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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

IN THE MATTER OF: Approximately 640 Acres of Land Located in Section 19, Township 13N, Range 10W of the Bluewater USGS Quadrangle (A Portion of the Bluewater Uranium Mining Sites) Respondents: The Cerrillos Land Company, the Santa Fe Pacific Railroad Company, and the Atchison, Topeka & Santa Fe Railway Company	Order No. 91-16 ADMINISTRATIVE ORDER PURSUANT TO SECTION 106 OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 as amended, 42 U.S.C. Section 9606(a)

I. PREAMBLE

This Administrative Order (Order) is issued on this date to the above-referenced Respondents, pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Section 9606(a), as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499 (CERCLA), delegated to the Administrator of the United States Environmental Protection Agency (U.S. EPA) by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, further delegated to the EPA Regional Administrators by U.S. EPA Delegation Nos. 14-14-A and 14-14-B, and further redelegated to the Director, Hazardous Waste Management Division, by Region IX Delegations 1290.41 and 1290.42.

The State of New Mexico and the Navajo Nation have been notified of the issuance of this Order as required by Section 106(a) of CERCLA, 42 U.S.C. Section 9606(a).

This Order requires the Respondents to undertake and complete removal activities to abate an imminent and substantial endangerment to the public health or welfare or the environment that may be presented by the actual or threatened release of hazardous substances from the above-referenced Site.

II. FINDINGS OF FACT

Based on available information, including the Administrative Record established in this matter, the U.S. EPA hereby finds:

A. Site Description/Location

The Bluewater Uranium Mining Sites consist of two nearby abandoned mining areas, the Brown-Vandever-Nanabah Mining Sites and the Navajo Desiderio Mine, which are located in the central portion of western New Mexico. The Brown-Vandever-Nanabah Mining Sites are located on four parcels of land, which include two Indian Allotment parcels, one Federal parcel administered by the Department of Energy, and one privately owned parcel. All of these parcels lie within the Bluewater U.S. Geological Survey (USGS) Quadrangle.

The privately owned parcel of land which constitutes one of the four parcels at the Brown-Vandever-Nanabah Mining Sites, as indicated above, is the subject of this Administrative Order issued by the U.S. EPA. For ease of reference, the subject parcel will hereinafter be referred to as "the Site" or "the Facility."

The Site is located at the foot of Haystack Butte in Section 19, Township 13N, Range 10W of the Bluewater Quadrangle, approx-

imately five miles west of Prewitt, New Mexico and 15 miles north of Grants, New Mexico. The elevation of the Site varies from 6900 to 7100 feet above sea level. Haystack Butte, which lies approximately 1/2 mile to the North of the Site, peaks at 7833 feet.

The climate at the Site is semi-arid, with an average annual precipitation of approximately 12 inches, occurring mostly in July and August. The average annual wind velocity is 10 mph.

No surface water exists on or around the Site. However, small arroyos cut the area with general drainage to the southeast. Groundwater aquifers lie far below any of the previously mined areas at the Site. There is no evidence that the groundwater has been affected, to date, by hazardous substances at the Site.

Geology locally consists of exposures of Jurassic Todilto limestone and Entrada sandstone at the northern border of the Site, and Basaltic Malpaies to the southeast. Vegetation consists of sparse grassland, bounded approximately 1/2 mile to the north of the Site by pinyon-juniper woodlands. Wildlife species in the area are restricted to birds, reptiles, and small mammals characteristic of the pinyon-juniper and grassland habitats.

In the past, the land at the Site was used primarily for rangeland grazing and uranium mining. Reports indicate that mining operations at the Brown-Vandever-Nanabah Mining Sites were ceased in approximately 1981. Since that time, the land has been utilized primarily for the grazing of sheep and other animals. However, as a result of the previous mining operations at the Site, the topography of the land is still scarred by several

large abandoned uranium mine pits. In addition, uranium mine waste, overburden, and piles of protore (low grade uranium ore) remain present on the surface of the land at this time.

B. Site History and Respondents

1. As of 1950, when uranium was first discovered at the Site, the mineral rights to the Site (Section 19, Township 13N, Range 10W) were held and controlled by the Santa Fe Pacific Railroad Company (SFPR).

2. SFPR owned the mineral rights to the Site for the period from 1951 to the the early 1980's. During this period of time, uranium mining operations were conducted at the Site, as specified in paragraphs 3, 6, 7, 8, 10, and 13 below.

3. From November 21, 1950, to September 30, 1952, SFPR conducted drilling, sampling, test pitting and other mining operations at the Site.

4. According to the Mineral Leasing History and Corporate Chronology attached to a June 18, 1991 letter to EPA from Mr. Tim Leftwich, the Director of Environmental Quality for both the Cerrillos Land Company (CLC) and the Santa Fe Pacific Minerals Corporation (SFPM), the Haystack Mountain Development Company was incorporated on October 15, 1951, as a subsidiary of the Atchison, Topeka & Santa Fe Railway.

5. From September 30, 1952 to November 30, 1961, SFPR formally leased the mineral rights to the Site to HMDC.

6. From September 30, 1952 to November 30, 1961, HMDC conducted mining operations at the Site pursuant to the above-referenced lease.

7. On April 19, 1960, SFPR entered into a separate contract with HMDC for construction work and other work, including the production of uranium ore, at the Site. This contract was terminated on December 1, 1961.

8. On December 1, 1961, SFPR entered into a similar contract with an individual named Henri T. Dole, for construction work and other work, including mining operations, at the Site. This contract remained in effect through December 1, 1967. Information made available to EPA indicates that Henri T. Dole may now be deceased.

9. From April 15, 1975 to February 1985, SFPR leased the mineral rights to several portions of the Site to an individual named George Warnock. In this lease agreement, SFPR acknowledged that:

a) SFPR was the former owner of the land (including surface rights) at the Site; and

b) Although SFPR had previously sold and conveyed its interest in the surface rights to the Site, the company had retained its property interest in the oil, gas, and mineral rights which were associated with that land.

10. Pursuant to this lease of Site mineral rights, Mr. Warnock conducted uranium exploration and mining activities at the Site, subject to the payment of both rent and royalties to SFPR, from April 15, 1975 to May 1977.

11. In an agreement on May 5, 1977, Mr. Warnock assigned his lease of Site mineral rights to the Todilto Exploration and Development Corporation (TEDC). The Lessor of the Site mineral rights, SFPR, consented to the assignment of the lease to TEDC.

12. As evidenced by the signatures on the Assignment of Lease document, George Warnock also served as President of TEDC, and his wife Dorothy served as the Secretary of that company.

13. Pursuant to the assignment of the above-referenced lease, TEDC conducted mining operations on a portion of the Site from May 1977 until approximately 1981.

14. In 1981, all ongoing mining operations at the Site were ceased.

15. On April 27, 1987, HMDC was merged into the Atchison, Topeka and Santa Fe Railway Company.

16. According to a July 1, 1991 letter from Mr. Tim Leftwich, the Director of Environmental Quality for the Cerrillos Land Company (CLC) to EPA Region IX, CLC is "the current owner of the mineral estate" for the Site.

17. As further indicated in the Corporate Chronology attached to the June 18, 1991 letter from Mr. Leftwich to EPA, CLC was incorporated on March 21, 1983, as a subsidiary of the newly incorporated Santa Fe Pacific Minerals Corporation (SFMC). The Santa Fe Pacific Minerals Corporation itself was incorporated on March 14, 1983, as a subsidiary of Santa Fe Industries, Inc.

18. As indicated in the Mineral Take Off attachment to the June 18, 1991 letter from Mr. Leftwich to EPA, the Cerrillos Land Company acquired its present interest in the mineral rights to the Site from SFPR through special warranty deed conveyances in September 1983, and in July and October 1986.

19. As indicated in the Current Pertinent Structure attachment to the June 18, 1991 letter from Mr. Leftwich to EPA, and confirmed by Wayne Jarke, the General Counsel for the Santa Fe

1 Pacific Minerals Corporation, in a telephone conversation with
2 EPA representative Linda P. Wandres on July 26, 1991, the
3 Atchison, Topeka and Santa Fe Railway Company, the Santa Fe
4 Pacific Railroad Company, and the Santa Fe Pacific Minerals Cor-
5 poration are now sister subsidiaries of Santa Fe Pacific
6 Properties, Inc. Santa Fe Pacific Properties, Inc. is itself a
7 subsidiary of the Santa Fe Pacific Corporation.

8 **C. Site Characteristics**

9 Several families live and work near the Site. Approximately
10 forty people, including children, live within one quarter mile of
11 the Site. As stated above, the Haystack Butte area, including
12 Section 19, is utilized primarily as grazing land for local sheep
13 herders. At the present time, there are no restrictions or bar-
14 riers to prevent the local population or livestock from gaining
15 access to the abandoned mine areas and mining wastes which remain
16 at the Site. Throughout the year, local residents, sheep, and
17 goats roam freely within the abandoned mine areas. In addition,
18 the Agency for Toxic Substances and Disease Registry (ATSDR) has
19 reported that local children occasionally play on and around the
20 abandoned mine pits and the piles of mine waste at the Site.

21 **D. Incident/Release Characteristics**

22 On October 3, 1990, the Emergency Response Section (ERS) of
23 the U.S. EPA was notified by the ATSDR of potential health
24 hazards which the Agency had determined may be associated with
25 the abandoned uranium mines at the Brown-Vandever-Nanabah and
26 Desiderio Mining Sites in the Bluewater USGS quadrangle.
27 Specifically, ATSDR concluded that the Bluewater Mining Sites may
28 pose a significant health hazard to the local population because

of the presence of radioactive mine waste and protore on and about the Sites, physical hazards at the Sites, and the potential for heavy metal contamination in the vicinity of the abandoned mines. As a result of its investigation, ATSDR issued a Public Health Advisory concerning the Bluewater Sites (including the Site subject to this Order) pursuant to Section 104(i)(6)(H) of CERCLA.

EPA Region IX's ERS was tasked to assess the present radiological and geochemical conditions at the Bluewater Sites, to determine whether an emergency response action was warranted to control the actual or threatened release of hazardous substances at the Sites. On November 15-16, 1990, the ERS staff (assisted by members of the EPA Office of Air and Radiation) conducted a field gamma survey and collected water and soil samples on and about the Brown-Vandever-Nanabah and Desiderio Mining Sites, including the Site which is the subject of this Order.

In order to assess the conditions present at the Site subject to this Order, the ERS staff (using standard radiation detection equipment [Ludlum 19]), first obtained background radiation measurements at a distance of 2.5 miles, 1.0 mile and approximately 0.5 mile from the Site. Thereafter, the ERS staff took radiation readings at several sampling locations within the immediate vicinity of the Site (See Attachment A, Preliminary Data). Measurements were taken at both ground level and at waist level. Waist level measurements are indicative of human exposure levels, whereas the contact measurements taken at ground level suggest the emission rate of the radioactive materials from the soil.

1 Ground level background readings obtained by the EPA staff
2 ranged from 11 microroentgens per hour (uR/hr) to 15 uR/hr, while
3 waist level background readings ranged from 11 uR/hr to 13 uR/hr.
4 Within the immediate vicinity of the Site, the net waist level
5 (background subtracted) radiation levels ranged from 20 uR/hr to
6 over 750 uR/hr. On ground contact, the maximum on-Site radiation
7 level was recorded at 1,225 uR/hr. Elevated concentrations of
8 radium (Ra-226/228) and uranium isotopes (U-223/234/235/238) were
9 also detected in soils located on-Site. The maximum levels
10 detected for radioisotopes in surface soils at the Site (within
11 the top 15 centimeters of soil) were recorded for radium, which
12 was measured in excess of 260 picocuries per gram of soil
13 (pCi/g), and for uranium species, which were measured at more
14 than 300 pCi/g. Soil samples which were analyzed for heavy metal
15 contamination did not reveal any significant amount of contamina-
16 tion.

17 **E. <u>Threats to Public Health and Welfare</u>**

18 **1. Removal Cleanup Standard**

19 Radiation is a known carcinogen, mutagen and teratogen.
20 Exposure to elevated gamma radiation is known to cause cancer,
21 cataracts, and shorten the life span of affected individuals. As
22 indicated above, elevated radionuclide levels are present in both
23 the soil and waste materials found at the Site. These radio-
24 nuclides have been found to emit radiation at levels which may
25 present a danger to individuals in the vicinity of the Site.
26 Uranium and several of its decay daughters are alpha emitters.
27 The inhalation of radionuclides that are alpha emitters exposes
28 an affected individual's internal organs to damaging alpha par-

1 ticles. Once ingested, alpha particles become trapped within the
2 body, and can thereby cause severe organ damage as well as cer-
3 tain genetic defects.
4 The National Council on Radiation Protection and Measure-
5 ments (NCRP) Report 91 (1987), "Recommendations on Limits for
6 Exposure to Ionizing Radiation," recommends the adoption of a
7 limit for continuous or frequent exposure to radiation, at a
8 100 mrem/yr effective dose equivalent (EDE) from all radiation
9 sources (including external as well as internal sources). The
10 NCRP report also recommends that a limit of 500 mrem/yr be esta-
11 blished for infrequent or "short term" exposure. In accordance
12 with the above-referenced NCRP Guidelines, EPA's Office of Air
13 and Radiation (OAR) has concurred with Region IX's Action
14 Memorandum for the Bluewater Sites, which recommends that a limit
15 of <100 mrem/yr of excess gamma radiation be adopted as a stan-
16 dard in this case, to ensure that the affected population is not
17 exposed to radiation levels in excess of the 500 mrem/yr effec-
18 tive dose equivalent from all sources.
19 For the purpose of the response action to be conducted at
20 the Site, EPA has estimated that the population in question (on
21 the average) spends two (2) hours per day in areas which have
22 been affected by the mining operations at the Site, for ap-
23 proximately 300 days out of each year. Based on this estimate,
24 it appears that the population and livestock in the immediate
25 vicinity of the Site which are being exposed to gamma radiation
26 levels of 180 uR/hr or greater (165 uR/hr above background) are
27 receiving radiation exposure in excess of the levels recommended
28 by Region IX and the EPA Office of Air and Radiation.

The risk level at the Site has been calculated using the following formula:

$$(180 \text{ uR/hr} - 15 \text{ uR/hr}) * 2 \text{ hr} * 300 \text{ days/yr} = 99{,}000 \text{ uR/yr}$$
$$99{,}000 \text{ uR/yr} = 99 \text{ mR/yr} = 99 \text{ mrem/yr}$$

F. <u>Threats to the Environment</u>

In addition to the threat which the Site currently poses to human health, the elevated emissions of gamma radiation from the radionuclides which are present in the soil and other materials at the Site may adversely effect the local biota and wildlife. Moreover, since the land is being utilized primarily for grazing at the present time, the radionuclides may be entering the food chain, as the grazing livestock ingest the contaminated biota. Over a period of time, this food chain link may also have deleterious consequences for the individuals who frequently eat animals which have grazed in the vicinity of the Site.

III. CONCLUSIONS OF LAW

Based on the foregoing Findings of Fact, the U.S. EPA has concluded as follows:

A. The portion of the Bluewater Uranium Mining Sites which is the subject of this Order (the "Site"), which is located in Section 19, Township 13N, Range 10W of the Bluewater Quadrangle, is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. Section 9601(9).

B. Each named Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. Section 9601(21).

C. The Cerrillos Land Company is the present "owner" of a property interest in the Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. Section 9601(20).

1 **D.** The Santa Fe Pacific Railroad Company is an "owner" at
2 the time of disposal of a property interest in the Site, as
3 defined by Section 101(20) of CERCLA, 42 U.S.C. Section 9601(20).
4 **E.** The Atchison, Topeka & Santa Fe Railway Company is a
5 parent and successor corporation to the Haystack Mountain
6 Development Company, and is therefore an "operator" at the time
7 of disposal of the Site, as defined by Section 101(20) of CERCLA,
8 42 U.S.C. Section 9601(20).
9 **F.** The above-named Respondents are therefore liable persons
10 with respect to the Site, pursuant to Section 107(a) of CERCLA,
11 42 U.S.C. Section 9607(a).
12 **G.** Radionuclides are "hazardous substances" as defined by
13 Section 101(14) of CERCLA, 42 U.S.C. Section 9601(14), and Sec-
14 tion 302.4 of the National Contingency Plan (NCP), 40 CFR Part
15 300.
16 **H.** The presence of elevated radionuclide concentrations at
17 the above-referenced Site, and the potential for those substances
18 to migrate, constitutes an actual or threatened "release" of haz-
19 ardous substances into the environment, as defined by Section
20 101(22) of CERCLA, 42 U.S.C. Section 9601(22).
21 **IV. DETERMINATIONS**
22 Based on the Findings of Fact and Conclusions of Law stated
23 above, the Director, Hazardous Waste Management Division, EPA
24 Region IX, has made the following determinations:
25 **A.** The actual or threatened release of hazardous substances
26 from the Facility subject to this Order may present an imminent
27 and substantial endangerment to the public health or welfare or
28 the environment.

B. Specifically, the conditions present at the Facility constitute a threat to public health or welfare or the environment based upon consideration of the factors set forth in the National Contingency Plan, at 40 CFR Section 300.415(b). These factors include, but are not limited to, the following:

1. Actual or potential exposure to hazardous substances by nearby populations, animals, or food chain:

As indicated above, approximately forty people, including children, reside within an approximate one half mile radius of the Site. If immediate action is not taken to control the release of hazardous substances at the Site, the local population may be exposed to dangerous doses of gamma radiation and elevated concentrations of radionuclides. As indicated in Section II.F.1 of this Order, constant or frequent exposure to elevated gamma radiation emitted from radionuclides is known to cause cancer, life span shortening and cataracts in affected individuals.

2. High levels of hazardous substances in soils largely at or near the surface that may migrate:

EPA has determined that the soils which are present within the boundaries of the Site contain elevated concentrations of radionuclides. These hazardous substances may migrate from the surface soils at the Site as a result of high winds in the immediate vicinity. The inhalation of airborne radionuclides exposes the internal organs of exposed persons to damaging alpha particles. Uranium and several of its decay daughters are alpha radiation emitters. Once ingested, an alpha particle becomes trapped within the body and can thereby cause severe organ damage as well as certain types of genetic defects. Radionuclides present in surface soils may also migrate as a result of their exposure to flash flood waters and surface runoff. Finally, increased radiation emissions may result from elevated radionuclide concentrations at the Site. Such radiation is a known carcinogen, mutagen and teratogen.

3. Weather conditions that may cause hazardous substances to migrate or be released:

Although the area in the vicinity of the Site is relatively dry during the majority of the year, the Bluewater District is subject to severe seasonal thunderstorms, high winds, and flash flooding. As a result, the mine wastes which remain present on the surface of the land are slowly being broken down and transported, by both alluvial and fluvial forces.

1 **C.** In order to prevent or mitigate immediate and sig-
2 nificant risk of harm to the public health, welfare and the en-
3 vironment, it is necessary that actions be taken immediately to
4 contain and prevent the release and potential release of hazard-
5 ous substances from the Site.

6 **D.** The actions required by this Order, if properly per-
7 formed, are consistent with CERCLA and the National Contingency
8 Plan (NCP), 40 CFR Part 300, and are necessary and appropriate to
9 protect the public health or welfare or the environment from the
10 release of hazardous substances from the Site.

11 **V. ORDER**

12 Based upon the foregoing Findings of Fact, Conclusions of
13 Law, and Determinations, and pursuant to Section 106(a) of
14 CERCLA, 42 U.S.C. Section 9606(a), it is hereby Ordered that
15 Respondents undertake the following actions with regard to the
16 Site, under the direction of EPA's On-Scene Coordinator:

17 **A.** Within twenty-one (21) calendar days after the effective
18 date of this Order, the Respondents shall submit in writing, for
19 EPA review and approval, a Site Stabilization Plan and Schedule
20 (Work Plan). The Work Plan shall provide a concise description
21 of the removal activities which are to be conducted pursuant to
22 this Order, as set forth below. Pursuant to the Work Plan, the
23 Ordered activities shall be implemented and completed in accor-
24 dance with the time frames specified in this Section:

25 **1.** Within thirty-five (35) calendar days after the effective
date of this Order, the Respondents shall conduct a
26 field gamma survey to define and delineate all areas
within the Site which exceed 180 microroentgens an hour
27 (uR/hr) (165 uR/hr above background) at ground level.
The Work Plan shall contain specific information on how
28 the gamma survey will be conducted, grid specification,
the type of instruments planned to be utilized, and the

qualifications of the surveyors. All sampling and analysis shall be consistent with the "Removal Program Quality Assurance/Quality Control Interim Guidance: Sampling, QA/QC Plan and Data Validation," EPA OSWER Directive 9360.4-01, dated February 2, 1989.

2. Within sixty (60) calendar days after the effective date of this Order, the Respondents shall effectively reduce radiation emissions from all mine waste piles and areas where mining has exposed the uranium rich limestone, where recorded gamma emissions have been found to exceed 180 uR/hr at ground level (165 uR/hr above background). The radiation emissions from these piles and mined surfaces shall be reduced to a level below 180 uR/hr. The proposed response actions to reduce these radiation emissions must be able to withstand erosion and chemical weathering (revegetation or the equivalent). The Work Plan shall provide adequate information and details on how the gamma radiation levels will be reduced by the proposed action, on specific site operation procedures, on the type of equipment which the Respondents plan to utilize during the proposed action, and on the qualifications of the personnel to be employed or otherwise retained by the Respondents to perform the Ordered activities.

3. Within sixty (60) calendar days after the effective date of this Order, the Respondents shall post signs in English, Spanish and Navajo warning the local residents of the potential radiological hazards associated with the Site.

The Work Plan submitted by the Respondents shall be reviewed by the U.S. EPA, which may approve, disapprove, require revisions, or modify the Work Plan. If EPA provides comments to the Respondents on the proposed Work Plan, the Respondents shall incorporate all of EPA's comments and resubmit the plan to EPA within seven (7) calendar days after receiving any such comments.

Once EPA has approved the Work Plan, the Respondents shall promptly commence implementation of the Plan as approved by EPA. Failure of the Respondents to promptly and properly implement all aspects of the Work Plan as approved shall be deemed to be a violation of the terms of this Order.

1 The EPA approved Work Plan shall be deemed to be incor-
2 porated into this Order by reference, and thus, shall be fully
3 enforceable under the terms of this Order.
4 The Work Plan and other documents submitted by the Respon-
5 dents shall demonstrate that the Respondents can properly and
6 effectively conduct the response actions required by this Order.
7 **B.** Within twenty-one (21) calendar days after the effective
8 date of this Order, the Respondents shall submit in writing, for
9 EPA review and approval, a Site Health and Safety Plan. The Site
10 Health and Safety Plan shall include necessary provisions to
11 protect the health and safety of Site workers and neighboring
12 residents, and shall be approved by a qualified Health Physicist.
13 The Site Health and Safety Plan shall be prepared in accordance
14 with EPA's Standard Operating Safety Guide, dated November 1984,
15 and updated July 1988, and with the Occupational Safety and
16 Health Administration (OSHA) regulations contained in 29 CFR Part
17 120, which are applicable to Hazardous Waste Operations and Emer-
18 gency Response Actions.
19 If EPA provides comments to the Respondents on the Site
20 Health and Safety Plan, the Respondents shall incorporate all of
21 EPA's comments and resubmit the plan to EPA within seven (7)
22 calendar days of receiving any such comments.
23 **C.** Within thirty-four (34) calendar days after the effective
24 date of this Order, the Respondents shall submit in writing, for
25 EPA review and approval, a Post-Response Sampling Plan to ensure
26 that all gamma radiation emission levels recorded within the
27 boundaries of the Site following the completion of this removal
28

1 action are below the above-referenced limit of 180 uR/hr (165
2 uR/hr above background).
3 **D.** Within five (5) calendar days following the completion of
4 the initial gamma radiation survey at the Site, the Respondents
5 shall submit to EPA for review and approval copies of the field
6 data which the Respondents have obtained during their initial
7 survey of Site conditions, including a map delineating the survey
8 points, documentation on instrument calibrations, and a summary
9 of the procedures utilized by the Respondents and the findings
10 which they obtained during the initial survey. After EPA has ap-
11 proved the results of the initial gamma survey, the Respondents
12 shall proceed in implementing the remaining tasks specified in
13 the approved Work Plan.
14 **E.** During the implementation of the Work Plan and the Sam-
15 pling Plan, the Respondents shall provide written weekly summary
16 reports to the EPA On-Scene Coordinator. These weekly reports
17 shall contain a summary of the previous week's activities and
18 planned upcoming events.
19 **F.** The Respondents shall provide notice to EPA at least
20 forty-eight (48) hours prior to performance of any on-Site work.
21 **G.** At the conclusion of the Post-Response Sampling acti-
22 vities, the Respondents shall prepare a final report summarizing
23 the work which they have conducted at the Site pursuant to this
24 Order. The final report shall contain, at a minimum: identifica-
25 tion of the Facility; a description of the locations and types of
26 hazardous substances encountered at the Facility upon the initia-
27 tion of work performed under this Order; a chronology and
28 description of the actions performed (including both the

organization and implementation of response activities); a listing of the resources committed to perform the work under this Order (including financial, personnel, mechanical and technological resources); identification of all items that affected the actions performed under the Order, and a discussion of how all problems were resolved; and a presentation of the analytical results of all sampling and analyses performed (including all materials related to the Post-Response gamma survey), and accompanying appendices containing all relevant paperwork accrued or used during the action (e.g., Site maps, instrument calibration data, invoices, bills, contracts, permits, and Site personnel information).

In addition, the final report shall include an affidavit from a person who supervised or directed the preparation of that report. The affidavit shall certify under penalty of law that based on the affiant's personal knowledge and appropriate inquiries of all other persons involved in the preparation of the report, the information submitted is true, accurate, and complete to the best of the affiant's knowledge and belief.

The final report shall be submitted to EPA no later than fourteen (14) calendar days following the termination of the response action at the Site.

H. The Respondents shall retain a contractor which is qualified to undertake and complete the requirements of this Order, and shall notify the U.S. EPA of the name of such contractor, within twenty-one (21) calendar days after the effective date of this Order (within the timeframe specified above for submittal of the Work Plan for Site activities). EPA retains the

right to disapprove of any, or all, of the contractors and/or subcontractors which the Respondents may seek to retain. In the event that EPA disapproves of a selected contractor, the Respondents shall retain a different contractor to perform the Ordered work within seven (7) calendar days following EPA's disapproval of the Respondents' initial contractor selection.

I. Any materials containing hazardous substances, pollutants, or contaminants which are removed from the Site pursuant to actions required under this Order shall be disposed of or treated at a facility approved by the EPA On-Scene Coordinator, and in accordance with the requirements of the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. Section 9601, et seq., as amended, the U.S. EPA Revised Off-Site Policy, and all other applicable Federal, State, and local requirements.

J. The Respondents shall designate a Project Coordinator for the work to be performed at the Site. To the greatest extent possible, the Project Coordinator shall be present on-Site, or be otherwise readily available, during the performance of response activities at the Site. The U.S. EPA has designated Robert E. Bornstein as its On-Scene Coordinator (OSC) for the Site. All relevant correspondence, reports, and documents should be submitted to the EPA On-Scene Coordinator at the following address:

Robert E. Bornstein, OSC
Emergency Response Section (H-8-3)
U.S. EPA
Region IX
75 Hawthorne Street
San Francisco, CA 94105

The On-Scene Coordinator and the Respondents' Project Coordinator shall be responsible for overseeing the implementation of this

1 Order. To the maximum extent possible, and unless otherwise
2 specified in this Order, communication between the Respondents
3 and the U.S. EPA, and all documents, reports, approvals, and cor-
4 respondence concerning the response activities to be performed
5 pursuant to this Order, shall be directed through the EPA On-
6 Scene Coordinator and the Respondents' Project Coordinator.
7 **K.** The U.S. EPA and the Respondents shall each have the
8 right to change their designated Coordinator for the response ac-
9 tivities conducted at the Site. The U.S. EPA shall notify the
10 Respondents, and the Respondents shall notify EPA, as early as
11 possible before such a change is made. However, in no event
12 shall less than 24 hours' notice be provided for such a change.
13 While verbal notification may be provided initially for a change
14 in the designated Coordinator under this provision, such
15 notification shall be confirmed promptly in writing.
16 **L.** The U.S. EPA On-Scene Coordinator shall have the
17 authority vested in an On-Scene Coordinator by the NCP, 40 CFR
18 Part 300, as amended, including the authority to halt, conduct,
19 or direct any work required by this Order, and to direct any
20 other response action to be undertaken by the U.S. EPA or the
21 Respondents at the Facility subject to this Order. All instruc-
22 tions given by the EPA On-Scene Coordinator or his designated
23 alternate shall be binding upon the Respondents as long as those
24 instructions are not clearly inconsistent with the provisions of
25 the National Contingency Plan.
26 **M.** No extensions shall be granted to the timeframes set
27 forth for the performance of specific response actions pursuant
28 to this Order without sufficient cause. All such extensions must

be requested by the Respondents in writing, and shall not be deemed to be accepted unless EPA has approved such an extension in writing.

N. To the extent that the Facility subject to this Order, or other nearby areas where work must be performed pursuant to this Order, is owned, leased, or possessed by person(s) other than the Respondents, it is the responsibility of the Respondents to obtain access to and use of any such areas, in order to carry out the terms of this Order. Accordingly, it is the responsibility of the Respondents to obtain all necessary access agreements to enable them to perform the Ordered work at the Site. In the event that the Respondents are unable to obtain access to portions of the Site or surrounding lands, despite having used their best efforts to do so, the Respondents shall immediately notify the U.S. EPA.

O. The Respondents shall provide U.S. EPA employees, contractors, agents, and other representatives with unrestricted access to the Facility at all reasonable times, and shall permit all such persons to be present on and to move freely in the area subject to this Order, to conduct inspections on the subject land, including taking photographs and videotapes of the Facility, to perform necessary cleanup and site stabilization work, to take samples at the Site, to monitor the work performed by Respondents pursuant to this Order, and to conduct other such activities as the U.S. EPA determines are necessary at the Site. Nothing in this Order shall limit any access rights that EPA or other governmental agencies may have pursuant to law.

1 **P.** Nothing contained herein shall be construed to prevent
2 the U.S. EPA from seeking legal or equitable relief to enforce
3 the terms of this Order, or from taking other legal or equitable
4 action as it deems necessary and appropriate, or from requiring
5 the Respondents in the future to perform additional response
6 activities pursuant to CERCLA, 42 U.S.C. Section 9601, et seq.,
7 or any other applicable law.
8 **Q.** If any provision of this Order is deemed to be invalid or
9 unenforceable, the balance of the Order shall remain in full
10 force and effect.

11 **VI. COMPLIANCE WITH OTHER LAWS**

12 The Respondents shall comply with all applicable federal,
13 state and local laws and regulations in carrying out the terms of
14 this Order. As indicated above, all hazardous substances removed
15 from the Site must be handled in accordance with the Resource
16 Conservation and Recovery Act of 1976, 42 U.S.C. Section 6921, et
17 seq., the regulations promulgated under that Act, and Section
18 121(d)(3) of CERCLA, 42 U.S.C. Section 9621(d)(3).

19 **VII. ENDANGERMENT DURING IMPLEMENTATION**

20 The Director, Hazardous Waste Management Division, EPA
21 Region 9, may determine that acts or circumstances (whether re-
22 lated to or unrelated to this Order) may endanger human health,
23 welfare or the environment, and as a result of this determina-
24 tion, may order the Respondents to stop further implementation
25 of this Order until the endangerment is abated.

26 **VIII. GOVERNMENT NOT LIABLE**

27 The United States Government and its employees and other
28 representatives shall not be liable for any injuries or damages

to persons or property resulting from the acts or omissions of the Respondents, their employees, contractors, or other representatives caused by carrying out this Order. For the purposes of this Order, the United States Government is not a party to any contract with the Respondents.

VIX. PENALTIES FOR NONCOMPLIANCE

A. The Respondents are advised that pursuant to Section 106(b) of CERCLA, 42 U.S.C. Section 9606(b), a willful violation or failure or refusal to comply with this Order may subject the Respondents to a civil penalty of up to $25,000 per day for each day in which the violation occurs or failure to comply continues. Failure to comply with this Order, or any portion thereof, without sufficient cause may also subject the Respondents to liability for punitive damages of up to three times the total cost incurred by the United States as a result of the Respondents' failure to take proper response action with regard to the Site, pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. Section 9607(c)(3).

B. EPA may take over the response action at any time if EPA determines that the Respondents are not taking appropriate action in accordance with this Order. EPA may order additional actions as it deems necessary in order to protect the public health, welfare, or the environment from the release of hazardous substances at the Site. In this regard, the Respondents are advised that they may be found to be liable under Section 107(a) of CERCLA, 42 U.S.C. Section 9607(a), for any and all costs incurred by the government in performing such additional response actions at the Site.

X. OPPORTUNITY TO CONFER

With respect to the actions required above, the Respondents may, within seven (7) calendar days following the issuance of this Order, request a conference with the U.S. EPA to discuss the provisions of the Order. Any such conference shall be held within fourteen (14) calendar days from the date of the Respondents' request, unless the timeframe for the conference has been extended by mutual agreement of the parties. At any conference held pursuant to the Respondents' request, the Respondents may appear in person, or be represented by an attorney or other representative. If any Respondent desires such a conference, the Respondent shall contact Linda P. Wandres, Assistant Regional Counsel, at (415) 744-1359, within the timeframe stated above.

If such a conference is held, Respondents may present any evidence, arguments, comments, or objections which they may have regarding this Order, its applicability to the Respondents, any factual determinations upon which the Order is based, the appropriateness of any action which the Respondents are being ordered to perform, or any other relevant and material issue regarding the Order. Any such evidence, arguments, comments, or objections should be reduced to writing and submitted to the U.S. EPA within seven (7) calendar days following the scheduled conference.

XI. PARTIES BOUND

The provisions of this Order and the directions of the U.S. EPA On-Scene Coordinator shall apply to and are binding upon the Respondents, their officers, directors, agents, employees, contractors, successors, and assigns.

XII. NOTICE OF INTENTION TO COMPLY

On or before three (3) calendar days of receipt of this Order, the Respondents shall provide notice, verbally or in writing, to U.S. EPA stating their intention to comply with all of the terms set forth in this Order. Verbal notification must be followed in writing within two (2) calendar days. Such written notice shall be provided to the Director, Hazardous Waste Management Division, at the following address:

Jeff Zelikson, Director
Hazardous Waste Management Division (H-1)
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

In the event that any Respondent fails to provide such notice, that Respondent shall be deemed not to have complies with the terms of this Order.

XIII. RECORD RETENTION

The Respondents shall retain copies of all records and files which relate to hazardous substances found on the Site for six (6) years following the completion of the activities required by this Order. The Respondents shall further make such records and files available to the U.S. EPA prior to the termination of the removal activities to be performed pursuant to this Order.

XIV. ACCESS TO ADMINISTRATIVE RECORD

The Administrative Record which has been complied by EPA in connection with this matter, and which supports the selection of the response action, is available for review on normal business days between the hours of 9:00 a.m. and 5:00 p.m., in the Office of Regional Counsel, United States Environmental Protection

Agency, Region IX, 75 Hawthorne Street, San Francisco, California 94105. In addition, a copy of the Administrative Record will be made available within sixty (60) calendar days following the initiation of response activities pursuant to this Order in a designated public repository within the vicinity of the Site. Please contact Linda P. Wandres, the EPA Assistant Regional Counsel assigned to this matter, at (415)-744-1359 if you wish to review the Administrative Record in this case. A preliminary index of the Administrative Record is attached to this Order (Attachment B) for your review.

XV. EFFECTIVE DATE

Notwithstanding any conferences requested pursuant to the provisions of this Order, this Order shall be effective upon the date of execution by the Director, Hazardous Waste Management Division, EPA Region IX, and all times for performance shall be calculated from that date. If a conference is requested by the Respondents, the Order shall be effective on the seventh (7th) calendar day following the date of the conference, unless EPA has agreed in writing to modify the effective date of the Order.

IT IS ORDERED on this 29th day of July 1991.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

By: _____
Jeff Zelikson, Director
Hazardous Waste Management Division
United States Environmental Protection Agency
Region IX

Contacts:

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On-Scene Coordinator
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Linda P. Wandres
Assistant Regional Counsel
Office of Regional Counsel (RC-3)
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ATTACHMENT A
GAMMA RADIATION SURVEY DATA
BROWN-VANDEVER MINE SITE, NAVAJO NATION
SECTION 19
NOVEMBER 14-15, 1990

Operator - Collen Petullo Recorder - Robert Bornstein

Instrument	ID#	Calibration date	Calibration Source
1 Ludlum 19	452663	11-08-90	Ra-226
2 Bicron	825481	10-15-90	Cs-137
3 Ludlum 12 Pancake	140830	11-08-90	Pu-239,Sr-90

Date 11/14/90 SECTION 19

Inst.	Time	Station	Ground	Waist	Comments
1 3	0900 0903	Background1	11 uR/hr 100 cpm	11 uR/hr 100 cpm	2.5 mi from site.
1 3	0908 0910	Background2	11 uR/hr 100 cpm	11 uR/hr 100 cpm	1.0 mi from site.
1	0930	Brown Home	13 uR/hr	14 uR/hr	stage area
1 2	1000 1001	Station 1	35 uR/hr 25 urem/hr	36 uR/hr 25 urem/hr	Center of dirt road
1 2	1003 1004	Station 2	130 uR/hr 70 urem/hr	135 uR/hr 60 urem/hr	near tree
1 2	1007 1008	Station 3	90 uR/hr 50 urem/hr	N/A N/A	contact on ground
1 2	1010 1011	Station 4	115 uR/hr* 75 urem/hr	100 uR/hr # 50 urem/hr	
1 2	1015 1017	Station 5	130 uR/hr 85 urem/hr	145 uR/hr 60 urem/hr	
1 2	1019 1020	Station 6	1200 uR/hr 800 urem/hr	800 uR/hr 400 urem/hr	In pit zone
1 2	1028 1033	Station 7	40 uR/hr 20 urem/hr	44 uR/hr 25 urem/hr	Away from pit area
1 2	1040 1044	Station 8	150 uR/hr 90 urem/hr	140 uR/hr 72 urem/hr	

Table 1. (Continued)

Inst.	Time	Station	Ground	Waist	Comments
1	1055	Station 9	190 uR/hr	170 uR/hr	
2	1057		120 urem/hr	90 urem/hr	
1	1105	Station 10	1250 uR/hr	800 uR/hr	open area
2	1108		750 urem/hr	350 urem/hr	
1	1113	Station 11	400 uR/hr	200 uR/hr	
2	1115		300 urem/hr	150 urem/hr	
1	1118	Station 12	600 uR/hr	500 uR/hr	
2	1120		500 urem/hr	300 urem/hr	
1	1122	Station 13	500 uR/hr	500 uR/hr	
2	1124		250 urem/hr	400 urem/hr	
1	1127	Station 14	600 uR/hr	700 uR/hr	
2	1128		300 urem/hr	300 urem/hr	
1	1134	Station 15	230 uR/hr	280 uR/hr	
2	1136		150 urem/hr	150 urem/hr	
1	1140	Station 16	700 uR/hr	600 uR/hr	
2	1141		300 urem/hr	250 urem/hr	
1	1150	Station 17	80 uR/hr	120 uR/hr	
2	1151		40 urem/hr	35 urem/hr	
1	1155	Station 18	90 uR/hr	65 uR/hr	
2	1156		50 urem/hr	35 urem/hr	

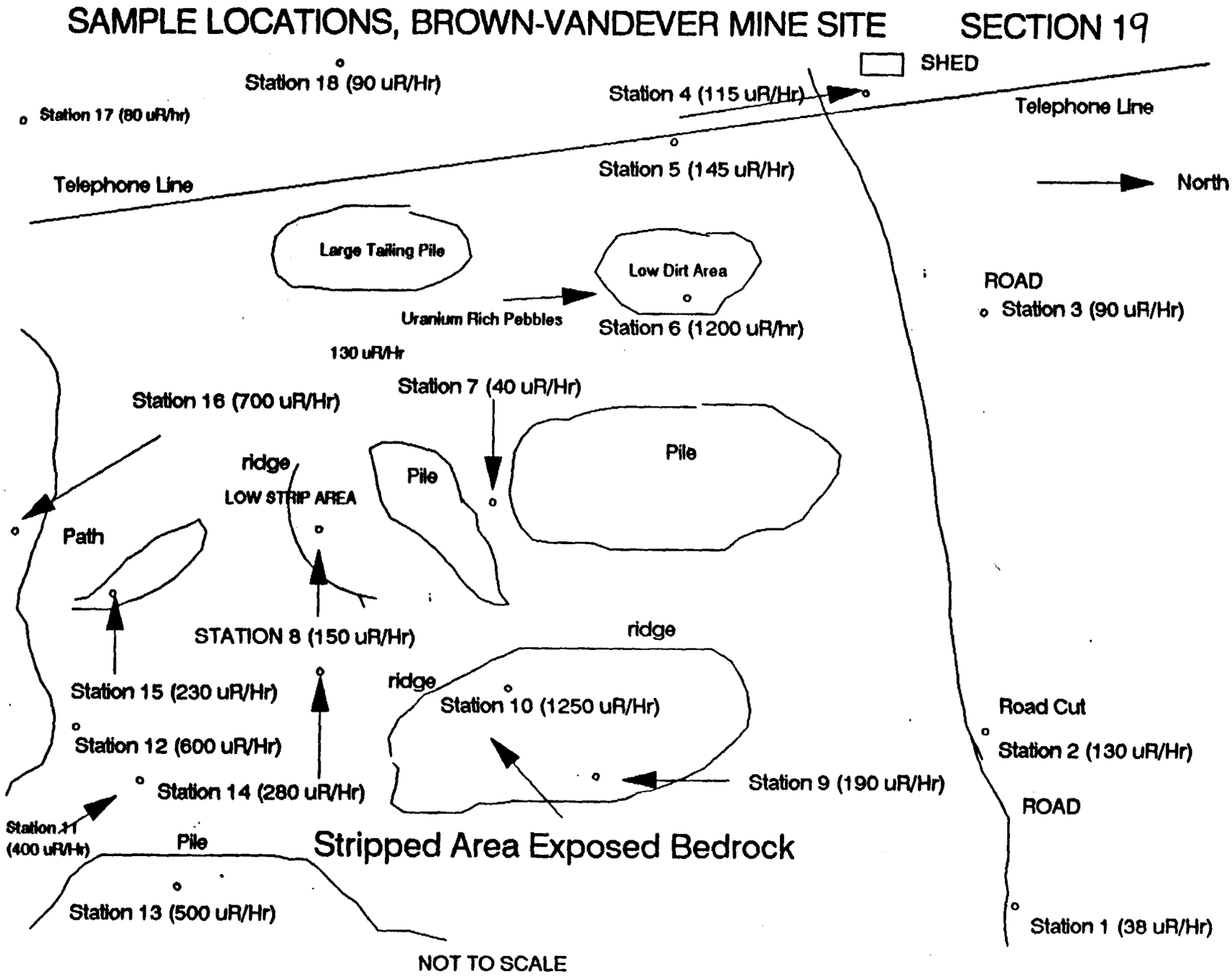

Figure 5. Section 1 B-V.

Preliminary Index to the Administration Record

AUTHOR	ORGANIZATION AND SUBJECT
1) Patrick Molloy	Navajo Nation Superfund: Preliminary Assessment for the Navajo-Desiderio Group Uranium Mines. April 1, 1990.
2) Patrick Molloy	Navajo Nation Superfund: Preliminary Assessment for the Brown Vandever Uranium Mines. April 6, 1990.
3) Robert Bornstein	U.S. Environmental Protection Agency: Navajo-Brown Vandever and Navajo Desidsiderio Uranium Mining Areas Preliminary Assessment Workplan. November. 7, 1990.
4) Robert C. Williams	Agency for Toxic Substances and Disease Registry (ATSDR): Public Health Advisory Navajo-Brown Vandever and Navajo Desidsiderio Uranium Mining Areas. November 21, 1990.
5) Robert Bornstein	U.S. Environmental Protection Agency: The Radionuclide, Metal and Gamma Survey Data Package. January 29, 1991.
6) Sharon Seidel	U.S. Environmental Protection Agency: Navajo Bluewater Site-Preliminary Risk Assessment. May 30, 1991.

Miscellaneous Documents

1) Various Aerial Photographs, USGS Topographical maps, BLM Surface Mineral Management Maps, and BIA Realty Maps.

Guidance Documents

1) Guidance Document: Superfund Removal Procedures #3, OSWER #9360.0-038, 02/01/88.

2) Guidance Document: Removal Cost Management Manual (Secondary Reference), OSWER #9360.0-028, 04/01/88.

3) Guidance Document: Land Disposal Restrictions, 08/11/87.

4) Guidance Document: Emergency Response Cleanup Services Contracts (ERCS), Users' Manual, October 1983, 10/01/83.

5) Guidance Document: National Oil & Hazardous Substances Pollution Contingency Guidance, Part 300, 40 CFR CH.1 (7/1/85 Edition), pp. 664 - 755, 07/01/85.

6) Guidance Document: Superfund Amendments & Reauthorization Act of 1986 (SARA), 10/17/86.

7) Guidance Document: Interim Guidance on Administrative Records for Selection of CERCLA Response Actions, OSWER 9833.3A, 03/01/89.

8) Guidance Document: Superfund LDR Guide #7: Determining When Land Disposal Restrictions (LDRs) are "Relevant and Appropriate" to CERCLA Response Actions, OSWER 9347.3-08FS, 12/01/89.

9) Technical Assistance Team Report from Preliminary Assessment

10) The National Council of Radiation Protection and Measurements (NCRP) Report 91 (1987), "Recommendations on Limits for Exposure to ionizing Radiation."