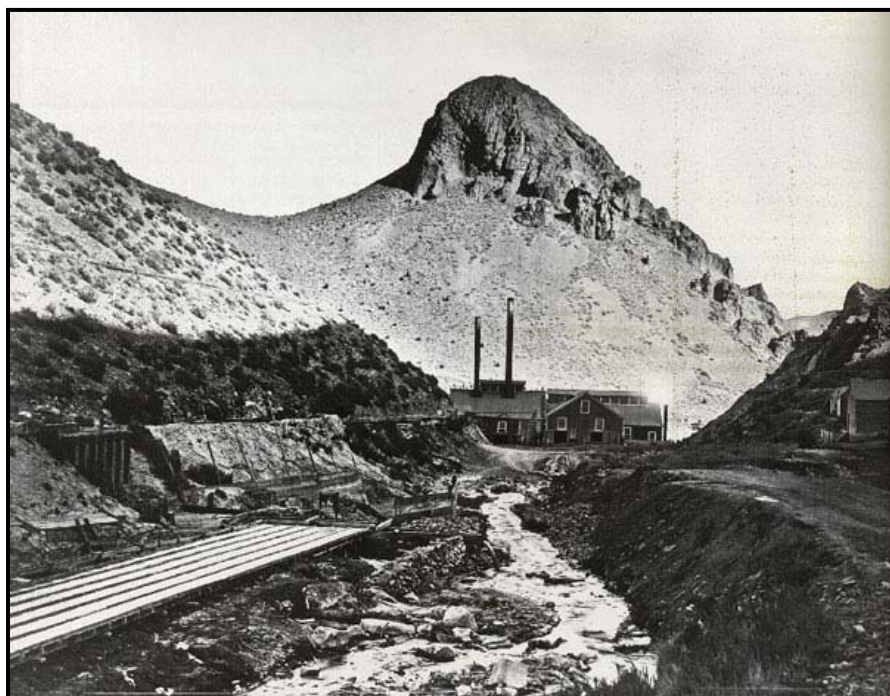


**DRAFT**  
**CARSON RIVER MERCURY SUPERFUND SITE**  
**LONG-TERM SAMPLING AND RESPONSE PLAN**  
**RISK ASSESSMENT AND SOIL MANAGEMENT**

**REVISED:**  
**December 16, 2011**



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***IN CONJUNCTION WITH:***  
**US EPA REGION 9**  
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**LIST OF ACRONYMS:**

As.....	Arsenic
BCA .....	Bureau of Corrective Actions, within NDEP
BMRR .....	Bureau of Mining Regulation and Reclamation
bgs.....	below ground surface
CC&Rs.....	Homeowner Association Covenants, Conditions & Restrictions
CEM .....	Nevada Certified Environmental Manager
CERCLA .....	Comprehensive Environmental Response, Compensation and Liability Act
CoC.....	Contaminant of Concern (Mercury, Arsenic and Lead)
CRMS.....	Carson River Mercury Superfund Site
DNM .....	Durable Notification Mechanism
EPA.....	U.S. Environmental Protection Agency
FEMA .....	Federal Emergency Management Agency
FPXRF .....	Field Portable X-Ray Fluorescence
Hg .....	Mercury
LTSMP .....	Long-Term Soils Management Plan
LTSRP .....	Long-Term Sampling and Response Plan
NDEP .....	Nevada Division of Environmental Protection
NFA.....	No Further Action
NPL.....	National Priority List
OU-1 .....	Operable Unit 1
OU-2 .....	Operable Unit 2
Pb.....	Lead
RSLs.....	EPA Region 9 Regional Screening Levels
SAP.....	Sampling and Analysis Plan
QA/QC .....	Quality Assurance/Quality Control

## **1.0 Brief Site History**

Historic mining activities in the Comstock region used imported elemental mercury to amalgamate gold and silver. It has been estimated that 7,500 tons (15,000,000 pounds) of elemental mercury was lost in the process of obtaining gold and silver. Additionally, two other heavy metals (lead and arsenic) were concentrated and discharged, as a result of Comstock ore extraction and processing, at levels which may present a human health concern. The mercury, lead and arsenic subsequently migrated into soils via fluvial pathways and hence into the Carson River system along a 75-mile stretch of the Carson River from New Empire, just east of Carson City, to its termination points at Carson Lake, Stillwater Wildlife Refuge and the Carson Sink. Episodic flooding and fluvial deposition have produced areas with high contaminant of concern levels which represent “hot spots” within a wider area of possible contamination. Areas likely to have the highest levels of contaminants of concern (CoCs - Hg, Pb, As) include former mill sites and associated drainage pathways down-gradient of mill sites as well as within the river system itself. The USGS initially discovered high mercury levels in water samples in the 1970’s prompting the U.S. Environmental Protection Agency (EPA) to designate the area the Carson River Mercury Superfund Site (CRMS) and place it on the National Priority List (NPL) regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The EPA authorized the Nevada Division of Environmental Protection (NDEP) to manage the CRMS; the NDEP delegated the responsibility to the Bureau of Corrective Actions (BCA).

## **2.0 Goals of the Long-Term Sampling and Response Plan**

A property is defined to fall within CRMS boundaries, and thus be subject to the Long Term Sampling and Response Plan (LTSRP) requirements, if:

1. It is within the Carson River watershed between New Empire and its terminus.
2. It is in Six-Mile, Seven-Mile, Daney or Gold Canyons and their associated floodplains.
3. It is located adjacent to or down-gradient of a former mill site and within the area bounded by the Carson River, its tributaries and floodplains.
4. It is located in fluvial deposition zones associated with these areas.
5. It is located near Comstock era mills in Washoe Valley or is within the floodplains and drainages associated with Washoe Lake and Steamboat Springs.
6. It has not already undergone sampling and/or cleanup and has already been removed from the CRMS because it has met the EPA/NDEP guidance standards for clean property.

The CRMS is divided into two operable units, defined as Operable Unit 1 (OU-1) and Operable Unit 2 (OU-2). This LTSRP deals with construction/development activities being conducted in both OU-1 and OU-2, which is contained in Carson, Storey, Lyon, Washoe and Churchill Counties. The risk area boundaries are shown on Figure 1. Everything lying within the outermost Low Risk area boundary is deemed to be within the portion of the CRMS that will need to undergo some form of initial sampling and verification sampling per guidance in this document. Areas outside of OU-1 but within the boundary of OU-2 will also need to undergo sampling (see Moderate Risk Zone sampling procedures on page 9).

Institutional controls are required to manage the potential risks resulting from environmental contamination. This LTSRP serves as an institutional control by providing specific sampling requirements to assess the levels of contaminants of concern (CoCs) which consist of mercury, lead and arsenic. These metals are associated with historic mining activities on the Comstock

and currently exist in surface and subsurface soils. In addition, this LTSRP requires interpretation and reporting of analytical results and provides remediation options for addressing impacted areas. The goal of this LTSRP is to provide, in perpetuity, a set of requirements that are protective of the most at-risk population receptors by ensuring that a property located within the CRMS does not provide a direct exposure pathway to mercury, arsenic and lead contaminated soils.

### **3.0 Contaminants of Concern (CoCs) Discussion**

A risk assessment conducted by the EPA using site specific data identified mercury as the primary contaminant of concern and ingestion as the primary exposure pathway. The prime receptors for this pathway are young children, ages one through six. The accepted method of protecting this age group from ingesting mercury in surface soils is to ensure that the top two feet of soil contain mercury levels less than the site specific action level of 80 mg/Kg for residential property and 300 mg/Kg for non-residential property. Action levels are based on associated health risks and include factors such as exposure frequency, duration and body weight. Arsenic and lead were also deemed to be contaminants of concern at this site. The NDEP has determined that an appropriate screening/action level for arsenic in the Carson River Basin is 32 mg/Kg<sup>1</sup>. The NDEP will utilize EPA's Region 9 Regional Screening Levels (RSLs) guidance document to evaluate lead levels. Lead RSLs are currently set at 400 mg/Kg for residential property and 800 mg/Kg for commercial/industrial property.

**TABLE 1: CURRENT SCREENING/ACTION LEVELS FOR CONTAMINANTS OF CONCERN ON THE CRMS**

<b>Contaminant</b>	<b>Residential Screening/Action Level</b>	<b>Commercial/Industrial Screening/Action Level</b>
Mercury	80 mg/Kg	300 mg/Kg
Arsenic	32 mg/Kg	32 mg/Kg
Lead	400 mg/Kg	800 mg/Kg

### **4.0 Activity Applicability**

Requirements contained in this document apply to the following activities conducted within the CRMS: Any excavation activities that disturb greater than 3 cubic yards of soil including, but not limited to, minor and major property subdivision construction activities, swimming pool excavation/installation, utility ditching/trenching, mine exploration, mining, tailings/waste rock reprocessing and any other construction/renovation activity disturbing soils within the CRMS boundary, which may then come in direct contact with humans.

### **5.0 General Sampling and Remediation Methods**

These general sampling and remediation methods are applicable to all current and future property owners, regardless of property size, within the designated CRMS low, moderate or high risk boundary areas (see Figure 2). The sampling and remediation methods for mine

tailings reprocessing conducted within the CRMS are detailed later in this document; however, the general methods specified in this section pertain to all other soil disturbance activities. All property owners conducting sampling must hire a Nevada Certified Environmental Manager (CEM) to perform the investigation and report the sampling results. An alternative for individual landowners with property located in an area which has not undergone sampling for mercury and is not located in a subdivision with existing durable notification mechanisms (DNMs) is to contact the NDEP and request that a metals screening of their property be conducted by NDEP personnel. Upon request, NDEP personnel will schedule a site visit and conduct field portable x-ray fluorescence (FPXRF) soil screening to determine approximate on-site metals levels. Based on the results of soil screening performed by NDEP personnel, the landowner, in consultation with NDEP, can determine if more sampling should be conducted by a CEM<sup>3</sup>.

Prior to sampling, a sampling and analysis plan (SAP), which incorporates standard CERCLA QA/QC procedures, must be submitted to the BCA for approval (in both hardcopy and electronic format). NDEP requests that lead and arsenic analyses be incorporated into the SAP along with mercury because these metals were specifically identified as contaminants of concern at this site. NDEP will compare lead results to the residential soil action levels in the EPA Region 9 Regional Screening Levels (RSLs) and arsenic results to background levels<sup>1</sup> in the Carson River Basin. The CEM will ensure that all SAP procedures are conducted and proper chain of custody procedures are followed to ensure intact receipt of all samples by the laboratory conducting the analyses. After analytical results are received by the CEM, a final sampling report must be submitted to the BCA in a timely manner. The BCA will notify the CEM and property owner when the report has been reviewed and if remediation is required. Generally, two remediation methods for reducing risks when CoC levels exceed an action level are: 1) excavating contaminated soils for appropriate disposal, and 2) capping contaminated soils with two feet of clean fill. For the first remediation method, the preferred disposal option is off-site disposal at an approved facility. The only on-site disposal option that will be reviewable on a case-by-case basis involves using heavy metal (Hg, Pb, As) impacted soil material which does not exceed the industrial exposure level(s) for road base under public subdivision roads. The BCA will request that this material be placed in specific areas and not spread throughout the subdivision. A map depicting the specific location of this material will also be requested. For the second remediation method, the requirement is that at a minimum, the top two feet of final-grade soils cannot exceed the applicable action level standards. In each of these remediation methods, it is not acceptable to utilize mixing of site soils and/or imported borrow material to reduce detected contaminant of concern levels to below appropriate action levels as this creates a larger volume of impacted material and spreads the impacted material over a larger area.

**TABLE 2: SUMMARY OF LAB SOIL SAMPLING METHODS/DATA QUALITY OBJECTIVES**

Measurement	Location	Analytical Method	Data Use
Mercury	Lab	EPA Method 7471A or 7471B *Sample lab sieved to 250 microns (60 mesh)	Site characterization, remediation evaluation, risk assessment
Arsenic & Lead	Lab	EPA Method 6010B or 6010C; digestion 3050 *Sample lab sieved to 250 microns (60 mesh)	Site characterization, remediation evaluation, risk assessment

\*If samples are wet and cannot be sieved, air dry them or use modest heating to <40° C (<100° F) to enable proper sieving to 250 microns (60 mesh). Rapid and/or over-heating could cause excessive mercury volatilization to occur.

## **6.0 Subdivision Developers**

All subdivision developers must notify the BCA in addition to the County of all proposed subdivisions within the CRMS. Upon BCA review and approval of subdivision maps and prior to surface grading, developers and subdivision property owners within the CRMS boundary area shall conduct pre-development soil sampling according to a CEM and BCA approved SAP. Refer to the Risk Zone Map (Figure 2) when developing the sampling density in the SAP<sup>3</sup>. In addition, the SAP should take into account the location of historic mill sites, natural drainage areas, man-made drainages, the depth of excavation proposed in the grading plan and any other site features that might contain contaminant of concern impacts due to historic mining or milling activities. Proposed sampling depths should correspond to the excavation depths in the grading plan and account for the upper two feet of soil below finish grade. Should contaminant of concern exceedance areas be detected, the developer will be required to expand characterization in the area of the exceedance to define the lateral extent of the impacts. After the impact(s) are defined, the area will need to undergo removal and/or remediation prior to being intermixed with other site soils or clean imported material used during grading. Confirmation samples will not be required if the top two feet of finish grade are removed and replaced with clean fill.

After subdivision soils are brought to finish grade, minimum sampling requirements of the top two feet bgs is necessary based on the risk levels discussed in Section 8.0. If pre-development sampling and remediation was properly conducted the finish grade soils are likely less contaminated; therefore, less rigorous statistical sampling procedures and a lower sampling density will be required at the end of the project. If pre-development sampling and remediation was not conducted or not conducted properly and only finish grade sampling is conducted, then the possibility exists for contaminant of concern “hot spots” and more pervasive contaminant of concern impacts throughout the subdivision as a result of mixing. Therefore, it is incumbent upon the subdivision developer to hire a CEM to develop a SAP that can be reviewed by BCA before breaking ground.

This includes possible remediation of the top two feet of soil and implementation of durable notification mechanisms (DNMs). Remediation involves excavating the top two feet of contaminated soil for proper disposal and backfilling with two feet of clean fill, or covering contaminated soils in-place with a minimum two feet of clean fill.

In subdivision specific areas where future erosion, fluvial transport, and/or deposition could reasonably be anticipated to cause contaminant of concern levels to exceed the relevant action level of previously clean or remediated areas, additional measures will be evaluated for limiting recontamination. In addition, more than two feet of clean fill may be required in areas where future land use will result in exposure to soils at depths greater than two feet below ground surface (bgs).

## **7.0 Durable Notification Mechanism (DNM) Methods Discussion**

The basis for DNM's is the Nevada Uniform Environmental Covenants Act (Nevada Revised Statute – NRS 445D). DNMs may include real property deed restrictions (recognized as the strongest DNM), subdivision Environmental Covenants, homeowner association Covenants, Conditions & Restrictions (CC&Rs), or some other method or combination of methods, and a Long-Term Soils Management Plan (LTSMP). Regardless of the method(s) chosen, the DNM should be as durable as deed restrictions and as accessible as CC&Rs. The LTSMP is a document (prepared by the subdivider or property developer) that accompanies the property

deed, and is part of the county-approved development process; it is a summary description of the steps taken to ensure the public is not exposed to hazardous concentrations of contaminants of concern in soils. The LTSMP is composed of several components, including a plan for how the public will be notified of potential contamination, and how the county and the BCA will be notified if a property owner wants to disturb potentially contaminated soils. For instance, a property owner may want to install a new water or sewer line, or excavate soil for a swimming pool installation. Specific components of the LTSMP could include postings of public notifications at County buildings, libraries, subdivision community boards, “call before you dig” notices posted at various locations within subdivisions and public informational mailings or brochures. The purpose of the LTSMP is to ensure in perpetuity protection of the environment and public safety from potential risks associated with CRMS contaminants of concern. The LTSMP and its specific components will be approved by the BCA prior to implementation. If contaminated soils may reasonably be expected to remain below two feet, and natural events or future land uses may include excavation or disturbance of soils to depths greater than two feet bgs, DNMs that apply to depths greater than two feet bgs must be implemented to prevent future contact with buried soils.

### **8.0 Risk Assessment Levels as they Relate to Sampling Requirements**

All developments within the CRMS boundary area must submit subdivision grading plans to the BCA and site-specific SAPs for approval by the BCA. All SAPs must be developed and submitted to the BCA by a CEM. Quality assurance and quality control (QA/QC) are required integral components of all sampling plans regardless of designated risk level. All sampling plans will be accompanied by site-scale maps. They will address the type of sampling to be employed, sampling density, sampling locations, and include explanations as to choice of sampling types and locations, and whether samples will be composited or analyzed for each distinct sampling location. They will also address the analytical methods to be employed. Any labs conducting soil sample analyses for contaminants of concern must be a Nevada Certified Laboratory. Any or a combination of each of the low, moderate and highest risk levels discussed below, with their associated sampling requirements, may be employed in the sampling scenarios discussed in Section 6. **For additional guidance for sample layout, density and collection procedures see: *EPA’s Superfund Lead-Contaminated Residential Sites Handbook – August 2003 (OSWER9285.7-50)*.**

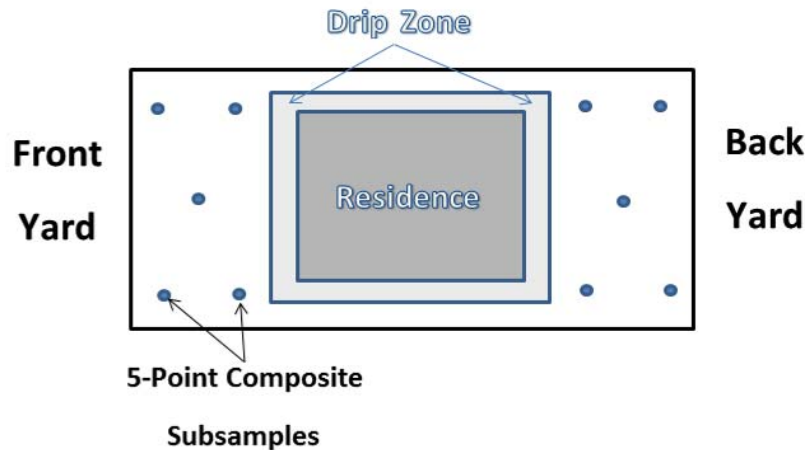
The EPA and others conducted initial heavy metal sampling of the CRMS and discovered a wide range of heavy metal concentrations. Experience with, and knowledge of, historic mining practices, specific mine/mill site locations, mining waste piles, locations of historic channels, potential fluvial CoC transport pathways, and previous sampling locations and data, has led to assignment of multiple risk levels and sampling requirements (see Figure 2). The BCA acknowledges some uncertainty between these various risk levels and requisite sampling requirements, and offers these risk levels and requirements as a starting point for consistent evaluation of proposed developments within the CRMS. Regardless of risk level and requisite sampling density, all sampling and analysis plans must be approved by the BCA prior to sampling.

Regardless of the risk level, an individual landowner with property located in an area which has not undergone sampling for CoCs and is not located in a subdivision with existing DNM’s may also contact the NDEP and request that a CoC screening of their property be conducted by NDEP personnel. Upon request, NDEP personnel will schedule a site visit and conduct Field Portable X-Ray Fluorescence (FPXRF) soil screening to determine approximate on-site metals



levels. Based on the results of soil screening performed by NDEP personnel, the landowner, in consultation with NDEP, can determine if more sampling should be conducted by a CEM.

### TYPICAL RESIDENTIAL YARD SAMPLING STRATEGY/LAYOUT<sup>3</sup>



#### **8.1 Very Low Risk = No Sampling Required**

Many upland properties within the Carson River Watershed (i.e. Stagecoach Highlands) are not likely to experience fluvial deposition from potentially contaminated soils; the properties are well out of all floodplains, and there are no up-gradient or adjacent mill sites. These properties are deemed to not possess the potential to harbor Comstock mining/milling related contaminant of concern contamination and do not present a significant risk to public health or the environment; therefore, NDEP, in most cases, will not require sampling. Should a property owner in these areas wish to sample their soils, the BCA will advise the property owner to follow the same requirements as in the low risk category discussed below. While the very low risk area is not shown directly on Figure 2 because, in most cases, no sampling is required, the very low risk area of the CRMS is essentially all areas outside of the low risk boundary, but inside of the Carson River drainage basin boundary.

#### **8.2 Low Risk = Minimum Sampling Density (two five point composite samples per lot)**

Within the low risk area identified on Figure 2, the sampling requirement is to conduct minimum sampling of post-final grade soils. As noted in previous sections, there is less risk of CoC contamination where no mill sites or mine wastes are present adjacent to or immediately up-gradient of a property's boundaries when the property falls outside the Federal Emergency Management Agency (FEMA) 100-year Carson River floodplain, the active channels and associated floodplains of Six-Mile Canyon, Seven-Mile Canyon or Gold Canyon; and a few other areas as mentioned in previous reports and studies. The remaining consideration for low-risk determination is based on the property being zoned non-residential or classified as public park lands. For lowest risk areas within CRMS boundaries, two samples per lot should be sufficient for characterizing yard soils (one from the backyard and one from the front yard). The samples should be composited from five discrete sample locations from the 0-6" depth range<sup>3</sup>.

### **8.3 Moderate Risk = Sampling Density (eight five point composite samples per lot)**

Within the moderate risk area shown on Figure 2, a higher sampling density must be conducted. This area typically lies within the Carson River floodplain or other active channels and is at least partially proposed for residential development, park or school lands, but contains no mill sites or obvious mining wastes. For moderate risk properties in the CRMS, eight samples per lot is sufficient. Half of the samples should be taken from the front yard and half from the backyard. The samples should be composited from five discrete sample locations at 6 inch depth intervals (i.e., 0-6", 6"-12", 12"-18" and 18"-24"). In all cases composites should consist of aliquots collected from the same depth interval<sup>3</sup>.

### **8.4 Highest Risk = Highest Sampling Density (minimum of eight five point composite samples per lot)**

Properties with a high risk of CoC contamination are subject to the most intense scrutiny and require the highest sampling density. The highest risk properties contain evidence of mill sites or other mining wastes or have associated fluvial drainages and are proposed for residential development, school or public park lands. If a property falls into the highest risk category as determined by the BCA, pre-final grade sampling shall be conducted. If pre-final grade soil screening analytical results show total CoC concentrations exceed the relevant action level, the contaminated soils must undergo removal and appropriate off-site disposal or be stockpiled on-site until finish grade sampling is conducted and any additional material is removed. At that time all removed and stockpiled material must be appropriately disposed of off-site or may be used as road base for future asphalt-paved roads in the subdivision. A minimum of eight samples per lot will be required in these situations, and standard statistical procedures will be employed to ensure the samples are representative of the property. The samples should be composited from five discrete sample locations at 6 inch depth intervals (i.e., 0-6", 6"-12", 12"-18" and 18"-24"). In all cases composites should consist of aliquots collected from the same depth interval<sup>3</sup>.

## **9.0 Subsequent Property Owner Soil Disturbance**

Subsequent property owners within CRMS-designated areas will be informed through various mechanisms outlined in the LTSMP discussed above, that their property is within the CRMS boundaries, and they are not to disturb greater than 3 cubic yards of soil below two feet bgs without first notifying the BCA. If the BCA determines that the property soils warrant sampling, based on the type of soil disturbance proposed, then the property owner must hire a CEM to collect samples from the soil horizon to be disturbed, and report, in a timely manner, the analytical results in a summary report to the BCA. If the BCA determines that the relevant action level is exceeded, then the contaminated soil remediation methods described in Section 5.0 apply, i.e. excavate contaminated soil for appropriate disposal or cap contaminated soils with two feet of clean fill. After final grading, the top two feet must ultimately demonstrate exceedance of the relevant action level.

If the analytical results demonstrate that CoC levels are less than the relevant action level, then no remediation is required and the BCA will issue a "no further action" letter for the soil horizon to be disturbed below two feet<sup>2</sup>. The County will maintain a copy of subdivision sampling records and will provide informational brochures detailing the CRMS requirements and guidance for communication, sampling and remediation.

## **10.0 Individual Lot Owner DNM Removal**

DNM's will apply to developments collectively and should an individual lot owner seek to have the DNM's removed from their individual lot, specific lot sampling must be conducted to show that CoC contamination does not exist on that specific lot. The lot owner must hire a CEM to develop and submit a lot soil sampling plan to NDEP for review. Upon approval, samples must be collected which verify that CoC contamination is not present within the top 8' of the soil surface<sup>2</sup>. Should sampling demonstrate that CoC contamination is present, DNM's may not be removed unless CoC remediation is conducted and additional verification samples demonstrate that CoC amounts are below acceptable levels.

## **11.0 CRMS Area Mining/Tailings Reprocessing**

Anyone wishing to mine and/or reprocess material within the boundary of the CRMS must develop a site Sampling and Analysis Plan (SAP) which specifically addresses the bulleted items below. The SAP will be incorporated into the Bureau of Mining Regulation and Reclamation (BMRR) reclamation permit by reference. These requirements will be enforced to ensure that the development and/or reprocessing of mill tailings and mine waste within the CRMS does not exacerbate CoC contamination by mobilizing, spreading, relocating, or otherwise enhancing the release of CoCs into the environment or by increasing the potential for human exposure. Activities which result in the mobilization, increased potential for exposure or worsening of the CoC contamination problem within the CRMS may make the miner/reprocessor a responsible party under the Comprehensive Environmental Response, Compensation, and Liability Act, (CERCLA), as amended. These requirements are intended to reduce the potential that the miner/reprocessor will incur CERCLA liability.

- A SAP, which incorporates standard CERCLA QA/QC procedures, must be prepared by a CEM or a Registered Professional Engineer (PE). The CEM or PE will be responsible to ensure that all SAP procedures are used and proper chain of custody procedures are followed to ensure intact receipt of all samples by the laboratory conducting the analysis (all analysis associated with these requirements must be conducted by a Nevada Certified Laboratory).
- Prior to sampling, the SAP must be submitted to the BCA for approval in both hardcopy and electronic format. The approved SAP will be incorporated into the BMRR Reclamation Permit as a specific permit requirement by reference.
- The SAP must encompass pre-mining/reprocessing sampling and bench scale testing or post-mining/reprocessing sampling to allow the development of a CoC budget for the material to be mined/reprocessed. This CoC budget must be maintained throughout the project in order to demonstrate what happens to the level of CoCs present in the material. The SAP must also address sampling and analysis of any area which will be disturbed resulting in the potential to expose a new surface (and potentially high CoC levels) previously not exposed. Any disturbance area will need to undergo verification sampling to demonstrate that CoC levels at these locations do not exceed LTSRP institutional control action level standards for CoCs.
- A post-mining/reprocessing report detailing the site CoC budget is required to be submitted by a CEM or a PE before project close-out. This report will include all

applicable information as described on Attachment A – Information Requirements for Soil Releases Excavated to Below Soil Action Levels (which CEM's are familiar with). This final CoC budget report is to demonstrate the amount of CoCs that existed in the processed material prior to processing and after processing. Any mercury sold or shipped off-site shall be documented and all shipping/sales receipts provided. This report will also document CoC sampling/analysis and/or reclamation conducted on any other areas disturbed during the project to demonstrate that CoC levels do not exceed LTSRP action levels in the top 2' of remaining surface material. All reporting information shall be submitted to the - BCA in both hardcopy and electronic format.

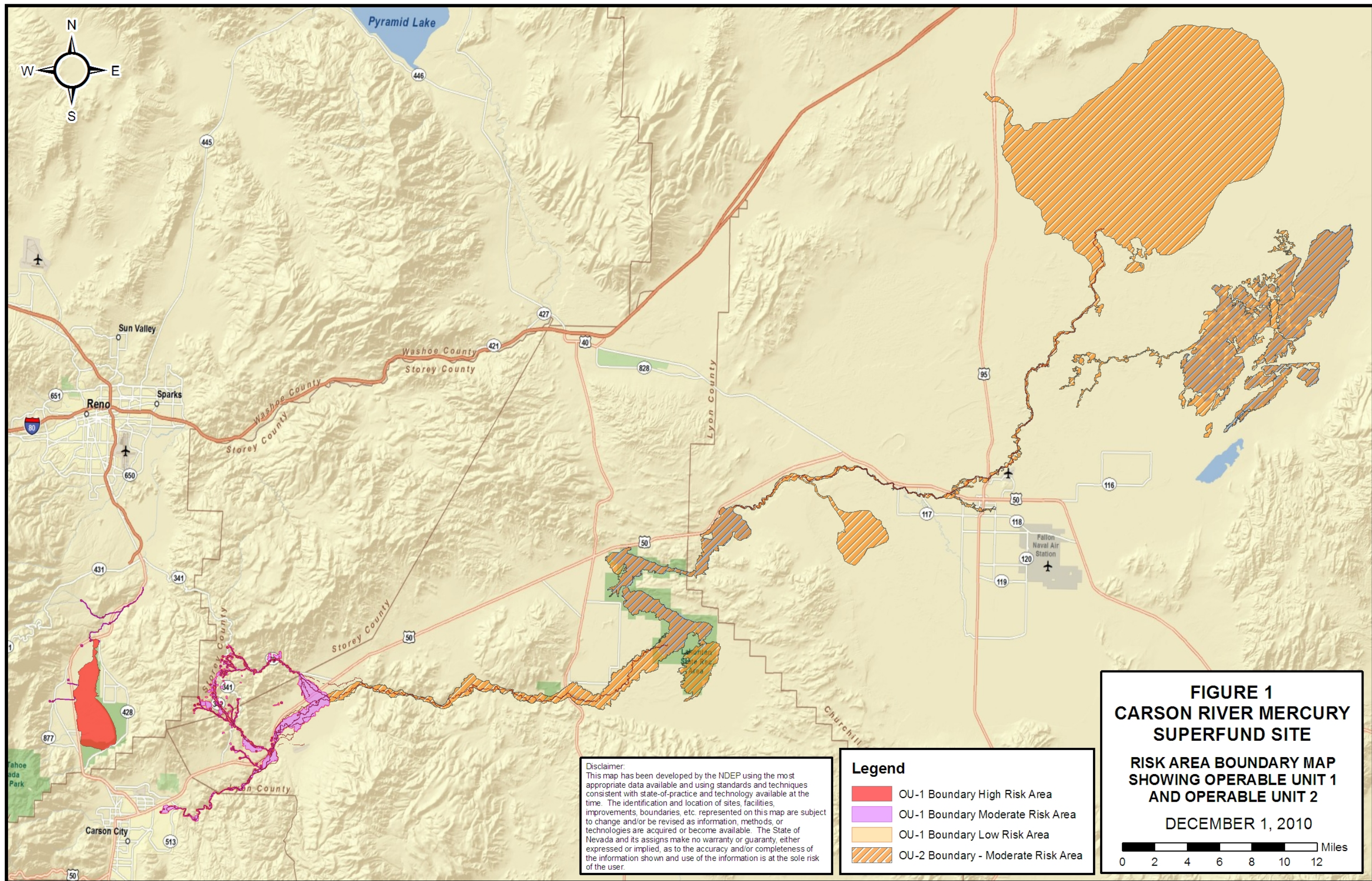
- Post-mining/reprocessing, operators within the CRMS must demonstrate that the top 2' of CRMS affected material does not exceed the applicable action/screening level for mercury, arsenic and lead. Typically this can be done by sampling the final surface per an NDEP approved SAP or by procuring, hauling and appropriately placing a clean 2' soil cap (see backfill/borrow material requirements) over the estimated maximum amount of land area to be disturbed by excavation activities which lay within the CRMS boundary. This shall be included in the approved BMRR Plan of Operations/Reclamation Plan for the project.
- Any backfill/borrow material to be used on the CRMS needs to be adequately characterized to demonstrate that the material does not contain contaminants at concentrations greater than established cleanup levels. Borrow sources must be evaluated by a CEM or PE for the potential to contain contaminants at unacceptable levels. Should the possibility for the material to contain contaminants be identified, a sampling plan to characterize the material for any contaminants of concern shall be developed by the CEM/PE for submittal and review by the NDEP. NDEP must approve all proposed backfill and/or borrow source material on the CRMS before it can be used.

<sup>1</sup> See "Nevada Division of Environmental Protection Screening/Action Level for Arsenic in Surface Soil in the Carson River Basin" document.

<sup>2</sup> See NDEP's "CRMS Soil Depth Sampling Guidance" document.

<sup>3</sup> See EPA's Superfund Lead-Contaminated Residential Sites Handbook – August 2003 (OSWER9285.7-50).





**Disclaimer:**  
 This map has been developed by the NDEP using the most appropriate data available and using standards and techniques consistent with state-of-practice and technology available at the time. The identification and location of sites, facilities, improvements, boundaries, etc. represented on this map are subject to change and/or be revised as information, methods, or technologies are acquired or become available. The State of Nevada and its assigns make no warranty or guaranty, either expressed or implied, as to the accuracy and/or completeness of the information shown and use of the information is at the sole risk of the user.

**Legend**

- OU-1 Boundary High Risk Area
- OU-1 Boundary Moderate Risk Area
- OU-1 Boundary Low Risk Area
- OU-2 Boundary - Moderate Risk Area

**FIGURE 1  
 CARSON RIVER MERCURY  
 SUPERFUND SITE**

**RISK AREA BOUNDARY MAP  
 SHOWING OPERABLE UNIT 1  
 AND OPERABLE UNIT 2**

DECEMBER 1, 2010

0 2 4 6 8 10 12 Miles



