from the Class 1 areas will be disposed of at the Subtitle C, American Ecology disposal site in Grand View, Idaho or the Subtitle D, Waste Management - CSI disposal site in Henderson, Colorado. The CSI landfill cannot accept this material prior to the completion of a landfill specific risk assessment (oral communication, Phil Egidi, CDPHE). Copies of waste manifests will be retained in the project files.

6.2 Metals Affected / Class 2 Areas Soils

Soils from the metals affected / Class 2 areas will be shipped to the Subtitle D, BFI-Foothills disposal site located north of Golden, Colorado. If excavation operations reveal material that exceeds the CDPHE landfill acceptance criteria for the BFI site, the identified material may be sent to CSI or American Ecology. Copies of shipping papers will be retained in the project files.

7.0 DEMOBILIZATION

Following the completion of soil removal activities, vehicles, equipment and personnel will be demobilized from the site. Decontamination operations will be conducted on an as-needed basis to

meet applicable free-release criteria [below 0.5 mrem/hr on any accessible surface, with no significant non-fixed surface contamination remaining (49 CFR Part 173.443)].

8.0 FINAL REPORT

At the close of the project, New Horizons will prepare a comprehensive *Final Report* that will fully describe the soil removal operations and summarize the analytical data. The report will contain copies of all applicable documentation relating to ISOCS measurements, laboratory analyses, and transport and disposal of soils. Exposure records for Site personnel, air monitoring data, photographs, and other documentation relating to the conduct and progress of the project will be included as Appendices.

9.0 GROUND- AND SURFACE-WATER MONITORING

Quarterly ground- and surface-monitoring sampling will be performed during remediation operations and continuing for at least two years after operation completion to document natural attenuation. Five ground-water wells and three surface-water locations on Clear Creek will be sampled and analyzed for Site specific radionuclides and metals, common anions and cations, and volatile organic compounds. Field parameter measurements will be collected during each sampling round and the nearby U.S. Geological Survey stream gage will be used to document stream discharge. Details of the monitoring program are provided in the Ground- and Surface-Water Monitoring Plan.

CDPHE will evaluate the program after two years of sampling to determine if additional sampling is required.