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US Army Corps of Engineers
Buffalo District

RECORD OF DECISION FOR THE BLISS & LAUGHLIN SITE

BUFFALO, NEW YORK

DECEMBER 1998

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Bliss & Laughlin Site
City of Buffalo, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Bliss & Laughlin Site in the City of Buffalo, New York. This remedial action was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an endangerment to public health, welfare, or the environment in the future.

DESCRIPTION OF THE SELECTED REMEDY

Background on Remedy Selection

The Bliss & Laughlin Site is located at 110 Hopkins Street in Buffalo, New York. The site consists of a single large building. In 1952, Bliss & Laughlin Steel Company performed machining and straightening operations on uranium rods at the site for National Lead of Ohio, a prime contractor to the Atomic Energy Commission (AEC). These operations resulted in elevated levels of radionuclides in a limited area of the Bliss & Laughlin building, which is now owned and operated by Niagara LaSalle Cold Drawn Corporation.

Under its authority to conduct the Formerly Utilized Sites Remedial Action Program (FUSRAP), the Department of Energy (DOE) conducted a radiological and chemical characterization of the Bliss & Laughlin Site and prepared a report on the results of the characterization in 1995 (BNI 1995).

On October 13, 1997, the Energy and Water Development Appropriations Act was signed into law, transferring responsibility for the administration and execution of FUSRAP from DOE to the United States Army Corps of Engineers (USACE). As a result of this transfer, the responsibility for addressing the Bliss & Laughlin Site was transferred to USACE.

On September 28, 1998, USACE issued a Remedial Investigation, Feasibility Study, and Proposed Plan (RI/FS/PP) for the Bliss & Laughlin Site, summarizing results of the site characterization, identifying and evaluating remedial alternatives for site cleanup, and identifying the preferred cleanup alternative.

Selected Remedy

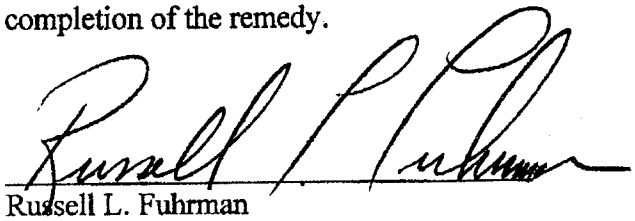
The remedy selected for the Bliss & Laughlin Site is referred to as Alternative 3, Decontamination of Buildings, in the RI/FS/PP issued on September 28, 1998. Radioactive contamination in floors, walls and overhead areas will be removed to levels sufficient to allow unrestricted use of the decontaminated areas. Measures to protect facility and remediation workers from exposure during the decontamination work will be implemented and surveys will be performed to verify the effectiveness of the decontamination. Decontamination residues will be transported offsite for disposal at a licensed/permitted facility.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to hazardous substances which are the subject of this response action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site. However, since treatment of the principle threats of the site was not found to be practicable, this remedy does not satisfy the statutory preference for treatment as a principle element of the remedy. The limited area and extent of surface contamination, and the small quantity of contaminated soils that are the sources of contamination preclude a remedy in which contaminants could be removed and treated effectively.

None of the practicable remedial alternatives identified for the Bliss & Laughlin Site provides onsite treatment for the materials to be removed. The selected alternative provides for offsite disposal, including containment at the final disposal location and any treatment, which may be required to meet the standards of the offsite facility. The selected alternative would achieve reduction in mobility, although no treatment is planned which will reduce the toxicity or volume of the disposed materials. The other alternatives would provide no removal of contaminated materials, no reduction in the mobility of the contaminants existing in the building, and no reduction in the volume of the contaminated material. Thus, the selected alternative achieves the best possible result in terms of satisfying the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

This remedy will result in no radioactive material remaining on-site which is above the cleanup level established in this ROD and no further action will be required at this site following completion of the remedy.



11 Dec 98

Date

Russell L. Fuhrman
Major General, USA
Director of Civil Works

RECORD OF DECISION
FOR THE
BLISS & LAUGHLIN SITE

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ACRONYMS AND ABBREVIATIONS

AEC	Atomic Energy Commission
ALARA	as low as reasonably achievable
ARAR	applicable or relevant and appropriate requirement
BNI	Bechtel National, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm	centimeter
COC	contaminant of concern
cy	cubic yard
DOE	Department of Energy
dpm	disintegrations per minute
ft	foot/feet
FS	Feasibility Study
FUSRAP	Formerly Utilized Sites Remedial Action Program
g	gram
MCL	maximum concentration level
MED	Manhattan Engineer District
mrem	millirem
NRC	Nuclear Regulatory Commission
NYSDEC	New York State Department of Environmental Conservation
NYSDOL	New York State Department of Labor
PP	Proposed Plan
RI	Remedial Investigation
ROD	Record of Decision
TEDE	total effective dose equivalent
TAGM	Technical Administrative Guidance Memorandum
U	uranium
USACE	United States Army Corps of Engineers
yr	year(s)

1. SITE NAME, LOCATION, DESCRIPTION AND HISTORY

Bliss & Laughlin Site
City of Buffalo, New York

Bliss & Laughlin is located at 110 Hopkins Street, Buffalo, New York. The site consists of a single large building. In 1952, Bliss & Laughlin Steel Company performed machining and straightening operations on uranium rods for National Lead Company of Ohio, a prime contractor for Atomic Energy Commission (AEC). Uranium rods were shipped from Lake Ontario Ordnance Works (LOOW) to Bliss & Laughlin for machining. Bliss & Laughlin shipped the machine rods directly to Fernald, Ohio, and the turnings from the operations were returned to LOOW for packaging and subsequent shipment to Fernald. In 1972, Ramco Steel, Inc. purchased Bliss & Laughlin Steel Company. Currently, Niagara LaSalle Cold Drawn Corporation owns and operates the facility.

Historical records indicate that machining operations were performed in a section of the building called the "Special Finishing Area," which occupies approximately 3,230 square feet of floor space. The floor of the "Special Finishing Area" is concrete and contains several shallow utility trenches. There are no floor drains. The floor surfaces are generally rough and pitted and are covered with a thin layer of oil absorbent material and dried oil and grease. Machining equipment and material storage racks prevent access to some floor areas. The ceiling is approximately 37 feet high and is supported by a framework of steel trusses. The machining area of the building does not have any partitions or interior walls. The site is currently used for the forming of steel products and is an active industrial site with equipment such as rolling mills.

Based on the nature of operations performed at Bliss & Laughlin, the primary radiological contaminant of concern for the site is uranium from the metal rods. During investigations at the site, eighteen (18) samples were analyzed to determine the relative abundance of radioisotopes. All samples showed ratios among the uranium isotopes that are similar to naturally occurring uranium. Additional details of the investigation and descriptions of the nature and extent of contamination are provided in Section 4 of this Record of Decision.

2. HIGHLIGHTS OF COMMUNITY PARTICIPATION

Public input was encouraged to ensure that the remedy selected for the Bliss & Laughlin Site meets the needs of the local community in addition to being an effective solution to the problem. The administrative record file contains all of the documentation used to support the decision on the preferred alternative and is available at the following locations:

U.S. Army Corps of Engineers
Buffalo District
FUSRAP Public Information Center
1776 Niagara Street
Buffalo, NY 14207-3199

Buffalo Erie County Public Library
Dudley Branch
2010 South Park Avenue
Buffalo, NY 14220

The RI/FS/PP for the Bliss & Laughlin Site was issued on September 28, 1998 and public comments were solicited through news media announcements and letters to local and state agencies. The comment period totaled 30 days and ended on October 28, 1998.

Responses to public comments are presented in the Responsiveness Summary, which is provided as an appendix in this document. The Responsiveness Summary, combined with the RI/FS/PP, constitute the final RI/FS/PP for the Bliss & Laughlin Site.

3. SCOPE OF REMEDIAL ACTION

Remedial action objectives established for the Bliss & Laughlin Site form the basis for the scope of the remediation to be conducted. Remedial action objectives were established based on a review of potential Applicable or Relevant and Appropriate Requirements (ARARs) as defined in CERCLA. Descriptions of ARARs as defined in CERCLA, the ARAR-based remedial action objectives established for the Bliss & Laughlin Site, and the scope of the remedial action required to meet remedial objectives are summarized in the following sections.

3.1 ARARs as Defined in CERCLA

Under Section 121 of CERCLA, agencies responsible for remedial actions under CERCLA must ensure that selected remedies meet ARARs.

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a CERCLA site. An applicable requirement directly and fully addresses an element of the remedial action.

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations promulgated under federal environmental or state environmental or facility siting laws 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 suited to the particular site.

Only those state standards that are promulgated, are identified by the state in a timely manner, and are more stringent that federal requirements may be applicable or relevant and appropriate.

To-Be-Considereds (TBCs) are non-promulgated advisories, criteria, or guidance issued by a federal or state government that may be useful in developing CERCLA remedies that are not legally binding and do not have the status of potential ARARs.

3.2 ARAR Selected for Bliss & Laughlin Site Remediation

USACE has determined that Subpart E of 10 CFR 20 is relevant and appropriate in considering the remediation of the Bliss & Laughlin Site. Subpart E of 10 CFR 20 was promulgated by the Nuclear Regulatory Commission (NRC) to establish criteria for residual radioactivity allowable at sites licensed by NRC that are being decommissioned. Under these criteria, a site will be considered acceptable for unrestricted use if the residual activity that is distinguishable above background radiation results in a total effective dose equivalent (TEDE) to an average member of a critical group that does not exceed 25 mrem/yr and the residual radioactivity has been reduced to levels which are as low as reasonably achievable (ALARA). At the Bliss and Laughlin Site, the only reasonable foreseeable use of the facility where radioactive contamination exists is industrial. Therefore the appropriate critical group is industrial workers.

The requirements of 10 CFR Part 20, Subpart E would be applicable to the Bliss & Laughlin Site remediation if the uranium machining at the site was conducted with a license issued by NRC. Bliss and Laughlin was not licensed by NRC and, therefore, the NRC standards are not applicable. Subpart E of 10 CFR Part 20 is considered relevant and appropriate to Bliss & Laughlin remediation, however, because the activities and resulting contaminants are similar to those that would have required an NRC license.

3.3 Scope of Remedial Action at the Bliss & Laughlin Site

The scope of remedial action at the Bliss & Laughlin Site has as its objective the cleanup of residual radioactivity to levels acceptable for unrestricted use in accordance with the NRC criteria described above. The details of the remediation proposed are described in Section 6 of this Record of Decision.

4. SUMMARY OF SITE CHARACTERIZATION

This Section summarizes findings of the RI concerning contamination at the Bliss & Laughlin Site.

4.1 Survey and Sampling Activities

The results of the radiological and chemical characterization of the Bliss & Laughlin site are described in a 1995 Technical Memorandum (BNI, 1995) prepared for DOE. Historically, the facility was the site of uranium metal machining. Therefore, the primary radiological contaminant of concern is uranium including uranium radioactive decay products. The site was assigned to FUSRAP based on a designation survey performed by the Oak Ridge Institute for Science and Education (ORISE). Using the data reported by ORISE, a survey of the floor area and the overheads in the vicinity of the Special Finishing Area was conducted, and a less intensive survey was performed throughout the rest of the building, with emphasis on areas adjacent to the Special Finishing Area, high traffic areas, and likely areas of material transfer such as locker rooms. Six core samples were drilled through the floor slab in areas where the potential for constituent migration was the greatest. Additional samples were taken from the dust on overhead beams and material on the floor. One composite sample of floor material was collected and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) characteristics, which included metals, volatile organics, semi-volatile organics, pesticides and herbicides. Some areas were identified that have radioactive material that could result in exposure to radioactivity that exceeds the NRC standards described in Section 3.2.

4.2 Survey Results

Several areas on the floor and on the rafters were identified where radioactivity could exceed the NRC standards that are described in Section 3.2. Some areas of a filled-in trench are suspect and will require further characterization as part of the remediation activities. The characterization tried to identify areas significantly different from background levels. The results are shown in Figures 1, 2, and 3 in the RI/FS/PP and are summarized below.

- Two locations out of 45 surveyed on the overheads above the special finishing area were above 5000 dpm/100 cm^2 beta/gamma. The highest reading of those two locations was 6318 dpm/100 cm^2 beta/gamma.

- The surface contamination on the floor in the special finishing area is limited to approximately 19 meters by nine meters of floor, some of it obstructed by machinery. Ten locations exceeded 15,000 dpm/100 cm^2 direct beta/gamma with a range from 17,000 to 280,000 dpm/100 cm^2.

- No subsurface soil samples showed evidence of contamination. One sample from a core taken through a filled-in trench showed elevated uranium levels on materials in the trench.. This material appears to be limited to debris deposited in the trench prior to sealing with concrete. The soil sample collected beneath the trench indicated a concentration of 6 pci/g of U-238, well below the site specific cleanup criteria established in the December 1998 Technical Memorandum "Cleanup Goals for Soil at the Finishing Area of the Former Bliss & Laughlin Facility".

- The remainder of the building was surveyed as extensively as building conditions allowed, and showed no evidence of additional contaminated areas.

- A composite TCLP sample from the floor in the Special Finishing Area showed no RCRA hazardous constituents.

5. SUMMARY OF SITE RISKS

The contamination at the Bliss & Laughlin Site could result in adverse health effects if the building is used without restrictions to minimize exposures. The levels of contamination at the Bliss & Laughlin site are high enough to exceed the 25 mrem/yr dose criteria for a typical building occupancy scenario. Therefore, scenarios are possible where individuals could be exposed to this material for extended periods of time resulting in an unacceptable exposure. If the current institutional controls were not continued, there would be no restrictions on the uses that could be made of the buildings and the materials in the buildings.

As long as the property is used as an industrial facility and provisions are made for periodic monitoring and reviews, the potential for adverse health effects would be mitigated. The typical scenarios for building occupancy used by the Nuclear Regulatory Commission result in the primary exposure path being inhalation with ingestion being a significant pathway. At the Bliss & Laughlin Site, the potential for exposure through these pathways is greatly reduced because of the large amount of oil and oil adsorbent used in the steel processing. Without remediation, scenarios are possible where exposures could exceed protective levels. Again, inhalation is a possible pathway of concern even though current building use limits exposures via this pathway. With remediation, the possible dose from the inhalation pathway would be well below the ARAR level and would satisfy the CERCLA threshold criteria.

6. DESCRIPTION OF REMEDIAL ALTERNATIVES

Three alternatives were identified in the RI/FS/PP for the Bliss & Laughlin Site: Alternative No. 1–No Action; Alternative No. 2–Continued Use of Institutional Controls; and Alternative No. 3–Decontamination of Buildings. This section describes the alternatives that were identified.

In the description of Alternative No. 3–Decontamination of Buildings, details are provided on how the decontamination will be conducted to meet the NRC standards described in Section 3.2.

6.1 Alternative 1–No Action

This alternative assumes that the facility is abandoned and institutional controls are discontinued. Under this alternative, it is assumed that there are no impediments to access. The controls would no longer exist and there would be no security guards or fences to exclude intruders. No signs warning of the hazards would be posted.

6.2 Alternative 2–Continued Institutional Controls

This alternative would continue the use of institutional controls at the site. These would include:

- Continued use of this site as an industrial facility;
- Maintaining signs and fencing;
- Continued maintenance and monitoring;
- Restriction of future use by acquisition of real estate interest or other means; and
- Periodic inspections by the government to enforce any such restrictions.

The continued use of the site as an industrial facility with periodic monitoring and reviews would control the amount and duration of potential exposures. This alternative includes compliance with the controls by current and future building owners, including possible use of a restrictive covenant or other deed restriction to meet the restricted use criteria in the ARARs.

6.3 Alternative 3–Decontamination of Buildings

6.3.1 General Description

Under this alternative, the contamination on the floors, walls, and overhead appurtenances will be removed using appropriate decontamination technologies to a level sufficient to meet the NRC decommissioning standards. The technologies that may be employed include vacuuming, CO_2 blasting, soft media blasting, etc. Contamination can be removed using either aggressive (Blastrac, VacuBlast, needle guns, scabblers, chipping hammers, etc.) or non-aggressive (absorbent cloth and vermiculite, nuclear grade vacuum cleaners, paint remover, etc.) techniques. Contamination will be removed to levels sufficient to meet the NRC standards for unrestricted use.

Dust will be controlled during the performance of decontamination activities by spraying water or using other methods. Air monitors will be installed for work area monitoring. Any water generated or collected during the performance of work will be contained, sampled, analyzed, and disposed appropriately.

A licensed/permitted disposal facility will be used. Waste packaging will be performed in accordance with all applicable federal, state and local laws and regulations. Shipping containers will meet Department of Transportation (DOT) requirements. Only a few shipments are anticipated because of the small volume expected. Any lead-based paint removed from the building surfaces will be stored, handled and disposed in accordance with all applicable regulations. Surveys will be conducted to check for cross contamination and to verify that the release criteria have been met.

Post remedial surveys and analyses will be performed to assure compliance with the NRC ARAR for unrestricted use.

6.3.2 Decontamination Details

USACE will conduct decontamination in three steps: (1) remove contamination above the levels described in the Nuclear Regulatory Commission (NRC) Regulatory Guide 1.86, *Termination of Operating Licenses for Nuclear Reactors*, (2) perform an additional attempt at decontamination on areas where the original site characterization results showed activities greater than 2,000 dpm/100 cm^2 (averaged over not more than 1 m^2), and (3) perform post remedial surveys and analyses to assure compliance with the NRC standards.

In the first decontamination step, the removal of contamination above the levels described in Regulatory Guide 1.86 for small areas will result in average residual contamination levels that will meet the requirements of the ARAR (25 mrem/yr TEDE).

The second decontamination step will be performed for ALARA purposes. In addition, if contaminated soil is encountered during remediation of the debris-filled trench in the Special Finishing Area, the soil will be remediated in order to meet the site-specific soil cleanup goal of 100 pCi/g of U-238 established in the December 1998 Technical Memorandum entitled "Cleanup Goals for Soil at the Finishing Area of the Former Bliss & Laughlin Facility." The goal of 100 pCi/g of U-238 will meet the requirements of the ARAR and ALARA considerations.

The third step, after the two decontamination sequences and any soil removals are completed, is to assure compliance with the stated cleanup goals. Compliance will be confirmed by use of the existing, internal USACE QA/QC procedures and by incorporating guidance from the MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual) consensus document (NUREG-1575/EPA 402-R-97-016). This process consists of a progressive technical verification that concludes with a Final Status Survey Report documenting that the requirements of the ROD are met (and exposure averaged over the survey unit will be assessed). In the unlikely event that post-remediation analysis indicates the potential for exposures above the 25 mrem/yr TEDE level, additional decontamination sequence(s) will be performed.

7. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The alternatives described in Section 6 were evaluated using CERCLA criteria to determine the most favorable action for cleanup of the Bliss & Laughlin Site. These criteria are described below. The criteria were established to ensure that the remedy is protective of human health and the environment, meets regulatory requirements, is cost effective, and utilizes permanent solutions and treatment to the maximum extent practicable. The evaluation criteria are described in Section 7.1, followed by a summary of the comparative analysis in Section 7.2.

7.1 Evaluation Criteria

The following two criteria are threshold criteria and must be met.

- *Overall Protection of Human Health and the Environment* - addresses whether an alternative provides adequate protection and describes how risks are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

- *Compliance with Federal and State Environmental Regulations* - addresses if a remedy would meet the federal and state ARARs.

The following criteria are considered balancing criteria and are used to weigh major tradeoffs among alternatives being evaluated.

- *Long-Term Effectiveness and Permanence* - addresses the remaining risk and the ability of an alternative to protect human health and the environment over time, once cleanup goals have been met.

- *Short-Term Effectiveness and Environmental Impacts* - addresses the impacts to the community and site workers during cleanup including the amount of time it takes to complete the action.

- *Reduction in Toxicity, Mobility, or Volume Through Treatment* - addresses the performance of treatment that permanently and significantly reduces toxicity, mobility, or volume of waste.

- *Implementability* - addresses the technical and administrative feasibility of an alternative, including the availability of materials and services required for cleanup.

- *Cost* - compares the differences in cost, including capital, operation, and maintenance costs.

The following are considered modifying criteria and are generally taken into account after public comment is received on the PP.

- *State Acceptance* - evaluates whether the State agrees with, opposes, or has no comment on the preferred alternative.

- *Community Acceptance* - addresses the issues and concerns the public may have regarding each of the alternatives as expressed in comments to USACE.

7.2 Alternative Comparison

The advantages and disadvantages of the alternatives were compared, based on the evaluation criteria. The results of the comparison, as summarized below, were used to select a preferred alternative.

7.2.1 Overall Protection of Human Health and the Environment

Potential Health Effects

Alternative 1, No Action, could result in adverse health effects if the building is used without restrictions to minimize exposures. Radioactivity exceeds the NRC standards in several areas of the building. With No Action, scenarios are possible where exposures could exceed protective levels. Because the No Action alternative assumes no institutional controls remain in place, there would be no restrictions on the uses that could be made of the buildings and the materials in the buildings.

Alternative 2, Continued Use of Institutional Controls, would continue to control exposures by restricting the use of the property as an industrial facility and provide for periodic monitoring and reviews. As long as these controls remain effective, the potential for adverse health effects could be controlled. In a few isolated areas of the building, the potential would continue to exist for an employee to receive doses above the NRC standards.

Alternative 3, Building Decontamination of Buildings, would eliminate the potential for unacceptable exposure. However, the potential for exposure to workers during remedial activities increases due to the handling of the radioactive material. Remediation workers may be directly exposed to radioactive materials, and radioactive dust could become airborne, allowing it to be inhaled by workers. These effects can be mitigated, however, by requiring remediation workers to wear protective equipment and by using appropriate dust suppression measures. These techniques have been very effective in controlling the spread of radioactive materials in previous work. The USACE plans to perform the decontamination on weekends and other times that would limit the impact to workers and operations of the plant. Monitoring would also be performed inside the construction area to ensure adequate protection of the remediation workers.

Shipment of the debris to a disposal facility will entail some risk to the community due to the potential for transportation accidents. The risks are principally associated with vehicle operation and not the characteristics of the material being shipped. The risks to the community from exposure to the contaminated wastes during transport are negligible compared with the risk of traffic accidents.

Transportation risks for this removal action are due to the potential for injuries or fatalities due to truck or rail accidents. Because only a small volume of material is anticipated, only a few shipments will be required for Alternative 3.

Potential Environmental Impacts

Under the No Action alternative, minor additional environmental impacts are expected due to building deterioration which may result in the uncontrolled release of radioactive material to the environment. These impacts are expected to be minor because, although there may be surface contamination in the building that could exceed the NRC Standards, the actual volume of radioactive materials is likely to be very low. These impacts would be controlled for the short term by using the institutional controls of Alternative 2.

Under the Building Decontamination alternative, no additional environmental impacts are expected from decontamination activity inside the building. These impacts would be reduced by employing dust control and other preventative measures during implementation.

7.2.2 Compliance with Federal and State Environmental Regulations

Alternative 1, No Action, would not comply with ARARs. Alternative 2, Continued Use of Institutional Controls, would provide compliance by continuing the industrial use of the site and providing monitoring and periodic reviews. However, the potential would continue to exist for a few workers to receive doses above the NRC standards. Alternative 3, Decontamination of Buildings, will be conducted in a manner that complies with NRC standards. Post remedial surveys and analyses will be performed to assure compliance with the standards.

All alternatives would be conducted in accordance with other applicable environmental, safety, and occupational health requirements.

7.2.3 Long-Term and Short-Term Effectiveness and Permanence

Alternative 1, No Action, would not involve any reduction in the amount of radioactivity at the site. In addition, it would increase potential for human exposure or environmental release. The potential for human exposure to radiation would persist in the short and long term in Alternative 1. In the long term, and in the absence of any additional maintenance work, migration of the radioactive materials to the environment is possible because the radioactive surfaces in the building may not be adequately controlled in the future to prevent migration. Radioactive materials could eventually become airborne as dust, as the building deteriorates or in the event of a fire. The potential risk to human health from the building could also increase in the future if adequate safeguards are not maintained.

Alternative 2, Continued Institutional Controls would be effective in the short term. However, providing effective institutional controls for long periods (e.g. greater than 100 years) is difficult to ensure.

Alternative 3 would be effective in reducing short and long term health risks and would eliminate radioactive materials at the site. Alternative 3 would comply with current ARARs. Radioactive wastes would be shipped to appropriately licensed or permitted facilities. This alternative would also eliminate the potential for migration to the environment.

7.2.4 Reduction in Toxicity, Mobility, or Volume through Treatment

None of the alternatives provides treatment on site for the materials to be removed. Materials which are removed will include treatment as may be required to meet the standards of the selected off-site disposal facility.

7.2.5 Implementability

All Alternatives are implementable. Although Alternative 3, Decontamination of Buildings, is technically more complex than Alternatives 1 and 2, similar projects have been successfully completed at other sites throughout the country; therefore, no technical barriers to implementation of Alternative 3 are foreseen. Radioactive wastes generated during the activities would be disposed at currently existing licensed/permitted disposal facilities. The decontamination technologies called for in Alternative 3 are readily available.

Technical Feasibility

Technical feasibility is not applicable to the No Action Alternative. For alternative 2, institutional controls are already implemented. Although no technical impediments to implementation exist, the use of the area as an industrial facility with proper health and safety programs would need to be continued.

Radiological decontamination technologies called for in Alternative 3, Decontamination of Buildings, are available. Many standard decontamination procedures exist and have been used at FUSRAP and other cleanup sites. Consideration will be given to decommissioning equipment and procedures that would reduce waste and improve worker safety. One complexity for alternative 3 is due to the need to work around ongoing activities. Thus, the work will likely be conducted on holidays or weekends.

Availability of Services and Materials

All of the services and materials required to implement Alternatives 2 and 3 are readily available. Adequate commercial disposal capacity for the radioactive waste generated is available. No services or materials are required for Alternative 1.

Administrative Feasibility

Alternative 1, No Action, would not require any permits and no activities are included for coordination. Alternative 2 continues the use of institutional controls which provides for the use of the buildings as an industrial facility.

Alternative 3, Decontamination of Buildings, would be readily implementable. Shipment of any waste generated and excavated soils would comply with any requirements for manifests, advance notification, and permitting in a timely manner.

7.2.6 Cost

Under Alternative 1, No Action, USACE would not incur any cost for implementation.

Although Alternative 2, Continued Institutional Controls, would have limited costs in addition to normal operation as an industrial facility the costs continue for a long period. The cost estimate of $350,000 includes six 5-year reviews at approximately $ 15,000 each; Institutional controls, surveillance and monitoring for 30 years at approximately $530/month, and project management at approximately $750/yr.

Alternative 3 would cost approximately $400,000. The cost for alternative 3 will vary depending on if additional contamination is found during remediation. For a cleanup volume of 6 cy (the current best estimate) the cleanup is estimated to cost approximately $350,000. The higher estimate of $430,000 assumes 20 cy of material which allows for possible volume increases if material is found in the trench or other areas.

7.2.7 State and Community Acceptance

The New York State Department of Environmental Conservation (NYSDEC), by letter of October 27, 1998 (copy included in Appendix A), concurs in the selection of Alternative 3, Decontamination of Buildings, as the preferred cleanup alternative for the Bliss & Laughlin Site. NYSDEC provided comments on the RI/FS/PP. These comments are addressed in the Responsiveness Summary, which is provided as Appendix A to this Record of Decision.

The New York State Department of Labor (NYSDOL) provided technical comments on the RI/FS/PP on October 30, 1998. These comments are addressed in the Responsiveness Summary, Appendix A to this Record of Decision.

No comments on the RI/FS/PP were received from the public.

8. THE SELECTED REMEDY

The USACE has selected Alternative 3, Decontamination of Buildings. This alternative is the most protective of human health and the environment and eliminates the continuing costs for monitoring and periodic reviews. Radioactive materials generated during remedial activities will be disposed at appropriate existing licensed or permitted disposal facilities. Samples would be collected from the materials for analysis to ensure that materials meet the acceptance criteria of the disposal facility(ies). Post decontamination surveys will be conducted to insure that the ARAR for unrestricted use has been met. This action will complete the remediation of the Bliss and Laughlin site.

Radioactive materials will be packaged and shipped according to the acceptance criteria of the disposal facility as well as applicable Department of Transportation requirements. Materials will be shipped from the facility by rail or truck. The disposal location(s) will be selected after bids have been evaluated.

Engineering controls will be used during the decontamination activities to prevent the spread of radioactivity and to facilitate collection of any spilled material.

The selected proposed alternative will include:

(1) preparation of detailed work instructions and a health and safety plan;

(2) characterization of suspect areas including the filled in trench to confirm the presence or absence of contamination;

(3) site preparation including construction of lay-down areas and preparation of designated storage areas for managing wastes generated during building decontamination activities;

(4) decontamination of specified areas using techniques such as vacuuming, media blasting, cleaning, and/or chemical methods;

(5) sampling and analysis of wastes generated during remedial activities to demonstrate compliance with waste acceptance criteria;

(6) loading and packaging of radioactive materials for shipment to the disposal facilities;

(7) shipment of the materials to the disposal facility(ies);

(8) restoration activities, as required; and

(9) post remedial surveys and analyses to assure compliance with the unrestricted release criteria in the NRC standards.

9. STATUTORY DETERMINATIONS

The selected remedy satisfies the statutory requirements of Section 121 of CERCLA as follows:

(10) the remedy must be protective of human health and the environment;
(11) the remedy must attain ARARs or define criteria for invoking a waiver;
(12) the remedy must be cost effective; and
(13) the remedy must use permanent solutions and alternative treatment technologies to the maximum extent practicable.

The manner in which the selected remedy satisfies each of these requirements is discussed in the following sections.

9.1 Protection of Human Health and Environment

Upon completion, the selected remedy for the Bliss & Laughlin Site will be fully protective of human health and the environment and will meet CERCLA criteria for protectiveness. During remedial activities, institutional controls (e.g., access restrictions) and environmental monitoring and surveillance activities will be maintained to ensure protectiveness, so that no member of the public will receive radiation doses above guidelines from exposure to residual radioactive contaminants.

There are no short-term threats associated with the selected remedy that cannot be readily controlled and mitigated. In addition, no adverse cross-media impacts are expected from the remedy.

9.2 Attainment of ARARs

Agencies responsible for remedial actions under CERCLA must ensure that selected remedies meet ARARs.

The NRC decommissioning standards are considered relevant and appropriate to the cleanup of the Bliss & Laughlin Site.

The selected remedy complies with the NRC standards applicable for the cleanup of the Bliss & Laughlin Site.

9.3 Cost Effectiveness

The selected remedy is the most cost-effective because it provides the best balance between the evaluation criteria. Cost-effectiveness is evaluated by comparing costs associated with the remedy versus a composite of the following balancing criteria: long-term effectiveness and permanence, short-term effectiveness, and implementability.

The selected remedy is effective because potential exposures are reduced to protective levels. Increased short-term risks to workers, the public, and the environment may occur during implementation of the remedy, but these risks will be minimized by appropriate mitigative measures. Total cost in 1998 dollars for the selected alternative is estimated at $400,000. In consideration of these factors, the selected remedy provides the best overall effectiveness of all alternatives evaluated relative to its cost.

9.4 Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The selected remedy for the Bliss & Laughlin Site provides a permanent solution to contamination that currently exists on these properties.

None of the practicable remedial alternatives identified for the Bliss & Laughlin Site provides onsite treatment for the materials to be removed. The selected alternative provides for offsite disposal, including containment at the final disposal location and any offsite treatment, which may be required to meet the standards of the offsite facility. The selected alternative would achieve reduction in mobility, although no treatment is planned which will reduce the toxicity or volume of the disposed materials. The other alternatives would provide no removal of contaminated materials, no reduction in the mobility of the contaminants existing in the building, and no

reduction in the volume of the contaminated material. Thus, the selected alternative achieves the best possible result in terms of satisfying the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

10. REFERENCES

10 CFR (Code of Federal Regulations) 835. Occupational Radiation Protection; Final Rule.

40 CFR 192. Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings.

NRC (Nuclear Regulatory Commission) Regulatory Guide 1.86. Termination of Operating Licenses for Nuclear Reactors.

BNI, 1995. FUSRAP Technical Memorandum: Bliss & Laughlin Steel Characterization Results, May 11.

Cashwell, J.W., et al., 1986. Transportation Impacts of the Commercial Radioactive Waste Management Program, SAIC-85-2715, Albuquerque, New Mexico, April.

NUREG-1500. Daily, M.C., et al., Working Draft Regulatory Guide on Release Criteria for Decommissioning: NRC Staff's Draft for Comment, Nuclear Regulatory Commission, Appendix A-2, August 1994.

NUREG-1575/EPA 402-R-97-016. Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), December 1997.

NUREG-5512. Kennedy, W.E. and Strenge, D.L., Residual Radioactive Contamination from Decommissioning, U.S. Nuclear Regulatory Commission, October 1992.

APPENDIX A

RESPONSIVENESS SUMMARY FOR THE REMEDIAL INVESTIGATION, FEASIBILITY STUDY AND PROPOSED PLAN FOR THE BLISS & LAUGHLIN SITE, BUFFALO, NEW YORK

1. INTRODUCTION

On September 28, 1998, the Buffalo District, United States Army Corps of Engineers (USACE) issued a Remedial Investigation, Feasibility Study and Proposed Plan (RI/FS/PP) for the proposed cleanup of the Bliss & Laughlin Site in Buffalo, New York.

The public and agencies were invited to submit comments on the RI/FS/PP and written comments were accepted until the end of October 1998.

Two agencies, the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Labor (NYSDOL), submitted comments on the RI/FS/PP for the Bliss & Laughlin Site. No comments from the public were received. This Responsiveness Summary addresses the comments received from the NYSDEC and the NYSDOL. Copies of the comments from NYSDEC and NYSDOL are included at the end of this Appendix.

2. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION COMMENTS AND USACE'S RESPONSES

The New York State Department of Environmental Conservation comments were submitted by letter of October 27, 1998, by Paul J. Merges, Ph.D., Director, Bureau of Pesticides & Radiation, Division of Solid & Hazardous Materials. The NYSDEC comments and USACE's responses to the NYSDEC's comments are provided below.

NYSDEC Comment No. 1
The New York State Department of Environmental Conservation has reviewed the subject document, which George B. Brooks sent to us on October 22, which allowed us only five working days to review and comment on the plan. This is insufficient time to perform a complete review of a proposed remediation.

USACE Response: The request for an expedited review process was made to take advantage of windows of opportunity identified by the facility operator who has agreed to allow access to the facility during several upcoming holiday weekend shut down periods. The USACE Buffalo District will make every effort to provide longer document review periods in the future.

NYSDEC Comment No. 2
This Department agrees with the use of Alternative 3 (Decontamination of the Buildings) as the preferred remedy for the Bliss and Laughlin Site, as explained on Page 21 of the Remedial Investigation, Feasibility Study, & Proposed Plan. We do, however, have the following concerns.

USACE Response: USACE acknowledges NYSDEC's concurrence in the selection of Alternative 3. NYSDEC's concerns are addressed below.

NYSDEC Comment No. 3

On Page 12, the first paragraph states, "Any water generated or collected during performance of work would be contained, sampled, analyzed and disposed appropriately. Discharge of such water to surface water, groundwater and sanitary sewer must comply with New York State's Rules and Regulations for Prevention and Control of Environmental Pollution by Radioactive Materials, 6 NYCRR Part 380 (copy enclosed).

USACE Response: Any water generated or collected during performance of work would be contained, sampled, analyzed, and disposed appropriately. Discharge of any such water to surface water, groundwater and sanitary sewer will comply with New York State's Rules and Regulations for Prevention and Control of Environmental Pollution by Radioactive Materials, 6NYCRR Part 380.

NYSDEC Comment No. 4

One action item listed on Page 21 under the Proposed Plan needs clarification. It is Item No. 2 which reads, "characterization of suspect areas including the filled in trench to confirm the presence or absence of contamination." However, coring performed in 1995 has already identified subslab contamination in the form of debris, as differentiated from soil (see Page 5 of Appendix A, Bliss & Laughlin Characterization Results). It is our presumption that this material will be remediated and disposed of accordingly.

USACE Response: Contaminated debris was encountered while coring in the center of a filled-in trench between columns E16 and E18 (See RI/FS/PP for locations). MED-related contaminated debris will be remediated and properly disposed of as part of the remediation of the Bliss & Laughlin Site.

NYSDEC Comment No. 5

Any soil contamination needs to be removed to background levels, or a site-specific guideline value needs to be developed with our concurrence.

USACE Response: The area identified in the NYSDEC comment has been described as a trench potentially containing elevated concentrations of natural uranium (the contaminant of concern for the FUSRAP remediation) and subsurface soil under the trench. In response to this comment, RESRAD Version 5.82 was used to model risk from exposures to uranium in the underlying soils.

The December 1998 Technical Memorandum entitled "Cleanup Goals for Soil at the Finishing Area of the Former Bliss and Laughlin Facility", documents the soils remediation goal of 100 pCi/g for U-238. The modeling in the Technical Memorandum demonstrates that cleanup to this level will meet the requirements of the ARAR and the ALARA guidance.

NYSDEC Comment No. 6

Once the remediation is finished, the Corps of Engineers has conducted and documented the final status survey of the building, the Corps of Engineers should obtain the services of an independent contractor to verify that the criteria established in the Record of Decision have been met.

USACE Response: The US Army Corps of Engineers, as the lead federal agency tasked with the administration and execution of FUSRAP, has determined that our internal Quality Assurance and Quality Control procedures will be sufficient to ensure compliance with the ROD. The USACE QA/QC process provides a progressive technical verification that concludes with a Final Status Survey Report documenting that the requirements of the ROD are met. USACE will incorporate guidance from the MARSSIM consensus document to ensure the final exposure determinations are based on averaging over the survey unit.

3. NEW YORK STATE DEPARTMENT OF LABOR COMMENT AND USACE'S RESPONSE

The comments of the New York State Department of Labor were submitted by Ms. Rita Aldrich by memorandum dated October 30, 1998. The NYSDOL comments and USACE's responses to the NYSDOL comments are provided below.

NYSDOL Comments

We are confused by your reference to both RG 1.86 surface contamination limits and the 25 mrem/yr dose limit from 10 CFR 20. What dose modeling was done to relate surface contamination levels to dose? A section devoted to this should be included in your plan. It appears that you have taken the default surface contamination values for Building Occupancy from NUREG 1500 and scaled up to 25 mrem. But these default values have been superseded and should not be used, according to NRC.

USACE Response: The response to the NYSDOL comment has been separated into the three areas noted:

1) Re: Confusion on the use of both RG 1.86 and 10 CFR 20 -

10 CFR 20 (Subpart E) is the ARAR selected for the Bliss and Laughlin site remediation activities. RG 1.86 is to be used to provide additional decontamination guidance during the remediation activities. Decontamination to the levels specified in RG 1.86 for small areas will result in average residual contamination levels that will meet the requirements of the ARAR (25 mrem/yr TEDE).

2) Re: Method of dose modeling for surface contamination -

NUREG 5512 was used to model the potential dose from residual contamination after remediation as specified in Section 3.3.3.

3) Re: The use of NUREG 1500 -

The values found in NUREG 1500 were derived from the guidance and formula presented in NUREG 5512 (referenced from Appendix F of NUREG 1500). NUREG 5512 has not been superseded and can be used to derive cleanup goals. NUREG 5512 formula demonstrate a linear relationship between radionuclide concentration and dose listed in NUREG 1500. This linear relationship allows one to scale the values listed in NUREG 1500. Although NUREG 1500 has been superseded, it may still be used in this manner to develop site specific cleanup goals that meet current NRC criteria.