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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA

UNITED STATES OF AMERICA, Plaintiff, v. PINE CANYON LAND COMPANY, SANTA FE PACIFIC CORPORATION, AND CATEULLUS DEVELOPMENT CORPORATION, Defendants.	CIVIL ACTION NO. 92-5374 CONSENT DECREE

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CONSENT DECREE

This Consent Decree is made and entered into by Plaintiff, the United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), and by the following Defendants (hereinafter referred to as "Defendants"): Pine Canyon Land Company, Santa Fe Pacific Corporation, and Catellus Development Corporation. Plaintiff and Defendants are hereinafter collectively referred to as the "Parties".

A. WHEREAS, the United States has filed concurrently with this Consent Decree a complaint in this matter pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613 (1986) ("CERCLA"), seeking to compel the Defendants to perform remedial actions and to recover response costs that have been and will be incurred by the United States in response to releases and threatened releases of hazardous substances from the facility which EPA has designated as the Johns-Manville Coalinga Mill Area Operable Unit ("Mill Area" or "Site") located in Fresno County, California.

B. WHEREAS, in accordance with Section 121(f)(1)(F) of CERCLA, 42 U.S.C. §9621(f)(1)(F), EPA notified the State of California (the "State") on January 30, 1991 of negotiations with potentially responsible parties regarding the scope of the

remedial design and remedial action for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to any settlement.

C. WHEREAS, the Site consists principally of an abandoned asbestos mill, related asbestos process waste tailings and a retention dam located on a 557 acre tract of land at an elevation between approximately 2800 and 3000 feet in upper Pine Canyon on the southern flank of the Joaquin Ridge in the Diablo Range, which is part of the Coastal Range Mountains in western Fresno County, California; and the nearest population center is the City of Coalinga (population 8250), which is located approximately 27 kilometers (17 miles) to the southeast; an asbestos milling operation was conducted at the Site from approximately 1962 to mid-1974; during this twelve year period, asbestos ore was processed and sorted and asbestos mill tailings were periodically moved into the eastern fork of Pine Canyon Creek; an estimated 340,000 cubic meters (450,000 cubic yards) of asbestos ore and asbestos tailings remain at the Site; in November 1975, the Coalinga Asbestos Company assigned its lease to Marmac Resources Company ("Marmac"), which used the Site to conduct a chromite milling operation; Marmac transported asbestos-containing chromite ore to the Site, where the chromite rich fraction was extracted; asbestos containing materials were disposed of at the Site; and Marmac conducted milling operations at the Site for more than a year.

D. WHEREAS, pursuant to Section 105(a)(8)(B) of CERCLA, 42 U.S.C. § 9605(a)(8)(B), EPA placed the Coalinga Asbestos Mine Site on the National Priorities List ("NPL") on September 21, 1984, 49 Fed.Reg. 37070 (1984).

E. WHEREAS, on November 16, 1987, the Southern Pacific Land Company (with respect to the Site, a predecessor in interest to Defendant Pine Canyon Land Company) signed an Administrative Order on Consent to perform a Remedial Investigation ("RI") and Feasibility Study ("FS") for the Site.

F. WHEREAS, the SFP Railroad Company (the former name of Pine Canyon Land Company) completed the RI Report, which EPA approved on January 17, 1990, and the FS Report, which EPA approved on May 3, 1990; and, on May 25, 1990, pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA issued a public notice concerning EPA's proposed remedial action for the Site and the public comment period.

G. WHEREAS, the decision by EPA on the remedial action to be implemented at the Site is embodied in a final Record of Decision ("ROD"), dated September 21, 1990, on which the State had a reasonable opportunity to review and comment.

H. WHEREAS, in accordance with Section 121(d)(1) of CERCLA, 42 U.S.C. §9621(d)(1), the Parties agree that the remedy selected by EPA in the ROD will attain a degree of cleanup at the Site, and control the potential for releases from the Site, such that protection of human health and the environment at the Site is assured.

I. WHEREAS, the Parties recognize, and the Court by entering this Consent Decree finds, that implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that entry of this Consent Decree is in the public interest.

J. WHEREAS, pursuant to Section 122 of CERCLA, 42 U.S.C. §9622, the United States and Defendants have each stipulated and agreed to the making and entry of this Consent Decree ("Decree" or "Consent Decree").

K. WHEREAS, the Parties agree that settlement of this matter and entry of this Decree are made in good faith prior to the taking of any testimony and in an effort to avoid further expensive and protracted litigation, but without any admission as to any legal or factual matter except for Defendants' consent to jurisdiction for purposes of entry and enforcement of this Consent Decree as provided above, and without any admission as to liability for any purpose.

L. WHEREAS, the Parties agree that the execution of this Decree by Defendants does not constitute and shall not be construed to constitute an admission or acknowledgment of any liability or responsibility for the Ponding Basin at the California Aqueduct.

M. WHEREAS, Defendants and EPA agree that the remedy selected in the ROD and incorporated herein, and which Defendants agree to implement requires remediation only of the Mill Area Operable Unit, as defined in Section IV.K below, and does not in-

clude "The Ponding Basin at the California Aqueduct," as that area is defined in the ROD at p.1 of the Decision Summary, or any other area.

N. WHEREAS, EPA has determined that entities in addition to Defendants are potentially responsible for the releases or threatened release of hazardous substances at the Site.

O. WHEREAS, EPA has determined that the actions required by this Decree are necessary to protect the public health, welfare and the environment and are consistent with Section 121 of CERCLA, 42 U.S.C. §9621, and with the NCP, 40 C.F.R. Part 300, that the actions required by this Consent Decree are a necessary response and that costs incurred for such work are necessary response costs.

NOW THEREFORE, it is ORDERED, ADJUDGED, AND DECREED as follows:

I. JURISDICTION

The Court has jurisdiction over the subject matter of this action and the signatories to this Consent Decree pursuant to Sections 106, 107, 113 and 122 of CERCLA, 42 U.S.C. §§ 9606, 9607, 9613 and 9622, and 28 U.S.C. §§ 1331, 1345. Defendants shall not challenge the Court's jurisdiction to enter and enforce this Consent Decree. Defendants listed in Section II (Parties) waive service of summons and, for the purpose of this Consent Decree, agree to submit themselves to the jurisdiction and venue of this Court.

II. PARTIES

The parties to this Consent Decree are the United States of America and Defendants. Defendants are:

Pine Canyon Land Company;
Santa Fe Pacific Corporation; and
Catellus Development Corporation.

The participation in this Consent Decree of Santa Fe Pacific Corporation (parent corporation of Pine Canyon Land Company, the current owner of the Site) and Catellus Development Corporation (successor to the Santa Fe Pacific Realty Corporation, the parent corporation of Southern Pacific Land Company, the immediate past owner of the Site) shall not be deemed to be evidence of, or an admission for any purpose, that either corporation possesses or exercises control over the operation of their respective subsidiaries.

III. BINDING EFFECT

This Consent Decree shall apply to and be binding upon the signatories to this Consent Decree, their officers, directors, officials, successors, and assigns and upon all persons, contractors, and consultants acting under or for Defendants, or the United States or EPA. No change in ownership or corporate or partnership status will in any way alter the Defendants' responsibilities under this Consent Decree. The Defendants shall provide a copy of this Consent Decree, as entered, and shall

provide all relevant modifications to the Consent Decree, as appropriate, to each person, including all contractors and subcontractors, at the time any such person is retained to perform the work contemplated by this Decree, and shall condition any contract for the work upon compliance with this Consent Decree.

Defendants agree that they are jointly and severally liable for compliance with all provisions of this Consent Decree. In the event of the inability to pay or insolvency of any one or more of Defendants, regardless of whether or not that Defendant or Defendants enter into formal bankruptcy proceedings, or in the event that for any other reason one or more of Defendants do not participate in the implementation of the Work, the remaining Defendants agree to fully comply with the terms and conditions of this Consent Decree.

IV. DEFINITIONS

Unless otherwise expressly provided herein or below, terms used in this Consent Decree which are defined in CERCLA, or in regulations promulgated under CERCLA, shall have the meaning assigned to them in the statute or regulations. Whenever terms listed below are used in this Consent Decree or in the Exhibits or Appendices attached hereto or incorporated hereunder, the following definitions shall apply:

A. "Appendix A" shall mean the Record Of Decision (ROD) for the Site dated September 21, 1990.

B. "Appendix B" shall mean the Scope of Work ("SOW") for the Site.

C. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, Stat. 1613 (1986).

D. "Contractor" shall mean the individual, company or companies retained by or on behalf of Defendants to undertake and complete the Work.

E. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday or legal holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or legal holiday, the period shall run until the end of the next working day.

F. "Defendants" shall mean those parties identified as Defendants and listed as such in Section II (Parties) of this Consent Decree.

G. "DOHS" shall mean the California Department of Health Services.

H. "EPA" shall mean the United States Environmental Protection Agency.

I. "Future Liability" shall mean liability arising after EPA's Certificate of Completion is issued pursuant to Section XXXIX (Certification of Completion).

J. "Future Response Costs" shall mean all costs incurred by the United States pursuant to CERCLA in overseeing the Work, including but not limited to payroll costs, contractor costs, travel costs, laboratory costs, indirect costs, costs incurred pursuant to Section XIII (Site Access), and the costs of reviewing or developing plans, reports and other items pursuant to this Consent Decree, verifying the Work, or otherwise implementing or enforcing this Consent Decree, including by the United States Department of Justice. Future Response Costs shall also include costs incurred by the United States, including by the United States Department of Justice, pursuant to CERCLA in connection with the Site after November 30, 1990 (the date on which accounting for Past Response Costs ends pursuant to Section XX) and prior to the effective date of this Consent Decree.

K. "Mill Area" or the "Site" means the area defined in the ROD as the "JM Mill Area OU" of the Johns-Manville Coalinga Asbestos Mill NPL Site (Coalinga Mine Site); the Mill Area is a privately owned area, which is located in the upper Pine Canyon, approximately seventeen miles (27 kilometers) northwest of Coalinga, Fresno County, California; the Site encompasses approximately 2.3 square kilometers (557 acres) at an elevation between approximately 2,800 and 3,000 feet, as described in the ROD and depicted on the map included as Figure 1 in the ROD; the Mill Area includes asbestos mill tail-

ings, an asbestos ore storage/loading area, an abandoned mill building, an inactive chromite mine (the Railroad Mine), filled in chromite settling ponds and debris.

L. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, as revised and repromulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605.

M. "Parties" means the United States, on behalf of EPA, and the Defendants.

N. "Past Response Costs" shall mean all costs incurred by EPA pursuant to CERCLA in connection with the Site prior to and including November 30, 1990.

O. "Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations set forth in the ROD and the SOW.

P. "Plaintiff" or "United States" means the United States of America, on behalf of EPA.

Q. "Record of Decision" or "ROD" shall mean the document signed by the EPA Region IX Regional Administrator on September 21, 1990, which selects and describes the remedy to be implemented at the Site, and which is attached hereto as Appendix A.

R. "Remedial Action" and "Remedial Action Work" shall mean the phases of the Work involving the construction of the remedy in accordance with the Remedial Design documents, the ROD and this Consent Decree.

S. "Remedial Action Reports" shall mean the reports submitted by Defendants pursuant to this Consent Decree, detailing the Remedial Action Work and the results of the Remedial Action implementation.

T. "Remedial Design" and "Remedial Design Work" shall mean the phases of the Work wherein engineering plans and technical specifications are developed for implementation of the Remedial Action, in accordance with the ROD and this Consent Decree.

U. "Remedial Design Reports" shall mean the reports submitted by Defendants pursuant to this Consent Decree, detailing the Remedial Design Work.

V. "Scope of Work" or "SOW" shall mean the scope of work for implementation of the Remedial Design, Remedial Action and operation and maintenance of the Remedial Action at the Site, as set forth in Appendix B to this Consent Decree.

W. "State" shall mean the State of California.

X. "Work" shall mean the implementation, in accordance with Section VII hereof (Work to be Performed), of the Record of Decision and the SOW, as the SOW is defined in this Consent Decree and as it may be modified pursuant to the provisions of this Consent Decree.

Y. "Workplan" or "Workplans" shall mean the workplan developed by the Defendants which details the Work to be conducted pursuant to this Consent Decree.

V. PURPOSE

The purposes of this Consent Decree are to serve the public interest by protecting the public health, welfare, and the environment from releases and threatened releases of hazardous substances at or from the Site by the implementation by Defendants of the Work; to obtain reimbursement from Defendants for certain of Plaintiff's Past and Future Response Costs; and to settle all claims against Defendants asserted by Plaintiff with regard to this Site in the Complaint filed in this matter.

All Parties agree and the EPA and the Court hereby determine that the remedy selected in the ROD is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 (hereinafter "National Contingency Plan" or "NCP"). As is required by Section 121 of CERCLA, 42 U.S.C. §9621, the Work performed in the implementation of this Remedial Action shall meet the substantive standards of all legally "applicable requirements" and "relevant and appropriate requirements" (collectively "ARARs"), as those terms are defined in 40 C.F.R. § 300.5, as generally described in CERCLA Compliance with Other Environmental Statutes, October 2, 1985 (50 Fed. Reg. 47946, November 20, 1985). EPA has identified the ARARs for the

Remedial Action at the Site. Those ARARs are set forth in the ROD, and are summarized in Section VII.A.15 of this Consent Decree.

VI. NOTICE OF OBLIGATIONS TO SUCCESSORS-IN-TITLE

A. Within sixty (30) days after the entry of this Consent Decree, Defendants shall cause to be recorded a certified copy of this Consent Decree with the Recorder's Office, Fresno County, State of California.

B. The obligations of each Defendant who owns any interest in property included in the Site, with respect to the provision of access under Section XIII (Site Access) and the implementation of institutional controls under Section VII (Work To Be Performed), shall, to the extent permitted by law, run with the land and shall be binding upon any and all such Defendants and any and all persons who subsequently acquire any such interest or portion thereof (hereinafter "successors-in-title"). Within sixty (60) days after the entry of this Consent Decree, each Defendant who owns any interest in property included in the Site shall record at the Recorder's Office, Fresno County, State of California, or other office where land ownership and transfer records are maintained for the property, a notice of obligation to provide access and related covenants in a form approved by EPA.

C. Any Defendant that owns an interest in property included in the Site shall, prior to the conveyance of any such interest, give written notice of this Consent Decree to the grantee and

written notice to EPA of the proposed conveyance, the name and address of the grantee, and the date on which notice of the Consent Decree was given to the grantee. In the event of any such conveyance, all of Defendants' obligations under this Consent Decree shall remain in effect.

VII. WORK TO BE PERFORMED

A. General Obligations Regarding the Remedial Action

1. Defendants shall finance and perform, at their expense, the implementation of the Work as required by this Decree and the Appendices hereto.

2. Except upon agreement by all Parties, no Work or additional work pursuant to Section VIII (Additional Work) shall be required to be performed pursuant to this Consent Decree except those tasks necessary to fully implement the ROD, as provided herein.

3. Notwithstanding any approvals which may be granted by the United States or other governmental entities, Defendants shall assume any and all liability of the United States arising from or relating to Defendants' acts or omissions or the acts or omissions of any of their contractors, subcontractors, or any other person acting on Defendants' behalf (except to the extent such contractors, subcontractors or other persons are acting at the direction of EPA pursuant to Section VII.A.16) in the performance of the Work or Defendants failure to perform fully or complete the Work.

4. In accordance with Section XII (Project Coordinator), Defendants shall appoint a representative ("Project Coordinator") designated by them to act on their behalf to execute the Work.

5. The Defendants shall perform the Work for the Site in accordance with all of the provisions of this Decree, and in accordance with the ROD, attached hereto as Appendix A, the Scope of Work ("SOW") attached hereto as Appendix B, and any modifications thereto which are approved by pursuant to Section XXV (Modification) of this Decree. The ROD, the SOW, and all such modifications are hereby incorporated by reference and made a part of this Decree. In the event of any conflict between the Decree and the SOW or any other EPA approved document incorporated into this Decree, the Decree shall control. In the event of any conflict between the ROD and the Decree, the Decree shall control, but nothing herein shall preclude the United States from moving the Court to approve a modification of the Decree in accordance with Section XXV (Modification) to conform to the ROD.

6. As is further described in the ROD and the SOW, the major components of the selected remedy for the Site are as follows:

a) Constructing a cross canyon stream diversion to divert water flow away from the asbestos tailings pile in the east fork of Pine Canyon Creek;

b) Improving the existing sediment trapping dam to minimize the potential for the release of asbestos into Pine Canyon Creek;

c) Constructing a fence along the road through the Site

and around the disturbed areas to limit access;

d) Conducting a revegetation pilot project to determine whether revegetation is a practical means of increasing stability and minimizing erosion of the disturbed areas and implementing revegetation if it is found to be feasible;

e) Dismantling of the mill building and disposal of debris;

f) Performing operation and maintenance activities;

g) Road paving or an appropriate engineering alternative; and

h) Filing deed restrictions.

7. All Remedial Design Work to be performed by Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional engineer. Within thirty (30) days after the entry of this Consent Decree by the Court and prior to the initiation of the Remedial Design Work for the Site, the Defendants shall notify EPA, in writing, of the name, title, and qualifications of the supervising engineer proposed to be used in carrying out the Remedial Design Work to be performed pursuant to this Consent Decree. Selection of any such engineer shall be subject to disapproval by EPA. If EPA disapproves of the selection of any supervising engineer, the Defendants shall submit a list of engineers to EPA within thirty (30) days of receiving written notice of the disapproval of the engineer previously selected. Defendants may select from this list any one

of the engineers which is approved by EPA. Within twenty (20) days after EPA provides approval of any engineers from Defendants' list, Defendants shall notify EPA of the name of the engineer which they have selected.

8. All Remedial Action Work to be performed by the Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional engineer and performed by a qualified contractor. Within sixty (60) days after entry of this Decree by the Court and prior to the initiation of Remedial Action Work at the Site, the Defendants shall notify EPA, in writing, of the name, title, and qualifications of the supervising engineer. Within forty-five (45) days of EPA's approval of the Final Design Submittals, as provided in Appendix B, Defendants shall notify EPA in writing of the names of the principal contractors and/or subcontractors proposed to be used in carrying out the Remedial Action Work pursuant to this Consent Decree. Selection of any such engineer and contractor and/or subcontractor shall be subject to disapproval by the EPA in accordance with the provisions of Paragraph 7 of this Section. If at any time thereafter Defendants propose to change the supervising engineer or principal contractor and/or subcontractors, Defendants shall give written notice to EPA and shall obtain approval from EPA before the new supervising engineer or principal contractor and/or subcontractor performs any work under this Consent Decree. All work performed by Defendants shall be performed

by qualified engineers and/or contractors or subcontractors in accordance with the conditions and schedules specified in this Decree.

9. The Defendants shall be liable to EPA for any acts or omissions of any of their contractors, subcontractors or any other person acting on their behalf (except to the extent such contractors, subcontractors or other persons are acting at the direction of EPA pursuant to Section VII.A.16) in the performance of the Work or their failure to perform fully or complete the Work, if such acts, omissions or performance constitutes a violation of this Decree.

10. Within forty-five (45) days of the effective date of this Consent Decree, Defendants shall submit a draft Work Plan to EPA for the Remedial Design Work at the Site ("RD Work Plan"). The draft RD Work Plan shall be developed in conformance with the ROD, the SOW, EPA Superfund Remedial Design and Remedial Action Guidance and any additional guidance documents provided to Defendants by EPA by the effective date of this Consent Decree.

11. The RD Work Plan submittal shall describe how the Defendants will implement the selected remedy at the Site and will be consistent with the SOW.

12. In accordance with Section VII.B below, the RD Work Plan and other required documents and reports shall be subject to review, approval and/or modification in writing by EPA. Defendants shall revise disapproved documents in accordance with EPA's comments and submit such revised documents to EPA within thirty (30) days after receipt of the notice of disapproval. Any dis-

1 putes regarding any revised or modified document shall be
2 resolved pursuant to Section XXIII (Dispute Resolution) of this
3 Decree.

4 13. Defendants shall implement the Work detailed in the RD
5 Work Plan as approved or modified by EPA pursuant to Paragraph 12
6 above. The approved RD Work Plan shall be deemed incorporated
7 into and made an enforceable part of this Consent Decree. Within
8 thirty days of approval of the RD Work Plan by EPA, Defendants
9 shall file a copy of the RD Work Plan with the Court to be incor-
10 porated into this Consent Decree. Any noncompliance with any EPA
11 approved reports, plans, specifications, schedules, appendices,
12 or attachments to the RD Work Plan shall be considered a failure
13 to comply with this Decree and shall subject Defendants to stipu-
14 lated penalties as provided in Section XXI (Stipulated
15 Penalties). In the event of any inconsistency between the SOW
16 and the RD Work Plan, the SOW shall govern. All work shall be
17 conducted in accordance with the National Contingency Plan, the
18 EPA Superfund Remedial Design and Remedial Action Guidance (OSWER
19 Directive No. 9355.0-4A, June 1986), and the requirements of the
20 Consent Decree and the RD Work Plan.

21 14. The Parties acknowledge and agree that neither the SOW,
22 the RD Work Plan, nor any approvals, permits or other permissions
23 which may be granted by EPA related to this Consent Decree con-
24 stitute a warranty or representation by Plaintiff that the SOW,
25 the RD Work Plan or such other approvals or permits will achieve
26 the standards set forth in the ROD, the SOW, and in Paragraph 15
27 below and shall not foreclose Plaintiff from seeking performance
28

of all terms and conditions of this Consent Decree. Nothing in this Consent Decree shall be construed to relieve Defendants of their obligation to achieve all standards set forth in the ROD, the SOW, and in Paragraph 15 below.

15. In performing the Work at the Site, Defendants shall meet the ARARs, which have been identified by EPA and specifically set forth in the ROD, and which are summarized below:

a) Control asbestos emissions in accordance with the federal Clean Air Act, National Emission Standard for Hazardous Air Pollutants.

b) Conform with the particulate matter standard (PM 10) established by the Fresno County Air Pollution Control District pursuant to the California Air Resources Act.

c) Protect endangered species in accordance with the federal Endangered Species Act of 1973.

d) Minimize habitat loss in accordance with the United States Fish and Wildlife Service Mitigation Policy.

e) Minimize adverse impacts on waters of the United States in accordance with the Federal Water Pollution Control Act.

f) Comply with the substantive restrictions of California Health and Safety Code Sections 25232(a)(1) and (a)(2).

g) Protect worker health and safety in accordance with the federal Occupational Safety and Health Act.

h) Construct engineering systems in accordance with the storm run-off and peak stream flow standards of the mining waste regulations established pursuant to the California Porter-Cologne Water Quality Act.

16. In the event EPA determines that the Defendants have failed to implement the Work or any portions thereof in a timely or adequate manner, EPA or its designate may perform such portions of the Work as EPA determines may be necessary. If the EPA performs all or portions of the Work because of the Defendants' failure to comply with their obligations under this Consent Decree, the Defendants shall reimburse the EPA for the costs of doing such work, plus penalties as set forth in Section XXI (Stipulated Penalties). EPA will provide Defendants' Project Coordinator with 20 days advance written notice of EPA's intent to perform a portion or all of the Work, unless EPA determines that a more immediate response is needed to address a threat to human health or the environment. Any disputes regarding EPA's decision(s) under this Section shall be resolved pursuant to Section XXIII (Dispute Resolution) of this Decree.

17. Defendants shall dispose of any materials taken offsite in compliance with EPA's Revised Procedures for Implementing Off-Site Response Actions ("Offsite Policy") (EPA OSWER Directive 9834.11, November 13, 1987) and any amendments thereto.

B. Obligations Regarding Documents to be submitted ("Deliverables"):

1. Monthly Progress Reports:

Defendants shall prepare and submit to EPA Monthly Progress Reports as required by Appendix B, the SOW.

2. [Reserved]

3. Community Relations Plan. Defendants shall prepare and submit to EPA for its approval a Community Relations Plan for soliciting public input and informing the public of the status of the Work. The plan shall provide for written communication with community members ("fact sheets") and community meetings.

4. Worker Health and Safety Plan. Defendants shall prepare and submit to EPA a Worker Health and Safety Plan as required by Appendix B.

5. Remedial Design Work Plan. Defendants shall prepare and submit to EPA for its comments a Draft Remedial Design Work Plan and to EPA for its approval a Final Remedial Design Work Plan as required by Appendix B.

6. Preliminary Design. Defendants shall prepare and submit to EPA for its comments a Preliminary Design report as required by Appendix B.

7.. Prefinal/Final Design. As required by Appendix B, Defendants shall prepare and submit to EPA for its comments Prefinal Design Submittals and shall prepare and submit to EPA for its approval Final Design Submittals.

8. Revegetation Pilot Project Work Plan. As required by Appendix B, Defendants shall prepare and submit to EPA for its comments a Draft Revegetation Pilot Project Work Plan and shall prepare and submit to EPA for its approval a Final Revegetation Pilot Project Work Plan.

9. Prefinal Inspection Report. Defendants shall prepare and submit to EPA a Prefinal Inspection Report as required by Appendix B.

10. Remedial Action Completion Report. Defendants shall prepare and submit to EPA a Remedial Action Completion Report as required by Appendix B.

11. Defendants shall, pursuant to the schedule in the SOW attached to this Decree as Appendix B, submit each of the above deliverables. Any failure of Defendants to submit a deliverable in compliance with the schedule will be deemed a violation of this Decree.

12. After review of any plan, report, draft deliverable or other item which is required to be submitted to EPA for its approval pursuant to this Consent Decree or the incorporated SOW, EPA will in writing either: (a) approve the submission; (b) disapprove the submission, notifying the Defendants of the deficiencies and requiring resubmittal within thirty (30) days; or (c) approve the submission with modifications.

13. After receipt of EPA's written decision pursuant to Paragraph 12 above, Defendants shall, within the time period established by this Consent Decree: (a) proceed to take action as required by the approved or modified submission; or (b) correct

the deficiencies as determined by EPA and resubmit the plan, report, draft or other item to EPA for approval. In the event EPA determines that there are deficiencies in the submissions, Defendants shall proceed, at the written direction of EPA, to take any action required by any non-deficient portion of the submission. Any disputes regarding EPA's decision(s) under this Section shall be resolved pursuant to Section XXIII (Dispute Resolution) of this Decree.

14. Any failure by Defendants to revise, modify or correct deficiencies as directed by EPA within the time allotted in the schedule will be deemed a violation of this Consent Decree. Implementation of non-deficient portions of the submission shall not relieve Defendants of any liability for stipulated penalties under Section XXI (Stipulated Penalties) with respect to the deficient portions.

VIII. ADDITIONAL WORK

A. In the event that EPA or Defendants determine(s) that additional work is necessary to meet the Performance Standards or to carry out the remedy selected in the ROD, notification of such additional work shall be provided to the Project Coordinator for the other party(ies).

B. Within 30 days of receipt of notice from EPA pursuant to this Section that additional work is necessary, or such longer time as may be specified by EPA, Defendants shall submit for approval by EPA a work plan for the additional work. The work plan

shall conform to the requirements in and shall be approved, disapproved or modified in accordance with Section VII (Work To Be Performed) and shall be consistent with the NCP.

C. Any additional work determined to be necessary by Defendants is subject to approval by EPA.

D. Any additional work determined to be necessary by Defendants and approved by EPA, or determined to be necessary by EPA to carry out the remedy described in the ROD or to meet the Performance Standards, shall be completed by Defendants in accordance with the standards, specifications, and schedules approved by EPA.

E. If EPA disapproves the work plan pursuant to the provisions of Section VII (Work To Be Performed), Defendants, consistent with Section VII (Work to Be Performed), shall submit a modified plan. EPA may also approve the plan with modifications.

F. Defendants shall promptly implement the work plan as approved or modified by EPA. Defendants may invoke the procedures set forth in Section XXIII (Dispute Resolution) (i) to dispute EPA's determination that additional work is necessary to meet the Performance Standards or to carry out the remedy selected in the ROD, or (ii) to resolve any other disputes that arise under this Section.

G. In the event that any deadline established in or pursuant to this Decree for performance of any activity is dependent on the completion of any such additional work, that deadline will be extended by an amount of time equal to the time required to complete that additional work.

IX. WORKER HEALTH AND SAFETY PLAN

The Worker Health and Safety Plan that the Defendants will submit pursuant to Section VII (Work to be Performed) and Appendix B of this Consent Decree shall be prepared in conformance with applicable state and federal requirements.

X. PERIODIC REVIEW TO ASSURE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Consistent with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, Defendants shall conduct within each five year period such study and investigation as are requested by EPA, and as are necessary to permit EPA to perform six (6) five-year reviews to be completed within 30 years after the initiation of the remedial action. Defendants shall reimburse EPA for its costs in performing these reviews, and shall be subject to stipulated penalties for failure to pay such costs. Any dispute regarding EPA's decision(s) under this Section shall be resolved pursuant to Section XXIII (Dispute Resolution) of this Decree.

XI. QUALITY ASSURANCE/QUALITY CONTROL

A. The Quality Assurance/Quality Control (QA/QC) program that Defendants shall submit pursuant to Section VII (Work to be Performed) of this Consent Decree shall, where applicable, be prepared in accordance with the following EPA guidances, Interim Guidelines and specifications for Preparing Quality Assurance

Project Plans, (QAMS-005/80) December 29, 1980, Technical Guidance Document: Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, (EPA/530-SW-86-031) October, 1986, and any additional EPA or EPA Region IX guidance identified by EPA in a timely fashion. Upon approval and notice by EPA to the Defendants, Defendants shall implement the QA/QC Program.

B. Defendants shall use QA/QC procedures which are approved pursuant to Paragraph A above, and shall utilize standard EPA chain of custody procedures, as documented in the National Enforcement Investigations Center Policies and Procedures (EPA-330/9-78-001-R) revised May, 1986, and any amendments thereto, and the National Enforcement Investigations Center Manual for the Evidence Audit of Enforcement Investigations by Contractor Evidence Audit Teams (EPA 330/9-81-003-R) April, 1984, and any amendments thereto, for all sample collection and analysis activities, unless other procedures are approved by EPA, pursuant to this Consent Decree.

C. In order to provide quality assurance and maintain quality control regarding all samples collected in connection with activities performed pursuant to this Decree, the Defendants shall:

1.. Ensure that all contracts with laboratories utilized by Defendants for analysis of samples taken pursuant to this Consent Decree shall provide for access of EPA personnel and EPA authorized representatives to verify the accuracy of laboratory results.

2. Ensure that any laboratory utilized by Defendants for analysis of samples taken pursuant to this Consent Decree shall perform all such analyses according to EPA methods as documented in EPA's Contract Laboratory Statement of Work for Inorganic Analysis, Multi-Media, Multi-Concentration, June 1989, or other methods approved by EPA for use pursuant to this Consent Decree, and submit all protocols to be used for analysis to EPA in the plans and documents required under this Consent Decree.

3. Specify that all laboratories utilized by Defendants for analysis of samples taken pursuant to this Decree shall participate in an EPA or EPA equivalent QA/QC program. As part of the QA/QC program and upon request by EPA, such laboratories shall perform at Defendants' expense analyses of samples provided by EPA to demonstrate the quality of each laboratory's data.

D. Sampling data generated consistent with the QA/QC program shall be admissible as evidence, without objection except as to relevance, in any proceeding under Section XXIII (Dispute Resolution) of this Decree. In any such proceeding, the parties shall be able to impeach or otherwise contest the credibility, validity, or meaning of such evidence.

E. Notwithstanding any provision of the Consent Decree, the United States retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, and any other applicable statutes or regulations.

XII. PROJECT COORDINATOR

A. By the effective date of this Consent Decree, EPA and Defendants shall each designate a Project Coordinator, and shall notify each other in writing of the name, address, and telephone number of their Project Coordinators, to monitor the progress of the Work, to coordinate communication between EPA and the Defendants and to oversee the implementation of this Consent Decree. EPA and Defendants each have the right to change their respective Project Coordinator. Such a change shall be accomplished by notifying the other party in writing at least five (5) working days prior to the change. To the maximum extent possible, communications between Defendants and EPA and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Consent Decree, shall be directed through the Project Coordinators.

B. The EPA Project Coordinator shall have the authority vested in the On-Scene Coordinator by 40 C.F.R. § 300 et seq., including such authority as may be added by amendments to 40 C.F.R. § 300, as well as the authority to ensure that the Work is performed in accordance with all applicable statutes, regulations, and this Consent Decree.

C. Defendants' Project Coordinator may assign other representatives, including other contractors, to serve as a site representative for oversight of performance of daily operations

during remedial activities, and shall provide EPA with notice in writing of such assignments no later than the first day on which a site representative begins acting in that capacity.

D. Prior to invoking the procedures of Section XXIII (Dispute Resolution), any unresolved disputes arising between the EPA site representative and Defendants or their contractors shall be referred to the EPA and Defendants' Project Coordinators.

XIII. SITE ACCESS

A. During the effective period of this Decree, Defendants shall provide the United States, EPA, the State, and their representatives, including contractors, access at all times to the Site, and any contiguous property owned or controlled by any Defendant.

B. To the extent that the Site where the Work is to be performed is presently owned or controlled by parties other than those bound by this Consent Decree or to the extent that access to or easements over property is required for the proper and complete performance of this Decree, Defendants shall use their best efforts to obtain access agreements from the present owners or those persons who have control over the property, including lessees, within thirty (30) days of EPA's approval of the Final Design or such longer time as is granted by EPA upon request by Defendants. For purposes of this Section, "best efforts" includes but is not limited to, seeking judicial assistance and/or the payment of reasonable sums of money, based on local fair market value for such access or use, as consideration for access

and/or use of the property. Site access agreements shall provide access to Defendants, the United States, EPA, the parties' contractors, State and local agencies, and their authorized representatives.

C. In the event that site access agreements are not obtained within the thirty (30) day period (or such period as extended by EPA) referred to in paragraph B above, the Defendants shall notify EPA in writing within five (5) days of the expiration of that period, regarding both the lack of, and efforts to obtain, such agreements. If Defendants fail to gain access within thirty (30) days, they shall continue to use best efforts to obtain access until access is granted. EPA agrees to assist Defendants in obtaining such access, to the extent that EPA determines that such assistance is appropriate. Any delay in performing any requirement under this Decree, arising from Defendants' inability to obtain Site access, where Defendants have made "best efforts" to obtain such access, constitutes a force majeure pursuant to Section XXII (Force Majeure).

D. Any person obtaining access to the Site pursuant to this provision shall comply with all applicable provisions of the Worker Health and Safety Plan as submitted pursuant to Appendix B of this Consent Decree.

E. Notwithstanding any provision of this Consent Decree, the United States retains all of its access authorities and rights under CERCLA and any other federal statute or authority.

XIV. ASSURANCE OF ABILITY TO COMPLETE WORK

A. Defendants shall demonstrate their ability to complete the Work and to pay all claims that arise from the performance of the Work by obtaining, and presenting to EPA for approval within thirty (30) calendar days after the effective date of this Decree, one of the following mechanisms in the amount of the total estimated costs of the Work remaining to be performed:

1) A surety bond;

2) One or more letters of credit;

3) A trust fund;

4) A guarantee to perform the Work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with at least one of the Defendants, and a demonstration that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f); or

5) A demonstration that at least one of the Defendants satisfies the requirements of 40 C.F.R. Part 264.143(f).

B. If Defendants rely on the internal financial information of one of them or on a corporate guarantee for financial assurance, the Defendants shall annually resubmit sworn statements conveying the information required by 40 C.F.R. Part 264.143(f) on the anniversary date of the Consent Decree. If, at any time, EPA determines that the Defendant(s)' or guarantor's assets are insufficient to assure their ability to complete the Work, Defendants shall obtain one of the first three financial instruments listed above within thirty (30) calendar days of such EPA determination. Defendants' inability to demonstrate financial ability

to complete the Work shall not excuse performance of any activities required under this Consent Decree. Any disputes regarding EPA's decision(s) under this Section shall be resolved pursuant to Section XXIII (Dispute Resolution) of this Decree.

XV. COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS

A. In accordance with CERCLA, as amended, the NCP and the ROD, all actions required to be taken pursuant to this Consent Decree shall be undertaken in accordance with the requirements of all applicable federal, state and local laws, regulations, and permitting requirements.

B. Defendants shall obtain all permits or approvals necessary under federal, state or local laws and shall submit timely applications and requests for any such permits and approvals. Notwithstanding any other provision in this Consent Decree, no federal, state or local permits shall be required for any Work conducted pursuant to this Consent Decree entirely onsite, as defined by 40 C.F.R. §300.400(e).

XVI. DATA EXCHANGE: SAMPLING AND ANALYSIS

A. Under the provisions of Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), EPA explicitly reserves the right to observe the Work of the Defendants as it is performed. In addition, at the request of EPA, Defendants shall allow split or replicate samples to be taken by EPA and/or its authorized representatives, of any samples collected by the Defendants or anyone acting on the Defendants' behalf pursuant to the implementation of this

Consent Decree. At least seven (7) days in advance of any sampling activity, Defendants shall notify EPA of the intended date of commencement of the sampling activity. In addition, Defendants shall notify EPA at least 48 hours prior to any modifications or proposed changes to any sample collection activity. Defendants shall notify EPA thirty (30) days prior to the disposal of any such samples, and shall provide EPA with an opportunity to take possession of all or a portion of such samples.

B. Defendants shall notify EPA in a timely manner of any project which is required to be performed pursuant to this Consent Decree and which is likely to produce data or information as described in this Section.

C. Not withstanding any provisions of this Consent Decree, the United States hereby retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, and any other applicable statutes.

D. Within 60 days of the effective date of this Consent Decree, Defendants shall propose to EPA a plan and system to manage and organize data collected pursuant to this Decree. Upon approval by EPA, Defendants shall implement the data management plan and system.

XVII. RETENTION OF RECORDS

A. Defendants shall preserve and retain all records and documents in Defendants' possession at the time of entry of this Consent Decree which EPA is authorized to obtain under Section

104(e) of CERCLA, 42 U.S.C. § 9604(e), with respect to the Site, regardless of any document retention policy to the contrary, for ten (10) years after the entry of this Consent Decree.

B. The Defendants shall preserve, and shall instruct all contractors, all contractors' subcontractors, and anyone else acting on the Defendants' behalf at the Site to preserve (in the form of originals or exact copies, or in the alternative, microfiche of all originals) all records, documents and information of whatever kind, nature, or description required to be generated pursuant to this Consent Decree. During the 10 year period following completion of the Work, or earlier if requested or agreed to by EPA, originals or copies of all such records, documents, and information shall be delivered to EPA's Project Coordinator or designee, at which point Defendants' record preservation and retention obligations under this Consent Decree shall end.

C. After the 10 year period set out in Paragraph B above, or earlier if agreed to by EPA, Defendants shall notify EPA no later than sixty (60) days prior to the destruction of such documents. Upon request by EPA, the Defendants proposing to destroy records shall make available to EPA originals or copies of any such records prior to their destruction.

XVIII. RESERVATION OF RIGHTS

A. Notwithstanding any other provision in this Decree, Section XXVIII (Covenant Not to Sue) shall not relieve any Defendant of its obligation to meet and maintain compliance with the re-

quirements set forth in this Decree. Except as provided in Section XXVIII (Covenant Not To Sue), the United States reserves all rights to take enforcement actions for violations of this Decree, of CERCLA and/or of any other authority, including the right to seek response costs, injunctive relief, monetary penalties, and punitive damages for any civil or criminal violation of law or this Consent Decree.

B. Except as provided in Section XXVIII (Covenant Not To Sue), nothing in this Consent Decree shall be deemed to limit the response authority of EPA under Sections 104 or 106 of CERCLA, 42 U.S.C. § 9604 or 9606, or under any other federal response authority. In any event, the United States reserves the right to seek reimbursement from the Defendants for any such response costs incurred by the United States.

C. The United States expressly reserves all rights and defenses that it may have, including the right both to disapprove of Work performed by Defendants on the grounds that it does not comply with this Consent Decree, and to request, pursuant to Section VIII (Additional Work), that Defendants perform tasks in addition to those detailed in the Work Plans prepared pursuant to this Consent Decree, provided that any such additional work is necessary to implement the remedy specified in the ROD.

XIX. REIMBURSEMENT OF FUTURE RESPONSE AND OVERSIGHT COSTS

A. Defendants shall reimburse the Hazardous Substance Superfund for the Future Response Costs (including indirect costs) incurred by EPA for any activities required to be performed by

Section VII (Work to be Performed), Section VIII (Additional Work) and Section X (Periodic Review to Assure Protection of Human Health and the Environment) which are performed by EPA, and for Future Response Costs, including indirect costs, incurred by EPA to oversee and review the Work performed by or on behalf of Defendants, and any other response costs incurred by or on behalf of EPA under or in connection with this Consent Decree, provided that such response costs are not inconsistent with the NCP.

B. No more than annually, EPA shall submit to Defendants documentation of such Future Response Costs, including oversight costs, incurred by EPA in the time period since the last demand for payment. EPA's Cost Documentation Management System ("CDMS") or equivalent cost summary, which shall include indirect costs, shall serve as the documentation for payment demands. EPA will also provide a summary of its calculations of any interest charges.

Defendants shall, within 30 days of receipt of each demand for payment, remit a check for the amount of those costs made payable to the Hazardous Substance Superfund. The checks should reference the "Mill Area Operable Unit of the Coalinga Asbestos Mine Site," and be addressed to:

U.S. Environmental Protection Agency
Region 9
Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251
Attention: Collection Officer for Superfund

A copy of the transmittal letter and a copy of the check shall be sent simultaneously to the United States and the EPA Project Coordinator as provided in Section XXIV (Form of Notice).

C. Defendants may contest payment of any Future Response Costs under this Consent Decree if they determine that the United States has made an accounting error, or that a cost item that is included represents costs that are inconsistent with the NCP, or contains costs that were not actually incurred in connection with the Site. Such objection shall be made in writing within thirty (30) days of receipt of EPA's demand for payment and EPA's CDMS or equivalent cost summary, and must be sent to the United States as specified in Section XXIV (Form of Notice). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection.

D. In the event of an objection under Paragraph C of this Section, the Defendants shall, within thirty (30) days of receipt of EPA's demand, pay all uncontested Future Response Costs to the United States, in the manner described in Paragraph B, of this Section, above. Simultaneously, the Defendants shall establish an interest bearing escrow account in a bank duly chartered in the State of California and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. The Defendants shall send to the United States, as provided in Section XXIV (Form of Notice) a copy of the transmittal letter and check paying the uncontested Future Response Costs, a copy of the correspondence that establishes and funds the escrow account, including information containing the identity of the bank and bank account under which the escrow account is established and a bank statement showing the initial balance of the escrow account.

E. Simultaneously with establishment of the escrow account, the Defendants shall initiate the Dispute Resolution procedures in Section XXIII (Dispute Resolution). Upon Defendants' request, EPA shall then provide all cost documentation related to the dispute which it would be required to produce under the Freedom of Information Act, 5 U.S.C. §552, as amended. If the United States prevails in the dispute, within 5 days of the resolution of the dispute, the Defendants shall direct the escrow holder to remit the escrowed monies (with accrued interest) to the United States, in the manner described in Paragraph B of this Section, above. If the Defendants prevail concerning any aspect of the contested costs, the Defendants shall direct the escrow holder to remit payment for that portion of the costs (plus associated accrued interest) for which they did not prevail to the United States in the manner described in Paragraph B of this Section, above, and Defendants shall be disbursed the balance of the escrow account. The dispute resolution procedures set forth in this Paragraph and the procedures set forth in Section XXIII (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Defendants' obligation to reimburse the United States for its Future Response Costs.

F.. As an alternative to establishing an escrow account pursuant to Paragraph D above, Defendants may instead obtain a letter of credit equal to the amount of Future Response Costs which are contested plus the amount of interest that would otherwise accrue in the escrow account until the dispute resolution process is completed. The Defendants shall send to the United States on

behalf of EPA, as provided in Section XXIV (Form of Notice) a copy of the letter of credit. Payment of the contested Future Response Costs covered by the letter of credit shall be in accordance with Paragraphs D and E, above.

XX. REIMBURSEMENT OF PAST COSTS

A. Defendants agree to reimburse the Hazardous Substance Superfund in the amount of $995,765.74 for the Past Response Costs incurred by EPA up to and including November 30, 1990. Defendants shall reimburse EPA for such past costs according to the following schedule: (i) at least $200,000 shall be paid within 90 days following entry of this Consent Decree; (ii) at least an additional $200,000 shall be paid within three months after the first payment is due; (iii) at least an additional $300,000 shall be paid within six months after the first payment is due; and (iv) at least an additional $295.765.74 shall be paid within nine months after the first payment is due; in addition, Defendants shall pay interest on the amounts set out in subparagraphs (ii) through (iv) above at the time such payments are made, which interest shall begin to accrue at the time that the payment in subparagraph (i) is due. Such interest shall accrue at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a). Payments shall be made in the manner and format specified in Section XIX.B above. Payment of this amount completely resolves Defendants' liability to the United States for

Past Response Costs up to and including November 30, 1990, including all indirect costs and all interest that has accrued or will accrue thereon.

XXI. STIPULATED PENALTIES

A. Defendants shall be liable to the United States for stipulated penalties in the amounts set forth in Paragraphs B, C and D below, for failure to comply with the requirements of this Consent Decree as specified below, unless excused under Section XXII (Force Majeure) or Section XXIII (Dispute Resolution). "Compliance" by Defendants shall include completion of the activities under this Consent Decree or any Work Plan or other plan approved under this Consent Decree in accordance with the requirements of and time schedules established by this Consent Decree, the SOW, and any plans or other documents approved by EPA pursuant to this Consent Decree.

B. The following stipulated penalties shall be payable upon written demand by EPA per violation per day to the United States for all noncompliance violations not covered by Paragraph C below.

Period of Noncompliance	Penalty Per Violation Per Day
1st through 7th calendar day	$2,500
8th through 14th calendar day	5,000
15th calendar day and beyond	10,000

C. The following stipulated penalties shall be payable per violation per day to the United States for failure to submit timely or adequate reports or other documents required pursuant to this Consent Decree:

Period of Noncompliance	Penalty Per Violation Per Day
1st through 7th calendar day	$1,500
8th through 14th calendar day	3,000
15th calendar day and beyond	7,000

D. In the event that EPA assumes performance of a portion or all of the Work pursuant to Section VII (Work To Be Performed) or Section XVIII (Reservation of Rights), the Defendants will be liable for stipulated penalties in the amount of $50,000, or the stipulated penalties due under this Section, whichever is greater.

E. Except as stated otherwise in Paragraph F below, all penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

F. Following EPA's determination that Defendants have failed to comply with a requirement of this Consent Decree, EPA may give Defendants written notification of the same and describe

the noncompliance. EPA may send the Defendants a written demand for payment of the penalties. For untimely as opposed to inadequate submittals or performance, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified the Defendants of a violation. For inadequate as opposed to untimely submittals or for inadequate, as opposed to untimely performance of the requirements of this Consent Decree, EPA shall provide to Defendants, as soon as possible, oral notification that Defendants' submittal or performance is inadequate, with written confirmation within seven (7) days that Defendants' submittal or performance is inadequate. If EPA so notifies Defendant within seven (7) days that Defendants' submittal or performance is inadequate, penalties shall accrue commencing with Defendants' violation, as described above. In the event that EPA fails to so notify Defendants within seven (7) days of inadequate submittals or performance, stipulated penalties shall accrue from the date on which Defendants receive such notice. These notice provisions will not apply to any violation of this Consent Decree which causes a substantial harm to human health or the environment.

G. EPA may, in its discretion, waive stipulated penalties for any noncompliance or determine that the amount of stipulated penalties demanded is less than the maximum amount potentially payable by Defendants. All penalties owed to the United States under this section shall be due and payable within thirty (30) days of the Defendants' receipt from EPA of a demand for payment of stipulated penalties, unless Defendants invoke the Dispute

Resolution procedures under Section XXIII (Dispute Resolution). All payments under this Section shall be paid by certified check made payable to "EPA Hazardous Substances Superfund," and shall reference the Site and be addressed as indicated in Section XIX (Reimbursement of Response and Oversight Costs). Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to the United States as provided in Section XXIV (Form of Notice).

H. Neither the invocation of dispute resolution procedures under Section XXIII (Dispute Resolution), nor the payment of penalties shall alter in any way Defendants' obligation to complete the performance of the Work required under this Consent Decree. Further, the Defendants waive any right that they might have to challenge the amount of penalties per day of violation, as stipulated in this section, although they may dispute under the procedures of Section XXIII (Dispute Resolution) EPA's determination that a violation of this Decree has occurred.

I. Penalties shall continue to accrue as provided in Paragraphs E and F of this Section during any dispute resolution period, but need not be paid until the following:

1. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to this Court, accrued penalties shall be paid to EPA within fifteen (15) days of the agreement or the receipt of EPA's decision or order;

2. If the dispute is appealed to this Court and the United States prevails in whole or in part, Defendants shall pay all accrued penalties owed to EPA within sixty (60) days of

receipt of the Court's decision or order, in the amount specified in the Court's decision or order, except as provided in Subparagraph 3 below;

3. If the District Court's decision is appealed by any Party, Defendants shall pay all penalties specified in the Court's decision or order into an interest bearing escrow account within sixty (60) days of receipt of the Court's decision or order. Penalties in the amount specified in the Court's decision or order shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of receipt of the final appellate court decision, Defendants shall direct the escrow agent to pay the balance of the account to EPA or to Defendants to the extent that each prevails, as determined by the appellate court. In lieu of establishing an escrow account, Defendants may instead obtain a letter of credit in the same amount(s), including the interest that would otherwise accrue in the escrow account, which letter of credit shall be paid in the same manner as the escrow account provided for in this Paragraph.

J. If Defendants fail to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as late charges and interest. Defendants shall pay interest on the unpaid balance, which shall begin to accrue at the end of the thirty (30) day period set out in paragraph G above at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a). Such failure to pay stipu-

lated penalties when due shall also be a violation of the Decree and shall result in the accrual of additional stipulated penalties as provided for in this Section.

K. Nothing in this Section shall be construed as prohibiting, altering, or in any way limiting the ability of the United States to seek any other remedies or sanctions available by virtue of a violation by Defendants of this Decree or of the statutes and regulations upon which it is based, including but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. §9621(l), provided, however, that if the United States collects statutory penalties, the total of all penalties which the United States can collect from Defendants shall not exceed $25,000 per day per violation.

XXII. FORCE MAJEURE

A. For purposes of this Consent Decree, force majeure is defined as any event arising from causes beyond the control of the Defendants, or their contractor, subcontractors, agents or consultants which delays or prevents the performance of any obligation under this Consent Decree notwithstanding Defendants' best efforts to avoid the delay. The requirement that Defendants exercise "best efforts to avoid the delay" means using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent practicable.

B. The Defendants shall have the burden of proving that the delay was caused by circumstances beyond the control of the Defendants. When a force majeure event occurs that will delay or may delay the completion of any portion of the Work, the Defendants shall, no later than forty eight (48) hours after Defendants become aware or should have become aware of the force majeure event, notify EPA's Project Coordinator orally and shall, within five (5) days of oral notification to EPA notify the EPA Project Coordinator in writing of: the anticipated length and cause of the delay; the reasons why the delay is beyond the control of Defendants; which of the tasks are directly affected by the delay; the measures taken and/or to be taken to prevent or minimize the delay; and the timetable by which the Defendants intend to implement these measures and any aspects of the event which may cause or contribute to an endangerment to public health, welfare or the environment.

C. Economic hardship, normal inclement weather, increased costs of performance and the failure of Defendants to make timely application for any required permits or approvals and to provide all information required therefore in a timely manner shall not be considered events beyond the control of Defendants, their contractors, subcontractors, agents or consultants and shall not trigger the force majeure provision.

D. EPA shall determine whether the event constitutes force majeure. If EPA determines that the event did not constitute force majeure then any delay caused by the event claimed to be force majeure by the Defendants shall constitute noncompliance

with the Consent Decree and stipulated penalties shall accrue from the time of noncompliance in accordance with Section XXI (Stipulated Penalties) unless a contrary conclusion is reached as a result of the dispute resolution procedures described below. If EPA determines that the event does constitute force majeure, it shall determine the appropriate modification to the schedules for the Work to be performed.

E. No deadline shall be extended beyond that period of time which is necessary to complete the activities with the least amount of delay possible and in no case beyond the delay attributable to the force majeure event. Use of the force majeure provision shall not relieve Defendants of their duty to complete all other tasks in a timely manner in accordance with the schedule set forth in this Consent Decree, as modified by the force majeure. The Defendants shall use best efforts as defined above to avoid or minimize delay.

F. Failure of the Defendants to comply with the requirements of this Section shall preclude Defendants from asserting any claim of force majeure.

G. If EPA and the Defendants cannot agree as to whether the reason for the delay was a force majeure event, the determination of the EPA shall control. If the Defendants dispute this determination, the dispute shall be resolved by the procedures outlined in Section XXIII (Dispute Resolution) of this Consent Decree. In any such proceeding, to qualify for a force majeure defense, Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay

has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Defendants used best efforts to avoid and mitigate the effects of the delay, and that Defendants complied with the requirements of this Section.

XXIII. DISPUTE RESOLUTION

A. As required by Section 121(e)(2) of CERCLA, 42 U.S.C. §9621(e)(2), the Parties to this Consent Decree shall attempt to resolve expeditiously and informally any disputes arising with respect to this Consent Decree. A dispute shall be considered to have arisen when one party notifies the other parties in writing that there is a dispute.

Any dispute which arises with respect to this Consent Decree, shall in the first instance be the subject of informal negotiations between EPA and Defendants. The period of informal negotiations shall not exceed fourteen (14) days unless an extension is agreed to in writing by the parties. In the event that the parties cannot resolve any dispute with respect to this Consent Decree by the end of that fourteen (14) day period, then the position of EPA shall be considered binding unless Defendants invoke the dispute resolution provisions of Paragraph B below. Defendants' decision to invoke dispute resolution shall not constitute a force majeure under Section XXII (Force Majeure), herein. The amount of stipulated penalties as stated in Section XXI (Stipulated Penalties)(as opposed to EPA's determination that Defendants have violated the Decree) is not subject to dispute

resolution. Use of the dispute resolution provision will not relieve Defendants' duty to complete other tasks in a timely manner in accordance with the schedule set forth in this Consent Decree.

B. Defendants shall notify EPA in writing of their objections to EPA's position within fourteen (14) calendar days of the end of the period of informal negotiations described in Paragraph B above. EPA and Defendants will then have an additional twenty (20) calendar days from receipt by EPA of the notification of objection to reach agreement. At the end of the twenty (20) day discussion period, EPA shall provide Defendants with a written statement of its position and the supporting documentation relied upon by EPA. Within seven (7) days thereafter, Defendants may file a reply. Within ten (10) days after that seven (7) day period, the Director of the Hazardous Waste Management Division shall issue a final administrative decision regarding the dispute.

C. Petition Filed In Court:

1. In the event that the dispute cannot be resolved by the procedures outlined in Paragraphs A and B above, then the final administrative decision by EPA, referred to in Paragraph B above, shall be considered binding unless, within 10 days after Defendants' receipt of that EPA decision, the Defendants file with the Court a petition which shall describe the nature of the dispute and include a proposal for its resolution. Defendants shall not file such a petition until issuance of the final ad-

ministrative decision referred to in Paragraph B above. The filing of a petition asking the Court to resolve a dispute shall not of itself extend or postpone the Defendants' obligations under this Decree with respect to the disputed issue, or stay the provisions of Section XXI (Stipulated Penalties), except that the payment terms of Section XXI, Paragraph I, shall apply during the period that the dispute is under consideration by the Court.

2. Unless the Court establishes a different period for response, Plaintiff shall have thirty (30) days to respond to the petition. Defendants shall then have ten (10) days to file a reply. For any matter covered by Section 113(j)(2) of CERCLA, 42 U.S.C. §113(j)(2), in proceedings on any dispute covered by this Section the Court shall uphold EPA's decision unless the Defendants can demonstrate, on the administrative record, that EPA's decision was arbitrary and capricious or otherwise not in accordance with law. For any other matters, the Court shall apply applicable standards of law regarding the standard of review and the scope of material to be considered. In any proceedings on a dispute, Defendants shall bear the burden of coming forward with evidence and of persuasion on factual issues.

3. If the Court finds for EPA, the Defendants shall transmit payment of all penalties which have accrued during the dispute, plus interest at the rate specified in Section XXI (Stipulated Penalties) to the Hazardous Substance Superfund, within fifteen (15) working days of resolution of the dispute. The Defendants shall then implement the disputed matter as

resolved and perform the work which was the subject of the dispute, if required. The appropriate plans should be amended to reflect the resolution of the dispute.

4. If the Court finds for Defendants: (1) the deadlines for any affected deliverables shall be extended to account for any delays attributable to the dispute resolution procedures; and (2) any penalties which would otherwise accrue for violation of any affected deliverable shall be waived.

XXIV. FORM OF NOTICE

A. When written notification to or written communication with the United States, EPA or the Defendants is required by the terms of this Consent Decree, it shall be sent, postage prepaid, and addressed as follows:

As to Plaintiffs:

Chief
Environmental Enforcement Section
Environment and Natural Resources Division
Department of Justice
10th and Pennsylvania Avenue, N.W.
Washington, DC 20530

EPA Project Coordinator
Superfund Enforcement Section
U.S. Environmental Protection Agency
75 Hawthorne Street
SAn Francisco, CA 94105

Assistant Regional Counsel for the
Coalinga Asbestos Mill Site
Office of Regional Counsel
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Frank Lopez
California Department of Health Services
10151 Croydon Way
Sacramento, California 96827

Chris Chalfant
California Regional Water Quality Control Board
Central Valley Region
3614 East Ashlan Avenue
Fresno, California 93726

As to the Defendants:

Jerome F. Donohoe, Esq.
Vice President - Law
Santa Fe Pacific Corporation
1700 East Golf Road
Schaumburg, Illinois 60173-5860

Edward L. Strohbehn Jr., Esq.
McCutchen, Doyle, Brown & Enersen
Three Embarcadero Center
San Francisco, California 94111

These names and addresses may be changed by the United States, EPA and/or Defendants by notifying the other parties in writing.

XXV. MODIFICATION

No modification shall be made to this Consent Decree without written notification to and written approval of the Parties and the Court; provided, however, that modifications of the Scope of Work (Appendix B) may be made upon the written consent of the Parties and shall be filed with this Court; and provided further, that the Parties may agree to alter any deadline specified in or pursuant to this Consent Decree without notice to or approval by the Court. The notification required by this Paragraph shall set forth the nature of and reasons for the requested modification. No oral modification of this Consent Decree shall be effective. Nothing in this Paragraph shall be deemed to alter the Court's power to supervise or modify this Consent Decree.

XXVI. ADMISSIBILITY OF DATA

For the purpose of this Consent Decree only, the Parties waive any evidentiary objection as to the authenticity of data gathered, generated, or evaluated by any Party in the performance or oversight of the Work under this Decree that has been verified using the Quality Assurance and Quality Control procedures specified in Section XI (Quality Assurance and Quality Control). The parties shall be able to impeach or otherwise contest the credibility, validity, or meaning of such evidence.

For the purpose of this action only, the Parties also waive any objections to the introduction of such data based on hearsay.

XXVII. CONTRIBUTION PROTECTION

With regard to claims for contribution against Defendants for matters addressed in this Consent Decree, the Parties hereto agree that the Defendants are, as of the effective date of this Consent Decree, entitled to and shall receive such protection from contribution actions or claims as is provided in Section 113(f)(2) of CERCLA, 42 U.S.C. §9613(f)(2).

The Defendants agree that with respect to any suit or claim for contribution brought by them for matters related to this Consent Decree they will notify the United States in writing no later than the date that such suit or claim is served. The Defendants also agree that with respect to any suit or claim for contribution brought against them for matters related to this

Consent Decree they will notify the United States in writing within 10 days of the date on which the complaint in such an action is served on them.

XXVIII. COVENANT NOT TO SUE

A. Subject to the provisions of Section XVIII (Reservation of Rights) and of this Section, the United States covenants not to sue, not to take any administrative action, and not to execute judgment against the Defendants for any and all civil liability to the United States for causes of action arising under Sections 104, 106 and 107(a) of CERCLA, 42 U.S.C. §§9604, 9606, 9607(a), and Section 7003 of the Resource Conservation and Recovery Act, 42 U.S.C. §6973, relating to the Site, or for matters covered by this Consent Decree. Subject to the provisions of Section XXIII (Dispute Resolution), this Covenant Not To Sue shall take effect so long as Defendants continue to perform, completely and satisfactorily, their obligations under this Consent Decree. With respect to Future Liability, this Covenant Not To Sue shall take effect only when all of the following have occurred: (1) EPA issues a Certificate of Completion of the Remedial Action pursuant to Section XXXIX (Certificate of Completion), and (2) the receipt by EPA of the payments required by Sections XIX (Reimbursement of Future Response and Oversight Costs) and XX (Reimbursement of Past Costs). This Covenant Not To Sue is conditioned upon complete and satisfactory performance by Defendants

of their obligations under this Consent Decree. This Covenant Not To Sue extends only to Defendants and their successors and assigns and does not extend to any other person.

B. Defendants covenant not to sue the United States, including any and all departments, agencies, officers, administrators, and representatives thereof, for any claim, counterclaim, or cross-claim asserted, or that could have been asserted, prior to the effective date of this Consent Decree, arising out of or relating to the Site, including any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 111 or 112, 42 U.S.C. §9606(b)(2), 9611 or 9612, or otherwise, except as such claim, counterclaim or cross-claim arises from or relates to one or more claims expressly reserved by EPA under Paragraphs C, D, and E below and only if EPA asserts that specific claim or claims. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.5.

C. Notwithstanding any other provision of this Consent Decree, the United States reserves the right to institute proceedings in this action or in a new action or to issue an Order seeking to compel the Defendants to perform any additional response work at the Site, or to reimburse the United States for Response Costs if:

(1) Prior to certification of completion of the Remedial Action by EPA pursuant to Section XXXIX (Certification of Completion),

a. conditions at the Site, previously unknown to the United States, are discovered after the entry of this Consent Decree, or

b. information is received, in whole or in part, after the entry of this Consent Decree,

and these previously unknown conditions or this information indicates that the remedy selected in the ROD will not adequately protect human health or the environment; or

(2) Subsequent to certification of completion of the Remedial Action by EPA pursuant to Section XXXIX (Certification of Completion),

a. conditions at the Site, previously unknown to the United States, are discovered after the issuance of certification of completion by EPA, or

b. information received, in whole or in part, after the issuance of certification of completion by EPA,

and these previously unknown conditions or this information indicates that the remedy selected in the ROD as implemented is not protective of human health or the environment.

D. Notwithstanding any other provision in this Consent Decree, this Covenant Not To Sue shall not relieve the Defendants of their obligations to meet and maintain compliance with the requirements set forth in this Consent Decree, specifically including the conditions set forth in the ROD, which is incorporated

herein. The United States reserves all its rights to take response actions at the Site, including the right to take response action in the event of a breach of the terms of this Consent Decree by the Defendants and to seek recovery of costs which: 1) result from such a breach; 2) relate to any portion of the Work funded or performed by the United States as a result of such breach; or (3) are enforcement costs associated with the Site which the United States incurs as a result of such breach.

E. Defendants are expressly not released from, and the provisions of Paragraph A of this Section shall not apply to, any matter not covered by this Consent Decree, including the following claims:

1. Claims based on a failure by Defendants to meet the obligations of this Decree;

2. Claims based on the Defendants' liability arising from the past, present, or future disposal of waste materials outside of the Site and not attributable to the Site;

3. Any claim or demand for damage to federal property located any place that Work is being performed;

4. Claims based on criminal liability;

5. Claims based on liability for damage to natural resources as defined in CERCLA;

6. Claims based on liability for hazardous substances removed from the Site; or

7. Liability for any violations of Federal or State law which occur during or after implementation of the Work.

F. Nothing in this Consent Decree shall constitute or be construed as a release or covenant not to sue regarding any claim or cause of action against any person as defined in Section 101(21) of CERCLA, 42 U.S.C. §9601(21), or other entity not a signatory to this Consent Decree, or any successor or assign of such entity, for any liability it may have arising out of or relating to the Site.

XXIX. WAIVER OF DEFENSE

EPA hereby informs Defendants that it may bring claims with respect to areas of the Johns-Manville Coalinga Asbestos Mill NPL Site (Coalinga Mine Site) other than the JM Mill Area OU as defined in the ROD. Should Plaintiff bring any claim with respect to any areas of the Johns-Manville Coalinga Asbestos Mill NPL Site (Coalinga Mine Site) other than the JM Mill Area OU as defined in the ROD, Defendants hereby waive the defenses of *res judicata*, collateral estoppel, and claim-splitting with respect to such claims.

XXX. COMMUNITY RELATIONS

As requested by EPA, Defendants shall cooperate with EPA in providing information to the public and shall participate in the preparation of appropriate information disseminated to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

XXXI. LODGING AND PUBLIC PARTICIPATION

A. Pursuant to Section 122(d) of CERCLA, 42 U.S.C. § 9622(d), this Consent Decree will be lodged with the Court for thirty (30) days, and the United States shall publish a notice of availability of review to allow public comment prior to entry by the Court. The United States will file with the Court and provide to Defendants a copy of any comments received and the responses of the United States to such comments.

B. Plaintiff will provide persons who are not parties to the proposed settlement with the opportunity to file written comments during at least a thirty (30) day period following such notice. Plaintiff will file with the Court a copy of any comments received and its responses to such comments.

C. After the closing of the public comment period, Plaintiff will review all comments and determine whether the comments disclose facts or considerations which indicate that the proposed judgment is inappropriate, improper or inadequate, and therefore that the Consent Decree should be modified. If a modification is deemed necessary by Plaintiff based on public comment, Plaintiff will notify Defendants. If no modification is deemed necessary, Defendants consent to the entry of this Consent Decree without further notice.

XXXII. CONSISTENCY WITH THE NCP

The United States and the Defendants agree that the Work, if performed in full accordance with the requirements of this Consent Decree, is consistent with the provisions of the National

Oil and Hazardous Substances Pollution Contingency Plan 40 C.F.R. Part 300, which has been revised and repromulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605.

XXXIII. INDEMNIFICATION AND INSURANCE

A. Notwithstanding any approvals which may be granted by the United States or other government entities, Defendants shall indemnify the United States and save and hold the United States Government, its officials, agents, contractors, representatives, agencies or departments harmless for any and all claims or causes of action arising from any acts or omissions of the Defendants, their officers, employees, agents, receivers, trustees, successors, assigns, contractors, subcontractors, or any other person acting on their behalf or under their control in carrying out activities pursuant to this Consent Decree. This indemnification does not extend to any loss, injuries or damages suffered or incurred by any person to the extent that such loss, injuries or damages are proximately caused by the actions or conduct of the United States, its agencies, departments, employees, agents, contractors or subcontractors. The United States is not, and shall not be held out as, a party to any contract entered into by or on behalf of Defendants in carrying out activities pursuant to this Consent Decree. Neither Defendants nor any such contractor shall be considered an agent of the United States.

B. Defendants shall indemnify and hold harmless the United States with respect to any claims for damages or reimbursement asserted against the United States, or for any set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement or arrangement between Defendants and any person for performance of Work pursuant to this Consent Decree, including claims on account of construction delays.

C. Before starting any of the onsite Work required by this Consent Decree, Defendants shall secure and maintain, or require their contractor(s) or subcontractor(s) to secure and maintain, until EPA's issuance of the Certificate of Completion pursuant to Section XXXIX (Certificate of Completion) comprehensive general liability and automobile insurance with limits of two million dollars ($2,000,000) per occurrence, combined single limit, naming as additional insured the United States. In addition, for the duration of this Consent Decree, Defendants shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of workmen's compensation insurance for all persons performing work on behalf of Defendants in furtherance of this Consent Decree. Prior to commencement of work under this Consent Decree, and annually thereafter, until EPA's issuance of the Certificate of Completion, Defendants shall provide to EPA certificates of such insurance and a copy of each insurance policy. If Defendants demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described

above, or insurance covering the same risks but in a lesser amount, then with respect to that contractor or subcontractor Defendants need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

XXXIV. OTHER CLAIMS

Nothing in this Consent Decree shall be deemed to constitute a preauthorization of a CERCLA claim within the meaning of Sections 111 or 112 of CERCLA, 42 U.S.C. §§ 9611, 9612, or 40 C.F.R. § 300.5. In consideration of the entry of this Consent Decree, Defendants agree not to make any claims pursuant to Section 112 or Section 106(b)(2), 42 U.S.C. §§ 9612, 9606(b)(2), or any other provision of law directly or indirectly against the Hazardous Substance Superfund, or make other claims against the United States for those costs expended by Defendants in connection with this Consent Decree, provided, however, that nothing in this Section shall affect Defendants' rights to dispute matters under this Consent Decree pursuant to Section XXIII (Dispute Resolution).

XXXV. CONTINUING JURISDICTION

The Court specifically retains jurisdiction over both the subject matter of and the Parties to this action for the duration of this Consent Decree for the purposes of issuing such further orders or directions as may be necessary or appropriate to con-

strue, implement, modify, enforce or terminate the terms of this Consent Decree or for any further relief as the interest of justice may require.

XXXVI. REPRESENTATIVE AUTHORITY

A. Each undersigned representative of the Defendants to this Consent Decree certifies that he or she is fully authorized by the Party to enter into and execute the terms and conditions of this Consent Decree, and to legally bind such Party to this Consent Decree.

B. Defendants shall identify, on the attached signature page, the name and address of an agent who is authorized to accept service of process by mail on behalf of that Defendant with respect to all matters arising under or relating to this Consent Decree. Defendants hereby agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure, including service of a summons, and any applicable local rules of this Court.

XXXVII. EFFECTIVE DATE

This Consent Decree is effective upon the date of its entry by the Court.

XXXVIII. SEVERABILITY

If any provision or authority of this Consent Decree or the application of this Consent Decree to any circumstance is held by the Court to be invalid, the application of such provision to other circumstances and the remainder of the Consent Decree shall remain in force and shall not be affected thereby.

XXXIX. CERTIFICATION OF COMPLETION

A. Within ninety (90) days after Defendants conclude that the Remedial Action has been fully performed, Defendants shall so notify EPA and shall schedule and conduct a final inspection to be attended by Defendants and EPA. Such inspection shall be followed by a written report submitted to EPA as specified in the approved RD Work Plan, which includes a certification that the Remedial Action has been completed in full satisfaction of the requirements of this Consent Decree. If EPA determines that the Remedial Action or any portion thereof has not been completed in accordance with this Consent Decree, EPA will notify Defendants in writing of the activities that must be performed to complete the Remedial Action and may set forth in the notice a schedule for performance of such activities. Subject to the requirements and procedures of Section VIII (Additional Work), Section XXV (Modification), and Section XXIII (Dispute Resolution), and if Defendants are required to perform such work as EPA requests,

Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established therein, or as modified in accordance with this Decree.

B. If EPA concludes, following the initial or any subsequent notification of completion by Defendants that the Remedial Action has been fully performed in accordance with this Consent Decree, EPA shall so certify in writing to Defendants. This certification shall constitute the "certification of completion of remedial action" pursuant to Section 122(f)(3) of CERCLA, 42 U.S.C. §9622(f)(3), and for this Consent Decree.

C. The issuance of such certification of completion shall not alter other terms or Defendants' obligations as set forth in the provisions of Section XVII (Retention of Records), Section XVIII (Reservation of Rights), Section XXVIII (Covenant Not to Sue), Section X (Periodic Review to Assure Protection of Human Health and the Environment), Section XIX (Reimbursement of Response and Oversight Costs), Section XXVII (Contribution Protection) and such other continuing rights and obligations of Defendants under this Consent Decree.

XL. TERMINATION AND SATISFACTION

This Consent Decree shall terminate upon certification by EPA of completion of the Work To Be Performed and that Defendants have satisfied their obligations under Section XIX (Reimbursement of Future Response and Oversight Costs), Section XX (Reimbursement of Past Costs), Section XXI (Stipulated Penalties), Section X (Periodic Review to Assure Protection of

Human Health and the Environment) and Section VIII (Additional Work). Termination of Defendants' obligations under the above stated provisions of this Consent Decree shall not alter the provisions of Section XVII (Retention of Records), Section XVIII (Reservation of Rights), Section XXVII (Contribution Protection), Section XXVIII (Covenant Not to Sue), and such other continuing rights and obligations of Defendants under this Consent Decree.

XLI. SECTION HEADINGS

The section headings set forth in this Consent Decree and its Table of Contents are included for convenience of reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Consent Decree.

XLII. COUNTERPARTS

This Consent Decree may be executed and delivered in any number of counterparts, each of which when executed and delivered shall be deemed to be an original, but such counterparts shall together constitute one and the same document.

SIGNED and ENTERED this _____ day of _____, 1991.

_____
UNITED STATES DISTRICT JUDGE

By the signatures below, the Parties hereby consent to the foregoing Consent Decree.

SIGNATURE PAGE FOR CONSENT DECREE BETWEEN UNITED STATES, AS PLAINTIFF, AND PINE CANYON LAND COMPANY, SANTA FE PACIFIC CORPORATION, AND CATELLUS DEVELOPMENT CORPORATION, AS DEFENDANTS:

FOR DEFENDANT, PINE CANYON LAND COMPANY

JEROME F. DONOHOE
Counsel

DATE: February 26, 1992

FOR DEFENDANT, SANTA FE PACIFIC CORPORATION

JEROME F. DONOHOE
Vice President - Law

DATE: February 26, 1992

SIGNATURE PAGE FOR CONSENT DECREE BETWEEN UNITED STATES, AS PLAINTIFF, AND PINE CANYON LAND COMPANY, SANTA FE PACIFIC CORPORATION, AND CATELLUS DEVELOPMENT CORPORATION, AS DEFENDANTS:

FOR DEFENDANT CATELLUS DEVELOPMENT CORPORATION

MAUREEN SULLIVAN
Vice President Law and General Counsel

DATE: February 26, 1992

SIGNATURE PAGE FOR CONSENT DECREE BETWEEN UNITED STATES, AS PLAINTIFF, AND PINE CANYON LAND COMPANY, SANTA FE PACIFIC CORPORATION, AND CATELLUS DEVELOPMENT CORPORATION, AS DEFENDANTS:

FOR PLAINTIFF, UNITED STATES:

Barry M Hartman

BARRY HARTMAN
Acting Assistant Attorney General
Environment and Natural Resources
U.S. Department of Justice

DATE: MAY 20 1992

W. Weinischke

WILLIAM A. WEINISCHKE
Attorney, Environmental Enforcement Section
U.S. Department of Justice

DATE: _____

GEORGE L. O'CONNELL
United States Attorney

BY: _____ DATE: _____

Assistant United States Attorney

John Wise

DANIEL W. MCGOVERN Acting for
Regional Administrator
U.S. Environmental Protection Agency
Region IX

DATE: 3.3.92

LIST OF APPENDICES

Appendix A	The Record Of Decision (ROD) for the JM Mill Area OU of the Johns-Manville Coalinga Asbestos Mill NPL Site dated September 21, 1990.
Appendix B	Scope of Work ("SOW")

67457

ORIGINAL

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ATTORNEYS FOR DEFENDANTS

FILED

CLOSED
DATE: 8-13-92
☐ CR: JS3
☒ CV: JS6
BY:

LODGED
MAY 28 1992
JACK L. WAGNER, CLERK, U.S. DISTRICT COURT, EASTERN DISTRICT OF CALIFORNIA
BY DEPUTY CLERK

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA

UNITED STATES OF AMERICA, Plaintiff, v. PINE CANYON LAND COMPANY, SANTA FE PACIFIC CORPORATION, AND CATEULLUS DEVELOPMENT CORPORATION, Defendants.	CIV-S-92 857 LKK JFM CIVIL ACTION NO. 92-5374 CONSENT DECREE

FORM OBD-183
MAR 83

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CONSENT DECREE

This Consent Decree is made and entered into by Plaintiff, the United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), and by the following Defendants (hereinafter referred to as "Defendants"): Pine Canyon Land Company, Santa Fe Pacific Corporation, and Catellus Development Corporation. Plaintiff and Defendants are hereinafter collectively referred to as the "Parties".

A. WHEREAS, the United States has filed concurrently with this Consent Decree a complaint in this matter pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613 (1986) ("CERCLA"), seeking to compel the Defendants to perform remedial actions and to recover response costs that have been and will be incurred by the United States in response to releases and threatened releases of hazardous substances from the facility which EPA has designated as the Johns-Manville Coalinga Mill Area Operable Unit ("Mill Area" or "Site") located in Fresno County, California.

B. WHEREAS, in accordance with Section 121(f)(1)(F) of CERCLA, 42 U.S.C. §9621(f)(1)(F), EPA notified the State of California (the "State") on January 30, 1991 of negotiations with potentially responsible parties regarding the scope of the

remedial design and remedial action for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to any settlement.

C. WHEREAS, the Site consists principally of an abandoned asbestos mill, related asbestos process waste tailings and a retention dam located on a 557 acre tract of land at an elevation between approximately 2800 and 3000 feet in upper Pine Canyon on the southern flank of the Joaquin Ridge in the Diablo Range, which is part of the Coastal Range Mountains in western Fresno County, California; and the nearest population center is the City of Coalinga (population 8250), which is located approximately 27 kilometers (17 miles) to the southeast; an asbestos milling operation was conducted at the Site from approximately 1962 to mid-1974; during this twelve year period, asbestos ore was processed and sorted and asbestos mill tailings were periodically moved into the eastern fork of Pine Canyon Creek; an estimated 340,000 cubic meters (450,000 cubic yards) of asbestos ore and asbestos tailings remain at the Site; in November 1975, the Coalinga Asbestos Company assigned its lease to Marmac Resources Company ("Marmac"), which used the Site to conduct a chromite milling operation; Marmac transported asbestos-containing chromite ore to the Site, where the chromite rich fraction was extracted; asbestos containing materials were disposed of at the Site; and Marmac conducted milling operations at the Site for more than a year.

D. WHEREAS, pursuant to Section 105(a)(8)(B) of CERCLA, 42 U.S.C. § 9605(a)(8)(B), EPA placed the Coalinga Asbestos Mine Site on the National Priorities List ("NPL") on September 21, 1984, 49 Fed.Reg. 37070 (1984).

E. WHEREAS, on November 16, 1987, the Southern Pacific Land Company (with respect to the Site, a predecessor in interest to Defendant Pine Canyon Land Company) signed an Administrative Order on Consent to perform a Remedial Investigation ("RI") and Feasibility Study ("FS") for the Site.

F. WHEREAS, the SFP Railroad Company (the former name of Pine Canyon Land Company) completed the RI Report, which EPA approved on January 17, 1990, and the FS Report, which EPA approved on May 3, 1990; and, on May 25, 1990, pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA issued a public notice concerning EPA's proposed remedial action for the Site and the public comment period.

G. WHEREAS, the decision by EPA on the remedial action to be implemented at the Site is embodied in a final Record of Decision ("ROD"), dated September 21, 1990, on which the State had a reasonable opportunity to review and comment.

H. WHEREAS, in accordance with Section 121(d)(1) of CERCLA, 42 U.S.C. §9621(d)(1), the Parties agree that the remedy selected by EPA in the ROD will attain a degree of cleanup at the Site, and control the potential for releases from the Site, such that protection of human health and the environment at the Site is assured.

I. WHEREAS, the Parties recognize, and the Court by entering this Consent Decree finds, that implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that entry of this Consent Decree is in the public interest.

J. WHEREAS, pursuant to Section 122 of CERCLA, 42 U.S.C. §9622, the United States and Defendants have each stipulated and agreed to the making and entry of this Consent Decree ("Decree" or "Consent Decree").

K. WHEREAS, the Parties agree that settlement of this matter and entry of this Decree are made in good faith prior to the taking of any testimony and in an effort to avoid further expensive and protracted litigation, but without any admission as to any legal or factual matter except for Defendants' consent to jurisdiction for purposes of entry and enforcement of this Consent Decree as provided above, and without any admission as to liability for any purpose.

L. WHEREAS, the Parties agree that the execution of this Decree by Defendants does not constitute and shall not be construed to constitute an admission or acknowledgment of any liability or responsibility for the Ponding Basin at the California Aqueduct.

M. WHEREAS, Defendants and EPA agree that the remedy selected in the ROD and incorporated herein, and which Defendants agree to implement requires remediation only of the Mill Area Operable Unit, as defined in Section IV.K below, and does not in-

clude "The Ponding Basin at the California Aqueduct," as that area is defined in the ROD at p.1 of the Decision Summary, or any other area.

N. WHEREAS, EPA has determined that entities in addition to Defendants are potentially responsible for the releases or threatened release of hazardous substances at the Site.

O. WHEREAS, EPA has determined that the actions required by this Decree are necessary to protect the public health, welfare and the environment and are consistent with Section 121 of CERCLA, 42 U.S.C. §9621, and with the NCP, 40 C.F.R. Part 300, that the actions required by this Consent Decree are a necessary response and that costs incurred for such work are necessary response costs.

NOW THEREFORE, it is ORDERED, ADJUDGED, AND DECREED as follows:

I. JURISDICTION

The Court has jurisdiction over the subject matter of this action and the signatories to this Consent Decree pursuant to Sections 106, 107, 113 and 122 of CERCLA, 42 U.S.C. §§ 9606, 9607, 9613 and 9622, and 28 U.S.C. §§ 1331, 1345. Defendants shall not challenge the Court's jurisdiction to enter and enforce this Consent Decree. Defendants listed in Section II (Parties) waive service of summons and, for the purpose of this Consent Decree, agree to submit themselves to the jurisdiction and venue of this Court.

II. PARTIES

The parties to this Consent Decree are the United States of America and Defendants. Defendants are:

Pine Canyon Land Company;
Santa Fe Pacific Corporation; and
Catellus Development Corporation.

The participation in this Consent Decree of Santa Fe Pacific Corporation (parent corporation of Pine Canyon Land Company, the current owner of the Site) and Catellus Development Corporation (successor to the Santa Fe Pacific Realty Corporation, the parent corporation of Southern Pacific Land Company, the immediate past owner of the Site) shall not be deemed to be evidence of, or an admission for any purpose, that either corporation possesses or exercises control over the operation of their respective subsidiaries.

III. BINDING EFFECT

This Consent Decree shall apply to and be binding upon the signatories to this Consent Decree, their officers, directors, officials, successors, and assigns and upon all persons, contractors, and consultants acting under or for Defendants, or the United States or EPA. No change in ownership or corporate or partnership status will in any way alter the Defendants' responsibilities under this Consent Decree. The Defendants shall provide a copy of this Consent Decree, as entered, and shall

provide all relevant modifications to the Consent Decree, as appropriate, to each person, including all contractors and subcontractors, at the time any such person is retained to perform the work contemplated by this Decree, and shall condition any contract for the work upon compliance with this Consent Decree.

Defendants agree that they are jointly and severally liable for compliance with all provisions of this Consent Decree. In the event of the inability to pay or insolvency of any one or more of Defendants, regardless of whether or not that Defendant or Defendants enter into formal bankruptcy proceedings, or in the event that for any other reason one or more of Defendants do not participate in the implementation of the Work, the remaining Defendants agree to fully comply with the terms and conditions of this Consent Decree.

IV. DEFINITIONS

Unless otherwise expressly provided herein or below, terms used in this Consent Decree which are defined in CERCLA, or in regulations promulgated under CERCLA, shall have the meaning assigned to them in the statute or regulations. Whenever terms listed below are used in this Consent Decree or in the Exhibits or Appendices attached hereto or incorporated hereunder, the following definitions shall apply:

A. "Appendix A" shall mean the Record Of Decision (ROD) for the Site dated September 21, 1990.

B. "Appendix B" shall mean the Scope of Work ("SOW") for the Site.

C. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, Stat. 1613 (1986).

D. "Contractor" shall mean the individual, company or companies retained by or on behalf of Defendants to undertake and complete the Work.

E. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday or legal holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or legal holiday, the period shall run until the end of the next working day.

F. "Defendants" shall mean those parties identified as Defendants and listed as such in Section II (Parties) of this Consent Decree.

G. "DOHS" shall mean the California Department of Health Services.

H. "EPA" shall mean the United States Environmental Protection Agency.

I. "Future Liability" shall mean liability arising after EPA's Certificate of Completion is issued pursuant to Section XXXIX (Certification of Completion).

J. "Future Response Costs" shall mean all costs incurred by the United States pursuant to CERCLA in overseeing the Work, including but not limited to payroll costs, contractor costs, travel costs, laboratory costs, indirect costs, costs incurred pursuant to Section XIII (Site Access), and the costs of reviewing or developing plans, reports and other items pursuant to this Consent Decree, verifying the Work, or otherwise implementing or enforcing this Consent Decree, including by the United States Department of Justice. Future Response Costs shall also include costs incurred by the United States, including by the United States Department of Justice, pursuant to CERCLA in connection with the Site after November 30, 1990 (the date on which accounting for Past Response Costs ends pursuant to Section XX) and prior to the effective date of this Consent Decree.

K. "Mill Area" or the "Site" means the area defined in the ROD as the "JM Mill Area OU" of the Johns-Manville Coalinga Asbestos Mill NPL Site (Coalinga Mine Site); the Mill Area is a privately owned area, which is located in the upper Pine Canyon, approximately seventeen miles (27 kilometers) northwest of Coalinga, Fresno County, California; the Site encompasses approximately 2.3 square kilometers (557 acres) at an elevation between approximately 2,800 and 3,000 feet, as described in the ROD and depicted on the map included as Figure 1 in the ROD; the Mill Area includes asbestos mill tail-

ings, an asbestos ore storage/loading area, an abandoned mill building, an inactive chromite mine (the Railroad Mine), filled in chromite settling ponds and debris.

L. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, as revised and repromulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605.

M. "Parties" means the United States, on behalf of EPA, and the Defendants.

N. "Past Response Costs" shall mean all costs incurred by EPA pursuant to CERCLA in connection with the Site prior to and including November 30, 1990.

O. "Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations set forth in the ROD and the SOW.

P. "Plaintiff" or "United States" means the United States of America, on behalf of EPA.

Q. "Record of Decision" or "ROD" shall mean the document signed by the EPA Region IX Regional Administrator on September 21, 1990, which selects and describes the remedy to be implemented at the Site, and which is attached hereto as Appendix A.

R. "Remedial Action" and "Remedial Action Work" shall mean the phases of the Work involving the construction of the remedy in accordance with the Remedial Design documents, the ROD and this Consent Decree.

S. "Remedial Action Reports" shall mean the reports submitted by Defendants pursuant to this Consent Decree, detailing the Remedial Action Work and the results of the Remedial Action implementation.

T. "Remedial Design" and "Remedial Design Work" shall mean the phases of the Work wherein engineering plans and technical specifications are developed for implementation of the Remedial Action, in accordance with the ROD and this Consent Decree.

U. "Remedial Design Reports" shall mean the reports submitted by Defendants pursuant to this Consent Decree, detailing the Remedial Design Work.

V. "Scope of Work" or "SOW" shall mean the scope of work for implementation of the Remedial Design, Remedial Action and operation and maintenance of the Remedial Action at the Site, as set forth in Appendix B to this Consent Decree.

W. "State" shall mean the State of California.

X. "Work" shall mean the implementation, in accordance with Section VII hereof (Work to be Performed), of the Record of Decision and the SOW, as the SOW is defined in this Consent Decree and as it may be modified pursuant to the provisions of this Consent Decree.

Y. "Workplan" or "Workplans" shall mean the workplan developed by the Defendants which details the Work to be conducted pursuant to this Consent Decree.

V. PURPOSE

The purposes of this Consent Decree are to serve the public interest by protecting the public health, welfare, and the environment from releases and threatened releases of hazardous substances at or from the Site by the implementation by Defendants of the Work; to obtain reimbursement from Defendants for certain of Plaintiff's Past and Future Response Costs; and to settle all claims against Defendants asserted by Plaintiff with regard to this Site in the Complaint filed in this matter.

All Parties agree and the EPA and the Court hereby determine that the remedy selected in the ROD is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 (hereinafter "National Contingency Plan" or "NCP"). As is required by Section 121 of CERCLA, 42 U.S.C. §9621, the Work performed in the implementation of this Remedial Action shall meet the substantive standards of all legally "applicable requirements" and "relevant and appropriate requirements" (collectively "ARARs"), as those terms are defined in 40 C.F.R. § 300.5, as generally described in CERCLA Compliance with Other Environmental Statutes, October 2, 1985 (50 Fed. Reg. 47946, November 20, 1985). EPA has identified the ARARs for the

Remedial Action at the Site. Those ARARs are set forth in the ROD, and are summarized in Section VII.A.15 of this Consent Decree.

VI. NOTICE OF OBLIGATIONS TO SUCCESSORS-IN-TITLE

A. Within sixty (30) days after the entry of this Consent Decree, Defendants shall cause to be recorded a certified copy of this Consent Decree with the Recorder's Office, Fresno County, State of California.

B. The obligations of each Defendant who owns any interest in property included in the Site, with respect to the provision of access under Section XIII (Site Access) and the implementation of institutional controls under Section VII (Work To Be Performed), shall, to the extent permitted by law, run with the land and shall be binding upon any and all such Defendants and any and all persons who subsequently acquire any such interest or portion thereof (hereinafter "successors-in-title"). Within sixty (60) days after the entry of this Consent Decree, each Defendant who owns any interest in property included in the Site shall record at the Recorder's Office, Fresno County, State of California, or other office where land ownership and transfer records are maintained for the property, a notice of obligation to provide access and related covenants in a form approved by EPA.

C. Any Defendant that owns an interest in property included in the Site shall, prior to the conveyance of any such interest, give written notice of this Consent Decree to the grantee and

written notice to EPA of the proposed conveyance, the name and address of the grantee, and the date on which notice of the Consent Decree was given to the grantee. In the event of any such conveyance, all of Defendants' obligations under this Consent Decree shall remain in effect.

VII. WORK TO BE PERFORMED

A. General Obligations Regarding the Remedial Action

1. Defendants shall finance and perform, at their expense, the implementation of the Work as required by this Decree and the Appendices hereto.

2. Except upon agreement by all Parties, no Work or additional work pursuant to Section VIII (Additional Work) shall be required to be performed pursuant to this Consent Decree except those tasks necessary to fully implement the ROD, as provided herein.

3. Notwithstanding any approvals which may be granted by the United States or other governmental entities, Defendants shall assume any and all liability of the United States arising from or relating to Defendants' acts or omissions or the acts or omissions of any of their contractors, subcontractors, or any other person acting on Defendants' behalf (except to the extent such contractors, subcontractors or other persons are acting at the direction of EPA pursuant to Section VII.A.16) in the performance of the Work or Defendants failure to perform fully or complete the Work.

4. In accordance with Section XII (Project Coordinator), Defendants shall appoint a representative ("Project Coordinator") designated by them to act on their behalf to execute the Work.

5. The Defendants shall perform the Work for the Site in accordance with all of the provisions of this Decree, and in accordance with the ROD, attached hereto as Appendix A, the Scope of Work ("SOW") attached hereto as Appendix B, and any modifications thereto which are approved by pursuant to Section XXV (Modification) of this Decree. The ROD, the SOW, and all such modifications are hereby incorporated by reference and made a part of this Decree. In the event of any conflict between the Decree and the SOW or any other EPA approved document incorporated into this Decree, the Decree shall control. In the event of any conflict between the ROD and the Decree, the Decree shall control, but nothing herein shall preclude the United States from moving the Court to approve a modification of the Decree in accordance with Section XXV (Modification) to conform to the ROD.

6. As is further described in the ROD and the SOW, the major components of the selected remedy for the Site are as follows:

a) Constructing a cross canyon stream diversion to divert water flow away from the asbestos tailings pile in the east fork of Pine Canyon Creek;

b) Improving the existing sediment trapping dam to minimize the potential for the release of asbestos into Pine Canyon Creek;

c) Constructing a fence along the road through the Site

and around the disturbed areas to limit access;

d) Conducting a revegetation pilot project to determine whether revegetation is a practical means of increasing stability and minimizing erosion of the disturbed areas and implementing revegetation if it is found to be feasible;

e) Dismantling of the mill building and disposal of debris;

f) Performing operation and maintenance activities;

g) Road paving or an appropriate engineering alternative; and

h) Filing deed restrictions.

7. All Remedial Design Work to be performed by Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional engineer. Within thirty (30) days after the entry of this Consent Decree by the Court and prior to the initiation of the Remedial Design Work for the Site, the Defendants shall notify EPA, in writing, of the name, title, and qualifications of the supervising engineer proposed to be used in carrying out the Remedial Design Work to be performed pursuant to this Consent Decree. Selection of any such engineer shall be subject to disapproval by EPA. If EPA disapproves of the selection of any supervising engineer, the Defendants shall submit a list of engineers to EPA within thirty (30) days of receiving written notice of the disapproval of the engineer previously selected. Defendants may select from this list any one

of the engineers which is approved by EPA. Within twenty (20) days after EPA provides approval of any engineers from Defendants' list, Defendants shall notify EPA of the name of the engineer which they have selected.

8. All Remedial Action Work to be performed by the Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional engineer and performed by a qualified contractor. Within sixty (60) days after entry of this Decree by the Court and prior to the initiation of Remedial Action Work at the Site, the Defendants shall notify EPA, in writing, of the name, title, and qualifications of the supervising engineer. Within forty-five (45) days of EPA's approval of the Final Design Submittals, as provided in Appendix B, Defendants shall notify EPA in writing of the names of the principal contractors and/or subcontractors proposed to be used in carrying out the Remedial Action Work pursuant to this Consent Decree. Selection of any such engineer and contractor and/or subcontractor shall be subject to disapproval by the EPA in accordance with the provisions of Paragraph 7 of this Section. If at any time thereafter Defendants propose to change the supervising engineer or principal contractor and/or subcontractors, Defendants shall give written notice to EPA and shall obtain approval from EPA before the new supervising engineer or principal contractor and/or subcontractor performs any work under this Consent Decree. All work performed by Defendants shall be performed

by qualified engineers and/or contractors or subcontractors in accordance with the conditions and schedules specified in this Decree.

9. The Defendants shall be liable to EPA for any acts or omissions of any of their contractors, subcontractors or any other person acting on their behalf (except to the extent such contractors, subcontractors or other persons are acting at the direction of EPA pursuant to Section VII.A.16) in the performance of the Work or their failure to perform fully or complete the Work, if such acts, omissions or performance constitutes a violation of this Decree.

10. Within forty-five (45) days of the effective date of this Consent Decree, Defendants shall submit a draft Work Plan to EPA for the Remedial Design Work at the Site ("RD Work Plan"). The draft RD Work Plan shall be developed in conformance with the ROD, the SOW, EPA Superfund Remedial Design and Remedial Action Guidance and any additional guidance documents provided to Defendants by EPA by the effective date of this Consent Decree.

11. The RD Work Plan submittal shall describe how the Defendants will implement the selected remedy at the Site and will be consistent with the SOW.

12. In accordance with Section VII.B below, the RD Work Plan and other required documents and reports shall be subject to review, approval and/or modification in writing by EPA. Defendants shall revise disapproved documents in accordance with EPA's comments and submit such revised documents to EPA within thirty (30) days after receipt of the notice of disapproval. Any dis-

1 putes regarding any revised or modified document shall be
2 resolved pursuant to Section XXIII (Dispute Resolution) of this
3 Decree.

4 13. Defendants shall implement the Work detailed in the RD
5 Work Plan as approved or modified by EPA pursuant to Paragraph 12
6 above. The approved RD Work Plan shall be deemed incorporated
7 into and made an enforceable part of this Consent Decree. Within
8 thirty days of approval of the RD Work Plan by EPA, Defendants
9 shall file a copy of the RD Work Plan with the Court to be incor-
10 porated into this Consent Decree. Any noncompliance with any EPA
11 approved reports, plans, specifications, schedules, appendices,
12 or attachments to the RD Work Plan shall be considered a failure
13 to comply with this Decree and shall subject Defendants to stipu-
14 lated penalties as provided in Section XXI (Stipulated
15 Penalties). In the event of any inconsistency between the SOW
16 and the RD Work Plan, the SOW shall govern. All work shall be
17 conducted in accordance with the National Contingency Plan, the
18 EPA Superfund Remedial Design and Remedial Action Guidance (OSWER
19 Directive No. 9355.0-4A, June 1986), and the requirements of the
20 Consent Decree and the RD Work Plan.

21 14. The Parties acknowledge and agree that neither the SOW,
22 the RD Work Plan, nor any approvals, permits or other permissions
23 which may be granted by EPA related to this Consent Decree con-
24 stitute a warranty or representation by Plaintiff that the SOW,
25 the RD Work Plan or such other approvals or permits will achieve
26 the standards set forth in the ROD, the SOW, and in Paragraph 15
27 below and shall not foreclose Plaintiff from seeking performance
28

of all terms and conditions of this Consent Decree. Nothing in this Consent Decree shall be construed to relieve Defendants of their obligation to achieve all standards set forth in the ROD, the SOW, and in Paragraph 15 below.

15. In performing the Work at the Site, Defendants shall meet the ARARs, which have been identified by EPA and specifically set forth in the ROD, and which are summarized below:

a) Control asbestos emissions in accordance with the federal Clean Air Act, National Emission Standard for Hazardous Air Pollutants.

b) Conform with the particulate matter standard (PM 10) established by the Fresno County Air Pollution Control District pursuant to the California Air Resources Act.

c) Protect endangered species in accordance with the federal Endangered Species Act of 1973.

d) Minimize habitat loss in accordance with the United States Fish and Wildlife Service Mitigation Policy.

e) Minimize adverse impacts on waters of the United States in accordance with the Federal Water Pollution Control Act.

f) Comply with the substantive restrictions of California Health and Safety Code Sections 25232(a)(1) and (a)(2).

g) Protect worker health and safety in accordance with the federal Occupational Safety and Health Act.

h) Construct engineering systems in accordance with the storm run-off and peak stream flow standards of the mining waste regulations established pursuant to the California Porter-Cologne Water Quality Act.

16. In the event EPA determines that the Defendants have failed to implement the Work or any portions thereof in a timely or adequate manner, EPA or its designate may perform such portions of the Work as EPA determines may be necessary. If the EPA performs all or portions of the Work because of the Defendants' failure to comply with their obligations under this Consent Decree, the Defendants shall reimburse the EPA for the costs of doing such work, plus penalties as set forth in Section XXI (Stipulated Penalties). EPA will provide Defendants' Project Coordinator with 20 days advance written notice of EPA's intent to perform a portion or all of the Work, unless EPA determines that a more immediate response is needed to address a threat to human health or the environment. Any disputes regarding EPA's decision(s) under this Section shall be resolved pursuant to Section XXIII (Dispute Resolution) of this Decree.

17. Defendants shall dispose of any materials taken offsite in compliance with EPA's Revised Procedures for Implementing Off-Site Response Actions ("Offsite Policy") (EPA OSWER Directive 9834.11, November 13, 1987) and any amendments thereto.

B. Obligations Regarding Documents to be submitted ("Deliverables"):

1. Monthly Progress Reports:

Defendants shall prepare and submit to EPA Monthly Progress Reports as required by Appendix B, the SOW.

2. [Reserved]

3. Community Relations Plan. Defendants shall prepare and submit to EPA for its approval a Community Relations Plan for soliciting public input and informing the public of the status of the Work. The plan shall provide for written communication with community members ("fact sheets") and community meetings.

4. Worker Health and Safety Plan. Defendants shall prepare and submit to EPA a Worker Health and Safety Plan as required by Appendix B.

5. Remedial Design Work Plan. Defendants shall prepare and submit to EPA for its comments a Draft Remedial Design Work Plan and to EPA for its approval a Final Remedial Design Work Plan as required by Appendix B.

6. Preliminary Design. Defendants shall prepare and submit to EPA for its comments a Preliminary Design report as required by Appendix B.

7. Prefinal/Final Design. As required by Appendix B, Defendants shall prepare and submit to EPA for its comments Prefinal Design Submittals and shall prepare and submit to EPA for its approval Final Design Submittals.

8. Revegetation Pilot Project Work Plan. As required by Appendix B, Defendants shall prepare and submit to EPA for its comments a Draft Revegetation Pilot Project Work Plan and shall prepare and submit to EPA for its approval a Final Revegetation Pilot Project Work Plan.

9. Prefinal Inspection Report. Defendants shall prepare and submit to EPA a Prefinal Inspection Report as required by Appendix B.

10. Remedial Action Completion Report. Defendants shall prepare and submit to EPA a Remedial Action Completion Report as required by Appendix B.

11. Defendants shall, pursuant to the schedule in the SOW attached to this Decree as Appendix B, submit each of the above deliverables. Any failure of Defendants to submit a deliverable in compliance with the schedule will be deemed a violation of this Decree.

12. After review of any plan, report, draft deliverable or other item which is required to be submitted to EPA for its approval pursuant to this Consent Decree or the incorporated SOW, EPA will in writing either: (a) approve the submission; (b) disapprove the submission, notifying the Defendants of the deficiencies and requiring resubmittal within thirty (30) days; or (c) approve the submission with modifications.

13. After receipt of EPA's written decision pursuant to Paragraph 12 above, Defendants shall, within the time period established by this Consent Decree: (a) proceed to take action as required by the approved or modified submission; or (b) correct

the deficiencies as determined by EPA and resubmit the plan, report, draft or other item to EPA for approval. In the event EPA determines that there are deficiencies in the submissions, Defendants shall proceed, at the written direction of EPA, to take any action required by any non-deficient portion of the submission. Any disputes regarding EPA's decision(s) under this Section shall be resolved pursuant to Section XXIII (Dispute Resolution) of this Decree.

14. Any failure by Defendants to revise, modify or correct deficiencies as directed by EPA within the time allotted in the schedule will be deemed a violation of this Consent Decree. Implementation of non-deficient portions of the submission shall not relieve Defendants of any liability for stipulated penalties under Section XXI (Stipulated Penalties) with respect to the deficient portions.

VIII. ADDITIONAL WORK

A. In the event that EPA or Defendants determine(s) that additional work is necessary to meet the Performance Standards or to carry out the remedy selected in the ROD, notification of such additional work shall be provided to the Project Coordinator for the other party(ies).

B. Within 30 days of receipt of notice from EPA pursuant to this Section that additional work is necessary, or such longer time as may be specified by EPA, Defendants shall submit for approval by EPA a work plan for the additional work. The work plan

shall conform to the requirements in and shall be approved, disapproved or modified in accordance with Section VII (Work To Be Performed) and shall be consistent with the NCP.

C. Any additional work determined to be necessary by Defendants is subject to approval by EPA.

D. Any additional work determined to be necessary by Defendants and approved by EPA, or determined to be necessary by EPA to carry out the remedy described in the ROD or to meet the Performance Standards, shall be completed by Defendants in accordance with the standards, specifications, and schedules approved by EPA.

E. If EPA disapproves the work plan pursuant to the provisions of Section VII (Work To Be Performed), Defendants, consistent with Section VII (Work to Be Performed), shall submit a modified plan. EPA may also approve the plan with modifications.

F. Defendants shall promptly implement the work plan as approved or modified by EPA. Defendants may invoke the procedures set forth in Section XXIII (Dispute Resolution) (i) to dispute EPA's determination that additional work is necessary to meet the Performance Standards or to carry out the remedy selected in the ROD, or (ii) to resolve any other disputes that arise under this Section.

G. In the event that any deadline established in or pursuant to this Decree for performance of any activity is dependent on the completion of any such additional work, that deadline will be extended by an amount of time equal to the time required to complete that additional work.

IX. WORKER HEALTH AND SAFETY PLAN

The Worker Health and Safety Plan that the Defendants will submit pursuant to Section VII (Work to be Performed) and Appendix B of this Consent Decree shall be prepared in conformance with applicable state and federal requirements.

X. PERIODIC REVIEW TO ASSURE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Consistent with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, Defendants shall conduct within each five year period such study and investigation as are requested by EPA, and as are necessary to permit EPA to perform six (6) five-year reviews to be completed within 30 years after the initiation of the remedial action. Defendants shall reimburse EPA for its costs in performing these reviews, and shall be subject to stipulated penalties for failure to pay such costs. Any dispute regarding EPA's decision(s) under this Section shall be resolved pursuant to Section XXIII (Dispute Resolution) of this Decree.

XI. QUALITY ASSURANCE/QUALITY CONTROL

A. The Quality Assurance/Quality Control (QA/QC) program that Defendants shall submit pursuant to Section VII (Work to be Performed) of this Consent Decree shall, where applicable, be prepared in accordance with the following EPA guidances, Interim Guidelines and specifications for Preparing Quality Assurance

Project Plans, (QAMS-005/80) December 29, 1980, Technical Guidance Document: Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, (EPA/530-SW-86-031) October, 1986, and any additional EPA or EPA Region IX guidance identified by EPA in a timely fashion. Upon approval and notice by EPA to the Defendants, Defendants shall implement the QA/QC Program.

B. Defendants shall use QA/QC procedures which are approved pursuant to Paragraph A above, and shall utilize standard EPA chain of custody procedures, as documented in the National Enforcement Investigations Center Policies and Procedures (EPA-330/9-78-001-R) revised May, 1986, and any amendments thereto, and the National Enforcement Investigations Center Manual for the Evidence Audit of Enforcement Investigations by Contractor Evidence Audit Teams (EPA 330/9-81-003-R) April, 1984, and any amendments thereto, for all sample collection and analysis activities, unless other procedures are approved by EPA, pursuant to this Consent Decree.

C. In order to provide quality assurance and maintain quality control regarding all samples collected in connection with activities performed pursuant to this Decree, the Defendants shall:

1. Ensure that all contracts with laboratories utilized by Defendants for analysis of samples taken pursuant to this Consent Decree shall provide for access of EPA personnel and EPA authorized representatives to verify the accuracy of laboratory results.

2. Ensure that any laboratory utilized by Defendants for analysis of samples taken pursuant to this Consent Decree shall perform all such analyses according to EPA methods as documented in EPA's Contract Laboratory Statement of Work for Inorganic Analysis, Multi-Media, Multi-Concentration, June 1989, or other methods approved by EPA for use pursuant to this Consent Decree, and submit all protocols to be used for analysis to EPA in the plans and documents required under this Consent Decree.

3. Specify that all laboratories utilized by Defendants for analysis of samples taken pursuant to this Decree shall participate in an EPA or EPA equivalent QA/QC program. As part of the QA/QC program and upon request by EPA, such laboratories shall perform at Defendants' expense analyses of samples provided by EPA to demonstrate the quality of each laboratory's data.

D. Sampling data generated consistent with the QA/QC program shall be admissible as evidence, without objection except as to relevance, in any proceeding under Section XXIII (Dispute Resolution) of this Decree. In any such proceeding, the parties shall be able to impeach or otherwise contest the credibility, validity, or meaning of such evidence.

E. Notwithstanding any provision of the Consent Decree, the United States retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, and any other applicable statutes or regulations.

XII. PROJECT COORDINATOR

A. By the effective date of this Consent Decree, EPA and Defendants shall each designate a Project Coordinator, and shall notify each other in writing of the name, address, and telephone number of their Project Coordinators, to monitor the progress of the Work, to coordinate communication between EPA and the Defendants and to oversee the implementation of this Consent Decree. EPA and Defendants each have the right to change their respective Project Coordinator. Such a change shall be accomplished by notifying the other party in writing at least five (5) working days prior to the change. To the maximum extent possible, communications between Defendants and EPA and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Consent Decree, shall be directed through the Project Coordinators.

B. The EPA Project Coordinator shall have the authority vested in the On-Scene Coordinator by 40 C.F.R. § 300 et seq., including such authority as may be added by amendments to 40 C.F.R. § 300, as well as the authority to ensure that the Work is performed in accordance with all applicable statutes, regulations, and this Consent Decree.

C. Defendants' Project Coordinator may assign other representatives, including other contractors, to serve as a site representative for oversight of performance of daily operations

during remedial activities, and shall provide EPA with notice in writing of such assignments no later than the first day on which a site representative begins acting in that capacity.

D. Prior to invoking the procedures of Section XXIII (Dispute Resolution), any unresolved disputes arising between the EPA site representative and Defendants or their contractors shall be referred to the EPA and Defendants' Project Coordinators.

XIII. SITE ACCESS

A. During the effective period of this Decree, Defendants shall provide the United States, EPA, the State, and their representatives, including contractors, access at all times to the Site, and any contiguous property owned or controlled by any Defendant.

B. To the extent that the Site where the Work is to be performed is presently owned or controlled by parties other than those bound by this Consent Decree or to the extent that access to or easements over property is required for the proper and complete performance of this Decree, Defendants shall use their best efforts to obtain access agreements from the present owners or those persons who have control over the property, including lessees, within thirty (30) days of EPA's approval of the Final Design or such longer time as is granted by EPA upon request by Defendants. For purposes of this Section, "best efforts" includes but is not limited to, seeking judicial assistance and/or the payment of reasonable sums of money, based on local fair market value for such access or use, as consideration for access

and/or use of the property. Site access agreements shall provide access to Defendants, the United States, EPA, the parties' contractors, State and local agencies, and their authorized representatives.

C. In the event that site access agreements are not obtained within the thirty (30) day period (or such period as extended by EPA) referred to in paragraph B above, the Defendants shall notify EPA in writing within five (5) days of the expiration of that period, regarding both the lack of, and efforts to obtain, such agreements. If Defendants fail to gain access within thirty (30) days, they shall continue to use best efforts to obtain access until access is granted. EPA agrees to assist Defendants in obtaining such access, to the extent that EPA determines that such assistance is appropriate. Any delay in performing any requirement under this Decree, arising from Defendants' inability to obtain Site access, where Defendants have made "best efforts" to obtain such access, constitutes a <u>force majeure</u> pursuant to Section XXII (Force Majeure).

D. Any person obtaining access to the Site pursuant to this provision shall comply with all applicable provisions of the Worker Health and Safety Plan as submitted pursuant to Appendix B of this Consent Decree.

E. Notwithstanding any provision of this Consent Decree, the United States retains all of its access authorities and rights under CERCLA and any other federal statute or authority.

XIV. ASSURANCE OF ABILITY TO COMPLETE WORK

A. Defendants shall demonstrate their ability to complete the Work and to pay all claims that arise from the performance of the Work by obtaining, and presenting to EPA for approval within thirty (30) calendar days after the effective date of this Decree, one of the following mechanisms in the amount of the total estimated costs of the Work remaining to be performed:

1) A surety bond;

2) One or more letters of credit;

3) A trust fund;

4) A guarantee to perform the Work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with at least one of the Defendants, and a demonstration that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f); or

5) A demonstration that at least one of the Defendants satisfies the requirements of 40 C.F.R. Part 264.143(f).

B. If Defendants rely on the internal financial information of one of them or on a corporate guarantee for financial assurance, the Defendants shall annually resubmit sworn statements conveying the information required by 40 C.F.R. Part 264.143(f) on the anniversary date of the Consent Decree. If, at any time, EPA determines that the Defendant(s)' or guarantor's assets are insufficient to assure their ability to complete the Work, Defendants shall obtain one of the first three financial instruments listed above within thirty (30) calendar days of such EPA determination. Defendants' inability to demonstrate financial ability

to complete the Work shall not excuse performance of any activities required under this Consent Decree. Any disputes regarding EPA's decision(s) under this Section shall be resolved pursuant to Section XXIII (Dispute Resolution) of this Decree.

XV. COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS

A. In accordance with CERCLA, as amended, the NCP and the ROD, all actions required to be taken pursuant to this Consent Decree shall be undertaken in accordance with the requirements of all applicable federal, state and local laws, regulations, and permitting requirements.

B. Defendants shall obtain all permits or approvals necessary under federal, state or local laws and shall submit timely applications and requests for any such permits and approvals. Notwithstanding any other provision in this Consent Decree, no federal, state or local permits shall be required for any Work conducted pursuant to this Consent Decree entirely onsite, as defined by 40 C.F.R. §300.400(e).

XVI. DATA EXCHANGE: SAMPLING AND ANALYSIS

A. Under the provisions of Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), EPA explicitly reserves the right to observe the Work of the Defendants as it is performed. In addition, at the request of EPA, Defendants shall allow split or replicate samples to be taken by EPA and/or its authorized representatives, of any samples collected by the Defendants or anyone acting on the Defendants' behalf pursuant to the implementation of this

Consent Decree. At least seven (7) days in advance of any sampling activity, Defendants shall notify EPA of the intended date of commencement of the sampling activity. In addition, Defendants shall notify EPA at least 48 hours prior to any modifications or proposed changes to any sample collection activity. Defendants shall notify EPA thirty (30) days prior to the disposal of any such samples, and shall provide EPA with an opportunity to take possession of all or a portion of such samples.

B. Defendants shall notify EPA in a timely manner of any project which is required to be performed pursuant to this Consent Decree and which is likely to produce data or information as described in this Section.

C. Not withstanding any provisions of this Consent Decree, the United States hereby retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, and any other applicable statutes.

D. Within 60 days of the effective date of this Consent Decree, Defendants shall propose to EPA a plan and system to manage and organize data collected pursuant to this Decree. Upon approval by EPA, Defendants shall implement the data management plan and system.

XVII. RETENTION OF RECORDS

A. Defendants shall preserve and retain all records and documents in Defendants' possession at the time of entry of this Consent Decree which EPA is authorized to obtain under Section

104(e) of CERCLA, 42 U.S.C. § 9604(e), with respect to the Site, regardless of any document retention policy to the contrary, for ten (10) years after the entry of this Consent Decree.

B. The Defendants shall preserve, and shall instruct all contractors, all contractors' subcontractors, and anyone else acting on the Defendants' behalf at the Site to preserve (in the form of originals or exact copies, or in the alternative, microfiche of all originals) all records, documents and information of whatever kind, nature, or description required to be generated pursuant to this Consent Decree. During the 10 year period following completion of the Work, or earlier if requested or agreed to by EPA, originals or copies of all such records, documents, and information shall be delivered to EPA's Project Coordinator or designee, at which point Defendants' record preservation and retention obligations under this Consent Decree shall end.

C. After the 10 year period set out in Paragraph B above, or earlier if agreed to by EPA, Defendants shall notify EPA no later than sixty (60) days prior to the destruction of such documents. Upon request by EPA, the Defendants proposing to destroy records shall make available to EPA originals or copies of any such records prior to their destruction.

XVIII. RESERVATION OF RIGHTS

A. Notwithstanding any other provision in this Decree, Section XXVIII (Covenant Not to Sue) shall not relieve any Defendant of its obligation to meet and maintain compliance with the re-

quirements set forth in this Decree. Except as provided in Section XXVIII (Covenant Not To Sue), the United States reserves all rights to take enforcement actions for violations of this Decree, of CERCLA and/or of any other authority, including the right to seek response costs, injunctive relief, monetary penalties, and punitive damages for any civil or criminal violation of law or this Consent Decree.

B. Except as provided in Section XXVIII (Covenant Not To Sue), nothing in this Consent Decree shall be deemed to limit the response authority of EPA under Sections 104 or 106 of CERCLA, 42 U.S.C. § 9604 or 9606, or under any other federal response authority. In any event, the United States reserves the right to seek reimbursement from the Defendants for any such response costs incurred by the United States.

C. The United States expressly reserves all rights and defenses that it may have, including the right both to disapprove of Work performed by Defendants on the grounds that it does not comply with this Consent Decree, and to request, pursuant to Section VIII (Additional Work), that Defendants perform tasks in addition to those detailed in the Work Plans prepared pursuant to this Consent Decree, provided that any such additional work is necessary to implement the remedy specified in the ROD.

XIX. REIMBURSEMENT OF FUTURE RESPONSE AND OVERSIGHT COSTS

A. Defendants shall reimburse the Hazardous Substance Superfund for the Future Response Costs (including indirect costs) incurred by EPA for any activities required to be performed by

Section VII (Work to be Performed), Section VIII (Additional Work) and Section X (Periodic Review to Assure Protection of Human Health and the Environment) which are performed by EPA, and for Future Response Costs, including indirect costs, incurred by EPA to oversee and review the Work performed by or on behalf of Defendants, and any other response costs incurred by or on behalf of EPA under or in connection with this Consent Decree, provided that such response costs are not inconsistent with the NCP.

B. No more than annually, EPA shall submit to Defendants documentation of such Future Response Costs, including oversight costs, incurred by EPA in the time period since the last demand for payment. EPA's Cost Documentation Management System ("CDMS") or equivalent cost summary, which shall include indirect costs, shall serve as the documentation for payment demands. EPA will also provide a summary of its calculations of any interest charges.

Defendants shall, within 30 days of receipt of each demand for payment, remit a check for the amount of those costs made payable to the Hazardous Substance Superfund. The checks should reference the "Mill Area Operable Unit of the Coalinga Asbestos Mine Site," and be addressed to:

U.S. Environmental Protection Agency
Region 9
Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251
Attention: Collection Officer for Superfund

A copy of the transmittal letter and a copy of the check shall be sent simultaneously to the United States and the EPA Project Coordinator as provided in Section XXIV (Form of Notice).

C. Defendants may contest payment of any Future Response Costs under this Consent Decree if they determine that the United States has made an accounting error, or that a cost item that is included represents costs that are inconsistent with the NCP, or contains costs that were not actually incurred in connection with the Site. Such objection shall be made in writing within thirty (30) days of receipt of EPA's demand for payment and EPA's CDMS or equivalent cost summary, and must be sent to the United States as specified in Section XXIV (Form of Notice). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection.

D. In the event of an objection under Paragraph C of this Section, the Defendants shall, within thirty (30) days of receipt of EPA's demand, pay all uncontested Future Response Costs to the United States, in the manner described in Paragraph B, of this Section, above. Simultaneously, the Defendants shall establish an interest bearing escrow account in a bank duly chartered in the State of California and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. The Defendants shall send to the United States, as provided in Section XXIV (Form of Notice) a copy of the transmittal letter and check paying the uncontested Future Response Costs, a copy of the correspondence that establishes and funds the escrow account, including information containing the identity of the bank and bank account under which the escrow account is established and a bank statement showing the initial balance of the escrow account.

E. Simultaneously with establishment of the escrow account, the Defendants shall initiate the Dispute Resolution procedures in Section XXIII (Dispute Resolution). Upon Defendants' request, EPA shall then provide all cost documentation related to the dispute which it would be required to produce under the Freedom of Information Act, 5 U.S.C. §552, as amended. If the United States prevails in the dispute, within 5 days of the resolution of the dispute, the Defendants shall direct the escrow holder to remit the escrowed monies (with accrued interest) to the United States, in the manner described in Paragraph B of this Section, above. If the Defendants prevail concerning any aspect of the contested costs, the Defendants shall direct the escrow holder to remit payment for that portion of the costs (plus associated accrued interest) for which they did not prevail to the United States in the manner described in Paragraph B of this Section, above, and Defendants shall be disbursed the balance of the escrow account. The dispute resolution procedures set forth in this Paragraph and the procedures set forth in Section XXIII (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Defendants' obligation to reimburse the United States for its Future Response Costs.

F. As an alternative to establishing an escrow account pursuant to Paragraph D above, Defendants may instead obtain a letter of credit equal to the amount of Future Response Costs which are contested plus the amount of interest that would otherwise accrue in the escrow account until the dispute resolution process is completed. The Defendants shall send to the United States on

behalf of EPA, as provided in Section XXIV (Form of Notice) a copy of the letter of credit. Payment of the contested Future Response Costs covered by the letter of credit shall be in accordance with Paragraphs D and E, above.

XX. REIMBURSEMENT OF PAST COSTS

A. Defendants agree to reimburse the Hazardous Substance Superfund in the amount of $995,765.74 for the Past Response Costs incurred by EPA up to and including November 30, 1990. Defendants shall reimburse EPA for such past costs according to the following schedule: (i) at least $200,000 shall be paid within 90 days following entry of this Consent Decree; (ii) at least an additional $200,000 shall be paid within three months after the first payment is due; (iii) at least an additional $300,000 shall be paid within six months after the first payment is due; and (iv) at least an additional $295.765.74 shall be paid within nine months after the first payment is due; in addition, Defendants shall pay interest on the amounts set out in subparagraphs (ii) through (iv) above at the time such payments are made, which interest shall begin to accrue at the time that the payment in subparagraph (i) is due. Such interest shall accrue at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a). Payments shall be made in the manner and format specified in Section XIX.B above. Payment of this amount completely resolves Defendants' liability to the United States for

Past Response Costs up to and including November 30, 1990, including all indirect costs and all interest that has accrued or will accrue thereon.

XXI. STIPULATED PENALTIES

A. Defendants shall be liable to the United States for stipulated penalties in the amounts set forth in Paragraphs B, C and D below, for failure to comply with the requirements of this Consent Decree as specified below, unless excused under Section XXII (Force Majeure) or Section XXIII (Dispute Resolution). "Compliance" by Defendants shall include completion of the activities under this Consent Decree or any Work Plan or other plan approved under this Consent Decree in accordance with the requirements of and time schedules established by this Consent Decree, the SOW, and any plans or other documents approved by EPA pursuant to this Consent Decree.

B. The following stipulated penalties shall be payable upon written demand by EPA per violation per day to the United States for all noncompliance violations not covered by Paragraph C below.

Period of Noncompliance	Penalty Per Violation Per Day
1st through 7th calendar day	$2,500
8th through 14th calendar day	5,000
15th calendar day and beyond	10,000

C. The following stipulated penalties shall be payable per violation per day to the United States for failure to submit timely or adequate reports or other documents required pursuant to this Consent Decree:

Period of Noncompliance	Penalty Per Violation Per Day
1st through 7th calendar day	$1,500
8th through 14th calendar day	3,000
15th calendar day and beyond	7,000

D. In the event that EPA assumes performance of a portion or all of the Work pursuant to Section VII (Work To Be Performed) or Section XVIII (Reservation of Rights), the Defendants will be liable for stipulated penalties in the amount of $50,000, or the stipulated penalties due under this Section, whichever is greater.

E. Except as stated otherwise in Paragraph F below, all penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

F. Following EPA's determination that Defendants have failed to comply with a requirement of this Consent Decree, EPA may give Defendants written notification of the same and describe

the noncompliance. EPA may send the Defendants a written demand for payment of the penalties. For untimely as opposed to inadequate submittals or performance, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified the Defendants of a violation. For inadequate as opposed to untimely submittals or for inadequate, as opposed to untimely performance of the requirements of this Consent Decree, EPA shall provide to Defendants, as soon as possible, oral notification that Defendants' submittal or performance is inadequate, with written confirmation within seven (7) days that Defendants' submittal or performance is inadequate. If EPA so notifies Defendant within seven (7) days that Defendants' submittal or performance is inadequate, penalties shall accrue commencing with Defendants' violation, as described above. In the event that EPA fails to so notify Defendants within seven (7) days of inadequate submittals or performance, stipulated penalties shall accrue from the date on which Defendants receive such notice. These notice provisions will not apply to any violation of this Consent Decree which causes a substantial harm to human health or the environment.

G. EPA may, in its discretion, waive stipulated penalties for any noncompliance or determine that the amount of stipulated penalties demanded is less than the maximum amount potentially payable by Defendants. All penalties owed to the United States under this section shall be due and payable within thirty (30) days of the Defendants' receipt from EPA of a demand for payment of stipulated penalties, unless Defendants invoke the Dispute

Resolution procedures under Section XXIII (Dispute Resolution). All payments under this Section shall be paid by certified check made payable to "EPA Hazardous Substances Superfund," and shall reference the Site and be addressed as indicated in Section XIX (Reimbursement of Response and Oversight Costs). Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to the United States as provided in Section XXIV (Form of Notice).

H. Neither the invocation of dispute resolution procedures under Section XXIII (Dispute Resolution), nor the payment of penalties shall alter in any way Defendants' obligation to complete the performance of the Work required under this Consent Decree. Further, the Defendants waive any right that they might have to challenge the amount of penalties per day of violation, as stipulated in this section, although they may dispute under the procedures of Section XXIII (Dispute Resolution) EPA's determination that a violation of this Decree has occurred.

I. Penalties shall continue to accrue as provided in Paragraphs E and F of this Section during any dispute resolution period, but need not be paid until the following:

1. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to this Court, accrued penalties shall be paid to EPA within fifteen (15) days of the agreement or the receipt of EPA's decision or order;

2. If the dispute is appealed to this Court and the United States prevails in whole or in part, Defendants shall pay all accrued penalties owed to EPA within sixty (60) days of

receipt of the Court's decision or order, in the amount specified in the Court's decision or order, except as provided in Subparagraph 3 below;

3. If the District Court's decision is appealed by any Party, Defendants shall pay all penalties specified in the Court's decision or order into an interest bearing escrow account within sixty (60) days of receipt of the Court's decision or order. Penalties in the amount specified in the Court's decision or order shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of receipt of the final appellate court decision, Defendants shall direct the escrow agent to pay the balance of the account to EPA or to Defendants to the extent that each prevails, as determined by the appellate court. In lieu of establishing an escrow account, Defendants may instead obtain a letter of credit in the same amount(s), including the interest that would otherwise accrue in the escrow account, which letter of credit shall be paid in the same manner as the escrow account provided for in this Paragraph.

J. If Defendants fail to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as late charges and interest. Defendants shall pay interest on the unpaid balance, which shall begin to accrue at the end of the thirty (30) day period set out in paragraph G above at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a). Such failure to pay stipu-

lated penalties when due shall also be a violation of the Decree and shall result in the accrual of additional stipulated penalties as provided for in this Section.

K. Nothing in this Section shall be construed as prohibiting, altering, or in any way limiting the ability of the United States to seek any other remedies or sanctions available by virtue of a violation by Defendants of this Decree or of the statutes and regulations upon which it is based, including but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. §9621(l), provided, however, that if the United States collects statutory penalties, the total of all penalties which the United States can collect from Defendants shall not exceed $25,000 per day per violation.

XXII. FORCE MAJEURE

A. For purposes of this Consent Decree, force majeure is defined as any event arising from causes beyond the control of the Defendants, or their contractor, subcontractors, agents or consultants which delays or prevents the performance of any obligation under this Consent Decree notwithstanding Defendants' best efforts to avoid the delay. The requirement that Defendants exercise "best efforts to avoid the delay" means using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent practicable.

B. The Defendants shall have the burden of proving that the delay was caused by circumstances beyond the control of the Defendants. When a force majeure event occurs that will delay or may delay the completion of any portion of the Work, the Defendants shall, no later than forty eight (48) hours after Defendants become aware or should have become aware of the force majeure event, notify EPA's Project Coordinator orally and shall, within five (5) days of oral notification to EPA notify the EPA Project Coordinator in writing of: the anticipated length and cause of the delay; the reasons why the delay is beyond the control of Defendants; which of the tasks are directly affected by the delay; the measures taken and/or to be taken to prevent or minimize the delay; and the timetable by which the Defendants intend to implement these measures and any aspects of the event which may cause or contribute to an endangerment to public health, welfare or the environment.

C. Economic hardship, normal inclement weather, increased costs of performance and the failure of Defendants to make timely application for any required permits or approvals and to provide all information required therefore in a timely manner shall not be considered events beyond the control of Defendants, their contractors, subcontractors, agents or consultants and shall not trigger the force majeure provision.

D. EPA shall determine whether the event constitutes force majeure. If EPA determines that the event did not constitute force majeure then any delay caused by the event claimed to be force majeure by the Defendants shall constitute noncompliance

with the Consent Decree and stipulated penalties shall accrue from the time of noncompliance in accordance with Section XXI (Stipulated Penalties) unless a contrary conclusion is reached as a result of the dispute resolution procedures described below. If EPA determines that the event does constitute force majeure, it shall determine the appropriate modification to the schedules for the Work to be performed.

E. No deadline shall be extended beyond that period of time which is necessary to complete the activities with the least amount of delay possible and in no case beyond the delay attributable to the force majeure event. Use of the force majeure provision shall not relieve Defendants of their duty to complete all other tasks in a timely manner in accordance with the schedule set forth in this Consent Decree, as modified by the force majeure. The Defendants shall use best efforts as defined above to avoid or minimize delay.

F. Failure of the Defendants to comply with the requirements of this Section shall preclude Defendants from asserting any claim of force majeure.

G. If EPA and the Defendants cannot agree as to whether the reason for the delay was a force majeure event, the determination of the EPA shall control. If the Defendants dispute this determination, the dispute shall be resolved by the procedures outlined in Section XXIII (Dispute Resolution) of this Consent Decree. In any such proceeding, to qualify for a force majeure defense, Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay

has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Defendants used best efforts to avoid and mitigate the effects of the delay, and that Defendants complied with the requirements of this Section.

XXIII. DISPUTE RESOLUTION

A. As required by Section 121(e)(2) of CERCLA, 42 U.S.C. §9621(e)(2), the Parties to this Consent Decree shall attempt to resolve expeditiously and informally any disputes arising with respect to this Consent Decree. A dispute shall be considered to have arisen when one party notifies the other parties in writing that there is a dispute.

Any dispute which arises with respect to this Consent Decree, shall in the first instance be the subject of informal negotiations between EPA and Defendants. The period of informal negotiations shall not exceed fourteen (14) days unless an extension is agreed to in writing by the parties. In the event that the parties cannot resolve any dispute with respect to this Consent Decree by the end of that fourteen (14) day period, then the position of EPA shall be considered binding unless Defendants invoke the dispute resolution provisions of Paragraph B below. Defendants' decision to invoke dispute resolution shall not constitute a force majeure under Section XXII (Force Majeure), herein. The amount of stipulated penalties as stated in Section XXI (Stipulated Penalties)(as opposed to EPA's determination that Defendants have violated the Decree) is not subject to dispute

resolution. Use of the dispute resolution provision will not relieve Defendants' duty to complete other tasks in a timely manner in accordance with the schedule set forth in this Consent Decree.

B. Defendants shall notify EPA in writing of their objections to EPA's position within fourteen (14) calendar days of the end of the period of informal negotiations described in Paragraph B above. EPA and Defendants will then have an additional twenty (20) calendar days from receipt by EPA of the notification of objection to reach agreement. At the end of the twenty (20) day discussion period, EPA shall provide Defendants with a written statement of its position and the supporting documentation relied upon by EPA. Within seven (7) days thereafter, Defendants may file a reply. Within ten (10) days after that seven (7) day period, the Director of the Hazardous Waste Management Division shall issue a final administrative decision regarding the dispute.

C. Petition Filed In Court:

1. In the event that the dispute cannot be resolved by the procedures outlined in Paragraphs A and B above, then the final administrative decision by EPA, referred to in Paragraph B above, shall be considered binding unless, within 10 days after Defendants' receipt of that EPA decision, the Defendants file with the Court a petition which shall describe the nature of the dispute and include a proposal for its resolution. Defendants shall not file such a petition until issuance of the final ad-

ministrative decision referred to in Paragraph B above. The filing of a petition asking the Court to resolve a dispute shall not of itself extend or postpone the Defendants' obligations under this Decree with respect to the disputed issue, or stay the provisions of Section XXI (Stipulated Penalties), except that the payment terms of Section XXI, Paragraph I, shall apply during the period that the dispute is under consideration by the Court.

2. Unless the Court establishes a different period for response, Plaintiff shall have thirty (30) days to respond to the petition. Defendants shall then have ten (10) days to file a reply. For any matter covered by Section 113(j)(2) of CERCLA, 42 U.S.C. §113(j)(2), in proceedings on any dispute covered by this Section the Court shall uphold EPA's decision unless the Defendants can demonstrate, on the administrative record, that EPA's decision was arbitrary and capricious or otherwise not in accordance with law. For any other matters, the Court shall apply applicable standards of law regarding the standard of review and the scope of material to be considered. In any proceedings on a dispute, Defendants shall bear the burden of coming forward with evidence and of persuasion on factual issues.

3. If the Court finds for EPA, the Defendants shall transmit payment of all penalties which have accrued during the dispute, plus interest at the rate specified in Section XXI (Stipulated Penalties) to the Hazardous Substance Superfund, within fifteen (15) working days of resolution of the dispute. The Defendants shall then implement the disputed matter as

resolved and perform the work which was the subject of the dispute, if required. The appropriate plans should be amended to reflect the resolution of the dispute.

4. If the Court finds for Defendants: (1) the deadlines for any affected deliverables shall be extended to account for any delays attributable to the dispute resolution procedures; and (2) any penalties which would otherwise accrue for violation of any affected deliverable shall be waived.

XXIV. FORM OF NOTICE

A. When written notification to or written communication with the United States, EPA or the Defendants is required by the terms of this Consent Decree, it shall be sent, postage prepaid, and addressed as follows:

As to Plaintiffs:

Chief
Environmental Enforcement Section
Environment and Natural Resources Division
Department of Justice
10th and Pennsylvania Avenue, N.W.
Washington, DC 20530

EPA Project Coordinator
Superfund Enforcement Section
U.S. Environmental Protection Agency
75 Hawthorne Street
SAn Francisco, CA 94105

Assistant Regional Counsel for the
Coalinga Asbestos Mill Site
Office of Regional Counsel
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Frank Lopez
California Department of Health Services
10151 Croydon Way
Sacramento, California 96827

Chris Chalfant
California Regional Water Quality Control Board
Central Valley Region
3614 East Ashlan Avenue
Fresno, California 93726

As to the Defendants:

Jerome F. Donohoe, Esq.
Vice President - Law
Santa Fe Pacific Corporation
1700 East Golf Road
Schaumburg, Illinois 60173-5860

Edward L. Strohbehn Jr., Esq.
McCutchen, Doyle, Brown & Enersen
Three Embarcadero Center
San Francisco, California 94111

These names and addresses may be changed by the United States, EPA and/or Defendants by notifying the other parties in writing.

XXV. MODIFICATION

No modification shall be made to this Consent Decree without written notification to and written approval of the Parties and the Court; provided, however, that modifications of the Scope of Work (Appendix B) may be made upon the written consent of the Parties and shall be filed with this Court; and provided further, that the Parties may agree to alter any deadline specified in or pursuant to this Consent Decree without notice to or approval by the Court. The notification required by this Paragraph shall set forth the nature of and reasons for the requested modification. No oral modification of this Consent Decree shall be effective. Nothing in this Paragraph shall be deemed to alter the Court's power to supervise or modify this Consent Decree.

XXVI. ADMISSIBILITY OF DATA

For the purpose of this Consent Decree only, the Parties waive any evidentiary objection as to the authenticity of data gathered, generated, or evaluated by any Party in the performance or oversight of the Work under this Decree that has been verified using the Quality Assurance and Quality Control procedures specified in Section XI (Quality Assurance and Quality Control). The parties shall be able to impeach or otherwise contest the credibility, validity, or meaning of such evidence.

For the purpose of this action only, the Parties also waive any objections to the introduction of such data based on hearsay.

XXVII. CONTRIBUTION PROTECTION

With regard to claims for contribution against Defendants for matters addressed in this Consent Decree, the Parties hereto agree that the Defendants are, as of the effective date of this Consent Decree, entitled to and shall receive such protection from contribution actions or claims as is provided in Section 113(f)(2) of CERCLA, 42 U.S.C. §9613(f)(2).

The Defendants agree that with respect to any suit or claim for contribution brought by them for matters related to this Consent Decree they will notify the United States in writing no later than the date that such suit or claim is served. The Defendants also agree that with respect to any suit or claim for contribution brought against them for matters related to this

Consent Decree they will notify the United States in writing within 10 days of the date on which the complaint in such an action is served on them.

XXVIII. COVENANT NOT TO SUE

A. Subject to the provisions of Section XVIII (Reservation of Rights) and of this Section, the United States covenants not to sue, not to take any administrative action, and not to execute judgment against the Defendants for any and all civil liability to the United States for causes of action arising under Sections 104, 106 and 107(a) of CERCLA, 42 U.S.C. §§9604, 9606, 9607(a), and Section 7003 of the Resource Conservation and Recovery Act, 42 U.S.C. §6973, relating to the Site, or for matters covered by this Consent Decree. Subject to the provisions of Section XXIII (Dispute Resolution), this Covenant Not To Sue shall take effect so long as Defendants continue to perform, completely and satisfactorily, their obligations under this Consent Decree. With respect to Future Liability, this Covenant Not To Sue shall take effect only when all of the following have occurred: (1) EPA issues a Certificate of Completion of the Remedial Action pursuant to Section XXXIX (Certificate of Completion), and (2) the receipt by EPA of the payments required by Sections XIX (Reimbursement of Future Response and Oversight Costs) and XX (Reimbursement of Past Costs). This Covenant Not To Sue is conditioned upon complete and satisfactory performance by Defendants

of their obligations under this Consent Decree. This Covenant Not To Sue extends only to Defendants and their successors and assigns and does not extend to any other person.

B. Defendants covenant not to sue the United States, including any and all departments, agencies, officers, administrators, and representatives thereof, for any claim, counterclaim, or cross-claim asserted, or that could have been asserted, prior to the effective date of this Consent Decree, arising out of or relating to the Site, including any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 111 or 112, 42 U.S.C. §9606(b)(2), 9611 or 9612, or otherwise, except as such claim, counterclaim or cross-claim arises from or relates to one or more claims expressly reserved by EPA under Paragraphs C, D, and E below and only if EPA asserts that specific claim or claims. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.5.

C. Notwithstanding any other provision of this Consent Decree, the United States reserves the right to institute proceedings in this action or in a new action or to issue an Order seeking to compel the Defendants to perform any additional response work at the Site, or to reimburse the United States for Response Costs if:

(1) Prior to certification of completion of the Remedial Action by EPA pursuant to Section XXXIX (Certification of Completion),

a. conditions at the Site, previously unknown to the United States, are discovered after the entry of this Consent Decree, or

b. information is received, in whole or in part, after the entry of this Consent Decree,

and these previously unknown conditions or this information indicates that the remedy selected in the ROD will not adequately protect human health or the environment; or

(2) Subsequent to certification of completion of the Remedial Action by EPA pursuant to Section XXXIX (Certification of Completion),

a. conditions at the Site, previously unknown to the United States, are discovered after the issuance of certification of completion by EPA, or

b. information received, in whole or in part, after the issuance of certification of completion by EPA,

and these previously unknown conditions or this information indicates that the remedy selected in the ROD as implemented is not protective of human health or the environment.

D. Notwithstanding any other provision in this Consent Decree, this Covenant Not To Sue shall not relieve the Defendants of their obligations to meet and maintain compliance with the requirements set forth in this Consent Decree, specifically including the conditions set forth in the ROD, which is incorporated

herein. The United States reserves all its rights to take response actions at the Site, including the right to take response action in the event of a breach of the terms of this Consent Decree by the Defendants and to seek recovery of costs which: 1) result from such a breach; 2) relate to any portion of the Work funded or performed by the United States as a result of such breach; or (3) are enforcement costs associated with the Site which the United States incurs as a result of such breach.

E. Defendants are expressly not released from, and the provisions of Paragraph A of this Section shall not apply to, any matter not covered by this Consent Decree, including the following claims:

1. Claims based on a failure by Defendants to meet the obligations of this Decree;

2. Claims based on the Defendants' liability arising from the past, present, or future disposal of waste materials outside of the Site and not attributable to the Site;

3. Any claim or demand for damage to federal property located any place that Work is being performed;

4. Claims based on criminal liability;

5. Claims based on liability for damage to natural resources as defined in CERCLA;

6. Claims based on liability for hazardous substances removed from the Site; or

7. Liability for any violations of Federal or State law which occur during or after implementation of the Work.

F. Nothing in this Consent Decree shall constitute or be construed as a release or covenant not to sue regarding any claim or cause of action against any person as defined in Section 101(21) of CERCLA, 42 U.S.C. §9601(21), or other entity not a signatory to this Consent Decree, or any successor or assign of such entity, for any liability it may have arising out of or relating to the Site.

XXIX. WAIVER OF DEFENSE

EPA hereby informs Defendants that it may bring claims with respect to areas of the Johns-Manville Coalinga Asbestos Mill NPL Site (Coalinga Mine Site) other than the JM Mill Area OU as defined in the ROD. Should Plaintiff bring any claim with respect to any areas of the Johns-Manville Coalinga Asbestos Mill NPL Site (Coalinga Mine Site) other than the JM Mill Area OU as defined in the ROD, Defendants hereby waive the defenses of *res judicata*, collateral estoppel, and claim-splitting with respect to such claims.

XXX. COMMUNITY RELATIONS

As requested by EPA, Defendants shall cooperate with EPA in providing information to the public and shall participate in the preparation of appropriate information disseminated to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

XXXI. LODGING AND PUBLIC PARTICIPATION

A. Pursuant to Section 122(d) of CERCLA, 42 U.S.C. § 9622(d), this Consent Decree will be lodged with the Court for thirty (30) days, and the United States shall publish a notice of availability of review to allow public comment prior to entry by the Court. The United States will file with the Court and provide to Defendants a copy of any comments received and the responses of the United States to such comments.

B. Plaintiff will provide persons who are not parties to the proposed settlement with the opportunity to file written comments during at least a thirty (30) day period following such notice. Plaintiff will file with the Court a copy of any comments received and its responses to such comments.

C. After the closing of the public comment period, Plaintiff will review all comments and determine whether the comments disclose facts or considerations which indicate that the proposed judgment is inappropriate, improper or inadequate, and therefore that the Consent Decree should be modified. If a modification is deemed necessary by Plaintiff based on public comment, Plaintiff will notify Defendants. If no modification is deemed necessary, Defendants consent to the entry of this Consent Decree without further notice.

XXXII. CONSISTENCY WITH THE NCP

The United States and the Defendants agree that the Work, if performed in full accordance with the requirements of this Consent Decree, is consistent with the provisions of the National

Oil and Hazardous Substances Pollution Contingency Plan 40 C.F.R. Part 300, which has been revised and repromulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605.

XXXIII. INDEMNIFICATION AND INSURANCE

A. Notwithstanding any approvals which may be granted by the United States or other government entities, Defendants shall indemnify the United States and save and hold the United States Government, its officials, agents, contractors, representatives, agencies or departments harmless for any and all claims or causes of action arising from any acts or omissions of the Defendants, their officers, employees, agents, receivers, trustees, successors, assigns, contractors, subcontractors, or any other person acting on their behalf or under their control in carrying out activities pursuant to this Consent Decree. This indemnification does not extend to any loss, injuries or damages suffered or incurred by any person to the extent that such loss, injuries or damages are proximately caused by the actions or conduct of the United States, its agencies, departments, employees, agents, contractors or subcontractors. The United States is not, and shall not be held out as, a party to any contract entered into by or on behalf of Defendants in carrying out activities pursuant to this Consent Decree. Neither Defendants nor any such contractor shall be considered an agent of the United States.

B. Defendants shall indemnify and hold harmless the United States with respect to any claims for damages or reimbursement asserted against the United States, or for any set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement or arrangement between Defendants and any person for performance of Work pursuant to this Consent Decree, including claims on account of construction delays.

C. Before starting any of the onsite Work required by this Consent Decree, Defendants shall secure and maintain, or require their contractor(s) or subcontractor(s) to secure and maintain, until EPA's issuance of the Certificate of Completion pursuant to Section XXXIX (Certificate of Completion) comprehensive general liability and automobile insurance with limits of two million dollars ($2,000,000) per occurrence, combined single limit, naming as additional insured the United States. In addition, for the duration of this Consent Decree, Defendants shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of workmen's compensation insurance for all persons performing work on behalf of Defendants in furtherance of this Consent Decree. Prior to commencement of work under this Consent Decree, and annually thereafter, until EPA's issuance of the Certificate of Completion, Defendants shall provide to EPA certificates of such insurance and a copy of each insurance policy. If Defendants demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described

above, or insurance covering the same risks but in a lesser amount, then with respect to that contractor or subcontractor Defendants need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

XXXIV. OTHER CLAIMS

Nothing in this Consent Decree shall be deemed to constitute a preauthorization of a CERCLA claim within the meaning of Sections 111 or 112 of CERCLA, 42 U.S.C. §§ 9611, 9612, or 40 C.F.R. § 300.5. In consideration of the entry of this Consent Decree, Defendants agree not to make any claims pursuant to Section 112 or Section 106(b)(2), 42 U.S.C. §§ 9612, 9606(b)(2), or any other provision of law directly or indirectly against the Hazardous Substance Superfund, or make other claims against the United States for those costs expended by Defendants in connection with this Consent Decree, provided, however, that nothing in this Section shall affect Defendants' rights to dispute matters under this Consent Decree pursuant to Section XXIII (Dispute Resolution).

XXXV. CONTINUING JURISDICTION

The Court specifically retains jurisdiction over both the subject matter of and the Parties to this action for the duration of this Consent Decree for the purposes of issuing such further orders or directions as may be necessary or appropriate to con-

strue, implement, modify, enforce or terminate the terms of this Consent Decree or for any further relief as the interest of justice may require.

XXXVI. REPRESENTATIVE AUTHORITY

A. Each undersigned representative of the Defendants to this Consent Decree certifies that he or she is fully authorized by the Party to enter into and execute the terms and conditions of this Consent Decree, and to legally bind such Party to this Consent Decree.

B. Defendants shall identify, on the attached signature page, the name and address of an agent who is authorized to accept service of process by mail on behalf of that Defendant with respect to all matters arising under or relating to this Consent Decree. Defendants hereby agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure, including service of a summons, and any applicable local rules of this Court.

XXXVII. EFFECTIVE DATE

This Consent Decree is effective upon the date of its entry by the Court.

XXXVIII. SEVERABILITY

If any provision or authority of this Consent Decree or the application of this Consent Decree to any circumstance is held by the Court to be invalid, the application of such provision to other circumstances and the remainder of the Consent Decree shall remain in force and shall not be affected thereby.

XXXIX. CERTIFICATION OF COMPLETION

A. Within ninety (90) days after Defendants conclude that the Remedial Action has been fully performed, Defendants shall so notify EPA and shall schedule and conduct a final inspection to be attended by Defendants and EPA. Such inspection shall be followed by a written report submitted to EPA as specified in the approved RD Work Plan, which includes a certification that the Remedial Action has been completed in full satisfaction of the requirements of this Consent Decree. If EPA determines that the Remedial Action or any portion thereof has not been completed in accordance with this Consent Decree, EPA will notify Defendants in writing of the activities that must be performed to complete the Remedial Action and may set forth in the notice a schedule for performance of such activities. Subject to the requirements and procedures of Section VIII (Additional Work), Section XXV (Modification), and Section XXIII (Dispute Resolution), and if Defendants are required to perform such work as EPA requests,

Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established therein, or as modified in accordance with this Decree.

B. If EPA concludes, following the initial or any subsequent notification of completion by Defendants that the Remedial Action has been fully performed in accordance with this Consent Decree, EPA shall so certify in writing to Defendants. This certification shall constitute the "certification of completion of remedial action" pursuant to Section 122(f)(3) of CERCLA, 42 U.S.C. §9622(f)(3), and for this Consent Decree.

C. The issuance of such certification of completion shall not alter other terms or Defendants' obligations as set forth in the provisions of Section XVII (Retention of Records), Section XVIII (Reservation of Rights), Section XXVIII (Covenant Not to Sue), Section X (Periodic Review to Assure Protection of Human Health and the Environment), Section XIX (Reimbursement of Response and Oversight Costs), Section XXVII (Contribution Protection) and such other continuing rights and obligations of Defendants under this Consent Decree.

XL. TERMINATION AND SATISFACTION

This Consent Decree shall terminate upon certification by EPA of completion of the Work To Be Performed and that Defendants have satisfied their obligations under Section XIX (Reimbursement of Future Response and Oversight Costs), Section XX (Reimbursement of Past Costs), Section XXI (Stipulated Penalties), Section X (Periodic Review to Assure Protection of

Human Health and the Environment) and Section VIII (Additional Work). Termination of Defendants' obligations under the above stated provisions of this Consent Decree shall not alter the provisions of Section XVII (Retention of Records), Section XVIII (Reservation of Rights), Section XXVII (Contribution Protection), Section XXVIII (Covenant Not to Sue), and such other continuing rights and obligations of Defendants under this Consent Decree.

XLI. SECTION HEADINGS

The section headings set forth in this Consent Decree and its Table of Contents are included for convenience of reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Consent Decree.

XLII. COUNTERPARTS

This Consent Decree may be executed and delivered in any number of counterparts, each of which when executed and delivered shall be deemed to be an original, but such counterparts shall together constitute one and the same document.

SIGNED and ENTERED this 12th day of August, 1991.

UNITED STATES DISTRICT JUDGE

By the signatures below, the Parties hereby consent to the foregoing Consent Decree.

SIGNATURE PAGE FOR CONSENT DECREE BETWEEN UNITED STATES, AS PLAINTIFF, AND PINE CANYON LAND COMPANY, SANTA FE PACIFIC CORPORATION, AND CATELLUS DEVELOPMENT CORPORATION, AS DEFENDANTS:

FOR DEFENDANT, PINE CANYON LAND COMPANY

Jerome F. Donohoe

JEROME F. DONOHOE
Counsel

DATE: July 12, 1991

FOR DEFENDANT, SANTA FE PACIFIC CORPORATION

Jerome F. Donohoe

JEROME F. DONOHOE
Vice President - Law

DATE: July 12, 1991

SIGNATURE PAGE FOR CONSENT DECREE BETWEEN UNITED STATES, AS PLAINTIFF, AND PINE CANYON LAND COMPANY, SANTA FE PACIFIC CORPORATION, AND CATELLUS DEVELOPMENT CORPORATION, AS DEFENDANTS:

FOR DEFENDANT CATELLUS DEVELOPMENT CORPORATION

DATE: 7/15/91

MAUREEN SULLIVAN
Vice President Law and General Counsel

SIGNATURE PAGE FOR CONSENT DECREE BETWEEN UNITED STATES, AS PLAINTIFF, AND PINE CANYON LAND COMPANY, SANTA FE PACIFIC CORPORATION, AND CATELLUS DEVELOPMENT CORPORATION, AS DEFENDANTS:

FOR PLAINTIFF, UNITED STATES:

Barry M Hartman

BARRY HARTMAN
Acting Assistant Attorney General
Environment and Natural Resources
U.S. Department of Justice

DATE: MAY 20 1992

W A Weinischke

WILLIAM A. WEINISCHKE
Attorney, Environmental Enforcement Section
U.S. Department of Justice

DATE: 5/28/92

GEORGE L. O'CONNELL
United States Attorney

BY: [illegible]

Assistant United States Attorney

DATE: 5-28-92

John W Wise

DANIEL W. MCGOVERN Acting for
Regional Administrator
U.S. Environmental Protection Agency
Region IX

DATE: 3.3.92

1633-02763

JOHNS-MANVILLE COALINGA MILL AREA OPERABLE UNIT

OF THE

JOHNS-MANVILLE COALINGA ASBESTOS MILL NPL SITE
(COALINGA MINE SITE)

RECORD OF DECISION

United States Environmental Protection Agency
Region IX - San Francisco, California
September 21, 1990

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RECORD OF DECISION

DECLARATION

SITE NAME AND LOCATION

Johns-Manville Coalinga Asbestos Mill Area Operable Unit of the Johns-Manville Coalinga Asbestos Mill Site,
Fresno County, California

STATEMENT OF BASIS AND PURPOSE

This Record of Decision ("ROD") presents the selected remedial action for the Johns-Manville Coalinga Asbestos Mill Area Operable Unit ("JM Mill Area OU") of the Johns-Manville Coalinga Asbestos Mill Site ("JM Mill Site") in Fresno County, California. The remedy was selected pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act, 42 U.S.C. Section 9601 et. seq., ("CERCLA") and in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Section 300 et. seq., ("NCP"). This ROD explains the factual and legal bases for selecting the remedy for the JM Mill Area OU. This decision is based on the Administrative Record for this site. The attached index identifies the items that comprise the Administrative Record.

The State of California has concurred in the selection of this remedy.

THE SITE

The JM Mill Site includes three geographically distinct areas: i) The JM Mill Area (Figure 1); ii) The Ponding Basin of the California Aqueduct (Figure 2); and iii) The City of Coalinga, California. Asbestos mining and milling waste from the JM Mill Area has been transported to and come to be located in the other two areas. The JM Mill Site is also known as the Coalinga Mine Site. This operable unit ("OU") addresses the JM Mill Area ("JM Mill Area Operable Unit").

The JM Mill Area contains an estimated 340,000 cubic meters (450,000 cubic yards) of mine waste and mill tailings containing high concentrations of asbestos. Actual or threatened releases of hazardous substances from the JM Mill Area presents an imminent and substantial endangerment to public health, welfare, or the environment. The response actions selected in this ROD address this imminent and substantial endangerment.

Asbestos is a hazardous substance as defined in 42 U.S.C. Section 9601(14) and as listed in 40 C.F.R. Section 302.4. Asbestos mining and milling waste is not regulated by the Resource Conservation and Recovery Act ("RCRA"). Asbestos is known to cause lung cancer and mesothelioma in humans. Asbestos also causes other lung diseases such as asbestosis. If asbestos is not further controlled at the JM Mill Area OU, the potential for human exposure

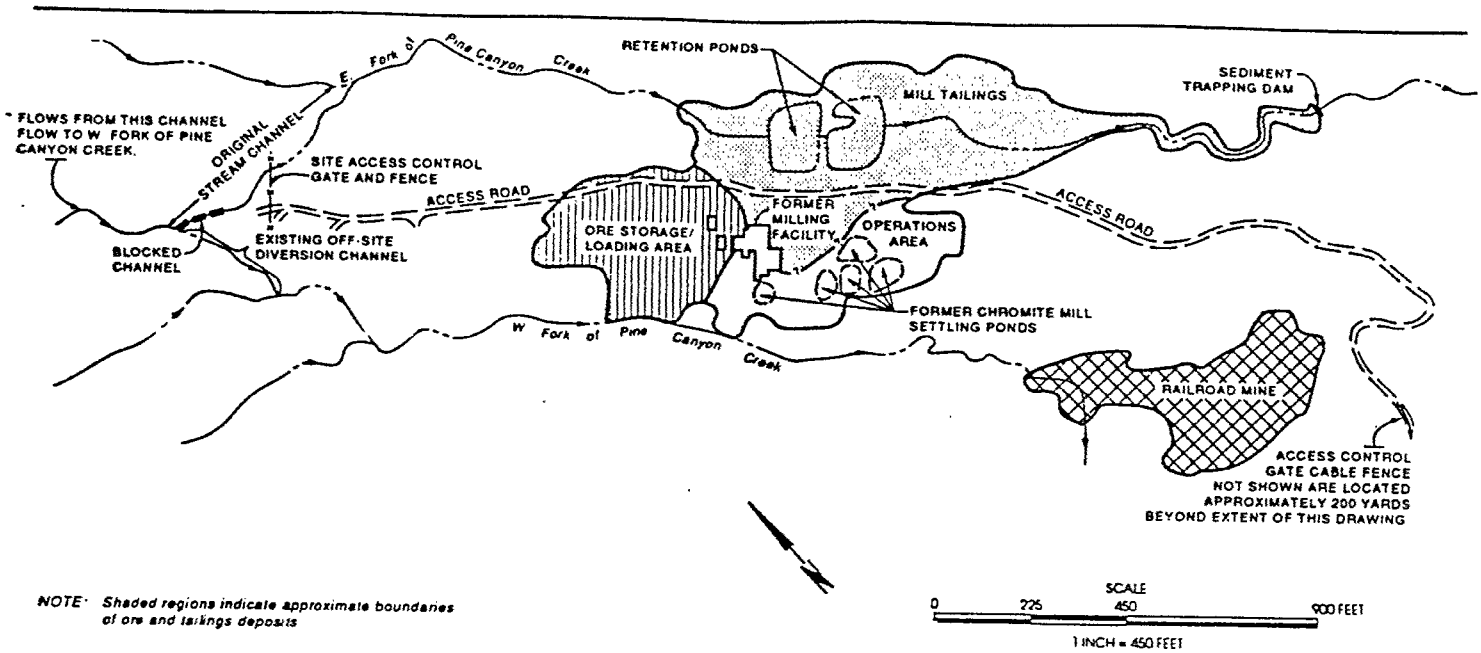

Figure 1: Detailed Site Map

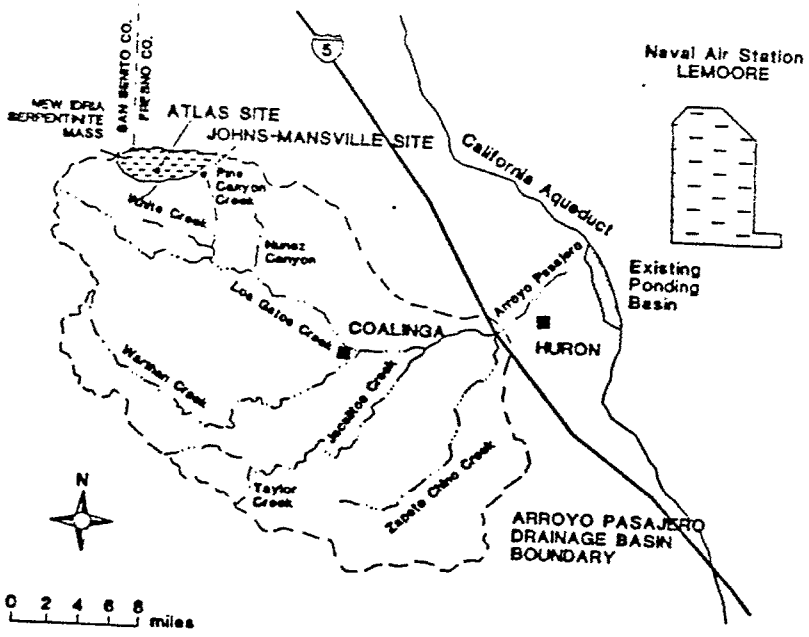

Figure 2: Greater Coalinga Area

to asbestos and the resulting increased risk to human health, primarily through the inhalation pathway, will remain.

DESCRIPTION OF THE SELECTED REMEDY

The JM MIll Area OU is one of two designated operable units for the JM Mill Site. The other operable unit is the clean up of asbestos contaminated soil in Coalinga, California by burying the contaminated material in a vault with an impermeable cap. A ROD for the City of Coalinga Operable Unit was signed on July 19, 1989.

Asbestos waste at the JM Mill Area OU presents three major problems: i) the release of chrysotile asbestos from the mill area into Pine Canyon Creek during heavy rains; ii) generation of airborne asbestos by vehicles driving in the Mill Area, on asbestos-bearing soils and on roads; and iii) the transport of asbestos from the Mill Area by vehicles which have been driven through the Mill Area.

Clean up of the asbestos at the JM Mill Area OU includes controlling the release of asbestos from the Mill Area and restricting access to the Mill Area using engineering and institutional controls. The remedy entails:

1) Constructing a cross canyon stream diversion to divert water flow away from the tailings pile;
2) Improving the existing sediment trapping dam to minimize the release of asbestos (approximately 340,000 cubic meters) into Pine Canyon Creek;
3) Fencing around the mine perimeter and around the disturbed areas to limit access;
4) Conducting a revegetation pilot project to determine whether revegetation is a practical means of increasing stability and minimizing erosion of the disturbed areas;
5) Dismantling of the mill building and disposal of debris;
6) Road paving or an appropriate engineering alternative; and
7) Filing deed restrictions.

Stabilization and control of asbestos waste will minimize the release of asbestos, thus providing long-term protection of human health and the environment. The estimated cost of the selected remedial action is $1.9 million.

Operation and maintenance activities will be required to ensure the effectiveness of the response action. In the event of a natural event such as a flood or earthquake, all repairs necessary to contain the hazardous substances will be made. Because the asbestos waste will not be treated, long-term management of the waste will be required. EPA will review the remedial action no less often than every five years pursuant to CERCLA Section 121(c).

At this time, EPA is not proposing any action in the Ponding Basin because the U.S. Bureau of Reclamation ("USBR") and the California Department of Water Resources ("DWR") are considering actions to minimize the generation of airborne asbestos-laden dust in this area. In 1992 EPA will evaluate whether the USBR/DWR actions have been adequate to protect human health and the environment and will publish a public notice of its determination. EPA will decide at that time whether further EPA action under CERCLA in the Ponding Basin is necessary.

STATUTORY DETERMINATIONS

Pursuant to CERCLA Section 121, 42 U.S.C. Section 9621, and in accordance with the NCP, the selected remedy for the Johns-Manville Coalinga Asbestos Mill Area Operable Unit: (1) is protective of human health, welfare and the environment; (2) complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action; and (3) is cost-effective. The selected remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable for the JM Mill Area OU. Treatment of asbestos contamination at the JM Mill Area OU was determined to be impracticable based on lack of effectiveness, technical infeasibility, problems with implementability and cost factors.

This remedy will result in hazardous substances remaining on site above health-based levels. Pursuant to CERCLA Section 121, 42 U.S.C. Section 9621, EPA will conduct a review within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Daniel W. McGovern

Daniel W. McGovern
Regional Administrator
EPA Region IX

9.21.90
Date

RECORD OF DECISION

DECISION SUMMARY

1.0 SITE NAME, LOCATION, AND DESCRIPTION

The Johns-Manville Coalinga Asbestos Mill Site ("JM Mill Site") includes three geographically distinct areas: i) The JM Mill Area; ii) The Ponding Basin of the California Aqueduct near Gale Avenue ("the Ponding Basin"); and iii) The City of Coalinga, California. The JM Mill Site is also known as the Coalinga Mine Site. This Operable Unit selects the remedy for the JM Mill Area.

The JMC Mill Area

The JM Mill Area is a privately owned, 2.3 square kilometer (557-acre) tract of land located in upper Pine Canyon on the southern flank of the Joaquin Ridge in the Diablo Range, which is part of the Coastal Range Mountains in western Fresno County, California (Figure 2). It is located approximately 1 kilometer (0.6 miles) downslope from the outcrop margin of the New Idria Formation, a diapiric serpentine plug containing naturally occurring chrysotile asbestos. The nearest population center is Coalinga (population 8250) located approximately 27 kilometers (17 miles) to the southeast. The JM Mill Area includes asbestos mill tailings, an asbestos ore storage/loading area, an abandoned mill building, an inactive chromite mine (the Railroad Mine), filled-in chromite settling ponds and debris. It is drained by the east and west forks of Pine Canyon Creek (See Figure 1). The areas adjacent to the JM Mill Area are rural. Land uses include mining, ranching, farming and recreation (camping, hunting, hiking, mineral collecting and riding off-highway vehicles ("OHVs")).

The Ponding Basin at the California Aqueduct

The Ponding Basin is an area between State Highway 198 and Gale Avenue to the west of the California Aqueduct (see Figure 2). It was designed to hold floodwaters from the Arroyo Pasajero alluvial fan. During heavy rains, asbestos-bearing sediments can be washed down Pine Canyon Creek, into White Creek, into Los Gatos Creek and eventually carried through the Arroyo Pasajero drainage basin and deposited in the Ponding Basin and in the surrounding area. During heavy flooding, asbestos-laden water has filled the Ponding Basin and been released into the California Aqueduct. The Ponding Basin has been designated as a part of the JM Mill Site because it contains asbestos which has been transported from the JM Mill Area. The Ponding Basin also contains asbestos from other natural and disturbed areas (including the Atlas Asbestos Company Superfund Site or "the Atlas Mine Site", which is located approximately 5 kilometers from the JM Mill Area). The Ponding Basin is administered by the United States Bureau of Reclamation ("USBR") and the California Depart-

ment of Water Resources ("DWR"). Ponding basin land is used mainly for agriculture. Huron, a community of approximately 3000, is located adjacent to the Ponding Basin. The USBR and DWR are currently developing plans to address the Arroyo Pasajero flooding and the impact of such flooding on the California Aqueduct.

The City of Coalinga

During the investigations of the JM Mill Site and the Atlas Mine Site, asbestos was discovered in Coalinga, California. This asbestos had been shipped from the JM Mill Area and other sources to a depot in Coalinga for eventual shipment out of Coalinga by rail and truck. The asbestos is concentrated in a 44 hectare (107 acre) parcel of land in the southwestern corner of Coalinga. The City of Coalinga is an Operable Unit of the JM Mill Site and the Atlas Mine Site. A ROD was signed for that Operable Unit on July 19, 1989 and cleanup of the asbestos began in February 1990. Clean up is scheduled to be completed by June 1991.

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

In the mid-1950's, an investigation by the California Division of Mines and Geology indicated that the serpentine matrix of the New Idria Formation was chrysotile asbestos. Subsequent investigation in the southeastern third of the New Idria Formation demonstrated that the asbestos ore could be mined and milled to produce a marketable short-fiber asbestos product. From 1959 through 1962, the Coalinga and Los Gatos Creek areas experienced an intensive land rush for asbestos mining claims. The Southern Pacific Railroad acquired the JM Mill Area land from the federal government as part of a land grant under the 1871 Railway Act. For a 25-year period, the Southern Pacific Land Company ("SPLC") leased part of the property to the Coalinga Asbestos Company. The Coalinga Asbestos Company, a joint venture between the Johns-Manville Corporation ("Johns-Manville"), the Kern County Land Company and private investors, constructed the asbestos mill at the JM Mill Area and operated the mill from approximately 1962 to mid-1974. During the Coalinga Asbestos Company's asbestos milling operations at the JM Mill Area, asbestos ore was processed and sorted and asbestos mill tailings were periodically bulldozed into the eastern fork of Pine Canyon Creek. Asbestos ore was brought to the JM Mill Area from several nearby open pit mines, including the Jensen Mine and the Christy Mine. An estimated 340,000 cubic meters (450,000 cubic yards) of asbestos ore and asbestos tailings remain at the JM Mill Area.

In November 1975, the Coalinga Asbestos Company assigned the lease to the Marmac Resource Company/Mareco ("Marmac"), which used the JM Mill Area to conduct a chromite milling operation. Although all milling operations at the JM Mill Area were believed to have ceased in October 1977, Marmac retained its lease on the property until July 31, 1981.

In early 1980, the Metropolitan Water District ("MWD") of Southern California detected elevated levels of asbestos in water samples from the California Aqueduct near Los Angeles. An extensive sampling program along the Aqueduct, conducted by the MWD in August through September of 1980, suggested that the JM Mill Area was one probable source of asbestos in the California Aqueduct. Asbestos levels of up to 2500 million fibers per liter ("MFL") were measured.

In May 1980, EPA had the JM Mill Area inspected. Three samples of the tailings pile were collected and analyzed using polarized light microscopy ("PLM"). The PLM analysis indicated that the tailings contained 20% to 40% chrysotile asbestos. An emission rate of asbestos fibers from the tailings pile was estimated to be 0.39 to 0.69 tons per year. However, no air monitoring was conducted to make this estimate.

On October 17, 1980, the Central Valley Regional Water Quality control Board ("CVRWQCB") and the California Department of Health Services ("DHS") inspected the JM Mill Area to determine if waste discharges from this facility were in compliance with state regulations. The CVRWQCB concluded that additional corrective measures should be taken to prevent mine- and mill-generated asbestos from entering the drainage basins. SPLC and Johns-Manville submitted plans to the CVRWQCB proposing remedial actions but Johns-Manville filed for bankruptcy before the plans could be implemented. SPLC subsequently prepared another remediation plan, dated August 18, 1983 and submitted it to the CVRWQCB.

On June 14, 1983, the risks posed by the JM Mill Site were rated using the Hazard Ranking System. The JM Mill Site was approved for listing on the NPL in September 21, 1984. Remedial Investigation/Feasibility Study ("RI/FS") activities were initiated by EPA in 1985.

The Santa Fe Pacific Railroad Company ("SFPRC" and formerly Southern Pacific Land Company or "SPLC"), the Marmac Resources Company, Kern County Land Company and the Manville Sales Corporation have been identified as Potentially Responsible Parties (PRPs) at the JM Mill Site. On June 26, 1986 and June 23, 1988, general notice letters were sent to these PRPs, notifying them of their potential liability for clean up. On November 16, 1987, SPLC signed an Administrative Order on Consent and agreed to conduct an RI/FS for the JM Mill Site. The RI and the FS were submitted to EPA on January 17, 1990 and May 3, 1990, respectively.

The problem of asbestos contamination at the JM Mill Site is part of a larger, regional problem in the New Idria Formation, where many other mines and disturbances related to mineral exploration exist. EPA intends to address this regional problem in the future.

Enforcement efforts regarding the City of Coalinga Operable Unit

have resulted in a Consent Decree with Southern Pacific Transportation Company under which a clean up is being performed. No PRPs have been sent notice letters with respect to the Ponding Basin.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS Report and the Proposed Plan for the JM Mill Site were released for public comment on May 25, 1990. These documents and the Administrative Record were made available to the public at an information repository maintained at the EPA Superfund Records Center, Region IX office, San Francisco, California. The complete Administrative Record, which EPA used to select the remedy, was available for public review at an information repository at the Coalinga District Library, Coalinga, CA. In addition, three other information repositories were established in the following California municipalities: Avenal, Hanford, and Huron. These three repositories contain the most important documents related to the remedy selection such as the RI/FS, the Proposed Plan and the Administrative Record Index. The notice of availability for these documents was published in the Hanford Sentinel on May 25, 1990 and in the Coalinga Record on May 30, 1990.

A 30 day public comment period on the RI/FS and Proposed Plan was held from May 25, 1990 to June 25, 1990. In the Proposed Plan, EPA solicited requests for a public meeting but none were received. Therefore, no public meeting was held. EPA has prepared the attached responsiveness summary, which provides responses to the comments submitted in writing during the public comment period.

4.0 SCOPE AND ROLE OF THE RESPONSE ACTION

The JM Mill Area OU is one of two designated operable units of the JM Mill Site. The second operable unit is uncontained asbestos- and nickel-contaminated soils in Coalinga, California.

The threat at the JM Mill Area OU is posed by uncontained asbestos which, if not controlled, would lead to the generation of airborne asbestos emissions. This response action is designed to: i) limit the surface water transport of asbestos downslope from the Mill Area; and ii) minimize current and future airborne asbestos emissions from the Mill Area. If asbestos carried downstream from the JM Mill Area is deposited and then resuspended, the resulting airborne emissions would pose a threat to human health. Therefore, it is important to minimize the hydraulic transport of asbestos from the JM Mill Area OU into Pine Canyon Creek.

The remedial action selected in this ROD addresses the problem of uncontained asbestos ore and asbestos mill tailings in the context of a remote and largely rural area that is close to large amounts of naturally occurring asbestos. The asbestos waste will be stabilized to minimize erosion and to minimize the

release of asbestos into the local drainage basin. In addition, access to the disturbed areas within the Mill Area will be limited to prevent disturbance of the asbestos waste and the resulting generation of airborne asbestos. The abandoned mill will be dismantled to reduce the attraction to the public and all debris will be disposed of.

The Ponding Basin contains asbestos which has been transported from the JM Mill Area and other natural and disturbed areas in the New Idria Formation. EPA's risk assessment (summarized in Section 6.0 below) suggests that a significant cancer risk may exist for people who live and work adjacent to asbestos-containing areas where agricultural practices put asbestos-laden dust into the air. At this time, EPA is not proposing action in the Ponding Basin because of actions being considered by the USBR and the DWR to minimize the generation of asbestos-laden dust in this area. In 1992 EPA will evaluate whether the USBR/DWR actions are protective of human health and the environment and will publish a public notice of its determination. EPA will decide at that time whether further EPA action under CERCLA in the Ponding Basin is necessary.

Water in the California Aqueduct is known to contain high levels of dispersed asbestos fibers. This water is used to supply municipalities with drinking water and farmers with water for agricultural purposes, such as irrigation. Municipalities are required to treat drinking water to remove asbestos under the Safe Drinking Water Act. EPA recommends that DWR evaluate the potential, long term public health effect of delivering asbestos-laden irrigation water to agricultural areas of the San Joaquin Valley.

5.0 SITE CHARACTERISTICS

Figure 1 is a site map showing major features at the JM Mill Area OU. The JM Mill Area includes asbestos mill tailings, an asbestos ore storage/loading area, an abandoned mill building, an inactive chromite mine (the Railroad Mine), filled-in chromite settling ponds and debris. The RI for the JM Mill Site included analyses of soil and water at the mill and in the surrounding area, as well as an ecological assessment of the Mill Area. SPLC also prepared a regional study titled, "Offsite Source Characterization/Regional Soil Sampling and Watershed Modeling Report", which characterizes the occurrence and transport of asbestos from the JM Mill Area and other source areas in the Los Gatos Creek Drainage Basin.

The total disturbed area at the JM Mill Area OU is approximately 10 hectares (25 acres). The main asbestos tailings pile is located in the east fork of Pine Canyon Creek. The tailings pile is approximately 116 meters (380 feet) across, 350 meters (1150 feet) long and 27 meters (90 feet) deep. The tailings pile is contained on all sides except the downstream face, where it drops off at a slope of approximately 2.5:1 for an elevation of about

61 meters (200 feet). The slope contains extensive gullies, some as large as five meters (15 feet) wide and three meters (10 feet) deep.

Detailed soil sampling found levels of asbestos ranging from 61 area percent to 80 area percent in the mine and mill waste using Polarized Light Microscopy ("PLM") as described in the Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA-600/M4-82-020). Appendix 1 provides a discussion of the various asbestos analytical techniques. Surface water samples taken in the Mill Area were measured for asbestos using Transmission Electron Microscopy ("TEM"). Asbestos concentrations in these samples ranged from 2.0E3 to 8.0E5 million fibers per liter ("MFL").

Regional air monitoring was conducted in the winter and summer of 1986 and 1987. Air monitoring stations were located upwind and downwind of the JM Mill Area as well as in Coalinga and thirteen other locations in the greater Coalinga area. Air monitoring samples were analyzed using TEM. The data showed that elevated levels of asbestos occur at the JM Mill Area and throughout the Los Gatos Creek Drainage Basin and the Arroyo Pasajero Alluvial Fan. Over time, a protective crust has formed on the tailings pile that appears to reduce wind erosion if left undisturbed. In addition, wind velocities in the Mill Area rarely exceed the velocity required to entrain asbestos fibers into the air if the surfaces are undisturbed.

Winds that exceed the threshold velocity and activities that disturb asbestos-bearing surfaces, such as driving a vehicle on the tailings piles, can cause airborne asbestos emissions. Exposure to airborne asbestos has been shown to cause cancer in humans (see Section 6.0 below). Surface water transport modeling showed that during heavy rains, up to five percent (5%) of the total asbestos yield in the Los Gatos Creek Drainage Basin is contributed by the JM Mill Area. If asbestos is transported downslope from the JM Mill Area by surface streams, deposited and then resuspended, the airborne asbestos could have a negative impact on human health and the environment.

6.0 SUMMARY OF SITE RISKS

The following discussion of site risk summarizes results of a public health evaluation ("PHE") or risk assessment conducted as part of the remedial investigation. A summary of the PHE is included as Chapter 10.0 and the complete PHE text is included as Appendix M in the RI. Because of certain similarities between the Atlas Mine Site and the JM Mill Site with respect to the contaminant and the media of concern, EPA prepared one PHE for both sites. However, where possible, the excess cancer risk due to the Mine and Mill Areas' individual contribution of asbestos was calculated separately.

Asbestos is a generic term referring to two groups of naturally-occurring hydrated silicate minerals having a fibrous crystalline structure, the amphiboles and the serpentines. The asbestos found in the New Idria Formation is the serpentine mineral chrysotile. Asbestos fibers are widely used for their high tensile strength and flexibility and for their noncombustible, nonconducting, and chemical-resistant properties. The fibers have been used in insulation, brake linings, floor tile, plastics, cement pipe, paper products, textiles, and building products.

Asbestos is the contaminant of concern at the JM Mill Site. Asbestos is one of the few substances which is known to cause cancer in humans. Asbestos exposure can also cause other lung diseases, such as asbestosis. EPA considers carcinogens to be nonthreshold in nature, that is, any amount of a human carcinogen in the environment represents a cancer risk to the exposed population. Asbestos has been the subject of numerous epidemiology studies. Exposure to asbestos has been positively linked to asbestosis, lung cancer, and mesothelioma. Also associated with asbestos exposure in some studies are cancers of the larynx, pharynx, gastrointestinal tract, kidney, and ovary, as well as respiratory diseases such as pneumonia.

The adverse human health effects from exposure to asbestos are extremely serious. A full discussion of the health effects of asbestos is found in the EPA document Airborne Asbestos Health Assessment Update, June 1986. Remedial action is warranted to mitigate the exposure to a carcinogen that is present as a result of human activity. Actual or threatened releases of hazardous substances from this OU may present an imminent and substantial endangerment to public health, welfare, or the environment.

Major sources of asbestos at the JM Mill Area are contaminated soils, unprocessed asbestos ore and asbestos mill tailings. In localized areas unpaved roads and trails may also be a source of asbestos. The three media of concern are air, surface water and soil. Asbestos is not soluble in water and is not transmitted to ground water.

There are two general routes of exposure to asbestos at the JM Mill Area: inhalation and ingestion. Inhalation is the exposure pathway of greatest concern to human health because this pathway has been positively linked to cancer in humans. While not of primary importance, ingestion exposure to asbestos may also be associated with an increased risk of cancer.

Potentially exposed populations include the following groups: i) individuals who use the JM Mill Area for hunting and ranching; ii) individuals who live in close proximity to the JM Mill Area; and iii) the populations of communities in Fresno and San Benito Counties such as Huron, Coalinga, Idria, Five Points, Stratford, Kettleman City, Priest Valley, Lonoak, Panoche and Avenal.

In the greater New Idria-Coalinga study region, a wide variety of potential regional sources of asbestos may contribute to asbestos concentrations in the air. These regional sources include other mines and disturbed areas, unpaved roads, trails and naturally occurring serpentinite soils in the New Idria Formation. The risk assessment evaluated exposure to ambient levels of asbestos due to all potential regional sources and also to asbestos present in the air due to the JM Mill Area alone. It is difficult to directly measure the individual contribution of asbestos emissions from the JM Mill Area to ambient air monitoring results because of the nearby sources in the New Idria Formation. Therefore, models were used to estimate the concentration of asbestos in air which may occur if the only sources of asbestos in the region were wind erosion of tailings piles and mine surfaces and vehicle traffic on the unpaved road running through the JM Mill Area. The air monitoring data were used in conjunction with historical Total Suspended Particulate ("TSP") data to obtain annual average air concentrations in various locations with all sources considered. The TSP data account for time periods when the threshold wind velocity for entrainment was exceeded. Section 5.2.1 of the RI for the Atlas Mine Site provides a more detailed discussion of the air modeling methods.

The highest risk posed by the JM Mill Area is correlated to activity-related exposure, such as exposure due to disturbance by motorized vehicles of asbestos-bearing surfaces. This exposure could occur either at the Mill Area or off-site in areas to which asbestos from the Mill Area has been transported. Exposure point concentrations were calculated using concentrations of asbestos in soils, mine surfaces and mine tailings in conjunction with estimated emission rates and an air dispersion model. Emissions of asbestos-contaminated dust generated by off-road vehicle activities and by agricultural tilling were estimated using equations presented in EPA's Compilation of Air Pollutant Emission Factors for Stationary Point and Area Sources (EPA, 1985c). The air dispersion model was a simple box model which defines a certain volume of air (the box) in which emissions from the area sources are present. The box model assumes that wind speed and direction are constant within the box and that the air is uniformly mixed. For exposure to ambient air at the JM Mill Area, it was assumed that a 20-year-old-male will be present for 8 hours per day, 52 days per year, for 10 years, to yield an average continuous exposure duration of 0.47 years (the average case). For exposure to air during off-road vehicle activity, it was assumed that a 20-year old male drives for three hours per day, 16 days per year for five years (the average case). Table 1 summarizes the average and maximum exposure assumptions use for the various activity related exposures. For both types of activity, the EPA unit risk factor of .21386 (PCM fibers/cubic centimeter)1.0E-1 was used.

Experiments conducted by the California Department of Health Services ("DHS") in 1985 show that a pickup truck driving on unpaved asbestos-contaminated soil can produce asbestos dust con-

TABLE 1

SUMMARY OF EXPOSURE PARAMETERS

INHALATION DURING OFF HIGHWAY VEHICLE ACTIVITY

EXPOSURE PARAMETER	PARAMETER VALUE	
	AVERAGE	MAXIMUM
Age At Onset of Exposure (Yrs)	20	20
Total Years Exposed	5	5
Frequency of Exposure (Hrs/Yr)	48	160

INHALATION DURING HUNTING, CAMPING OR HIKING

EXPOSURE PARAMETER	PARAMETER VALUE	
	AVERAGE	MAXIMUM
Age At Onset of Exposure (Yrs)	20	20
Total Years Exposed	10	20
Frequency of Exposure (Hrs/Yr)	416	832

centrations in the air that pose a potential health risk to individuals close to the activity. A discussion of this experiment has been included in the Administrative Record for the JM Mill Area OU.

The excess lifetime cancer risk from drinking asbestos-contaminated water from the California Aqueduct was not found to be significant. The risk estimates were calculated assuming ingestion of two liters of water per day for a 70 year period by an adult weighing 70 kilograms (154 pounds). EPA's unit risk factor of 1.4E-13 (fibers/liter)1.0E-1 was used (EPA, 1985b).

Excess lifetime cancer risks are determined by multiplying the intake level with the cancer potency factor. These risks are probabilities that are generally expressed in scientific notation (e.g., 1.0E-6). In this risk assessment, an excess lifetime cancer risk of 1.0E-6 indicates that, as a plausible upper bound, an individual has a one in one million chance of dying from cancer as a result of site-related exposure to a carcinogen over a 70-year lifetime under specific exposure conditions. The estimated excess lifetime cancer risk for individuals hiking, camping or hunting at or nearby the JM Mill Area varied from 1.0E-6 to 6.0E-6 under average and maximum exposure conditions, respectively. The estimated excess lifetime cancer risk for individuals driving a four-wheel-drive truck on the JM Mill Area varied from 8.0E-4 to 4.0E-1 under average and maximum exposure conditions, respectively. (When SFPRC data are used to calculate the latter risk range, the risk varies from 1.0E-4 to 1.0E-1 for average and maximum exposure conditions, respectively). The estimated excess lifetime cancer risk for individuals ingesting <u>untreated</u> California Aqueduct water, contaminated with asbestos from all sources in the Los Gatos Creek Basin, varied from 2.0E-6 to 4.0E-5 under average and maximum exposure conditions, respectively. However, it should be noted that municipalities are required to filter drinking water under the Safe Drinking Water Act, thereby further reducing exposure to asbestos.

When evaluating risk from asbestos in the environment, there are sources of uncertainty associated with asbestos measurement that make quantifying the risk difficult. One of these sources of uncertainty is the difficulty of obtaining accurate and precise measurements of asbestos concentrations in soil, air, and water. For example, all risk assessments require an accurate and precise measurement of contaminant concentration. When a gaseous or soluble chemical is the contaminant of concern, the measurement of only one parameter, concentration, is sufficient to establish how much of that contaminant is present in a given sample. However it is significantly more complex to measure the concentration of particulates accurately and precisely, especially fibrous particulates, because many more parameters must be accounted for. When measuring spherical particles the following parameters must be measured: i) the overall particle size distribution; ii) the concentration of each individual size category; and iii) the change in concentration of each size

category in different parts of a dust cloud. When measuring fibrous particulates such as asbestos, the parameters become even more complex. The length and diameter of each particle must be measured along with the distribution of complex shapes (such as bundles, clusters and matrices). The concentration of each particle shape must be established, along with the settling velocity of different fiber shapes. Finally, because asbestos analysis involves use of an optical or electron microscope, the relative experience and fatigue of the analyst can influence the ultimate accuracy and precision of a given analysis.

Many of the epidemiology studies which established the link between the inhalation of asbestos and cancer used phase contrast microscopy ("PCM") techniques to measure asbestos concentration. However, PCM is considered inadequate for the analysis of a short fiber mineral such as chrysotile and for the analysis of non-occupational levels of asbestos. Many of these studies were done before TEM techniques were available. Most studies today use TEM as the "state of the art" analytical technique for measuring airborne asbestos concentrations (see Superfund Method for the Determination of Asbestos in Ambient Air, EPA/540/2-90/005a and 005b, May 1990). In the RI, the ambient air samples and surface water samples were measured using TEM while the soil samples were measured using PLM. Limited TEM analyses of the soils samples were used for confirmation. To use TEM data in quantitative risk assessments, one must convert TEM data to PCM Equivalent ("PCME") data using a conversion factor. There are a variety of ways to perform this conversion. Whenever conversions of this type are done, the ability to quantify risks is decreased.

The PHE also discusses the environmental assessment of the JM Mill Area. From an ecological standpoint, although there are significant impacts associated with the destruction of habitats by the mining and milling activities in the JM Mill Area, the direct effects of asbestos on wildlife appear relatively insignificant. These impacts will be partly mitigated by reclamation of the disturbed areas using native vegetation. Three sideslope seeps ("wetlands") were identified at the JM Mill Area. These wetland areas derive their water supply mainly from local groundwater. The selected remedy will not negatively impact the wetlands because groundwater is not being affected. In fact, the selected remedy will be beneficial for one of the wetlands immediately downslope from the main tailings pile, because the selected remedy will minimize the possibility of a slope failure on the tailings pile resulting in movement of the tailings over the wetland area.

7.0 DESCRIPTION OF ALTERNATIVES

EPA evaluated potential remedial action alternatives for the Johns-Manville Coalinga Asbestos Mill Area OU in accordance with CERCLA Section 121, the National Contingency Plan ("NCP"), (in particular, 40 C.F.R. Section 300.68), and the Interim Guidance on Superfund Selection of Remedy, December 24, 1986 (OSWER Direc-

tive No. 9355.0-19). The Resource Conservation and Recovery Act ("RCRA") does not apply to asbestos and its Land Disposal Restrictions do not apply to asbestos mining and milling waste.

The first step in evaluating potential remedial action alternatives was to determine, based upon JM Mill Area OU characteristics, what set of response actions and associated technologies should be considered. An example of this preliminary determination (or "scoping") was the elimination of biological treatment from further consideration because biological processes capable of detoxifying asbestos contaminated soil do not exist. Section 2.4 of the FS discusses the scoping process in more detail.

The next step in the selection of remedy process was assembling the remaining technologies and/or disposal options into general remedial action alternatives. Pursuant to OSWER Directive No. 9355.0-19, remedial action alternatives are to be developed ranging from those that would eliminate the need for long-term management (including monitoring) at the JM Mill Area OU to alternatives involving treatment that would permanently reduce the mobility, toxicity or volume of the hazardous substances(s) as their principal element. In addition, containment options involving little or no treatment and a no action alternative are to be developed. The remedial action alternatives developed in the FS were:

Alternative 1:	No Action
Alternative 2:	Road Paving; Mill Dismantling; Deed Restriction;
Alternative 3:	Access Restriction plus Alternative 2;
Alternative 4:	Sediment Trapping Dam Upgrade; Additional Sediment Trapping Dams; Stream Diversion Upgrade; Revegetation plus Alternative 3;
Alternative 5:	Grading; Cross Canyon Stream Diversion; Sediment Trapping Dam Upgrade; Revegetation plus Alternative 3;
Alternative 6:	0.5 Foot Soil Cap plus Alternative 5
Alternative 7:	2.0 Foot Soil Cap plus Alternative 5
Alternative 8:	Removal of Waste to Off-Site Landfill
Alternative 9	Soil Fusion Using Thermal Treatment

All of the costs and implementation times presented below are estimates. The cost of monitoring is not included in the cost estimates for Alternatives 2 through 7 and Alternative 9. Operation and maintenance estimates are for a 30 year period. Details of how the cost estimates were calculated are included in the FS.

The Proposed Plan did not specifically mention design criteria for the stream diversion structures, sediment trapping dams or protecting the tailings piles. As a result of comments by the California Department of Health Services, some design criteria have been added to this ROD (see Section 10.0). The Proposed Plan also specified that the road through the Mill Area would be paved. The ROD allows appropriate engineering alternatives to

road paving, such as annual road maintenance.

Alternative 1: No Action

The Superfund program requires that the "No Action" alternative be evaluated at every site to establish a baseline for comparison. Under this alternative, no remedial action would be taken but a regular program of site monitoring would be started. This monitoring program would include periodic site inspections, sampling of surface water and airborne asbestos levels in the JM Mill Area, as well as aerial monitoring. Capital, O&M (operation and maintenance) and present worth costs are, respectively, no cost, $93,000 and $93,000. Alternative 1 would require 3 months to implement.

Alternative 2: Road Paving, Mill Dismantling, Deed Restriction

Under this alternative, in addition to monitoring of the JM Mill Area, either the road through the Mill Area would be paved or annual road maintenance will be performed to reduce the generation of airborne asbestos emissions. The mill building would be dismantled to reduce the Mill Area's attraction to the public. A deed restriction would be placed on the property to ensure that monitoring and other operation and maintenance activities are carried out. Capital, O&M and present worth costs are, respectively, $186,000, $171,000 and $357,000. Alternative 2 is estimated to require 6 months to implement.

Alternative 3: Access Restriction plus Alternative 2

In addition to all elements of Alternative 2, the fences currently in place to prevent unauthorized use of the road through the JM Mill Area would be improved. Barriers would be erected around the disturbed areas to discourage access by four-wheel drive vehicles. Signs would be posted throughout the Mill Area area to warn of an asbestos hazard. The property owners have already put up a number of warning signs on the perimeter of the property. Capital, O&M and present worth costs are, respectively, $350,000, $300,000 and $650,000. Alternative 3 is estimated to require 12 months to implement.

Alternative 4: Sediment Trapping Dam Upgrade; Additional Sediment Trapping Dams; Stream Diversion Upgrade; Revegetation plus Alternative 3

In addition to elements of Alternative 3, the existing BLM stream diversion would be improved to protect it against potential failure. The existing sediment trapping dam would be improved by constructing a concrete spillway that would protect the dam against overflow and subsequent failure. Several small sediment trapping dams would be constructed downstream to make the existing dam more effective in reducing the potential for asbestos release into the local drainage. A pilot study would evaluate whether native vegetation could be established on the disturbed

areas. A revegetation project will be implemented if it is found to be technically feasible and cost effective. Capital, O&M and present worth costs are, respectively, $740,000, $598,000 and $1,338,000. Alternative 4 is estimated to require 24 months to implement.

Alternative 5: Grading; Cross Canyon Stream Diversion; Sediment Trapping Dam Upgrade; Revegetation plus Alternative 3

This alternative includes several elements of Alternative 4. A cross canyon stream diversion would be constructed to divert flows away from the tailings pile. This would remove the largest source of water draining through the tailings pile and eliminate the need for additional small sediment trapping dams downstream from the Mill Area. The grading would reduce the slope of the tailings pile and improve its stability. The existing sediment trapping dam would be improved with a concrete spillway and the revegetation pilot study would be started as described in Alternative 4. All other elements of Alternative 3 would be implemented. Capital, O&M and present worth costs are, respectively, $1,130,000, 815,000 and 1,947,000. Alternative 5 is estimated to require 24 months to implement.

Alternative 6: 0.5 Foot Soil Cap plus Alternative 5

In addition to the elements of Alternative 5 that control erosion and run-off, Alternative 6 includes the construction of a vegetated soil cover on the asbestos tailings. This vegetated soil cap would be constructed by first reshaping the tailings piles and then covering them with six inches (15.24 centimeters) of fertile soil cover. (The revegetation proposal in Alternatives 4 and 5 do not include this soil cover.) Vegetation would then be established on the soil cover. Capital, O&M and present worth costs are, respectively, $3,092,000, $1,012,000 and $4,106,000. Alternative 6 is estimated to require 24 months to implement.

Alternative 7: 2.0 Foot Soil Cap plus Alternative 5

In addition to elements of Alternative 5 that control erosion and run-off, Alternative 7 includes the construction of a 2-foot (61 centimeter) vegetated soil cap. Capital, O&M and present worth costs are, respectively, $6,162,000, $1,485,000 and $7,648,000. Alternative 7 is estimated to require 24 months to implement.

Alternative 8: Removal of Waste to an Off-Site Landfill

340,000 cubic meters (450,000 cubic yards) of asbestos contaminated material would be excavated and transported to an off-site landfill permitted to receive asbestos waste. Nearly all of the asbestos would be excavated and the need for long-term monitoring and maintenance of the mines and stockpile areas would be eliminated. Capital, O&M and present worth costs are, respectively, $712,000,000, no cost and $712,000,000. Alternative 8 is

estimated to require 54 months to implement.

Alternative 9: Soil Vitrification using Thermal Treatment

340,000 cubic meters (450,000 cubic yards) of asbestos waste materials would be vitrified using a thermal treatment process. The asbestos material would be converted from a soil into an inert, stable glass product using electrodes which would heat the soil to extremely high temperatures. The soil would be heated above its melting point and eventually converted to the glass product. Capital, O&M and present worth costs are, respectively, $289,000,000, no cost and $289,000,000. Alternative 9 is estimated to require 144 months to implement.

8.0 SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

This section provides an explanation of the nine (9) criteria used to select the remedy, and an analysis of the nine remedial action alternatives in light of those criteria, highlighting the advantages and disadvantages of each of the alternatives.

Criteria

The alternatives were evaluated based on the nine key criteria which directly relate to the factors that CERCLA and the NCP, 40 CFR Section 300.430, mandate that the Agency assess in selecting a remedy. These criteria are:

(1) **overall protection of human health and the environment**, which addresses whether a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls or institutional controls;

(2) **compliance with applicable or relevant and appropriate requirements (ARARs)**, which addresses whether a remedy will meet all of the applicable or relevant and appropriate Federal and State laws and/or justifies a waiver;

(3) **long-term effectiveness and permanence**, which refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up goals have been met;

(4) **reduction of toxicity, mobility or volume through treatment**, which addresses the anticipated performance of the treatment technologies a remedy may employ;

(5) **short term effectiveness**, which addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until clean-up goals are achieved;

(6) **implementability**, which is the technical and administrative feasibility of a remedy;

(7) **cost**, which includes estimated capital and O&M costs, as well as present-worth costs;

(8) **state acceptance**, which indicates the support of the State agency for the selected remedy; and

(9) **community acceptance**, which summarizes the public's general response to the RI/FS and Proposed Plan.

Because there is no cost-effective treatment technology for asbestos-containing mining and milling material at this OU, criterion number four is not directly relevant to a choice among alternatives. However, the alternatives were compared with respect to their ability to minimize the mobility (through the air or surface water pathways) of the asbestos-containing material.

Analysis of the Alternatives

Overall Protection. Because Alternative 1, the "no action" alternative, is not protective of human health and the environment, it is not considered further in this analysis as an option for the JM Mill Site. Alternative 2 would be inadequate in protecting human health and the environment since it would not reduce human contact with asbestos. Alternative 3, by restricting access to the JM Mill Area, would be protective of human health at the JM Mill Area, by controlling the significant risk from inhalation of asbestos-contaminated air but would not be protective at the areas downstream from the OU. Alternatives 4 through 7 would all provide adequate protection of human health, both at the JM Mill Area and downstream, by minimizing human contact with asbestos through engineering controls and institutional controls. Alternatives 4 through 9 would also be protective of the environment by preserving the wetlands present at the JM Mill Area. Alternative 9 is the only option that utilizes treatment and would probably provide the most protection to human health and the environment. Alternative 8 would provide protection similar to Alternative 9 but would require off-site transportation and disposal of the asbestos.

Compliance with ARARs. Alternatives 4 through 9 would meet the respective applicable or relevant and appropriate requirements of Federal and State environmental laws. Alternative 3 would comply with the specifications in 40 CFR Section 61.153(b) and Section 61.156(b) but would not comply with the remaining identified ARARs. Alternative 7 would comply with the specifications in 40 CFR Section 61.153(a)(2). Alternatives 1 does not comply with any ARARs. Alternative 2 would comply with the California Health and Safety Code, Section 25232(a)(1) and (2).

Long-term Effectiveness and Permanence. Alternative 5 would reduce the amount of asbestos-contaminated material released into the air and the surface water in the JM Mill Area. By restricting access to the Mill Area, Alternative 3 would reduce the long-term risk of exposure to asbestos-contaminated air only in the Mill Area. For this criterion, Alternative 4 is comparable to Alternative 5. Long term effectiveness will depend on proper maintenance of diversion structures and other engineered elements.

The engineered elements of the preferred alternative will be designed to take maximum advantage of the natural systems and to minimize operation and maintenance needs.

Alternative 9 provides the greatest amount of long-term effectiveness and permanence. Alternative 8 would remove all waste to a landfill permitted to accept asbestos, thereby eliminating the long-term risk of exposure at the JM Mill Area. As with all landfills, the containment system may fail or need to be retrofitted or replaced. Therefore, a risk will remain at the landfill site and long-term effectiveness will be dependent on operation and maintenance at that location.

Alternatives 6 and 7 provide protection to receptors from asbestos exposure that is comparable or slightly greater than Alternatives 4 and 5. Alternative 7 offers a higher degree of permanence because a 2-foot thick cap will provide an increased resistance to erosion. The excavation of soil to construct vegetated caps in Alternatives 6 and 7 could cause significant disruption in the habitat value of nearby areas. Alternative 2 would not provide long-term effectiveness and permanence.

Reduction of Toxicity, Mobility or Volume of the Contaminants Through Treatment. Only Alternative 9 would treat the waste to reduce the toxicity and mobility of the asbestos. Alternatives 2 through 8 rely on institutional controls or engineering controls to reduce the mobility of the asbestos to varying degrees. Technology is not currently available that would reduce the volume of asbestos contaminated soils.

Short-Term Effectiveness. Alternatives 2 and 3 would quickly reduce direct human contact with asbestos at the JM Mill Area and would provide the most effective short-term protection. Alternatives 4 through 7 would have a minor, short term risk of exposure for workers at the JM Mill Area. Alternative 9, because of its greater implementation time, would include a more serious short term risk to on-site workers. Alternative 8 would subject the surrounding community to the possibility of accidental spillage during transport of the contaminant from the JM Mill Area.

Implementability. Alternatives 2, 3, and 8 would have no unusual technical difficulties that could delay implementation. For Alternatives 4 and 5, the implementability of the revegetation component will be tested in a pilot project. The other elements of Alternatives 4 and 5 should not present an implementability problem. Borrow sources are areas where clean soil is removed for use as a cap on the contaminated areas. Alternatives 6 and 7 would face a technical difficulty in finding adequate borrow sources near the site for capping and could face major administrative difficulties in getting permits from local and county development agencies to exploit nearby borrow sources without adversely impacting the Mill Area habitat value. Alternative 9 could face technical difficulties with the process system designed to fix the waste material and would also require a

pilot study prior to implementation. These difficulties would include supplying sufficient electric power to the JM Mill Area and logistical problems related to servicing a complex system in a remote area. Alternative 8 might face administrative difficulties in getting permits from state and federal agencies for transporting the asbestos material on public roads.

Cost. All of the following cost figures are estimates of present worth cost. The cost of Alternative 1 is $93,000 (for continued monitoring). Alternative 2 has a cost of $357,000. The cost of Alternative 3 is $654,000. Alternative 4 has a cost of $1,340,000. Alternative 5 has a cost of $1,950,000. Alternative 6 has a cost of $4,100,000. Alternative 7 has a cost of $7,650,000. The highest cost alternative is Alternative 8 at $712,000,000. The cost of Alternative 9 is $289,000,000. For Alternatives 2 through 5, the costs outlined above do not include the cost of continued monitoring.

State Acceptance. The State of California has concurred in EPA's selection of the preferred alternative.

Community Acceptance. EPA did not receive any comments from community members on the Proposed Plan for the JM Mill Site. The PRP who conducted the RI/FS supports the selected remedy. Marmac, another PRP, has indicated a preference for Alternative 3 plus grading to stabilize the tailings pile.

9.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

Under Section 121(d)(1) of CERCLA, 42 U.S.C. Section 9621(d)(1), remedial actions must attain a degree of clean-up which assures protection of human health and the environment. Additionally, remedial actions that leave any hazardous substance, pollutant, or contaminant on-site must meet a level or standard of control that at least attains standards, requirements, limitations, or criteria that are "applicable or relevant and appropriate" under the circumstances of the release. These requirements, known as "ARARs", may be waived in certain instances, as stated in Section 121(d)(4) of CERCLA, 42 U.S.C. Section 9621(d)(4).

"Applicable" requirements are those clean-up standards, standards of control and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant or contaminant, remedial action, location, or other circumstance at a CERCLA site. "Relevant and appropriate" requirements are clean-up standards, standards of control and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site. For example, requirements may be

relevant and appropriate if they would be "applicable" but for jurisdictional restrictions associated with the requirement.

The determination of which requirements are "relevant and appropriate" is left to EPA's discretion. EPA may look to the type of remedial actions contemplated, the hazardous substances present, the waste characteristics, the physical characteristics of the site, and other appropriate factors. It is possible for only part of a requirement to be considered relevant and appropriate. Additionally, only substantive requirements need be followed. If no ARAR covers a particular situation, or if an ARAR is not sufficient to protect human health or the environment, then non-promulgated standards, criteria, guidance, and advisories must be used to provide a protective remedy.

Types of ARARs

There are three types of ARARs. The first type includes "contaminant specific" requirements. These ARARs set limits on concentrations of specific hazardous substance, pollutants, and contaminants in the environment. Examples of this type of ARAR are ambient water quality criteria and drinking water standards. The second type of ARAR includes location-specific requirements that set restrictions on certain types of activities based on site characteristics. These include restriction on activities in wetlands, floodplains, and historic sites. The third type of ARAR includes action-specific requirements. These are technology-based restrictions which are triggered by the type of action under consideration. An example of an action-specific ARAR is the Occupational Safety and Health Act ("OSHA") which sets permissible levels of exposure to asbestos for workers.

ARAR Identification Process

ARARs must be identified on a site-specific basis from information about specific chemicals at the site, specific features of the site location, and actions that are being considered as remedies.

ARARs identified for the JM Mill Area OU address emission of asbestos fibers from contaminated soils, inhalation of asbestos fibers, disposal of asbestos contaminated soils, protection of endangered species, and protection of wetlands.

Contaminant-Specific ARARs For Asbestos:

1. Clean Air Act, National Emission Standard for Hazardous Air Pollutants (NESHAPs)

Asbestos was first designated as a hazardous air pollutant under the Clean Air Act in 1971. The National Emission Standard for Hazardous Air Pollutants ("NESHAPs") for asbestos found at 40 C.F.R. Section 61.152 and 40 C.F.R. Section 61.156 are ARARs for the implementation of the remedy at this Site. 40 C.F.R. Section

61.153 is an ARAR for the completion of the remedy at the Site.

2. California Air Resources Act, Health and Safety Code, Division 26, section 39000 et seq. 17 CCR, Part 3, Chapter 1, Specifically the Fresno County Air Pollution Control District PM 10 standard

The Fresno County Air Pollution Control District has adopted PM 10 as a particulate matter standard. This PM 10 standard means that ambient levels of particulate matter greater than 10 microns in length shall not exceed 30 micrograms per cubic meter (annual average) or 50 microgramsper cubic meter over a 24 hour period.

Location-Specific ARARs:

Because the Site is located in an area that contains endangered species (i.e., the kit fox and the blunt-nosed leopard lizard), the following requirements are ARARs for the Site:

1. The Endangered Species Act of 1973, 16 U.S.C. Section 1536(a-d)

Generally, when a project potentially impacts an endangered species or critical habitat, activities carried out by Federal agencies should not jeopardize the continued existence of an endangered species or cause adverse modifications of critical habitat.

2. USFWS Mitigation Policy (FR 7644-7663, Vol 46, No. 15, January 1981).

This policy is triggered in accordance with the Fish and Wildlife Act of 1956, Fish and Wildlife Coordination Act, Watershed Protection and Flood Prevention Act and the National Environmental Policy Act. The mitigation policy defines resource categories and establishes mitigation goals and guidelines for each. Guidelines to achieve the goal include avoiding or minimizing habitat loss, immediate rectification or reduction of habitat loss or replacement of habitat in kind.

3. Federal Water Pollution Control Act, Section 404(b)(1), 33 U.S.C. Section 1344(b)(1).

This statute is designed to ensure that if no practicable alternative to impacting waters of the United States including wetlands exists, any unavoidable, adverse impact on the wetlands must be mitigated.

4. California Hazardous Waste Control Laws, Health and Safety Code, Div. 20, Chapter 6.5, Section 25220-25241 et seq. and 22 CCR, Div. 4, Chapter 30, Section 66001 et seq

The actual substantive restrictions contained in Section 25232(a)(1) and (2) are an ARAR. However, the procedural re-

quirements related to notice, hearing and the mechanisms for implementing deed restrictions do not fall within the definition of an ARAR. CERCLA Section 121, 42 U.S.C. 9621.

Action Specific ARARs:

1. Occupational Safety and Health Act ("OSHA")

OSHA has set a permissible exposure limit ("PEL") for all asbestos fibers at 0.2 fiber per cc ("f/cc") for occupationally exposed workers and an "action level" (the level above which employers must initiate compliance activities) of 0.1 f/cc as an 8-hour time weighted average (51 C.F.R. Section 22612 (1986)). While this standard was meant for occupational exposure (8 hours per day, 40 hours per week, 52 weeks per year) and not for continuous ambient exposure, it provides an upper threshold for evaluating permissible ambient exposure limits. In other words, a concentration of .2 PCM fibers per cc of respirable air or less is not permissible for ambient exposure, since this requirement is applicable or relevant and appropriate for exposure during the cleanup of this Site.

2. California Porter Cologne Water Quality Act, 23 CCR, Chapter 3: Subchapter 15, Article 7 - Mining Waste Management, Section 2570-2574, Specifically 23 CCR Section 2572(b), 23 CCR Section 2572(h)(1)(A), 23 CCR Section 2572(h)(3), 23 CCR Section 2546(d) and 23 CCR Section 2546(e)

This state act contains regulations establishing waste management requirements for all mining waste. The act's construction standards require accommodation of 25-year, 24-hour storm run-off controls in design criteria for the drainage and diversion structures at the Mill Area as well as 100 year peak stream flow protection for all waste piles at this site. These requirements are applicable and relevant and appropriate for remedial action at this site.

10.0 THE SELECTED REMEDY

Alternative 5, consisting of grading, cross canyon stream diversion, improvements to the existing sediment trapping dam, access restrictions, deed restrictions, revegetation pilot study, road paving or an engineering alternative, and mill dismantling, is the selected remedy for the JM Mill Area OU. The grading will reduce the slope of the tailings pile and improve its stability. A stream diversion will be built to channel surface water away from the tailings piles, thereby reducing erosion and transport of asbestos into Pine Canyon Creek. An existing stream diversion upslope from the main tailings pile will be improved. The existing sediment retention dam will be improved with a concrete spillway. A pilot study will evaluate if native vegetation could be established on the disturbed areas. If revegetation is found to be technically feasible, the disturbed areas will be reclaimed with vegetation. The disturbed areas will be fenced off. The

mill building will be dismantled and disposed of along with other debris in the mill area. The road through the Mill Area will be paved or an alternative will be adopted to suppress dust. A deed restriction will limit land use and prevent disturbance of the contaminated material left at the Mill Area. Visual inspections, both on the ground and from the air, will be required to ensure the integrity of the engineering and institutional controls.

The goal of the selected remedy is to maintain the current effectiveness of the existing sediment trapping dam in minimizing the hydraulic transport rate of asbestos waste material into Pine Canyon Creek. Because asbestos from natural and disturbed areas is already present in and will continue to enter the surface water pathway, it is not possible to quantify a reduction in risk that this remedy will achieve. However, it is believed that minimizing the asbestos entering Pine Canyon Creek will decrease the downstream human health risk due to both inhalation of resuspended asbestos fibers. Entry into the JM Mill Area OU is controlled by locked gates. By restricting access to the JM Mill Area OU, the generation of airborne asbestos emissions will be minimized, reducing the risk from inhaling asbestos fibers for persons in the immediate area.

The major features of the selected remedy are engineering controls designed to reduce hydraulic transport of asbestos into local drainages. These controls include: i) a cross canyon diversion system; ii) a run-off management system; and iii) grading. These engineering controls consist of the following components:

Cross Canyon Diversion System:
--Diversion ditch;
--Improvement to existing upslope diversion;

Run-off Management System:
--Improvement to existing sediment trapping dam;
--Reclamation of disturbed areas with native vegetation if the revegetation pilot project is successful;

Grading:
--Grading benches perpendicular to the slope;
--Consolidation of asbestos-containing site soils;

All diversion and drainage facilities shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface run-off in a 25-year, 24 hour storm. All tailings piles shall be protected from 100-year peak stream flows.

All containment structures shall be designed by a registered civil engineer and construction shall be supervised and certified by a registered civil engineer or certified engineering geologist.

A verification sampling plan ("VSP") will be instituted to confirm that an appropriate reduction in hydraulic transport rate of asbestos is achieved. The VSP will include surface water modeling and surface water sampling as necessary.

Operation and maintenance activities will be required to ensure the effectiveness of the stream diversions and sediment retention structures. These activities will include: (1) inspection of engineering systems to ensure integrity and performance, (2) removal of sediments from retention dams, (3) any repair work necessary to maintain the integrity of the remedial systems, and (4) maintenance of the vegetation. EPA will review the remedial actions effectiveness pursuant to CERCLA Section 121(c), 42 U.S.C. Section 9621(c).

The total capital cost for the selected alternative is estimated at $1.1 million. Annual operation and maintenance activities are estimated at $815,000. The total present worth cost for the selected alternative is estimated to be $1.9 million. Table 2 summarizes costs for the selected alternative.

During the remedial design and construction process that follows this ROD, some changes to the selected remedy may be required and will be made in accordance with CERCLA Section 117, 42 U.S.C. Section 9617, and 40 C.F.R. Section 300.435.

11.0 DOCUMENTATION of SIGNIFICANT CHANGES

The selected alternative for the JM Mill Site is construction of engineering systems to control the release of airborne and waterborne asbestos from the JM Mill Area and accompanying measures, as detailed in Section 10, above. At this time no significant changes from the Proposed Plan have occurred.

12.0 STATUTORY DETERMINATIONS

Overall Protection of Human Health and the Environment

The selected remedy protects human health and the environment by minimizing exposure to asbestos-contaminated materials. Proper operation and maintenance practices will ensure the integrity of the stream diversions, sediment trapping dams, vegetation and fencing. Strict dust control procedures will be followed during construction. Proper health and safety measures, including ambient air monitoring and personnel monitoring during implementation, will ensure that the health of on-site workers and the local population is protected.

Cost-Effectiveness

The selected remedy is cost-effective in that it provides overall effectiveness commensurate to its costs. The estimated costs of the selected remedy are approximately one half the costs associated with a 15.24 centimeter (6 inch) vegetated cap

TABLE 2

SUMMARY OF COSTS

PREFERRED ALTERNATIVE

Capital Cost (per cubic meter)	O&M (per yr)	Present Worth Cost	O&M (Present Worth)
$3.30	$27,000	$1,900,000	$815,000

O&M = Operation and Maintenance

(Alternative 6), and yet the selected remedy and Alternative 6 are similar in terms of the level of public health and environmental protection provided, except that construction of a vegetated cap would involve a slightly greater exposure risk during implementation.

Compliance with ARARs

The selected remedy will comply with all applicable or relevant and appropriate requirements that have not been waived.

Utilization of Permanent Solutions to the Maximum Extent Practicable

Currently there is no known permanent treatment or resource technology which would control release of asbestos from the soil at the JM Mill Area OU. A thermal treatment alternative was identified, but it was eliminated from further consideration due to difficulties associated with implementation and very high cost. Of those alternatives that are protective of human health and the environment, comply with ARARs and are cost effective, EPA has determined, and the State has concurred, that the selected remedy provides the best balance of the various factors that CERCLA requires be considered in remedy selection.

The JM Mill Area OU is located in a largely rural area, remote from any population centers and just downslope from a large area of serpentine which is a source of naturally occurring asbestos. Off-site disposal of the mining and milling waste would be prohibitively expensive and would have a significant short term risk associated with transport of the asbestos to a landfill licensed to accept asbestos waste.

Preference for Treatment as a Principal Element

Currently there is no proven, cost-effective treatment technology that would permanently and significantly reduce the mobility, toxicity or volume of asbestos at the JM Mill Site. Since no cost-effective treatment alternative exists for this OU, treatment was not selected as a remedy. Although several treatment technologies were investigated during the feasibility study, it was determined that no technology presently exists that would result in a permanent and significant decrease in the toxicity, mobility or volume of asbestos at the JM Mill Area OU in a cost effective manner. Alternative 5 was found to be the best method for addressing the threats posed by the JM Mill Area OU, taking into account all of the statutory requirements and preferences.

APPENDIX 1

REVIEW OF ASBESTOS ANALYTICAL METHODS

I. Asbestos Analytical Techniques

There are three commonly accepted analytical techniques used to measure asbestos. They are:

1) Phase Contrast Microscopy ("PCM"): An optical technique useful in examining minute particles.

2) Polarized Light Microscopy ("PLM"): An optical technique that uses polarized light to identify minerals.

3) Transmission Electron Microscopy ("TEM"): A technique using an electron microscope to achieve extremely high resolution of asbestos fibers too small to be resolved using optical methods.

A brief description, including the advantages and disadvantages of each technique, is presented below.

A. Phase Contrast Microscopy

Phase contrast microscopy ("PCM") is a technique of optical microscopy that is commonly used to analyze air samples collected in the work place (e.g. in enclosed spaces). PCM translates differences in the phase of light transmitted or reflected by the object into differences of intensity in the image. The method is better suited to analysis of work place air than ambient air because in the work place, asbestos accounts for a high fraction of total particulates as opposed to in an environmental setting, where the situation is normally reversed. Most of the available medical studies of asbestos diseases have measured asbestos using PCM. This is because PCM was the only technique available when most of the occupational studies were done.

The PCM technique has three major limitations concerning its use in the ambient environment: i) the method cannot detect fibers with diameters of less than 0.2 micrometers. Many fibers in the environment are much smaller than this; ii) PCM does not distinguish between asbestos fibers and other types of fibers. Therefore, in the environment, the PCM fiber count may be completely unrelated to the asbestos fiber content; and iii) PCM is also very sensitive to the ratio of total particulates to fibrous dust. In environmental samples this ratio is sufficiently high that fibers may be effectively obscured so that PCM counts may severely underestimate fiber concentrations.
For these reasons, it is widely accepted that the PCM method is totally unsuitable for measurement of asbestos fibers in ambient atmospheres.

The major advantages of PCM are that it is a quick, cheap, well established technique for measuring occupational levels of exposure.

B. Polarized Light Microscopy

Polarized Light Microscopy ("PLM") is the preferred technique for analysis of bulk insulation samples. The PLM technique is relatively inexpensive, quick (1/2 hour/sample) and allows: (1) identification all asbestos types, (2) distinguish between asbestos and other fibrous and non-fibrous minerals and (3) identify most non-asbestos components of samples. The resolution capacity of PLM is 200x to 400x magnification.

There are two counting procedures that have been adopted for use with PLM analysis, the point counting method and the field comparison or visual estimation method. The point counting method uses a superimposed grid (graticule) with 100 points. The operator counts the points where asbestos is present. The method (point count) involves the preparation of eight slides, each of which can be viewed at 100 possible points, to establish the presence or absence of asbestos at 50 points on each slide. The result is recorded and reported as area percent based on the number of positive points. The following format is used for determination:

Area percent = a/n (100)

where:

a = number of points with asbestos fibers present
n = number of non-empty points counted.

The field comparison method, also called the 2-minute method, with the stereobinocular light microscope, is used to quantify a large sample (e.g., 1 ounce) using the microscope at 30-40x. The operator estimates the homogeneity of the mixture and estimates the percentage of each individual fibrous component.

The disadvantages associated with PLM include:

- Asbestos content determination is usually done by visual estimate (field comparison) or point counting, and is thus qualitative; concentration is expressed as the ratio of asbestos to non-asbestos particles or percent by area.

- Small fiber identification is difficult because certain optical properties (birefringence and the angle of extinction) are hard to determine in small fibers.

- The thinnest fibers that can be observed are approximately 0.4 micrometers in diameter; fibers this small, though observable, cannot usually be identified for mineral type.

- Highly skilled analysts are required, particularly in view of the subjective nature of the determinations.

- The detection limit is 1 area percent. Samples may still contain asbestos in quantities below the PLM detection limit.

- A precise procedure for sample preparation has not been developed. Therefore, PLM suffers from the variation introduced during sample grinding and preparation. It is very difficult to standardize the preparation of bulk samples, especially soil samples.

Using PLM to identify asbestos in soils can be difficult because soils are subjected to erosion and weathering; asbestos bundles become separated and broken into smaller, possibly sub-optical, sizes much more quickly than fiber bundles in relatively undisturbed insulating materials. Asbestos fibers may also be dispersed by wind and by seasonal flooding. Therefore, a sizeable fraction of the asbestos fibers in soil could be below optical resolution. On the other hand, PLM is the only method of measuring asbestos with an EPA approved methodology for sampling and analysis, even though this methodology is specifically for bulk insulation samples. Therefore, it is the one analytical method that can be controlled, to a limited extent, in a quality assurance/quality control plan.

C. Transmission Electron Microscopy

Transmission electron microscopy ("TEM") is the most powerful analytical technique available for measuring asbestos. TEM has been used for air, water, or soil analysis. It is the preferred instrumental technique for measuring asbestos in ambient atmosphere since it incorporates the most powerful combinations of identification methods. TEM analysis uses electron microscopy, at magnifications of 10,000 to 50,000 times, to detect asbestos structures as thin as 0.2 nanometers in diameter. This is sufficient to identify the thinnest asbestos fibrils under most circumstances. Besides the transmission electron microscope, which allows the operator to locate very small fibers, this technique can also utilize two mineral identification tools. These are Selected Area Electron Diffraction ("SAED") and Energy Dispersive X-ray Analyzer ("EDXA"). Using these tools, the operator can identify the mineral type from a single point on the specimen.

The disadvantages associated with TEM include the following:

- No widely accepted TEM method is available for the analysis of asbestos in soils, making it difficult to correlate interlaboratory data. Sample preparation methods are not standard among workers, making the comparison of results between sites or laboratories

very difficult or meaningless.

- Analysis requires a minimum of 6 to 8 hours over 2 to 3 days. Highly skilled analysts are required and large differences in results can occur due to operator variance. TEM analysis is extremely expensive, over 20 times the per sample cost of optical methods.

- TEM analysis is performed on a much smaller sample than PLM so that obtaining homogeneity during sample preparation is more critical.

- Typically, total structures are counted. Sample preparation (i.e., grinding) destroys the structure size distribution.

TEM sample preparation alters the soil matrix. This is significant because the sample is dispersed into very fine particles before it is put onto a filter for analysis. Since asbestos occurs in clusters and bundles as well as fibers, the sample preparation process (in the case of soil) can destroy the structure of those forms and produce a very large number of individual fibers of small size. Although total fibers are counted as part of the TEM analysis, these results must be converted to weight percent, using data on length, width, and density. This conversion to mass is necessary due to the sample preparation grinding process, which artificially increases the fiber count. How the TEM weight percent compares with air emissions and risk tables has not been standardized by government or industry. Therefore, interpretation of soil data results relative to air samples and/or risk charts is very difficult, at best.

II. Problems with Using Asbestos Data in Quantifying Risk

Although the role of asbestos as a cause of cancer is clear, the ways in which fibers cause disease are not well understood, and this has complicated efforts to measure asbestos successfully. Asbestos researchers have not agreed upon which attributes of asbestos are important to measure to assess risk, including size and shape of individual fibers, number of fibers, total mass of fibers, inclusion of asbestos bundles, clusters, and matrix debris in the fiber count, and asbestos mineralogical type. For example, most researchers think that longer, thinner asbestos fibers (those longer than 8 micrometers and thinner than 1.25 micrometers) are more carcinogenic, i.e., The "Stanton Hypothesis". However, other researchers question this approach, suggesting that both long and short fibers may be biologically active. In addition to fiber dimension, surface chemistry of the asbestos fibers may play a role in causing disease. Further, there is disagreement whether mineral type is a factor in disease causation. Some would argue that chrysotile asbestos may partially dissolve in weakly acidic environments, facilitating fiber clearance from the lung. However, EPA policy is that all asbestos mineral types are equally carcinogenic.

To compound the problem, analysis of ambient samples for asbestos is much more difficult than occupational or work place samples, because the concentration of asbestos in the environment is typically much lower. It should be noted that there are areas, such as in the New Idria Formation in central California's Diablo Mountains, where environmental levels have equaled work place levels when asbestos bearing soils have been disturbed. Asbestos fibers found in ambient air are typically too short and thin to be detected by conventional microscopes, and may be agglomerated with other particulate matter so that they are masked or hidden. Further, although EPA has attempted to standardize asbestos analytical techniques, differences in sample handling, preparation, instrument capabilities, operator proficiency, and counting procedures make it extremely difficult to compare results from different laboratories. In short, accurate measurement of asbestos is impeded by many factors, greatly complicating any estimates of environmental risk.

JOHNS-MANVILLE COALINGA ASBESTOS MILL AREA OPERABLE UNIT
RESPONSIVENESS SUMMARY
FOR THE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY AND PROPOSED PLAN

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY RESPONSE TO COMMENTS ON THE PROPOSED PLAN FOR THE JOHNS-MANVILLE COALINGA ASBESTOS MILL AREA OPERABLE UNIT OF THE JOHNS-MANVILLE COALINGA ASBESTOS MILL SUPERFUND SITE

I. INTRODUCTION

The United States Environmental Protection Agency ("EPA") held a public comment period from May 25, 1990 through June 25, 1990 on EPA's Remedial Investigation/Feasibility Study ("RI/FS") and Proposed Plan for the asbestos contamination at the Johns-Manville Coalinga Asbestos Mill Area operable Unit ("JM Mill Area OU") in Fresno County, California. The purpose of the public comment period was to provide interested parties with the opportunity to comment on the RI/FS and Proposed Plan. The RI/FS, the Proposed Plan and the complete Administrative Record were made available on May 25, 1990 at the Coalinga Public Library, the designated information repository for the JM Mill Site. By May 25, 1990, fact sheets containing EPA's Proposed Plan had been mailed to all interested parties and notification of the public comment period was published in Coalinga and Hanford area newspapers.

Section 113(k)(2)(B)(iv) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires that EPA respond to significant comments on EPA's Proposed Plan. This responsiveness summary provides a review and summary of significant public comments on the RI/FS and the Proposed Plan. In addition to summarizing significant comments and questions, the Responsiveness Summary presents EPA's responses to those concerns.

II. OVERVIEW OF THE RECORD OF DECISION

EPA's selected remedy is Alternative 5 in the Proposed Plan with minor modifications which are described in Section 10.0 of the Record of Decision ("ROD"). It includes engineering controls designed to minimize the release of asbestos from the JM Mill Area OU into Pine Canyon Creek and institutional controls designed to minimize exposure of persons on or near the mill area to airborne asbestos emissions. The selected remedy includes the following elements: i) grading; ii) cross canyon stream diversion; iii) improvements to the existing sediment trapping dam; iv) revegetation pilot project; v) access restrictions; vi) deed restrictions; and vii) dismantling and disposal of the mill building and associated debris.

Other alternatives fully analyzed in the FS included: 1) no action; 2) road paving, deed restriction and mill dismantling; 3) access restrictions; 4) capping the asbestos in-place with

either a .5 foot or a 2-foot soil covering; 5) removal of the contaminated material to an approved, off-site landfill; and 6) thermal treatment of the contaminated material.

III. SUMMARY OF SIGNIFICANT COMMENTS AND AGENCY RESPONSES

The following section summarizes the major comments and responses received on EPA's Proposed Plan for the Johns-Manville Coalinga Asbestos Mill Area OU. A detailed section of comments and responses can be found in Section IV. If any conflicts or ambiguity appear between the two sections, follow Section IV.

The only comments received on the JM Mill Area OU were sent to EPA by two potentially responsible parties, the Santa Fe Pacific Railroad Corporation (SFPRC) and Marmac Resource Company/Mareco, and by the California Department of Health Services.

Comments By Santa Fe Pacific Railroad Corporation

While SFPRC states that they approve of EPA's preferred alternative, they had several comments concerning what they believe are mistakes in the Proposed Plan Fact Sheet that EPA issued to the public. For example, SFPRC believes that the Ponding Basin is not part of this Superfund site and that the Mill site does not significantly impact the California Aqueduct. They also believe that the Remedial Investigation was not properly summarized in the fact sheet. Because asbestos from the Mill Area was transported to the Ponding Basin, EPA can consider it part of the Superfund site. During heavy flooding, asbestos from the Mill Area has been carried by streams onto the Arroyo Pasajero Alluvial Fan.

SFPRC also claims that the JM Mill Site is not similar to the Atlas Asbestos Site as stated in the Proposed Plan. EPA responds that although the two sites are different in size and impact, they are similar in that both contain asbestos ore and tailings and abandoned mill facilities. The two site are located in adjacent drainage basins about three miles apart.

SFPRC questioned why two sets of soil sampling data were used in the Public Health Evaluation which determines the health risk from the asbestos. One set of data was collected by EPA and the other was collected by SFPRC. EPA notes that both sets of samples were collected and analyzed with EPA approved methods and were checked to ensure quality. The samples were taken from different areas at different times which accounts for some of the discrepancies between the two sets.

SFPRC requested that EPA clarify that stream diversions would minimize the <u>potential</u> for releases of asbestos into local creeks and that actual releases are not currently occurring. EPA acknowledges that releases are not occurring

presently because the last few years have been very dry. EPA's selected remedy will protect local streams in the event of heavy rainfall or seismic activity in the future.

SFPRC also made several comments regarding the watershed modeling done by EPA and by SFPRC. They also commented on the way that EPA measured asbestos in the California Aqueduct. EPA believes that both watershed models are valid.

EPA notes that SFPRC's detailed comments on EPA's soil sampling and watershed modeling are not significant because EPA would select the same remedy based on SFPRC's data alone.

Comments By Marmac Resource Company/Mareco

Marmac's comments concern what they believe are mistakes in the Feasibility Study. Most of these statements are taken from the Site Description and History section of the Feasibility Study. Because the comments are not relevant to selecting a remedy for the site, EPA is not responding to those concerns at this time.

Marmac requested that EPA clarify that metals are not contaminants of concern at the site and that serpentine, not asbestos, was found in the chromite ore that Marmac transported. While EPA can confirm that metals are not contaminants of concern at the site, EPA's analysis of the chromite ore transported by Marmac did show asbestos in the ore.

Marmac prefers Alternative 3 in the Proposed Plan plus grading. EPA believes that Alternative 3 plus grading does not adequately protect human health and the environment.

Comments By The State Of California

The State of California has concurred in the selected remedy and has identified several California laws which it states are applicable or relevant and appropriate. EPA has analyzed the applicability and the relevance and appropriateness of applying these laws to the JM Mill Area OU in its response.

IV. PUBLIC COMMENTS RECEIVED AND AGENCY RESPONSES

This section includes EPA's response to significant public comments on the RI/FS and the Proposed Plan received during the public comment period. The only public comments received were letters from two potentially responsible parties (PRPs) and a letter from the State of California.

The comments responded to herein have been summarized or paraphrased as appropriate.

A. COMMENTS BY SANTA FE PACIFIC RAILROAD CORPORATION ("SFPRC")

A.1 Letter from Charles Robinson of Levine-Fricke, Inc., consultants for SFPRC, dated June 25, 1990:

A.1. Comment: The Proposed Plan implies that the Ponding Basin is part of the Site. The Ponding Basin is not part of the Site. This is confirmed by the specific description of the Site in numerous official documents either signed or approved by EPA. For example, the Administrative Order on Consent signed by EPA on November 16, 1987, contains the following description:

> The Site covers approximately 557 acres of land.... The Site is located within the Pine Canyon Creek drainage basin.... The Site is located immediately adjacent to the New Idria Formation and ranges in elevation from 2,800 to 3,000 feet.

SFPRC requests that EPA clarify that the Ponding Basin is not part of the Site.

A.1. Response: CERCLA Section 101(9)(B) defines the term "facility" as "any site or area where a hazardous substance has been deposited, stored, disposed of, or placed or otherwise come to be located..." Contamination from the JM Mill Area OU has been transported via surface streams to the Ponding Basin of the California Aqueduct near Gale Avenue. Therefore, the Ponding Basin can be included as part of the JM Mill Site because contamination from the Mill Area has come to be located in the Ponding Basin. The "site" as defined in the Administrative Order on Consent referred only to the area on which the RI/FS was to be performed by SFPRC. This site definition did not restrict EPA's discretion to address any other areas where contaminant from the JM Mill Site has come to be located as part of that site. It should be noted that EPA is not taking any action in the Ponding Basin at this time and that the Ponding Basin is not part of the operable unit addressed by this ROD.

A.2. Comment: The Proposed Plan implies that the Site has significantly impacted the Ponding Basin. This is not consistent with the findings of the Remedial Investigation, Feasibility Study, and Regional Report which EPA has contributed to, reviewed, and approved. For example, EPA required that SFPRC insert the following statement into the Feasibility Study: (Page 4, Paragraph 4, 3rd sentence) "As previously mentioned, given the widespread occurrence of naturally occurring asbestos in the vicinity, the potential additional health risk from asbestos being transported off-site by wind and water is extremely slight in absolute terms and negligible in comparison to the health risks posed by naturally occurring sources." Thus, EPA has determined that the Site's contribution to the Ponding Basin is, at most, negligible. In addition, EPA should explain in this discussion that the asbestos in the Ponding

Basin originated primarily from natural sources with minor contributions from anthropic sources.

A.2. Response: EPA's Proposed Plan for the JM Mill Area OU states: "During heavy rains, asbestos can be transported from the Mill Site down Pine Canyon Creek and eventually onto the Arroyo Pasajero. During heavy flooding, asbestos-laden water fills the ponding basin and can be released into the California Aqueduct (see discussion on the Ponding Basin on page 7)." The sediment trapping dam below the tailings pile at the JM Mill Site has been breached at least once since 1980. This breach occurred in 1983. EPA agrees that during dry conditions and minor rainfall events, the amount of asbestos transported into Pine Canyon Creek from the JM Mill Area has been minimal.

EPA did not require that SFPRC insert the above-mentioned sentence into the Feasibility Study. The language in this sentence was written by SFPRC and included in a draft FS submitted to EPA as required by the Consent Order. At a meeting between EPA and SFPRC after the draft FS was submitted, EPA and SFPRC agreed to edit the sentence as follows: "As previously mentioned, given the widespread occurrence of naturally occurring asbestos in the vicinity, the ~~potential~~ additional health risk from asbestos currently being transported off-site by wind and water is extremely slight in absolute terms and is negligible in comparison to the health risks posed by naturally occurring sources." This latter sentence is what appears in the final, EPA approved FS.

A.3. Comment: The Proposed Plan states that the Atlas Site is "similar" to the JM Site. This is not true. Although both sites contain asbestos, the Atlas Site is vastly larger than the JM Mill Site, and contains vastly greater quantities of asbestos.

A.3. Response: The JM Mill Site is similar to the Atlas Mine Site in terms of the presence of asbestos ore and asbestos mill tailings at both sites and the presence of an abandoned mill facility on both sites. The sites are located in adjacent drainage basins approximately three miles apart. EPA agrees that the Atlas Site is larger and contains a greater amount of asbestos contamination. The similarities and differences between the two sites are described in the RIs for the sites.

A.4. Comment: The description of the tailings pile in the Proposed Plan should indicate that the concentration of asbestos in the tailings piles (64%) is significantly less than that in the naturally occurring asbestos-containing soils adjacent to the Site (84%). This point is important to understanding a unique characteristic of the Site: the Site is located within an area of very high concentrations of naturally occurring asbestos.

A.4. Response: In the Site Background Section of the Proposed Plan, page 2, paragraph 1, EPA notes that: "The Mill Site is approximately one half mile below a 48 square mile area of serpentine rock (the New Idria Formation) that contains large amounts of naturally occurring asbestos." EPA agrees that the asbestos content of adjacent serpentinite soils is high. However, the results of asbestos analytical techniques are subject to considerable uncertainty and the asbestos concentration of serpentinite soils is highly variable. In addition, EPA's investigation suggests that the tailings piles are approximately three times as erodible as the surrounding natural areas. The evidence concerning the differences in asbestos concentration of the tailings pile and the serpentinite soils in the JM Mill Area are documented in the RI.

A.5. Comment: EPA's revised PHE uses EPA's soil sampling results despite the limited value of this data. EPA's data does not agree with other sources in its reported asbestos content nor is it consistent with SFPRC's approved data. SFPRC's soil sampling data is sufficient for estimating potential risks due to asbestos exposure. Therefore, EPA's data is inappropriate for use or consideration in the PHE for the Johns-Manville Coalinga Asbestos Mill Site. Our letter to EPA dated April 11, 1989, explains our concerns regarding EPA's data. In response to our concerns, EPA's April 28 letter offers two reasons for the use of its own soil sampling data.

The first reason given by EPA was that "[a] significant amount of field work, sampling, and laboratory analyses were completed by EPA prior to SFPRC's involvement in the Remedial Investigation/Feasibility Study process."

This statement distorts the record. EPA first notified SFPRC's predecessor, the Southern Pacific Land Company (SPLC), that SPLC was a potentially responsible party for the Site in a letter dated June 18, 1986. At that time, EPA advised SPLC of EPA's intention to complete the Remedial Investigation/Feasibility Study for the Site. After meeting with EPA, SPLC completed a soil sampling program and provided EPA with a Draft Remedial Investigation report dated November 17, 1986. EPA did not begin its own soil sampling until the summer of 1987, about eight months later. At approximately that same time, SPLC submitted a Soil Sampling and Analyses Plan to EPA, in response to EPA's comments that the Remedial Investigation needed to evaluate the regional occurrence of asbestos. SPLC's additional soil sampling activities were conducted in accordance with the Administrative Order on Consent (Consent Order) executed by EPA and SPLC on November 16, 1987. Thus, EPA's soil sampling program, and subsequent use of that data in the PHE constitutes unnecessary and inappropriate duplication of our sampling efforts.

EPA's second reason for using both sets of data was that all of the data collected by both EPA and SFPRC are "appropriate" for

use in the PHE without providing any justification. In particular, EPA offered no analyses, reasons, or data which refuted the specific, factual SFPRC concerns regarding EPA's data. We have documented our concerns with the methodology and quality of EPA's asbestos analyses on numerous occasions. In lieu of repeating those concerns here, please refer to our letters to EPA dated May 19, 1988; June 10, 1988; August 11, 1988; September 16, 1988; and February 27, 1989. Although EPA's April 28, 1989, letter noted that its soil sampling data had technical problems, EPA did not specifically respond to these letters. Accordingly, EPA's second statement is not supported by the record. Please consider these letters (attached) resubmitted for the record.

Given the problems with EPA's data, and the fact that SFPRC conducted an extensive regional soil sampling program under EPA oversight in accordance with the Consent Order and approved by EPA with no significant problems identified, we continue to maintain that the PHE for the Johns-Manville Coalinga Asbestos Mill Site should be based on SFPRC's data alone.

A.5. Response: EPA's soil sampling for the Atlas Mine Site and the JM Mill Site was performed in 1987 between August 24 and October 9, prior to SPLC's signing of the Consent Order that specified how SPLC would perform the RI/FS for the JM Mill Site. SPLC's draft RI report dated November 17, 1986 had significant technical problems and was not accepted by EPA. SPLC subsequently signed the Consent Order on November 16, 1987.

EPA's PHE uses both EPA soil data and SFPRC soil data in calculating cancer risk values. Both EPA and SFPRC samples were collected and analyzed using an EPA approved sampling and analysis plan. EPA and SFPRC data were validated using EPA approved quality assurance/quality control plans. Discrepancies between the two data sets do not justify discarding either one. EPA has discretion to use any validated data that was produced in the study of the JM Mill Area in the PHE, before or after SFPRC signed the Consent Order to conduct an RI/FS. In this case these data include both EPA and SFPRC data. EPA deliberately separated out cancer risk calculations using EPA and SFPRC data in the PHE, where possible, to address SFPRC concerns that the cancer risk calculations in the PHE using EPA data were not appropriate for the JM Mill Site. Even considering the cancer risk derived from SFPRC data alone, EPA has determined that the selected remedy is appropriate and necessary to protect public health.

SFPRC's detailed comments on EPA's soil sampling and watershed modeling contained in its resubmitted letters are not significant because EPA would select the same remedy based on SFPRC's data alone. Asbestos is a known human carcinogen for which no level of exposure is known to be safe. The asbestos tailings at the Mill Area are more erodible than naturally occurring asbestos outcrops. Significant uncertainty in asbestos

soil sampling, watershed modeling and risk assessment also support EPA's remedy selection. The selected remedy is consistent with standard mining practices and applicable portions of California's Porter-Cologne Act concerning mining wastes.

Nevertheless, EPA notes that EPA's and SFPRC's soil samples were not split samples taken at the same time from the same area, but rather were samples taken from different areas. This, in combination with the difficulties with asbestos analytical techniques, explains some of the discrepancy.

Both EPA's and SFPRC's watershed modeling reports used a range of values for the asbestos content of tailings, mine surfaces and surrounding soils. EPA's watershed model estimated that the Atlas Mine Site contributes between five percent (5%) and thirty six percent (36%) of the asbestos being deposited on the Arroyo Pasajero alluvial fan. EPA's watershed model estimated that the JM Mill Site contributes between two percent (2%) and five percent (5%) of the asbestos being deposited on the Arroyo Pasajero alluvial fan. SFPRC's watershed model estimated that the Atlas Mine Site contributes 1.6% of the asbestos being deposited on the Arroyo Pasajero alluvial fan. SFPRC's watershed model estimates that the JM Mill Site contributes 0.3% of the asbestos being deposited on the Arroyo Pasajero alluvial fan. The PHE used data generated by both models to estimate risk from ingestion from of California Aqueduct water.

A.6. Comment: As explained in the Regional Report and Remedial Investigation, the SFPRC's data suggest separate 95% confidence intervals for the mean asbestos concentrations of materials and soils identified by our geological interpretations found in the region's asbestos source areas. This demonstrates that Remedial Investigation and Regional Report geologic interpretations and analytical results are valid and useful for purposes of representing the region for the PHE.

A.6. Response: EPA agrees and has used these data, where appropriate, in the PHE.

A.7. Comment: The Proposed Plan should make clear that the stream diversion will minimize the potential for release of asbestos into local creeks. As written, the Proposed Plan infers that asbestos is presently being released into local creeks. Although a potential for such a release does exist, there is no evidence that such releases are presently occurring.

A.7. Response: The selected remedy seeks to minimize future releases of asbestos into Pine Canyon Creek in the event of significant rainfall or other disturbance. Although releases of asbestos from the Site into Pine Canyon Creek are not currently occurring because there has been very little rain in this area for at least four years and the creek bed is dry, releases of asbestos have occurred from the JM Mill Area OU in the past. EPA must take into account past, present and future

conditions at the JM Mill Site in its selection of an appropriate remedy.

A.8. Comment: SFPRC questions the validity of many assumptions used in EPA's watershed model. EPA's April 28, 1989, letter noted that, "EPA views both [EPA's and SFPRC's watershed] models as important inputs towards achieving the ultimate goal of a reasonable and cost-effective remedy in the Atlas/Coalinga area...both models were used in evaluating risks from both the Atlas Site and the Johns-Manville Site." As we have stated before, we believe that EPA's watershed model has significant problems. SFPRC discussed these problems at length in our letter to EPA, dated September 16, 1988, to which EPA never responded. This letter is attached for the purpose of resubmitting those comments.

EPA conducted additional modeling and included this modeling in the Atlas Remedial Investigation. This modeling evaluated the sensitivity of EPA's model to variations in asbestos content. These evaluations indicated that this parameter appears to significantly alter EPA's initial modeling results. We do not understand why this modeling has not conclusively demonstrated to EPA the arbitrary and inaccurate nature of the earlier modeling on which the PHE is, in part, based. EPA's April 28 letter defends EPA's watershed model by noting that it is based on conservative assumptions in order to protect health and the environment.

A.8. Response: EPA's position on the validity and usefulness of EPA's and SFPRC'S watershed model results, expressed in its letter of April 28, 1990, has not changed. EPA's sensitivity analysis was designed to measure the sensitivity of the model to changes in the asbestos concentration of the serpentinite soils. The results indicate that, as expected, the model is sensitive to changes in soil asbestos concentrations. The differences in results of EPA's and SFPRC's models are the result of the different input parameters and different mathematical approaches used. The discrepancy between the asbestos concentration in soils, tailings and asbestos ore as measured by EPA and SFPRC can be attributed, in part, to difficulties with asbestos analytical methods (see Appendix 1). Both data sets were fully validated by EPA. EPA concludes in the PHE that: "Considering the the major conceptual and mathematical differences between the two (watershed) models, there is relatively good agreement between them." All models are subject to considerable uncertainty. Given that uncertainty, EPA has determined that the selected remedy is appropriate and necessary to protect public health. Because SFPRC's watershed modeling results are sufficient to justify the remedy selected by EPA, the comments contained in SFPRC's letter are not significant.

A.9. Comment: SFPRC defends SFPRC's watershed modeling results: EPA's April 28 letter also states that many of the

assumptions made in SFPRC's watershed model are subject to considerable uncertainty. As an example, EPA states that SFPRC assumed that "50% of the sediment delivered to the settling basin is derived from channel entrenchment on the alluvial fan." In fact, SFPRC did not make that assumption. As discussed in Chapter 3, Section 4.1, of SFPRC's Regional Report, SFPRC reviewed published data from previous studies by the California Department of Water Resources and the U.S. Bureau of Land Management to estimate the origin of sediments being deposited in the settling basin area. These data indicate that 37% to 62% of the sediments deposited in the Arroyo Pasajero settling basin originate from streambed and streambank erosion of the entrenched Los Gatos Creek and Arroyo Pasajero channel. SFPRC used that data to calculate a range of feasible estimates in its watershed model.

SFPRC's watershed model consistently used conservative and defendable input values to maximize the potential asbestos erosion from the study area. In contrast to SFPRC's watershed model, we have stated previously, we believe that EPA's watershed model is not well documented and uses many technically indefensible input parameters.

A.9. Response: EPA has reviewed and approved SFPRC's watershed modeling results. As noted above, EPA does not agree with SFPRC's assessment of EPA's watershed modeling results. The published data referred to in the above comment is subject to the same uncertainty as all other asbestos data (see Appendix 1 of the ROD for a more detailed discussion).

A.10. Comment: SFPRC does not completely understand nor agree with EPA's methodology for calculating asbestos concentrations in the Aqueduct. For at least two parameters, EPA's assumptions are not accurate. First, EPA's model assumed that the natural serpentine soils contain 1% asbestos, whereas SFPRC's laboratories actually measured asbestos concentrations of 85% in samples of these soils. (See Comment 4-1 in our September 16, 1988, letter to EPA.) In addition, EPA used rainfall data which substantially underestimated the precipitation intensity duration expected in the vicinity of the Site. (See Comment 4.2 in our letter to EPA dated September 16, 1988.)

Consequently, EPA's original model assumptions underestimate the amount of asbestos potentially eroded from the area of the Atlas and Coalinga Sites. This effect is demonstrated in Table 6-8 of Draft PHE, which presents predicted asbestos concentrations in the California Aqueduct, based on EPA's and SFPRC's watershed models. EPA's model estimates that serpentine soils contribute one million fibers per liter (MFL), whereas our model estimates that this source contributes 38.2 MFL to the Aqueduct. Similarly, EPA's model estimates that the entire subbasin contributes 12 MFL to the Aqueduct, whereas our model estimates that the subbasin contributes 39 MFL.

A.10. Response: In addition to problems with the accuracy and precision of asbestos analytical methods for measuring soils, the discrepancy between EPA's and SFPRC's results for asbestos concentration in the serpentinite soils can be explained in part as a result of sample variation. As noted in Response A.9, above, EPA has determined that for the purposes of the PHE, there is relatively good agreement between the two watershed models, despite the major conceptual and mathematical differences between them.

A.11. Comment: SFPRC disagrees with the Proposed Plan's summary of the Remedial Investigation results. The first sentence of the second paragraph of the Proposed Plan's "Investigation Results" section on page 3 reads as though that statement is a fact: "High winds and driving vehicles over the area can cause the asbestos to be released into the air." However, the statement is not based upon scientific or factual data and is not a conclusion reached by SFPRC in the Remedial Investigation/Feasibility Study. Instead, this is a speculative conclusion drawn by EPA. The statement should be clarified to indicate that it is an estimate made by EPA, not fact determined through the Remedial Investigation/Feasibility Study. EPA's description of the "protective crust" on the tailings pile should indicate that EPA has estimated that winds of sufficient force to cause airborne emissions of asbestos occur for only two hours per year.

A.11. Response: The comment is confusing because it indicates that the quoted statement contains an estimate, although it plainly does not. Air dispersion modeling by the California Department of Health Services found that disturbances of soil by motorized vehicles and winds that exceed the threshold velocity can cause airborne asbestos emissions. The Proposed Plan does not specify that any particular period of time or amount of asbestos may be released. The RI documents an estimate of two hours per year of wind sufficient to cause visible emissions. In addition, vehicles do have access to the JM Mill Site. Therefore, the statement in the Proposed Plan is accurate.

A.12. Comment: Thermal destruction does not "chemically fix" asbestos materials as indicated. A better description of this process would be that thermal destruction "destroys" or "fuses" the asbestos. In the chart on page 4 of the Proposed Plan, the name for Alternative 9 should be "Thermal Destruction" rather than "Vitrification."

A.12. Response: The ROD describes Alternative 9 as "Soil Fusion Using Thermal Treatment". Alternative 9 would result in the fusion of the asbestos tailings into a glass like substance.

A.13. Comment: SFPRC supports EPA's selection of Alternative 5 as the preferred remedy and recommends its implementation

without delay. SFPRC finds that the Proposed Plan contains a number of inaccuracies which SFPRC recommends that EPA correct. Attached to this letter is a copy of the Proposed Plan containing SFPRC's handwritten suggested changes to implement these recommendations.

A.13. Response: The substance of SFPRC's comments on the Proposed Plan are responded to in this document.

B. COMMENTS BY MARMAC RESOURCE COMPANY/MARECO ("MARMAC")

B.1 Letter from Carla J. Feldman of Shield & Smith, counsel for Marmac, dated June 25, 1990.

B.1. Comment: The FS, at Chapter 1, page 2, section 1.3 states that Marmac transported "asbestos-containing chromite ore" to the Site. It should be noted that chromite ore does not contain asbestos, rather, serpentine is typically found in conjunction with chromite ore.

B.1. Response: The chromite ore mined in the New Idria Formation contains significant amounts of chrysotile asbestos because the serpentine matrix in which the chromite is found contains high concentrations of that type of asbestos. EPA analyzed samples of chromite ore transported from the JM Mill Site to Marmac's warehouse in the City of Coalinga and confirmed the presence of asbestos.

B.2. Comment: Marmac cites a number of statements in the FS which they believe are inaccurate. These statements are summarized as follows:

1) Marmac is believed to have excavated two retention ponds in the eastern fork tailings pile to trap surface water for use in Marmac's milling operation.

2) Marmac discharged chromite tailings as a water slurry to a series of additional settling ponds located on the southern portion of the Site. After the solids settled out of the water, the water was reused for processing more ore and the ponds eventually became filled with chromite mill tailings.

3) Marmac is believed to have conducted milling operations at the Site for about two years.

4) Chromite ore was reportedly mined from a 5-acre portion of the Site known as the Railroad Mine.

B.2. Response: None of the statements which Marmac disputes are relevant to EPA's remedy selection. They appear in the Site Description and History Section of the FS. Because these statements are only potentially relevant to future disputes concerning liability, EPA will not respond to Marmac's objections to these statements at this time.

B.3. Comment: Marmac requests confirmation in writing that asbestos is the only chemical of concern at the JM Mill Site, that metal concentrations are within the range of naturally occurring soil concentrations and that the presence of metals will not be considered a human health concern at the JM Mill Site.

B.3. Response: EPA has determined that metals are not a contaminant of concern at the JM Mill Site and that the metals present were within the range of naturally occurring soil concentrations. The PHE, which is appended to the RI, provides a discussion of metals concentrations and their effect on human health and the environment.

B.4. Comment: Marmac comments that Alternative 3, with the addition of grading to stabilize the tailings pile, would be as protective as the preferred alternative and would cost less. Therefore a modified Alternative 3 should be considered as the selected remedy.

B.4. Response: EPA has determined that the selected remedy, which utilizes a combination of stream diversions, sediment trapping dams and grading, is the most cost effective way to minimize the release of asbestos downstream of the JM Mill Area via Pine Canyon Creek. Alternative 3 plus grading would not mitigate the release of asbestos into Pine Canyon Creek because the existing sediment trapping dam could be breached during a heavy flood, leading to the transport of significant amounts of asbestos. The fact that catastrophic floods do not occur often in this area is not a rationale for ignoring the possibility of such flooding. The existing sediment trapping dam has been breached at least once since 1980 and very serious flooding occurred in 1969. Therefore, Alternative 3 plus grading is not protective of human health for people living downstream of the JM Mill Area.

C. COMMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES ("DOHS").

C.1 Letter from Anthony J. Landis, Chief of the Site Mitigation Unit, dated September 7, 1990.

C.1. Comment: DOHS stated that it concurs in the selected remedy, and that the remedy contains "appropriate management components to reduce asbestos releases from this site due to erosion and man-made air emissions."

C.1. Response: EPA notes that the comment demonstrates state acceptance of the remedy.

C.2. Comment: DOHS stated that several state laws are considered by DOHS to be ARARS, including:

California Air Resources Act
Health and Safety Code, Div. 26
Section 39000 et seq.
17 CCR, Part 3, Chapter 1

This state act has identified asbestos as a toxic air contaminant but has not established a state-wide ambient standard. However, the act has established an ambient air quality standard for particulate matter which is enforced by the Fresno County Air Pollution Control District. While it is understood that EPA's permit exemption applies, the substantive requirements of this ambient requirement should be met by cited federal ARARs.

C.2. Response: The Fresno County Air Pollution Control District has adopted PM 10 as a particulate matter standard for Fresno County, pursuant to delegated authority under the California Air Resources Act, Health and Safety Code Section 39000 et. seq. This standard is an ARAR for the Atlas Mine Area Operable Unit. As noted in the DOHS comment, this standard will be met by the same measures which will ensure that the applicable federal NESHAPs for asbestos are met (i.e,, misting measures during construction and access restrictions and other controls after construction). The state's identification of asbestos as a toxic contaminant is not an ARAR because, as recognized by DOHS, the state has not promulgated a standard or level of control for this contaminant. EPA has determined that compliance with the federal asbestos NESHAPs found at 40 C.F.R. § 61.147 and 40 C.F.R. § 61.153 will provide adequate protection of public health and the environment.

C.3. Comment: In identifying ARARs to EPA, DOHS also cited and stated the following:

Porter Cologne Water Quality Act
23 CCR, Chapter 3: Subchapter 15
Article 7 - Mining Waste Management
Section 2570-2574

This state act contains regulations establishing waste and site classifications and waste management requirements for all mining waste. While included exemptions for liners and leachate collection appear appropriate for this site, other construction standards which require accommodation of 10-year, 24-hour storm runoff controls in design criteria for drainage and diversion structures as well as 100 year peak stream flow protection for all waste piles are applicable and relevant and appropriate for remedial action at these sites.

C.3. Response: For existing units such as the JM Mill Area, a determination of what requirements of Article 7 of the 23 CCR should be complied with must be made on a case by case basis. See Title 23, Section 2570. EPA agrees that the construction

standard which requires accommodation of a 100 year peak stream flow, found at Title 23, Section 2572(b), is an ARAR for this operable unit. EPA also agrees that the requirement of construction standards which require accommodation of storm runoff controls in design criteria for drainage and diversion structures are ARAR. However, after reviewing Article 7 and the other Sections of Title 23 referenced therein, EPA has determined that the correct ARAR requires that the construction standards incorporate storm runoff controls designed to control a 25-year, 24-hour storm event, not a 10-year, 24-hour storm event. This is because the Atlas Mine Area Operable Unit is classified as a Group A mining waste, not a Group B mining waste. See Title 23, Section 2571(b)(1) and Section 2572(h)(1); see also, Title 22, Section 66300 and Section 66310. Therefore, EPA identified as an ARAR Title 23, Section 2572(h)(1)(A) and Section 2572(h)(3). This latter Section incorporates by reference Title 23, Section 2546(d) and (e), so the requirements of these two subsections are also ARAR. They deal with measures required to ensure the adequacy of the precipitation and drainage control systems.

C.4. Comment: In identifying ARARs to the EPA, DOHS also cited and stated the following:

> California Hazardous Waste Control Laws
> Health & Safety Code, Div. 20, Chapter 6.5
> Section 25220-25241 et seq. and 22 CCR, Div. 4,
> Chapter 30, Section 66001 et seq.
>
> These laws provide minimum standards for the determination and management of hazardous waste. Most proposed actions on site will meet the standards of these laws or will be exempt. One aspect which continues to be applicable to and recommended for these sites is the deed restriction and land use constraints for permitted facilities. At a minimum, the 10 acres of privately held land at the Atlas site and the entire Coalinga Mill site should be deed restricted as detailed in the Health & Safety Code. Additionally, the SARA amendments recognize the need for similar institutional controls on federal lands. Therefore, it is further recommended that the public lands with asbestos containing soils and waste piles be deed restricted also.

C.4. Response: EPA agrees that the substantive portions of California Health and Safety Code Section 25232 are an ARAR for this operable unit. Any requirements related to notice, hearing and other procedural mechanisms for implementing the deed restrictions do not fall within the the definition of an ARAR; however, the actual substantive restrictions contained in Section 25232(a)(1) and (2) are an ARAR. EPA has determined that all of the private property at this operable unit should be deed restricted to prohibit the uses described in the California Health and Safety Code Section 25232(a)(1) and (2). EPA shall determine the appropriate

manner for implementation of this requirement during the enforcement and implementation process for the remedial action.

C.5 Comment: In identifying ARARs to EPA, DOHS also cited and stated the following:

> California Drinking Water and Toxic Enforcement Act
> Health and Safety Code, Div. 20, Chapter 6.6
> Section 25249.5 et seq
>
> This act sets prohibitions on contaminated drinking water with specific carcinogens and reproductive toxins. Asbestos has been identified under this act as a carcinogen. While insufficient design detail exists at this time to determine if the discharge prohibitions of this law are applicable, the notice and warning requirements are relevant. This notice and warning requirement appears to be met by EPA's public participation requirements and application of requirements listed in 40 C.F.R. 61.156.

C.5. Response: The notice and warning requirements of this law would not be an ARAR because they are not substantive standards or levels of control. See CERCLA Section 121(d), 96 U.S.C. § 9621(d). Furthermore, these requirements only apply to a "person in the course of doing business" who knowingly and intentionally exposes an individual to a covered chemical. CH&S Code, § 25249.6. The operable unit is an abandoned mill. No business is or will be operated there; therefore, this law does not apply.

Furthermore, the exemption in CH&S Code § 25249.10(c) would be applicable to any releases expected to occur from this operable unit.

While DOHS states that insufficient detail exits to determine whether the waste discharge prohibition in Health and Safety Code Chapter 6.6 apply, in fact this requirement would not apply, for the reason that the prohibition only applies to "people in the course of doing business." See CH&S Code § 25249.5. As explained above, no one is or will be doing business at this abandoned mill site.

EPA has also determined that no part of this law is relevant and appropriate at this operable unit.

1633-02763

APPENDIX B

SCOPE OF WORK
FOR THE REMEDIAL DESIGN AND REMEDIAL ACTION WORK PLAN
FOR THE
JOHNS-MANVILLE COALINGA MILL AREA OPERABLE UNIT
AT THE
COALINGA ASBESTOS MINE NPL SITE
FRESNO COUNTY, CALIFORNIA

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I. Purpose

The purpose of this Scope of Work ("SOW") is to fully implement the Record of Decision ("ROD") for the Mill Area or Site (as defined in the Consent Decree), which was signed by the Regional Administrator on September 21, 1990, and Section VII (Work To Be Performed) of this Consent Decree. The U.S. EPA Superfund Remedial Design and Remedial Action ("RD/RA") Guidance (OSWER Directive 9355.0-4A, June 1986), the ROD, the approved final Remedial Design Work Plan pursuant to the Consent Decree, any additional guidance provided in a timely fashion by EPA and this Scope of Work ("SOW") shall be followed in designing, implementing and submitting deliverables for the RD/RA at the Site. Any additional guidance beyond that referred to above to be used by Defendants in producing the draft RD Work Plan will be provided by EPA to the Defendants by the effective date of the Consent Decree. The provisions of Section XXIII (Dispute Resolution) of the Consent Decree are applicable to any disputes between EPA and Defendants pertaining to this SOW.

II. Description of the Remedial Action

The major components, the performance standards and key specifications of the Remedial Action ("RA") for the Site to be designed and implemented by the Defendants are summarized in the ROD and in Article VII (Work to be Performed). The key components of the RA include:

A. Fencing

The Defendants shall fence along the road through the Mill Area in order to minimize disturbance of asbestos-bearing surfaces by motorized vehicles. This fence shall be constructed in accordance with the remedial technologies specified in the Feasibility Study ("FS") for the Site and shall be suitable to prevent access to disturbed areas by motorized vehicles.

B. Stream Diversion

The Defendants shall design and construct a stream diversion system to channel water away from the tailings pile in the eastern fork of Pine Canyon Creek. The diversion structures shall be designed to accommodate the anticipated volume of precipitation and peak flows from surface run-off in a 25-year, 24 hour storm event. In the FS, standard engineering practices were used to estimate the flow and volume of precipitation in such a storm event and similar standard practices will be used during the Remedial Design ("RD").

C. Sediment Retention Dam

The Defendants shall improve the sediment retention dam located below the tailings pile so that this dam can accommodate the anticipated volume of precipitation and peak flows from surface run-off in a 25-year, 24 hour storm event.

D. Protection of Asbestos Mill Tailings Pile

The Defendants shall construct the engineering systems so that the tailings pile in the east fork of Pine Canyon Creek and any other asbestos mill tailings at the Site are protected from 100-year peak stream flows. The Defendants' remedial design shall be based on the engineering systems specified in the FS.

E. Revegetation Pilot Project

The Defendants shall implement a revegetation pilot project ("RPP") as described in this SOW. The RPP shall be designed to evaluate the technical feasibility and cost of establishing vegetation on anthropically disturbed areas and mill tailings to increase stability of these disturbed areas and reduce potential erosion of asbestos-bearing sediments.

F. Recording of Deed Restrictions

Within sixty (60) days of the entry of this Consent Decree, Defendants shall file with the Recorder's Office, Fresno, California, State of California, a deed restriction prohibiting anyone in possession of the property from taking any actions that would interfere with the implementation of the remedy constructed pursuant to this Consent Decree.

G. Operation and Maintenance

The Defendants shall implement the Operation and Maintenance ("O&M") Plan as described in this SOW.

III. Scope of the Remedial Design and Remedial Action

A. Overview

The RD/RA shall consist of four tasks:

1. Task 1: Remedial Design Work Plan: The Remedial Design Work Plan ("RD Work Plan") shall include the following elements:

a. Overall management strategy;
b. Organization Chart showing lines of authority;

c. Qualifications of key personnel, including contractor personnel; and
d. Pre-design Report

2. Task 2. Remedial Design: The design phases of the RD consist of the following:

a. Preliminary Design
b. Prefinal Design
c. Final Design

The Prefinal and Final Design include: (1) Design Plans and Specifications, (2) Operation and Maintenance Plan, (3) Construction Quality Control Plan, (4) Project Schedule, (5) Worker Health and Safety Plan, and (6) Cost Estimate;

3. Task 3. Remedial Action Construction. The phases of the RA consist of the following:

a. Prepare Construction Quality Assurance Plan
b. Construct the RD
c. Conduct Inspection Activities

4. Task 4. Reports and Submissions. The reports and submissions to be received for this task consist of the following:

a. Monthly Progress Reports
b. Notification of Completion of Remedial Action Report
c. Draft and Final Revegetation Pilot Project Work Plan

B. Detailed Description of RD/RA Tasks

1. Task 1: Remedial Design Work Plan

a. Scope

The Defendants shall submit to EPA for EPA review and approval a RD Work Plan which shall document the overall management strategy for performing the design, construction, operation, maintenance and monitoring of Remedial Actions. The RD Work Plan shall describe the qualifications of the key personnel directing the Remedial Design, including the key engineering contractor personnel, and document the responsibility and authority of all organizations and key personnel involved with the implementation of the RD. The RD Work Plan shall also establish the time deadlines for completing

the phases of the RD described below. The Defendants shall submit a draft RD Work Plan to EPA for review according to the schedule in Section IV (Schedule) of this SOW. The Defendants shall submit a final RD Work Plan which incorporates EPA's comments on the draft RD Work Plan (subject to the Dispute Resolution provisions of the Consent Decree) according to the schedule in Section IV (Schedule) of this SOW.

b. Pre-Design Report

The RD Work Plan shall include a Pre-Design Report. The Pre-Design Report shall contain the information necessary to develop the conceptual design. The Pre-Design Report shall include the following:

A. The criteria, data and other requirements which will be used to develop the remedial design such as:

i. Requirements for additional data collection, if necessary, such as soil borings, slope stability studies or other geotechnical studies;

ii. All parameters, sizing/design calculations, acreage of the watershed and other data used to establish the volumes of water that must be retained by the diversion/retention systems, the size of the structures, the volumes of material to be excavated;

iii. Codes, standards and regulations to which the engineering systems must be designed and identification of all agencies that must review, check, approve or inspect the engineering, design and/or construction;

iv. Data regarding development work that may be required on the road to the Site to accommodate heavy equipment and data regarding the ability to access this road; and

v. Availability of utilities at the Site and/or the need to install utilities.

B. A letter signed by the lead engineering professional stating that the data and other information in the Pre-Design Report, including any additional data collected pursuant to subparagraph A.i above, are adequate to develop the design as required by the ROD and this Consent Decree.

2. Task 2: Remedial Design

a. Scope

The Defendants shall prepare final construction plans and specifications to implement the Remedial Actions at the Site as defined in Section I (Purpose) of this SOW.

b. Elements of Design Plan

The Defendants shall develop clear and comprehensive design plans and specifications which include the following:

A. Discussion of the design strategy and the design basis, including:

i. Compliance with all applicable or relevant and appropriate requirements identified by EPA and listed in the FS, ROD and Consent Decree; and

ii. Minimization of environmental and public impacts, as discussed in the FS.

B. Discussion of technical factors of importance including:

i. Use of the currently accepted environmental control measures and technology; and

ii. Use of currently accepted construction practices and techniques.

C. Discussion of assumptions made and detailed justification of these assumptions.

D. Discussion of the possible sources of error and references to possible operation and maintenance problems.

c. Design Phases

The Defendants shall meet regularly with EPA to discuss design issues. The design of the Remedial Action shall include the phases outlined below.

A. Preliminary Design. The Defendants shall submit the Preliminary Design ("PD") when the design is approximately 30% complete according to the schedule established in the final RD Work Plan. The PD shall address all EPA comments resulting from review of the Pre-Design Report (subject to the Dispute Resolution provisions of the Consent Decree). The PD shall reflect a level of effort such that the technical requirements of the project have been addressed and outlined so that they may be reviewed to determine if the final design will provide an operable and usable Remedial Action. The PD shall contain the following:

i. All engineering calculations upon which the design is based, including derivation of equations essential to understanding the design. The design calculations shall reflect the same percentage of completion as the designs they support.

ii. Construction specifications and drawings that are approximately 30% complete;

iii. Procedures for demolition, removal and disposal onsite of the abandoned mill building and other debris; and

iv. Site preparation plans such as clearing and grading plan, cut and fill/excavation plans, staking locations and center line drawings.

B. Prefinal Design. The Defendants shall submit the Prefinal Design according to the schedule in the Final RD Work Plan. The Prefinal Design shall be a 90% complete design and shall address all EPA comments resulting from review of the Preliminary Design

(subject to the Dispute Resolution provisions of the Consent Decree). Before submitting the Prefinal Design the Defendants shall ensure that the construction drawings are consistent with the technical specifications.

After approval, with modifications and comments if necessary, of the Prefinal Design, the Defendants shall execute the required revisions (subject to the Dispute Resolution provisions of the Consent Decree) and submit the Final Design (100% completion) to EPA for EPA review and approval.

The Prefinal Design submittal shall include: (1) 90% Design Plans and Specifications, (2) draft Operation and Maintenance ("O&M") Plan, (3) draft Construction Quality Control ("CQC") Plan, (4) draft Construction Quality Assurance ("CQA") Plan, and (5) draft Project Schedule. The Prefinal Design and the Final Design should generally use standard specifications. The CQC Plan and the CQA Plan together shall comprise the QA/QC program referred to in the Consent Decree.

C. Final Design. The Defendants shall submit a Final Design according to the schedule in Section IV of this SOW. The Final Design shall address all EPA comments resulting from review of the Prefinal Design (subject to the Dispute Resolution provisions of the Consent Decree). The Final Design submittal shall consist of: (1) Final Design Plans and Specifications (100% complete and including bid-ready construction drawings with cross sections, details on procurement of materials/equipment and all design specifications, and, if necessary, confirmed purchase orders for items requiring long lead times), (2) final O&M Plan, (3) final CQC Plan, (4) final CQA Plan, (5) final Project Schedule, (6) Worker Health and Safety ("WH&S") Plan; and (7) Cost Estimate.

d. Other Documents

A. Operation and Maintenance Plan: The Defendants shall prepare an Operation and Maintenance ("O&M") Plan to cover both implementation and long term maintenance of the Remedial Actions. The draft O&M Plan shall be submitted with the Prefinal Design submission. The final O&M Plan, which reflects EPA's modifications and comments (subject to the Dispute Resolution provisions of the Consent Decree), shall be submitted with the Final Design documents.

The O&M Plan shall contain provisions for ensuring the integrity of the stream diversions and sediment retention structures over a 30-year period. The O&M plan shall include the following:

1. Inspection of Engineering Systems (Diversion Structures and Dams): Description of tasks for maintenance and a schedule showing the frequency of each maintenance task. Maintenance shall include visual inspections of the engineering systems at the Mill Area to detect breaches in the dams, erosion of the diversion structures or any other damage. These inspections shall occur every six months for the first three years after completion of construction of the RA and then annually thereafter. If a storm of sufficient magnitude to cause water to pass over the dam spillway should occur, a visual inspection shall be made within one week after such a rainfall event. A maintenance report describing the results of the visual inspection shall be submitted to EPA within 15 working days of the inspection and shall include photographs of any significant damage.

2. Sediment Removal: Procedures and schedule for the removal/consolidation of sediment from behind the sediment retention structure.

3. Repair: Procedures for repair to all engineering systems at the Site.

B. Draft Construction Quality Control ("CQC") Plan. The Defendants shall prepare a Construction Quality Control ("CQA") Plan to describe and document the system of inspections and tests to be performed by a qualified Construction Observer to monitor the progress of the construction work and to correct any mistakes which are detected. The CQC Plan shall include the following elements:

1. project description;

2. an organization chart showing lines of authority for quality control personnel; and

3. quality control reporting procedures such as maintenance of daily logs and the use of construction checklists; and

4. procedures for the final storage of all documents and records.

A draft CQC Plan shall be submitted with the Prefinal Design submission and the final CQC Plan with the Final Design submission.

C. Construction Quality Assurance ("CQA") Plan. The CQA Plan shall describe and document the system by which the Independent Quality Assurance Team ("IQAT") will ensure that the Remedial Action is performed according to the final design plans and specifications. The IQAT shall be retained by the Defendants and be independent from both the remedial design team and the remedial action constructor. The Defendants shall set forth the qualifications of the IQAT members to demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities. The Defendants shall summarize in the CQA Plan the observations and tests that will be used to monitor the construction and/or installation of the components of the Remedial Actions. The CQA Plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with the environmental requirements and include air quality and emissions monitoring records. Inspections shall also ensure compliance with all health and safety procedures.

D. Project Schedule: The Defendants shall develop an Project Schedule for construction and implementation of the Remedial Actions which identifies timing for initiation and completion of all critical path tasks. The Project Schedule shall be developed from detailed, task oriented segments with milestones for the completion of specific tasks or categories. The Defendants shall specifically identify dates for completion of the project and major interim milestones. The Defendants shall consider phasing and fast-tracking elements of the Remedial Action to expedite completion of the construction phase. A draft Project Schedule shall be submitted with the Prefinal Design submission and the final Project Schedule with the Final Design submission.

E. Worker Health and Safety Plan. The Defendants may use the existing Site H&S Plan to develop the Worker Health and Safety ("WH&S") Plan. The WH&S Plan shall:

1. include pertinent site history and background information;

2. address the potential exposure of workers at the Site and the public to potential releases at and from the Site during the performance of the work; and

3. satisfy the requirements of 29 C.F.R. Section 1910.120 (as amended by 54 Fed. Reg. 9294, March 6, 1989); Occupational Safety and Health Guidance for Hazardous Waste Site Activities (October 1985, DHHS NIOSH, Publication No. 85-115), EPA's Standard Operating Safety Guides (July 1988), the NCP requirements for worker health and safety (40 CFR Section 300.150) and any other applicable state or federal requirements regarding worker safety.

F. Cost Estimate. The Defendants shall refine the cost estimate developed in the Feasibility Study to reflect the more accurate design plans and specifications being developed. The cost estimates shall include both capital and O&M costs. The cost estimate shall be submitted with the Final Design submission.

3. Task 3: Remedial Action Construction

a. Construction Quality Assurance ("CQA") Plan. The Defendants shall submit a draft CQA Plan according to the schedule in the final RD Work Plan. The Defendants shall finalize the CQA Plan incorporating comments received on the draft CQA Plan (subject to the Dispute Resolution provisions of the Consent Decree). The CQA Plan shall be developed to ensure, with a reasonable degree of certainty, that a completed Remedial Action will meet or exceed all design criteria, plans and specifications. Following EPA approval of the CQA Plan, the Defendants shall begin to implement the Remedial Actions in accordance with the approved design, schedule and the CQA Plan. The Defendants shall also implement the elements of the approved O&M Plan.

b. Inspection Activities: The Defendants shall conduct the following inspection activities:

A. Preconstruction Inspection and Meeting: The Defendants shall conduct a preconstruction inspection and meeting to: (a) Review lines of authority, communication procedures and methods for distributing documents and reports, (b) Review work area security and safety protocol, (c) Review the Project Schedule and outline initial work to

be performed, and (d) Conduct a site walk-around to verify that the design criteria, plans and specifications are understood. The preconstruction inspection and meeting shall be documented by a designated person and minutes shall be transmitted to all parties.

B. Prefinal inspection: Upon preliminary project completion, Defendants shall notify EPA for the purposes of conducting a prefinal inspection. The prefinal inspection shall consist of a walk-through inspection of the entire project site. The inspection is to determine whether the project is complete and consistent with the contract documents and the EPA approved Remedial Action. Any outstanding construction items discovered during the inspection shall be identified and noted. The Defendants shall outline in the prefinal inspection report the outstanding construction items, actions required to resolve items, completion date for these items and date for final inspection.

C. Final Inspection: Upon completion of any outstanding construction items, the Defendants shall notify EPA for the purposes of conducting a final inspection. The final inspection shall consist of a walk-through inspection of the project site. The prefinal inspection report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

4. Task 4: Other Reports and Submissions

The Defendants shall submit the following documents to EPA according to the schedule in Section IV (Schedule) of this SOW.

a. Monthly Progress Reports: Commencing no later than the second month after the entry of this Consent Decree, the Defendants or the Defendants' Contractor shall provide written progress reports to EPA by the 10th day of each month for the previous month. Monthly progress reports shall include:

A. A description of the actions taken during the reporting period to comply with this Consent Decree, including a general description of Remedial Design/Remedial Action activities

commenced or completed during the reporting period;

B. Remedial Design/Remedial Action activities projected to be commenced or completed during the next reporting period, and any problems that have been encountered or are anticipated by the Defendants commencing or completing the Remedial Design/Remedial Action activities;

C. A table showing an estimate of how much of an activity or task in the schedule has been completed; and

D. An explanation of any variation from the schedule and previous estimates and a discussion of the effects of task delays on milestone dates in the schedule.

b. Draft Revegetation Pilot Project Work Plan. The Defendants shall submit to EPA for EPA review a Draft Revegetation Pilot Project ("RPP") Work Plan. The Draft RPP Work Plan shall include the following:

A. A description of the approach to be taken in developing the RPP; this shall include such items as an evaluation of the species mix selected and the rationale for the selection of the mixture, an evaluation of whether a test plot should be used, and an evaluation of whether disturbed areas should be supplemented with fertilizers and/or top soil; and

B. An operation and maintenance plan for monitoring progress of the RPP and maintaining the vegetation with water during dry periods.

The Defendants shall submit the Draft RPP Work Plans to EPA according to the schedule in Section IV (Schedule) in this SOW. The Defendants shall submit a Final RPP Work Plan which incorporates EPA's comments on the Draft RPP Work Plan (subject to the Dispute Resolution provisions of the Consent Decree) according to the schedule in Section IV (Schedule) in this SOW.

RPP activities should occur simultaneously with RD/RA activities but RPP activities should not be on a critical path.

The Defendants shall retain a qualified plant scientist with experience in revegetation of serpentinite soils to develop the RPP Work Plan. The Defendants shall submit the name and

qualifications of this individual to EPA for approval.

Monitoring shall be performed midway through and near the end of each growing season. A report shall be prepared and submitted after each monitoring event which describes the environmental conditions at the Site and evaluates the status of the RPP. A permanent photograph record shall be included as part of the monitoring and photographic evidence of environmental conditions shall be included with this report.

The success of the RPP shall be evaluated by EPA following the prefinal inspection. At the time of issuance of the Certificate of Completion, EPA will determine what additional efforts should be made to continue the RPP or to implement revegetation at the Site.

c. Remedial Action Completion Report. The Defendants shall submit a Remedial Action Completion Report to EPA when construction at the Site is finished. The Report shall document that the project is consistent with the design specifications, the ROD , the Consent Decree and complies with ARARs. The Report shall include, but not be limited to the following elements:

A. A synopsis of the Remedial Action and certification of the design and construction; and

B. An description of any modifications to the final plans and an explanation of why these were necessary for the project.

IV. SCHEDULE

DOCUMENT OR TASK	DUE DATE
Monthly Progress Reports	On the tenth day of each month, beginning in the second month following entry of the Consent Decree
Draft Revegetation Pilot Project Work Plan	30 days after entry of the Consent Decree
Final Revegetation Pilot Project Work Plan	20 days after receipt of EPA comments on the Draft Revegetation Pilot Project Work Plan
Begin Implementation of the RPP.....	In accordance with the schedule in the final RPP Work Plan
Draft Remedial Design Work Plan	45 days after entry of the Consent Decree
Final Remedial Design Work Plan	30 days after receipt of EPA comments on the Draft Remedial Design Work Plan
Preliminary Design	* Days after receipt of EPA approval of the Final Remedial Design Work Plan
Prefinal Design Submittals . . . . . (Plans and Specifications-90%, Draft O&M Plan, Draft CQC Plan, Draft Project Schedule, Draft CQA Plan, Draft Community Relations Plan)	* Days after EPA comments on the Preliminary Design