Attachment A

Statement of Work For Remedial Investigation (RI) and Feasibility Study (FS)
Molycorp, Inc., Site

INTRODUCTION

This Statement of Work (SOW) sets forth requirements of the Administrative Order on Consent (the "Order") for implementation of work, including the development of a remedial investigation and feasibility study (RI/FS). The purpose of the RI/FS is to investigate the nature and extent of contamination at the Molycorp, Inc., Site (the "Site"), and develop and evaluate potential remedial alternatives. The RI and FS are interactive and may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies.

Molycorp will conduct the RI/FS (except for the human health baseline risk assessment (HHRA) and the ecological risk assessment (ERA) components, jointly "the risk assessments," as noted in Paragraph 23 of this document) and produce a draft RI and FS report that are in accordance with the Order, including this SOW, the *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (the "RI/FS Guidance"), the *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (the "ROD Guidance"), and any other guidance documents that EPA uses in conducting an RI/FS (a list of the primary guidance documents is attached), as well as any additional requirements in the Order.[1] The RI/FS Guidance describes the report format and the required report content. (In this SOW, numbers in parentheses at the head of a section or paragraph refer to a specific part of the RI/FS Guidance.) Molycorp will furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the Order.

At the completion of the RI/FS, EPA will be responsible for the selection of a Site remedy and will document this selection in a Record of Decision (ROD). The remedial action alternative selected by EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS report and EPA=s risk assessments will, with the administrative record, form the basis for the selection of the Site remedy and will provide the information necessary to support the

[1]If EPA approves a schedule under the Order, that schedule supersedes any timing requirements established in guidance documents. Likewise, if EPA, in accordance with the Order, requires Molycorp to perform work at a time not consistent with guidance documents, Molycorp will nonetheless perform the work.

development of the ROD.

As specified in CERCLA Section 104(a)(1), as amended by SARA, EPA will provide oversight of Molycorp=s activities throughout the RI/FS. Molycorp will support EPA=s initiation and conduct of activities related to the implementation of oversight activities.

WORK TO BE PERFORMED

I. Scoping (RI/FS Guidance, Chapter 2)

1. Within 180 days of the effective date of this order, Molycorp will submit for EPA review the following written documents, which are more fully described below in SOW Paragraphs 9-15:

- Conceptual Site model

- List of preliminary remedial action alternatives

- RI/FS Work Plan (including Schedule for the RI/FS activities and future deliverables)

- Preliminary list of ARARs and TBCs

- Sampling and Analysis Plan (which will be coordinated with EPA to meet the needs of the risk assessments)

- Candidate Technologies Report for Treatability Studies (which may include treatability studies already in progress)

- Site Health and Safety Plan

Molycorp=s Project Coordinator will meet with EPA after submittal of the written documents listed above to brief EPA regarding the findings that Molycorp made during the first phases of scoping (as defined in Chapter 2 of the RI/FS Guidance). EPA will notify Molycorp in writing of the proposed date of the meeting, to be mutually agreed upon. During Site Characterization (SOW Section III) EPA may require Molycorp to conduct additional scoping activities, if the results of field screening or laboratory analyses show that Site conditions are significantly different than EPA originally believed them to be at the end of the first phase of scoping. EPA will notify Molycorp in writing whenever EPA decides that Molycorp will perform additional scoping, and Molycorp will perform the additional scoping as notified by EPA. Within 30 days of EPA=s notification to Molycorp regarding additional scoping, Molycorp will develop and submit, for EPA review and approval, a written work plan for the additional scoping that EPA requires Molycorp to perform. Molycorp will then perform the additional scoping according to the EPA-approved work plan and the EPA-approved schedules in the work plan.

The RI/FS Work Plan and Sampling and Analysis Plan will be reviewed and approved by EPA before

the initiation of field activities. EPA will, if requested by Molycorp, review and comment on work plans for upcoming or ongoing field activities conducted under state authorities, to assist Molycorp in gathering data which will be of sufficient quality to be useful in the Remedial Investigation detailed in this SOW. Molycorp may also submit written requests to EPA to perform RI field activities before EPA approval of the entire RI/FS Work Plan. EPA may approve or deny the request.

2. **Planning meeting (2.2.1).** Molycorp=s Project Coordinator will meet with EPA representatives and EPA-authorized parties (State officials and representatives of Federal resource management agencies will be invited to attend) in the early part of Scoping. EPA will notify Molycorp in writing of the proposed date of the meeting, to be mutually agreed upon. At the meeting, Molycorp=s Project Coordinator, EPA representatives, and other invited parties will meet and discuss Site issues including the identification of preliminary remedial action objectives, preliminary identification of ARARs expected to apply to Site characterization and Site remediation activities, and develop ideas for refinement of the conceptual Site model.

3. **Collect and analyze existing data (2.2.2).** Molycorp will compile and review all existing Site data. In compiling the data, Molycorp will exhaust all of the data collection information sources in Table 2-1 (Data Collection Information Sources) of the RI/FS Guidance. Molycorp will compile all existing information regarding the following:

(1) Sources of contaminants, migration pathways, and potential human and environmental receptors; including a review of all historical and current potential sources (natural and man-made) of ground water contamination;

(2) Varieties and quantities of contaminants released at or near the Site;

(3) Past disposal practices of any kind at and near the Site including a comprehensive study of historic tailings spills;

(4) The physical and chemical characteristics of the contaminants, and their distribution among the environmental media (ground water, soil, surface water, sediments, and air) at and near the Site;

(5) Any previous sampling events conducted at or near the Site;

(6) Previous responses conducted at or near the Site by local, state, federal, or private parties, known by Molycorp;

(7) Geology, hydrogeology, local and regional hydrology, and meteorology of the Site;

(8) Environmental characterization of the Site, including flora and fauna at and near the Site; data regarding threatened, endangered, or rare species; and sensitive environmental areas and critical habitats at and near the Site (Molycorp will compile any results from relevant previous testing to document any known ecological effect such as toxicity or bioaccumulation in the food chain.);

(9) Background ground water, soil, surface water, sediments, and air characteristics;

(10) Demographics and land use at and near the Site;

(11) Residential, municipal, agricultural, or industrial wells at or near the Site; and

(12) Surface water uses for areas surrounding the Site, including downstream of the Site.

Molycorp will use data compiled and reviewed to describe additional data needed to characterize the Site, to better define potential ARARs, and to develop a range of preliminarily identified remedial alternatives. All data compiled will be supplied to EPA in ArcView[7] format or other electronic format as approved by the RPM. All GIS data sets will be in a UTM or State Plane coordinate system. EPA recognizes that, historically, survey data at the Molycorp Mine Site in Questa have been generated in the mine coordinate system. Conversion of these data to the State Plane coordinate system may result in errors in the x, y, and z directions. The RI/FS Work Plan will include a data management plan as specified in Paragraph 13 of this SOW. Molycorp will establish DQOs, subject to EPA approval, for evaluating the usefulness of existing data.

4. **Develop a conceptual Site model (2.2.2.2).** Molycorp will use existing data to develop a conceptual Site model, as described in the RI/FS Guidance at Section 2.2.2.2 and Figure 2-2. This model will include:

1. known and suspected sources of contaminants,[2] and all affected media (ground water, soil, surface water, sediments, and air);

[2]As noted in the Definitions section of the Order, as used herein the term "contaminant" includes hazardous substances and pollutants. If any submission under this Order references any contaminant or pollutant that is not also a hazardous substance, Molycorp will make an explicit statement to that effect in the same submission.

2. known and potential routes of migration of contaminants, and all affected media (ground water, soil, surface water, sediments, and air); and

3. known and potential human and environmental receptors[3] of contaminants.

Further detail in the site conceptual model will be refined by EPA with input from the Technical Coordination Group (TCG) in the risk assessments (Step 3 of the Ecological Risk Assessment.)

5. **Develop preliminary remedial action alternatives (2.2.3).** Based upon the remedial action objectives for each contaminated medium, which EPA will establish after Molycorp has had an opportunity to comment on EPA=s proposed remedial action objectives and based upon the initially identified potential routes of contaminant exposure and associated receptors, Molycorp will develop a preliminary list of remedial action alternatives and associated technologies for each medium. This preliminary list should not be a detailed investigation of alternatives, but instead a general classification of potential remedial action alternatives and technologies. Molycorp will include in the list alternatives in which treatment significantly reducing the toxicity, mobility, or volume of waste is a principal element; one or more alternatives that involve containment with little or no treatment; and a no-action alternative.

6. **Implement limited additional studies (2.2.2.3).** If EPA determines, based on Molycorp=s submissions or other communications, that Molycorp=s conceptual understanding of the Site is incomplete, and that collection of new Site-specific data would greatly enhance the scoping effort (in particular, the development of the conceptual Site model), EPA may require Molycorp to undertake a limited field investigation on and near the Site before approval of the RI/FS work plan. If EPA notifies Molycorp that a limited field investigation is required, Molycorp will develop a limited field investigation work plan, including a schedule, for EPA=s approval. Upon notification by EPA that the work plan is approved, Molycorp will perform the limited field investigation. Examples of tasks that Molycorp will perform if required by the work plan include: preliminary geophysical investigations; residential, industrial, and agricultural well sampling and analysis; measurements of well-water level; sampling of pre-existing monitoring wells, and sample analysis; limited sampling to describe the need for hazardous material treatability studies; air monitoring; Site mapping; and preliminary ecological reconnaissance.

7. **Develop preliminary list of ARARs and to be considered information (2.2.5).** Molycorp will conduct a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific and action-specific) and to be considered (TBC) advisories, criteria or guidance, as defined in 40 C.F.R. ' 300.400(g), to assist in the refinement of remedial action objectives and the initial identification of remedial alternatives and ARARs associated with particular

[3] The identification of environmental receptors is a part of the ecological risk assessment problem formulation, and thus will be coordinated with EPA.

actions. Molycorp will evaluate the New Mexico Mining Act and the New Mexico Water Quality Act, and regulations promulgated under them, as potential ARARs. ARAR and TBC identification will continue as Site conditions, contaminants, background conditions and remedial action alternatives are better defined.

8. **Identify data needs.** Molycorp will evaluate the need for additional Site data relative to meeting the remedial action objectives established by EPA , in accordance with Paragraph 5 of this SOW. Molycorp will evaluate existing data to determine whether more data will be obtained to define source areas of hazardous material contamination, to define the potential pathways of hazardous materials migration, and to identify any potential human or environmental hazardous materials receptors to the extent necessary to: (i) enable the risk assessments to show whether or to what extent a threat to human health or the environment exists; and (ii) develop and evaluate remedial action alternatives (including the no-action alternative). If EPA or Molycorp determines that additional data are needed, Molycorp will: (i) propose DQOs for the needed data consistent with "Guidance for the Data Quality Objectives Process," EPA/600/R96/055, QA/G4, August 2000; and (ii) propose priorities to be assigned to the types of data which needs to be gathered based on the remedial action objectives.

9. **Candidate Technologies for Treatability Studies (5.2; 5.4).** If remedial actions involving treatment have been identified by Molycorp or EPA, treatability studies will be required unless Molycorp can demonstrate to EPA=s satisfaction that they are not needed or that they have already been conducted. Where treatability studies are needed, initial treatability testing activities (such as research and study design) will be planned to occur concurrently with Site Characterization (SOW Section III) activities. Molycorp will develop and submit to EPA a technical memorandum identifying candidate technologies for a treatability studies program and those studies currently underway. The listing of candidate technologies will cover the range of technologies required for detailed analysis of alternatives(SOW Section VI). Molycorp has committed to and is conducting the following treatability studies under state authorities:

$ revegetation test plots for the tailings

$ borrow materials studies (mine and tailings)

$ mine site surface erosion and stability analysis

10. **Sampling and Analysis Plan (2.3.2).** Molycorp will develop and submit, for EPA review and approval, a written sampling and analysis plan (SAP), which includes sampling and analysis necessary for EPA to perform the risk assessments. Molycorp will prepare the portion of the sampling and analysis plan that involves sampling for nature and extent of contamination. EPA will scope the risk assessments, as detailed in Paragraph 23, and will give input to Molycorp in preparing the portion of the SAP that involve sampling in support of the risk assessment. In writing the SAP, Molycorp will follow

the format described in Table 2-4 (Suggested Format for SAP (FSP and QAPP)) of the RI/FS Guidance. Molycorp will design the SAP in a manner that ensures that sample collection and analytical activities are conducted in accordance with technically acceptable protocols, as determined by EPA, and that the data meet DQOs. At a minimum the SAP must include analyses for TAL metals and molybdenum. The SAP provides a mechanism for planning field activities and will include a field sampling plan (FSP) and a quality assurance project plan (QAPP). The FSP will define in detail the sampling and data-gathering methods that will be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The QAPP will follow EPA Requirements for Quality Assurance Project Plans, QA/R-5, March 2001. The DQOs developed by Molycorp will at a minimum reflect use of analytic methods for identifying and remediating contamination consistent with the levels for remedial action objectives identified at 40 C.F.R. ' 300.430(e)(2)(i). In addition, the QAPP will address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications, including the following measures:

(1) Field personnel will be made available for EPA QA/QC training and orientation at EPA=s request.

(2) Molycorp will demonstrate, in advance and to EPA=s satisfaction, that each laboratory it may use is qualified to conduct the proposed work.

(3) All laboratories used will use methods and analytical protocols for the analytes in the media of interest within detection and quantification limits consistent with EPA QA/QC procedures and with DQOs approved in the QAPP for the Site by EPA.

(4) All laboratories used will have and follow an approved QA program.

(5) If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this Site for the purposes proposed and QA/QC procedures approved by EPA will be used. In addition, a laboratory QA program will be submitted for EPA review and approval, and the laboratory=s EPA proficiency tests for waste water and drinking water for at least the previous two years will be submitted to EPA.

(6) EPA may require that Molycorp submit detailed information to demonstrate that any laboratory used is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications.

(7) Any laboratory used for work under the Order is subject to EPA disapproval in accordance with Paragraph 34 of the Order. If, at any time, EPA determines that any laboratory used by Molycorp is unacceptable for any reason, Molycorp, will at EPA=s request bar that laboratory from any work under the Order, and notify EPA of Molycorp=s selected new laboratory.

(8) Molycorp will provide EPA with unlimited access to laboratory personnel, equipment and records relating to sample collection, transportation and analysis.

11. **RI/FS Work Plan (2.3.1).** Molycorp will develop and submit, for EPA review and approval, an RI/FS Work Plan documenting the decisions and evaluations completed during the scoping process. This plan will include a comprehensive description of the work to be performed, including the methodologies to be utilized, as well as plans and schedules for Molycorp=s completion of the work described in SOW Sections III through VI (Site Characterization, Treatability Studies, Development and Screening of Alternatives, and Detailed Analysis of Alternatives). As EPA approves portions of the work plan, Molycorp will perform the work described in those EPA-approved portions according to the plans and schedules in the EPA-approved portions of the RI/FS Work Plan, subject to Section XXII of the AOC (Force Majeure).

12. The work plan will include the rationale for performing the required activities. Specifically, the work plan will present a statement of the problem(s) and potential problem(s) posed by the Site and the objectives of the RI/FS. Further, the plan will include a Site background summary setting forth the Site description including the geographic location of the Site, and a description of the past (including pre-mining) and present background conditions and current Site physiography, hydrology, geology, demographics, ecological, cultural and natural resource features; a synopsis of the Site history and a description of previous responses that have been conducted at the Site by local, state, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the Site. In addition, the plan will include a description of the Site management strategy developed during scoping, and a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. The plan will reflect coordination with treatability study requirements (see Sections I and IV) and the USGS Background Study which is currently being conducted under State authorities.[4] It will include a process for and manner of identifying Federal and State ARARs (chemical-specific, location-specific and action-specific).

13. The work plan will include a detailed description of the work to be performed under each section of this SOW, information needed for each task and for EPA=s risk assessments (in

[4] A review committee, including representatives from Molycorp, the citizen group Amigos Bravos, and the New Mexico Environment Department, has been established for the USGS Study.

accordance with Paragraph 23 of this SOW), information to be produced during and at the conclusion of the work required by each section, and a description of the work products that will be submitted to EPA. These products include the deliverables set forth in the remainder of this statement of work; a schedule for each of the required activities that is consistent with the RI/FS guidance; and a project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format, public access to data, and backup data management), monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS. Appendix B of the RI/FS Guidance contains a comprehensive description of the required contents of the work plan. Additional data requirements and analyses may be identified throughout the process. Whenever such requirements are identified, Molycorp will submit a technical memorandum documenting the need for additional data, and identifying the DQOs. In any event, Molycorp is responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

14. Upon approval of the RI/FS Work Plan by EPA, Molycorp will complete the work described in the RI/FS Work Plan, including the development of an RI/FS, according to the EPA-approved plans and schedules in the RI/FS Work Plan. In view of the unknown Site conditions, activities are often iterative, and to satisfy the objectives of the RI/FS, EPA may require Molycorp to supplement the work specified in the initial RI/FS Work Plan if, using the DQO process and standard statistical methods, data gaps are identified which indicate the need for acquisition of additional data.

15. **Site Health and Safety Plan (2.3.3).** Molycorp will prepare a health and safety plan in conformity with Molycorp=s health and safety program, and in compliance with applicable OSHA and EPA requirements. The health and safety plan will include the 11 elements described in the RI/FS Guidance, including a health and safety risk analysis, a description of monitoring and personnel protective equipment, medical monitoring, and Site control. EPA does not approve or disapprove the health and safety plan, but does review it to ensure that all necessary elements are included, and that it provides for the protection of human health and the environment. This plan will be prepared in accordance with all applicable EPA guidance, and will comply with all applicable Occupational Safety and Health Administration (OSHA) regulations. Molycorp will incorporate all appropriate changes to the plan recommended by EPA. This paragraph is limited to work conducted pursuant to the AOC and this SOW. It does not apply to Molycorp employees engaged in, or activities related to, routine business operations or other environmental permits or programs.

II. Community Relations

16. The development and implementation of community relations activities, including conducting community interviews and developing a community relations plan, are the responsibility of EPA. Molycorp will assist EPA as needed by providing information regarding the Site=s history, participating in public meetings, or by preparing fact sheets for distribution to the general public. EPA

and Molycorp will notify each other in advance of community meetings that they schedule regarding environmental issues at the Site.

17. Before the public comment period on the proposed plan begins, EPA will place a copy of the Administrative Record in a community information repository that EPA has established near the Site. The community information repository is located in the Village of Questa Buildings, 2500 Old State Road 3, P.O. Box 260, Questa, New Mexico 87556; phone 505.586.0694. In addition to the Administrative Record, EPA may at any time place documents in the information repository for public review. Molycorp will on request provide EPA one additional copy of Site documents for this purpose.

REMEDIAL INVESTIGATION

III. Site Characterization (RI/FS Guidance, Chapter 3)

18. Site characterization consists of identifying the sources of contamination and defining the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations in comparison to background concentrations in the affected media. In addition, it includes an investigation of the extent of migration of contamination as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Site. Using this information, contaminant fate and transport is then determined and projected.

Site characterization also includes determining past (including pre-mining) and present background concentrations of analytes in all environmental media, including, but not limited to, ground water, surface water, sediment, seeps and springs, soil, and native rock. Factors affecting background may include regional geology, hydrogeology, and hydrology. Background concentrations of analytes will be compared to Site concentrations of contaminants before EPA makes risk management decisions.

19. During this phase of the RI/FS, the work plan, SAP, and health and safety plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. At least two weeks before any field work pursuant to the RI/FS begins, Molycorp will notify EPA of the planned dates for field activities, including environmental characterization, field layout of the sampling grid, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities.

20. Site characterization consists of four major components: (1) field investigations; (2) laboratory analyses of field samples; (3) data analysis, including the risk assessments; and (4) data management. EPA will perform the risk assessments, as detailed in Paragraph 23 of this SOW; Molycorp will perform the other components, as detailed in this SOW. Molycorp=s field methods,

sampling procedures, and chain of custody records will be consistent with EPA=s "A Compendium of Superfund Field Operations Methods," August 1987, OSWER Directive No. 9355.0-14 ("the Compendium") or equivalent more recent guidance.

21. **Field Investigation (3.2)**. The field investigation includes the gathering of data to define Site physical characteristics, sources of contamination, and the nature and extent of contamination at the Site, in accordance with the work plan and SAP. At a minimum, this investigation will address the following:

(1) **Implement field support activities (3.2.1).** Molycorp will begin field support activities upon approval of the work plan and SAP. Field support activities may include obtaining access to the Site; scheduling; and procuring equipment, office space, laboratory services, or contractors. Molycorp will notify EPA in writing upon completion of field support activities.

(2) **Investigate Site physical characteristics (3.2.2).** Molycorp will collect data on the physical characteristics of the Site and its surrounding areas, in order to define potential transport pathways and human and ecological receptor populations. Molycorp will obtain engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies. The investigation will include collection of data on the following features at and near the Site, as required by the RI/FS Guidance (section 3.2.2):

(1) Surface features;

(2) Geology;

(3) Soils and the vadose zone;

(4) Surface water hydrology;

(5) Hydrogeology;

(6) Meteorology;

(7) Human populations and land use; and

(8) Ecology.

(3) **Define sources of contamination (3.2.3)**. Molycorp will collect data describing the location and type of existing containment for all known sources of contamination on or near the Site. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. Molycorp will conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs. Molycorp will consider all potential sources (including natural and man-made sources) of contamination on and near the Site, including drums, tanks, surface impoundments, tailings or waste rock piles, landfills, hydrothermal scars, and media (ground water, soil, surface water, sediments, and air), and will collect data regarding the following:

(1) Site characteristics that help to identify the location of the source of the contamination;

(2) source characteristics, including the types and quantities of contaminants that may be contained in the source or released to the environment; and

(3) the physical or chemical characteristics of contaminants present in the source.

Molycorp will collect the information described in the first column of Table 3-10 (Summary of Source Information) of the RI/FS Guidance using the primary and secondary collection methods described in the third and fourth columns of that table, as appropriate. If requested by EPA, Molycorp will collect data regarding the location and extent of contaminant sources using methodologies described in Section 8 of the Compendium. EPA may require Molycorp to collect data using survey techniques including ground-penetrating radar, electrical resistivity, electromagnetic induction, magnetometry, seismic profiling, and aerial photography (using infrared imagery to find sources through interpretation of the ecological effects that result from stressed biota).

(4) **Describe the nature and extent of contamination (3.2.4)**. As a final step during the field investigation, Molycorp will gather information to describe the nature and extent of contamination at and near the Site. Molycorp will use information gathered regarding Site physical characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. Molycorp will then implement an iterative monitoring program and any study program identified in the work plan or SAP, such that by using

analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Site can be determined. In addition, Molycorp will gather data for calculations of contaminant fate and transport. This process will continue until the area and depth of contamination are known to the level of contamination established in the QA/QC plan and DQOs.

In the iterative process, Molycorp will initially take a round of samples on and near the Site using field screening type techniques, if necessary. The sampling program will be based on EPA=s preliminary work on the risk assessments, including the problem formulation step of the ecological risk assessment, and will include ground water, soil, surface water, sediment, and air samples, and biological samples in support of the ERA. Based on the results of the initial samples, EPA will work with Molycorp, using the DQO process and standard statistical methods, to evaluate the necessity of taking additional rounds of ground water, soil, surface water, sediments, air, and/or biological samples. EPA will then determine the adequacy of the number and types of samples after consultation with Molycorp. If appropriate, as determined by EPA=s evaluation, Molycorp will analyze subsequent sampling rounds using more exacting techniques as specified by EPA. As the final step in this iterative sampling and analysis process, Molycorp will document the extent of contamination on and near the Site using an analytical level specified by EPA that yields data quality that is sufficient, as determined by EPA, for use in the risk assessments and in the analysis and selection of remedial alternatives. Molycorp will use the methodologies for sampling in each medium required by the RI/FS Guidance (section 3.2.4).

(5) **Additional Site characterization.** EPA and Molycorp will review data collected and evaluated as part of the initial RI Site investigation, and they will compare that data to the data needs identified for conducting the detailed analysis of remedial alternatives for the Site during the DQO process. If existing data are determined to be insufficient by EPA or Molycorp, Molycorp will collect and analyze additional Site data in order to meet data needs for conducting the detailed analysis of alternatives. Before additional Site data is collected and analyzed, Molycorp will review the QAPP and the FSP and propose modifications to EPA as appropriate to guide the collection of additional Site data.

22. **Data Analysis (3.4).** As further described below, Molycorp will develop or refine the conceptual Site model by analyzing data on physical characteristics of the Site and the area near the

Site, Site contaminant source characteristics, the nature and extent of contamination on and near the Site, and contaminant fate and transport.

(1) **Site physical characteristics**. Molycorp will analyze and evaluate the data on Site physical characteristics to describe the environmental setting at the Site, including important surface features, soils, geology, hydrology, meteorology, and ecology. Molycorp=s analysis of Site physical characteristics will emphasize factors important in determining contaminant fate and transport for all pathways by which contaminants may migrate.

(2) **Source characteristics**. Molycorp will analyze data on Site contaminant source characteristics, including the source location; the type and integrity of any existing waste containment; and the types, quantities, chemical properties, physical properties, and concentrations of contaminants found on and near the Site. Molycorp will evaluate the actual and potential magnitude of releases from each source, and the mobility and persistence of source contaminants.

(3) **Nature and extent of contamination.** Molycorp will analyze data on the nature and extent of contamination at and near the Site in all environmental media. This analysis will include the horizontal and vertical extent of contamination in soil, ground water, surface water, sediment, air, biota, and man-made structures, as well as spatial and temporal trends in contamination.

(4) **Contaminant fate and transport.** Molycorp will analyze Site contaminant fate and transport, utilizing and combining the results of the Site physical characteristics, source characteristics, and extent of contamination analyses. The analysis will include estimates of the rate of contaminant migration in the transport pathway. If appropriate, as approved by EPA, Molycorp may use analytical or numerical modeling to analyze contaminant fate and transport. Molycorp will identify any proposed models to EPA in a technical memorandum before their use. Molycorp=s analysis of contaminant fate and transport will be consistent with EPA=s "Superfund Exposure Assessment Manual" (April 1988)

All data and programming, including any proprietary programs, will be made available to EPA together with a sensitivity analysis. Molycorp may assert a business confidentiality claim for the proprietary programs, as provided in Section XVI of the Order. The RI data will be presented in ArcView[7] format or other electronic format as directed by the RPM, and in accordance with the data management plan to facilitate EPA=s preparation of the risk assessments. All GIS data sets will be in a UTM or State Plane coordinate system. EPA recognizes that, historically, survey data at the Molycorp Mine Site in Questa

have been generated in the mine coordinate system. Conversion of these data to the State Plane coordinate system may result in errors in the x, y, and z directions. Analyses of data collected for Site characterization will meet the DQOs developed in the QA/QC plan stated in the SAP (or as revised during the RI).

23. **Risk assessments.** The risk assessments will be developed through a Technical Coordination Group (TCG) process. The TCG will include technical specialists from EPA and Molycorp who will meet and/or participate in conference calls regularly to coordinate risk assessment activities and discuss specifics of the risk assessment implementation. EPA will direct the scoping and problem formulation for the baseline human health risk assessment and the ecological risk assessment for the Site, and the preparation of the written risk assessment reports. Molycorp will give input into the process through the TCG and will collect any data needed to fill gaps or perform the risk assessments. Data needs for the risk assessments will be evaluated by EPA and Molycorp using the DQO process and statistical methods. A comparison of total risk to background risk will be performed by EPA before making the risk management decisions for the Site. The risk assessments will be conducted according to current EPA guidance, including the documents listed in the reference section of this SOW.

24. **Data Management Procedures (3.5).** Molycorp will consistently document the quality and validity of field and laboratory data compiled during the RI. All data compiled will be electronically supplied to EPA in ArcView[7] format or other electronic format as directed by the RPM in accordance with the data management plan. All GIS data sets will be in a UTM or State Plane coordinate system. EPA recognizes that, historically, survey data at the Molycorp Mine Site in Questa have been generated in the mine coordinate system. Conversion of these data to the State Plane coordinate system may result in errors in the x, y, and z directions.

(1) **Document field activities (3.5.1)**. During Site characterization and sampling, Molycorp will follow consistent documentation and accurate record keeping procedures, and will follow the following data management procedures:

(1) **Quality Assurance/Quality Control (QA/QC) Plans**. Molycorp will develop written Quality Assurance/Quality Control (QA/QC) plans, and submit them for EPA review and approval. Molycorp will follow the EPA-approved QA/QC plans during Site characterization sampling and analysis.

(2) **Data security system**. Molycorp will develop and submit, for EPA review and approval, a written plan describing the data security system for the RI. This system will describe measures that Molycorp will take in the field to safeguard chain-of-custody records and to prevent free

access to project records. Molycorp will follow the procedures in the EPA-approved data security system during the time that the Order is in effect.

(3) **Field logs**. Molycorp will produce written daily field log books as the primary record for Molycorp=s field investigation activities. These log books will contain all field measurements and observations as directly recorded in the field, and entries regarding:

(1) all field measurements, including pH, temperature, conductivity, water flow, air quality parameters, and soil characteristics;

(2) health and safety monitoring performed by Molycorp pursuant to the health and safety plan;

(3) written entries describing sampling locations, sampling techniques, and a general description of Molycorp=s daily activity; and

(4) Any unusual occurrences or circumstances.

Molycorp will record data directly and legibly in field log books with entries signed and dated by Molycorp or Molycorp=s contractors. Original written field log book entries may not be obscured when Molycorp makes changes in written log book entries, and Molycorp or Molycorp=s agent will sign and date any changes. Molycorp will use standard format information sheets for Molycorp=s written daily log entries.

(2) **Maintain sample management and tracking (3.5.2, 3.5.3).** Molycorp will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the work plan may not be included in any Site characterization reports unless accompanied by or cross-referenced to the corresponding QA/QC report.

25. **Preliminary Site Characterization Summary (3.7.2).** Within 90 days of receipt of the last sample results from the initial field sampling and analysis, Molycorp will prepare and submit for EPA review and approval a Preliminary Site Characterization Summary. Molycorp=s Project

Coordinator will meet with EPA before submission of the Preliminary Site Characterization Summary to brief EPA regarding the findings that Molycorp has made. Molycorp will notify EPA in writing of the proposed date of the meeting, to be mutually agreed upon. In the Preliminary Site Characterization Summary, Molycorp will briefly review the results of initial field sampling and analysis, and describe and display Site data documenting the location and characteristics of surface and subsurface features and contamination at the Site including the affected medium, location, types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The Preliminary Site Characterization Summary will provide EPA with enough information to give EPA a preliminary reference for developing the risk assessments, for evaluating Molycorp=s development and screening of remedial alternatives, and for evaluating Molycorp=s refinement and identification of ARARs. It will also provide the Agency for Toxic Substances and Disease Registry (ATSDR) with data (before the issuance of the Draft RI Report) to assist with their health assessment efforts. If EPA or Molycorp identify remedial actions involving treatment as remedial alternatives for the Site, Molycorp will, in the Preliminary Site Characterization Summary, provide EPA with the specific data requirements for treatability studies for those identified alternatives. The effort to prepare the Site Characterization will be conducted as part of the Remedial Investigation Report activities. Site characterization sections of the Draft RI report will be excerpted and provided as the Preliminary Site Characterization Summary. If additional data are collected after the Preliminary Site Characterization Summary is submitted, the draft RI Report will be modified to discuss the additional data.

26. **Remedial Investigation (RI) Report (3.7.3).** After EPA=s completion of the risk assessments, Molycorp will prepare and submit a draft Remedial Investigation (RI) report to EPA for review and approval. The RI Report will summarize results of field activities to characterize the Site, sources of contamination, nature and extent of contamination and the fate and transport of contaminants. Molycorp will follow the RI Report format described in Table 3-13 of the RI/FS Guidance. EPA will supply the risk assessments, which may be included as appendices to the RI Report instead of chapters as the guidance suggests.

IV. Treatability Studies (RI/FS Guidance, Chapter 5)

27. Treatability testing will be performed by Molycorp to assist in the detailed analysis of alternatives (SOW Section VI). In addition, if applicable, testing results and operating conditions will be used in the detailed design of the selected remedial technology.

28. **Literature Survey Report (5.2).** If appropriate, as determined by EPA, Molycorp will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If a literature survey is conducted, Molycorp will develop and submit for EPA

review and approval a Literature Survey Report describing the survey and its results.

29. **Treatability Studies Work Plan (5.5).** If EPA determines that candidate technologies cannot be adequately evaluated for the Site on the basis of available information, EPA will notify Molycorp that treatability studies for candidate technologies are required. Molycorp will then develop and submit to EPA for EPA review and approval a written Treatability Studies Work Plan describing the work needed and providing schedules for its completion. In the Treatability Studies Work Plan, Molycorp will:

(1) describe the data that will be gathered to conduct treatability studies of candidate technologies;

(2) describe the type of treatability test which Molycorp will use to test each of the candidate technologies (i.e., bench versus pilot);

(3) describe various aspects of the treatability studies including the Site background, candidate remedial technologies to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management;

(4) document the DQOs for treatability testing;

(5) (if pilot-scale treatability testing is to be performed) describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan for the pilot;

(6) (if testing is to be performed off-Site) describe permitting requirements and the manner in which Molycorp will meet permitting requirements;

(7) submit schedules for Molycorp=s completion of the treatability studies work. Molycorp will perform the work described in the EPA-approved Treatability Studies Work Plan according to the schedules in it.

30. **Treatability study SAP (5.5).** If the QAPP or FSP prepared by Molycorp in accordance with SOW Paragraph 10 (Sampling and Analysis Plan) is not adequate for defining the activities to be performed during any required treatability studies, Molycorp will develop and submit for EPA review and approval a separate treatability study SAP. Molycorp will ensure that, in preparing the treatability study SAP, it meets the requirements of SOW Paragraph 10.

31. **Treatability study health and safety plan (5.5).** If the health and safety plan prepared by Molycorp in accordance with SOW Paragraph 15 (Site Health and Safety Plan) is not adequate for defining the activities to be performed during implementation of any required treatability study, Molycorp will develop and submit for EPA review a separate treatability study health and safety plan. EPA does not "approve" the treatability study health and safety plan. Molycorp will ensure that, in preparing the treatability study health and safety plan, it meets the requirements of SOW Paragraph 15.

32. **Treatability Studies Evaluation Report (5.6)**. After completion of the treatability studies, Molycorp will develop and submit for EPA review and approval a Treatability Studies Evaluation Report analyzing and interpreting the testing results. Depending on the sequence of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each candidate technology=s effectiveness, implementability, cost, and actual results as compared with predicted results. The report will also evaluate full-scale application of the candidate technologies, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

33. Ongoing Action: The following actions are being taken by Molycorp under state authorities and federal programs other than the Superfund program:

- **$** Installation of shallow groundwater wells, extraction of groundwater from new and existing EW series wells, and discharges to NPDES Outfall 002
- **$** Upgrade of the seepage collection system in the tailings area
- **$** Installation of seepage/groundwater interceptor system to recover seepage water from three locations along the Red River
- **$** Upgrade of the Capulin Canyon leachate collection system
- **$** Upgrade of the mine site stormwater collection system

As provided in Paragraph 8 of the Order, on request by Molycorp EPA may review these actions to determine whether they are consistent with the NCP and the RI/FS Guidance. (EPA has not yet reviewed these actions for that purpose.) Molycorp will submit one copy of each engineering design document and drawing for these activities to the EPA RPM. If these documents and drawings will be used in the RI/FS Report, they must be presented in a format that is in accordance with the data management plan.

FEASIBILITY STUDY

V. Development and Screening of Remedial Alternatives (RI/FS Guidance, Chapter 5)

34. The purpose of the development and screening of remedial alternatives is to develop an appropriate range of remedial options for evaluation in the detailed analysis of alternatives (SOW Section VI). Concurrent with Site characterization (SOW Section III), Molycorp will begin to develop and evaluate a range of appropriate remedial options that ensure protection of human health and the environment. This range of alternatives should include options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative.

35. Molycorp will perform the following activities in the development and screening of remedial alternatives:

(1) **Refine and document remedial action objectives (4.2.1).** Based on the risk assessments, Molycorp will review the preliminary remedial action objectives established for the Site by EPA. Molycorp will then propose to EPA refinements of the preliminary remedial action objectives based on the information gathered during Molycorp's investigations of the Site during Site Characterization (SOW Section III). Molycorp=s proposed remedial action objectives will specify the contaminants and media of concern, potential exposure pathways and receptors, and preliminary remediation goals ("PRGs"; acceptable contaminant concentration level or range of levels for each exposure pathway). Molycorp=s proposed PRGs will be protective of human health and the environment, and will be developed in accordance with 40 C.F.R. '' 300.430(e)(2)(i)(A) through (G).

(2) **Develop general response actions (4.2.2).** Molycorp will develop general response actions for each medium of interest, defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

(3) **Identify areas or volumes of media (4.2.3).** Molycorp will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Site will also be taken into account.

(4) **Identify, screen, and document remedial technologies (4.2.4; 4.2.5).** Molycorp will identify and evaluate technologies, including innovative

technologies, applicable to each general response action. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types, or after the screening of the considered technology types.

Technology Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or more representative processes for each technology type. Molycorp will summarize the technology types and process options and specify the reasons for eliminating alternatives.

(5) **Assemble and document alternatives (4.2.6).** Molycorp will assemble selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives will represent a range of treatment and containment combinations that will address either the Site or the operable unit as a whole. Molycorp will summarize the assembled alternatives and their related action-specific ARARs.

The reasons for eliminating alternatives during the preliminary screening process will be specified.

(6) **Refine alternatives.** Molycorp will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. Molycorp will also modify PRGs for each chemical in each medium as necessary to incorporate any new risk assessment information in the risk assessments. Additionally, Molycorp will update action-specific ARARs as remedial alternatives are refined.

(7) **Conduct and document screening evaluation of each alternative (4.3).** Molycorp will conduct a final screening of alternatives using the three criteria in 40 C.F.R. '' 300.430(e)(7)(i) through (iii). If necessary, this screening may be conducted to ensure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed, and will include options that use treatment technologies and permanent solutions to the maximum extent practicable. Molycorp will summarize the results and reasoning employed in screening, arraying alternatives that remain after screening and identifying the action-specific ARARs for those alternatives.

(8) **Alternatives Development and Screening Deliverables (4.5).** Molycorp will prepare a technical memorandum summarizing the work performed in and the results of SOW sub-Paragraphs 35(a) through (g) above, including an alternatives array summary. This technical memorandum will document the methods, rationale, and results of the alternatives screening process and the ARARs identification process. These will be modified by Molycorp if required by EPA to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. Molycorp, EPA, State, and citizen representatives will meet, at a date to be mutually agreed upon, before submission of the technical memorandum.

Molycorp may include actions being taken under state and federal programs other than the Superfund program for consideration in the detailed analysis of alternatives. Technical memoranda will be prepared to document the development and evaluation of alternatives for each area and will be submitted to EPA. The results of these analyses and evaluation of alternatives for the tailings area will be incorporated into the detailed analysis of alternatives and the Feasibility Study.

VI. Detailed Analysis of Remedial Alternatives (RI/FS Guidance, Chapter 6)

36. The detailed analysis will be conducted by Molycorp to provide EPA with the information needed to allow for the selection of a Site remedy. This analysis is the final phase in Molycorp=s conduct of the FS.

37. **Detailed Analysis of Alternatives (6.2)**. Molycorp will conduct a detailed analysis of alternatives and submit for EPA review and approval a Feasibility Study Report. This report will provide a detailed analysis of the limited number of alternatives that passed the screening stage. EPA and Molycorp will jointly determine which alternatives will be included in the detailed analysis before Molycorp drafts the FS Report.. This analysis will assess each of the individual alternatives against the seven evaluation criteria described at 40 C.F.R. '' 300.430(e)(9)(iii)(A) through (G), and focus on the relative performance of each alternative against each of the seven criteria. Molycorp will ensure that the analysis reflects the scope and complexity of Site problems and alternatives being evaluated, and that the analysis considers the relative significance of the factors within each of the criteria at 40 C.F.R. '' 300.430(e)(9)(iii)(A) through (G). In the analysis, Molycorp will identify pertinent advisories, criteria, or guidance documents.

38. In developing the FS Report, Molycorp will follow the FS Report format described in Table 6-5 of the RI/FS Guidance. Molycorp's FS Report will include text covering all the topics listed in Table 6-5.

39. EPA will identify and select the preferred alternative, and will apply the criteria described at 40 C.F.R. '' 300.430(e)(9)(iii)(H) and (I).

40. After Molycorp addresses EPA=s comments on the FS report to EPA=s satisfaction, the final FS report may be bound with the final RI report.

REFERENCES

The following list, although not comprehensive, contains many of the regulations and guidance documents that apply to the RI/FS process:

National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300.

OSHA regulations at 29 C.F.R. 1910.120.

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3.

"Interim Guidance on PRP Participation in the RI/FS Process," U.S. EPA, May 16, 1988, OSWER Directive No. 9835.1a.

"Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents," U.S. EPA, Office of Solid Waste and Emergency Response, EPA 540-R-98-031, July 1999, OSWER Directive No. 9200.1-23P.

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.

"Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"EPA Requirements for Quality Assurance Project Plans, Interim Final," EPA QA/R-5, November 1999.

"EPA Guidance for Quality Assurance Project Plans," EPA QA/G-5, February 1998.

"Users Guide to the EPA Contract Laboratory Programs," U.S. EPA, Sample Management

Office, August 1982.

"Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites" (Interim Final), U.S. EPA, Office of Emergency and Remedial Response, December 1, 1988, OSWER Directive No. 9283.1-2.

"Draft Guidance on Preparing Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.3-02.

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A)," December 1989, EPA/540/1-89/002.

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part B) - Development of Risk-based Preliminary Remediation Goals," 1991.

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part D) - Standardized Planning, Reporting, and Review of Superfund Risk Assessments," January 1998.

"Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual. Supplemental Guidance. Dermal Risk Assessment." Interim Guidance, 1998

"Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/001.

"Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" (Interim Final), U.S. EPA, June 5, 1997.

"Guidance for Data Usability in Risk Assessment," Parts A and B, April 1, 1992, OSWER Directives 9285.7-09A and B.

"Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No. 9835.15.

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Health and Safety Requirements of Employees Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

"Final Guidance on Administrative Records for Selecting CERCLA Response Actions," U.S. EPA, December 3, 1990, OSWER Directive No. 9833.3A-1.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0#3B.

"Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1A.

"Exposure Factors Handbook," EPA, 1997.

"Human Health Evaluation Manual, Supplemental Guidance, Standard Default Exposure Factors," EPA , 1991.

"Dermal Exposure Assessment: Principles and Applications" (Interim Report), U.S. EPA, Office of Health and Environmental Assessment, January, 1992. EPA/600/8-91/011/B.

Integrated Risk Information System (IRIS), 2000.

"Health Effects Assessment Summary Tables (HEAST)," U.S. EPA, Office of Solid Waste and Emergency Response, 1997, EPA/540/R-95/036.

"Use of Soil Cleanup Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA sites," U.S. EPA, Office of Emergency and Remedial Response, February 12, 1998, OSWER Directive No. 9200.4-25.

"Guidelines for Ecological Risk Assessment," U.S. EPA, April 1998, EPA/630/R-95/0021 (Federal Register Vol. 63, No. 93, May 14, 1998).