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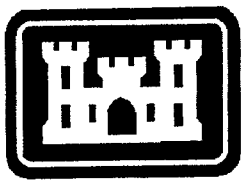

FUSRAP

US Army Corps
of Engineers®
Buffalo District

REMEDIAL INVESTIGATION, FEASIBILITY STUDY, & PROPOSED PLAN

FOR THE BLISS & LAUGHLIN SITE

BUFFALO, NEW YORK

SEPTEMBER 1998

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ACRONYMS AND ABBREVIATIONS

AEC	Atomic Energy Commission
ALARA	As Low As Reasonably Achievable
ARAR	Applicable or Relevant and Appropriate Requirements
BNI	Bechtel National, Incorporated
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm^2	square centimeter(s)
COC	Contaminant(s) of Concern
cy	cubic yards
DOE	Department of Energy
DOT	Department of Transportation
dpm	disintegrations per minute
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
g	gram(s)
hr	hour
km	kilometer(s)
LOOW	Lake Ontario Ordnance Work
µR	micro Roentgen(s)
m	meter(s)
MED	Manhattan Engineer District
mrem	millirem
NRC	Nuclear Regulatory Commission
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
ORISE	Oak Ridge Institute for Science and Education
ORNL	Oak Ridge National Laboratory
OSWER	Office of Solid Waste and Emergency Response
pCi	picoCuries
Ra	radium
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SAIC	Science Applications International Corporation
TAGM	Technical Administrative Guidance Memorandum
TBC	To Be Considered
TCLP	Toxicity Characteristic Leaching Procedure
TEDE	Total Effective Dose Equivalent
Th	thorium
U	uranium
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

UNITED STATES ARMY CORPS OF ENGINEERS
REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND PROPOSED PLAN FOR THE BLISS & LAUGHLIN SITE
BUFFALO, NEW YORK

The United States Army Corps of Engineers (USACE) is conducting the project at the Bliss & Laughlin Site in Buffalo, New York in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code 9601et seq. (CERCLA).

On October 13, 1997, the Energy and Water Development Appropriations Act, 1998 was signed into law as Public Law 105-62. Pursuant to this law, the Formerly Utilized Sites Remedial Action Program (FUSRAP) was transferred from the U.S. Department of Energy to the USACE. Under its authority to conduct the Formerly Utilized Sites Remediation Program, the USACE prepared this Remedial Investigation, Feasibility Study, and Proposed Plan for the Bliss & Laughlin Site. The Remedial Investigation, Feasibility Study, and Proposed Plan addresses contamination resulting from operations conducted for the Atomic Energy Commission (AEC). Bliss & Laughlin Steel Company performed machining and straightening operations on uranium rods. The machined rods and turnings were then shipped off-site.

Three alternatives were considered for addressing residual radioactive contamination at the Bliss and Laughlin site. The first Alternative, No Action, assumes the site is abandoned and current institutional controls to limit exposure are lifted. The second alternative, Continuation of Institutional Controls, includes no remediation but continues the use of the site as an industrial facility with periodic monitoring and review. The third, Decontamination of Buildings, would use various decommissioning technologies to remove contamination from the surfaces inside of the buildings to preclude human exposure in areas of elevated radioactivity. Building rubble that exceeded the release criteria would be shipped to an appropriate licensed or permitted disposal facility. Material that does not exceed the release criteria would be left on site or sent to an appropriate disposal facility.

USACE does hereby propose that the final remedial action for the Bliss & Laughlin Site be Alternative 3, Decontamination of Buildings. The alternative is fully protective of human health and the environment, complies with the applicable or relevant and appropriate requirements, and is considered by the USACE to best meet the criteria prescribed by CERCLA, as amended, and the National Contingency Plan (NCP).

USACE invites members of the public to review the proposed plan and the supporting documents which further describe the conditions at the Bliss & Laughlin Site and the basis for the proposal. Those documents may be found in the administrative record for the Bliss & Laughlin Site at the Buffalo and Erie County Public Library-Dudley Branch, 2010 South Park Avenue, Buffalo, New York, 14220, and at the USACE FUSRAP Public Information Center, 1776 Niagara Street, Buffalo, NY, 14207. Members of the public who wish to comment upon this proposed plan may submit their comments to USACE at the following address:

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

Please refer to this proposed plan or to the Bliss & Laughlin Site in the comments. All comments will be reviewed and considered by USACE in determining the final remedy for the Bliss & Laughlin Site. Comments should be submitted no later than 30 days after the date of this proposed plan.

After the close of the comment period, USACE will review all public comments, as well as the information contained in the Administrative Record file for this site, and any new information developed or received during the course of this comment period, in light of the requirements of CERCLA and the NCP. An authorized official of USACE will then make a final selection of the remedial action to be conducted at this site. This decision will be documented in a Record of Decision, which will be issued to the public, along with a response to all comments submitted regarding this proposed plan.

1. INTRODUCTION

1.1 OVERVIEW OF FUSRAP

This document describes the results of testing and analysis performed and cleanup options for the Bliss & Laughlin site. The site is being addressed under the United States Army Corps of Engineers (USACE) Formerly Utilized Sites Remedial Action Program (FUSRAP). The U.S. Atomic Energy Commission (AEC), a predecessor of the Department of Energy (DOE), established FUSRAP in 1974 to identify, investigate, and remediate or control sites contaminated as a result of activities performed as part of the nation's early atomic energy program. On October 13, 1997, the Energy and Water Development Appropriations Act was signed into law, transferring the responsibility for the administration and execution of FUSRAP from the DOE to the United States Army Corps of Engineers (USACE).

1.2 BACKGROUND

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 machined 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 Cold Drawn Corporation owns and operates the facility.

Based on the nature of operations performed at Bliss & Laughlin, the primary radiological constituent of concern for the site is uranium from the metal rods. Eighteen samples were analyzed to determine the relative abundance of radioisotopes. All samples showed ratios among the uranium isotopes that were similar to natural uranium.

1.3 PURPOSE

The purpose of this Remedial Investigation, Feasibility Study, and Proposed Plan is to document the assessment of the environmental impacts for various actions at the Bliss and Laughlin site in Buffalo, New York. This documentation is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as a vehicle to inform the public of intended cleanup actions and solicit public input into cleanup decisions. Because this is a small site with only a small amount of contaminated materials the documentation for the cleanup is being combined into a single short document which describes the results of the investigation, the identification and evaluation of alternatives, and the plan proposed by the USACE. Characterization results are described in Appendix A of this report and in the administrative record described in Section 6 of this report.

1.4 SITE DESCRIPTION AND SETTING

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 ft 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 partition 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 and lots of machine oil.

2. SITE CHARACTERIZATION RESULTS

2.1 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). Historically, the facility was the site of uranium metal machining. Therefore, the primary radiological constituent of concern is uranium including the radioactive decay products. The site was assigned to FUSRAP based upon a designation survey preformed 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 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 applicable or relevant and appropriate requirements (ARARs) which are described in the next section.

2.2 SURVEY RESULTS

Several areas on the floor and on the rafters were identified where radioactivity exceeds the ARARs described in Section 3.1. 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 and compared the results with criteria in the DOE Orders. The results are shown in Figures 1, 2, and 3 which are reproduced from the Technical Memorandum (BNI, 1995) and summarized below. A copy of this Technical Memorandum (BNI, 1995) is included in Appendix A.

- Two locations out of 45 surveyed on the overheads above the special finishing area were above 5000 dpm/100 sq cm beta/gamma. The highest reading of those two locations was 6318 dpm/100 sq cm 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 sq cm direct beta/gamma with a range from 17,000 to 280,000 dpm/100 sq cm.
- No subsurface soil samples showed evidence of contamination. One sample from a core taken through a filled-in trench showed elevated uranium levels. This material appears to be limited to debris deposited in the trench prior to sealing with concrete. The soil collected below this material was not above criteria.
- 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.

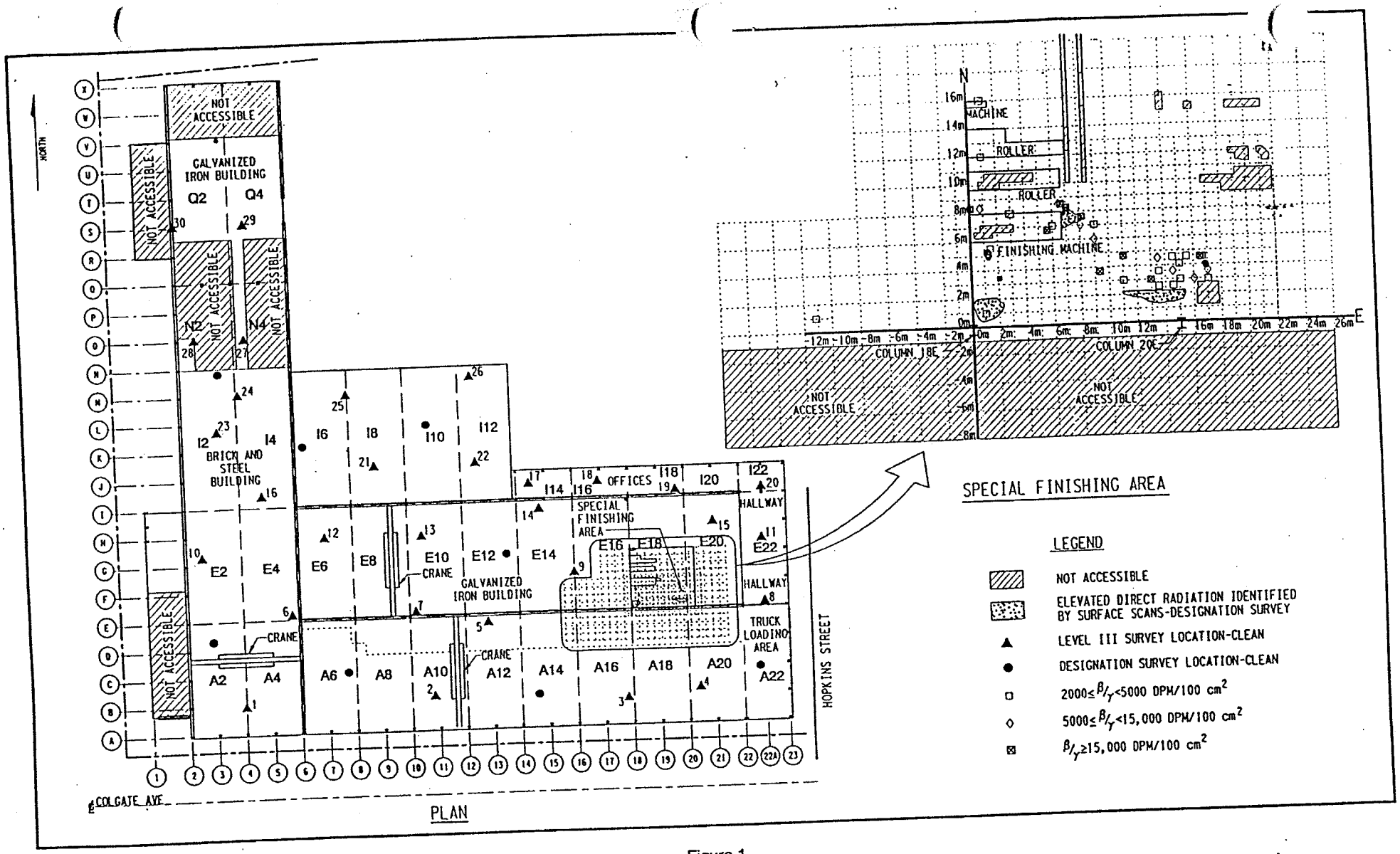

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Figure 1
Bliss and Laughlin Steel with Reference Grids and Survey Locations

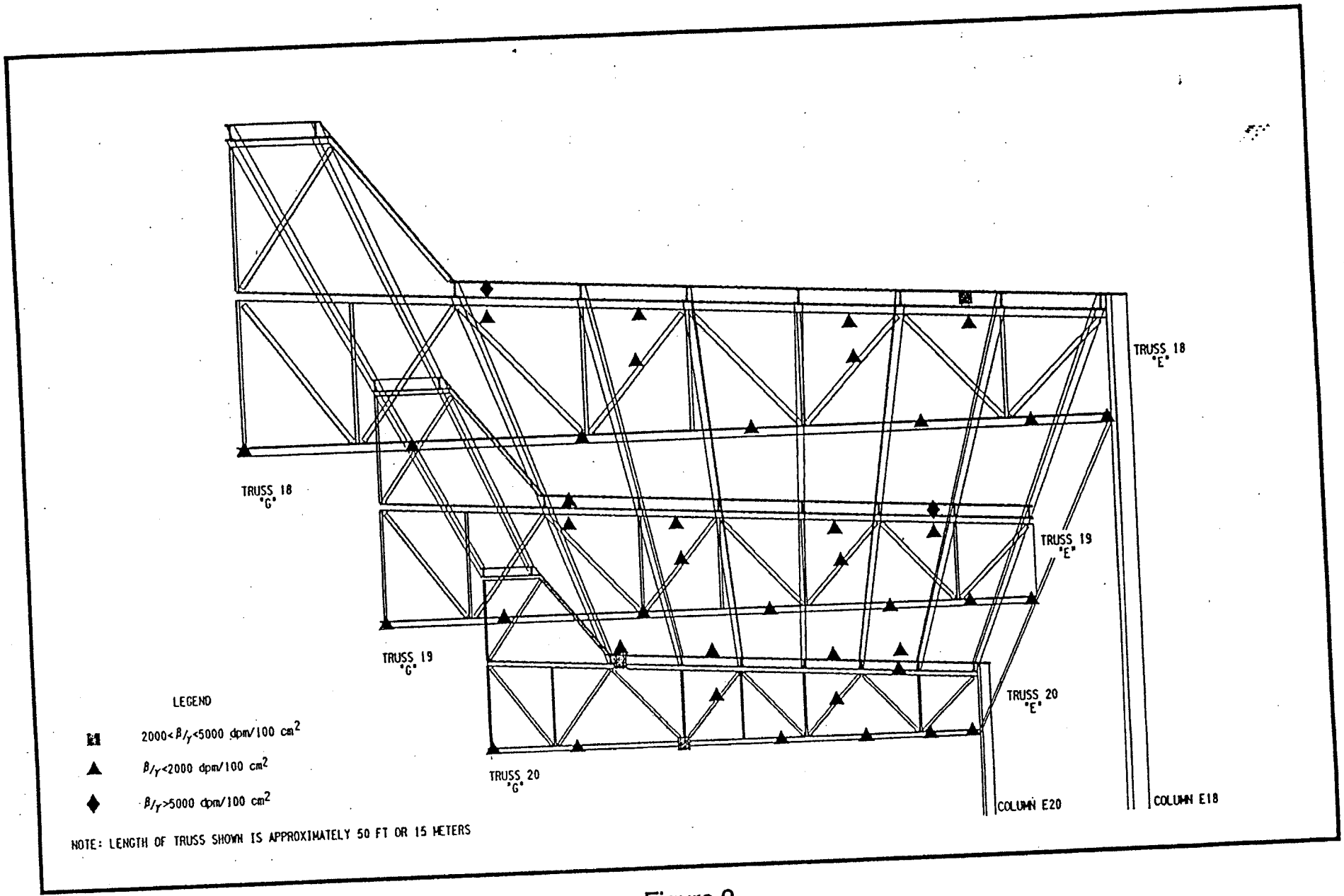

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Figure 2
Overheads Above Special Finishing Area
with Survey Locations

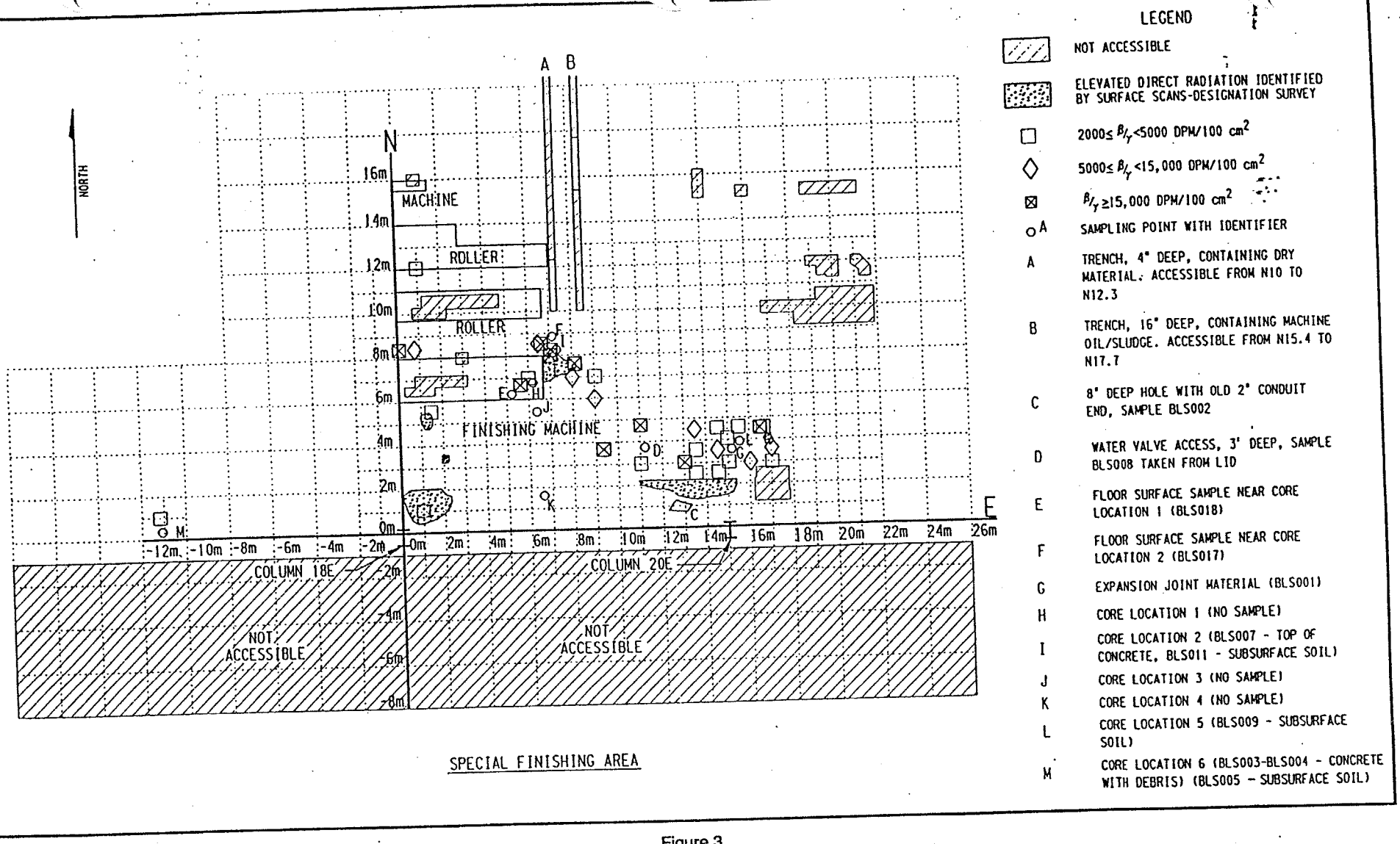

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Figure 3
Detail of Special Finishing Area with
Survey Results and Sampling Locations

3. IDENTIFYING AND EVALUATING CLEANUP OPTIONS

Three alternatives were considered. The first, No Action, is required by CERCLA to establish a baseline for comparison to the other alternatives. The second alternative is Continued Use of Institutional Controls. The third alternative is Decontamination of Buildings. This section describes the ARARs and TBCs, describes the alternatives in detail, and evaluates the alternatives for effectiveness, implementability, and cost.

3.1 DESCRIPTION OF ARARs AND TBCs.

3.1.1 Authority

Authority for responding to releases or threats of release from an impacted site is provided by Section 104 of CERCLA. In 1997, Congress authorized the USACE to manage FUSRAP. This includes authorization to undertake such investigation, surveys, testing, or other data gathering deemed necessary to identify the existence, extent, and nature of contaminants of concern (COC) present at the Bliss and Laughlin site including the extent of threats to human health and the environment. In addition, USACE is authorized to undertake planning, engineering, and other studies and investigations appropriate to direct response actions to prevent, limit, or mitigate potential risks associated with this site.

3.1.2 Applicable or Relevant and Appropriate Requirements (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.

USACE has determined that the following regulation is an ARAR, as that term is defined in CERCLA.

Subpart E of 10 CFR 20 is considered relevant and appropriate to the removal action. This CFR provides standards for determining the extent to which sites must be remediated before decommissioning of a site can be considered complete and the license terminated. The standards for human exposure for both unrestricted use (workers and members of the public) and for restricted use with institutional controls are: 25 mrem/yr total effective dose equivalent (TEDE) and as low as reasonably achievable (ALARA). The amount (or concentration) of radioactive materials which would result in this dose depends on the future land use and exposure scenario. This requirement would be applicable if the uranium machining was done commercially with a license issued by the NRC. For the Bliss and Laughlin site, a license was not required because the work was done for the government. Therefore, the standards in Subpart E of 10 CFR 20 are considered relevant and appropriate to the removal action because the activities and contaminants are similar to those which require a license under 10 CFR 40 from the Nuclear Regulatory Commission or an agreement state and therefore subject to the license termination criteria in 10 CFR Part 20. The proposed approach to meet the 25 mrem/yr total effective dose equivalent and as low as reasonably achievable standard for unrestricted future use is described in section 3.3.3.

Standards for the tailings from uranium mills in 40 CFR 192 were considered, but are not considered ARARs because the contaminant at the Bliss & Laughlin site is uranium from the machining of uranium metal and is not similar to the mill tailings which contain large quantities of radium and other materials.

3.1.3 To be Considered (TBCs)

To-be-Considered (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. Because an ARAR has been identified, no TBCs are designated for this action.

3.1.4 Other Requirements

While not ARARS or TBCs, other environmental, safety, and occupational health standards will be followed when implementing this removal action. Examples include Occupational Safety and Health Administration Standards, and Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions.

3.2 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 standard in the ARAR 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 risk. If the 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 and scenarios resulting in higher doses would be possible.

As long as the use of 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 the risk of cancer could exceed the risk range, i.e., be larger than 1 chance in 10,000. Again, inhalation is a possible pathway of concern even though current building use limits exposures via this pathway. Without remediation, the dose via the inhalation pathway could be as much as 100 mrem/yr or more. With remediation, the dose would be well below the ARAR and within the CERCLA risk range.

3.3 DESCRIPTION OF ALTERNATIVES

3.3.1 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.

3.3.2 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.

3.3.3 Alternative 3: Decontamination of Buildings.

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 ARAR. 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.

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

A licensed/permitted disposal facility would be used. Waste packaging would be performed in accordance with all applicable federal, state, and local laws and regulations. Shipping containers shall 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 would be stored, handled, and disposed in accordance with all applicable regulations. Surveys would be conducted to check for cross contamination and to verify that the release criteria have been met.

The USACE proposes to (1) remove contamination above the levels in Regulatory Guide 1.86, (2) for ALARA purposes, to perform an additional attempt at decontamination of areas greater than 2,000 dpm/100 cm^2 (averaged over not more than 1 m^2), and (3) to perform post remedial surveys and analyses to assure compliance with the ARAR. These three steps are discussed below.

The first step is to determine removals that will meet the 25 mrem/yr standard. Uranium contamination would be removed to levels that meet the ARAR for unrestricted use of 25 mrem/yr TEDE. Calculations were made to correlate the 25 mrem/yr in the ARAR with the uranium measurements at the Bliss and Laughlin facility. The standard scenarios used by the NRC for building occupancy (NUREG-1500 and NUREG-5512) show that average levels of 1500 dpm/100 cm^2 over large areas could result in exposures equal to the ARAR of 25 mrem/yr. For this scenario, the inhalation pathway contributes 84% of the dose. The ingestion pathway contributes 14% and the external gamma pathway contributes less than 1%. The inhalation and ingestion are likely very conservative in terms of current operations, but allow for possible changes in operations in the future. An evaluation was also made to compare the standards in Regulatory Guide 1.86 which are for much smaller areas. Decontamination to the levels in Regulatory Guide 1.86 should result in average levels in the special finishing area below the 1500 dpm/100 cm^2 large area average and below the 25 mrem/yr ARAR level. Regulatory Guide 1.86 recommends the following as acceptable surface contamination levels:

- 5,000 dpm/100 cm^2 averaged over not more than 1 m^2,
- 15,000dpm/100 cm^2 maximum for any 100 cm^2 area, and
- 1,000 dpm/100 cm^2 removable contamination averaged over not more than 1 m^2.

The second step is to evaluate as low as reasonably achievable levels. The USACE proposes to conduct an additional decontamination to achieve as low as reasonably achievable levels. This additional decontamination will be done as part of the cleanup action. The cleanup team will attempt removal of contamination from areas with levels above 2,000 dpm/cm^2 (i.e., 2,000 dpm/cm^2 averaged over not more than 1 m^2 versus the 5,000 dpm/cm^2 in the Regulatory Guide). The

decontamination efforts are anticipated to remove most of the contamination and result in dose levels well below the 25 mrem/yr level.

The third step is to assure compliance with the ARAR. The compliance with the ARAR will be confirmed by measurements and a final calculation using the measurements from the site after the remediation is completed. In the unlikely event that post-remediation analysis indicates the potential for exposures above the 25 mrem/yr TEDE level, additional decontamination will be performed.

4. EVALUATION OF ALTERNATIVES

4.1 EVALUATION CRITERIA

The alternatives described above were evaluated using CERCLA criteria to determine the most favorable actions for cleanup of the Bliss & Laughlin Site. These criteria are described below. They were established to ensure that the remedy is protective of human health and the environment, meets regulatory requirements, is cost effective, and uses permanent solutions and treatment to the maximum extent practicable. The results of the evaluation of alternatives to remediate the Bliss & Laughlin Site are described below.

Table 1. Summary of CERCLA Evaluation Criteria

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 all of the ARARs of other Federal and State environmental laws
Long-Term Effectiveness and Permanence	addresses the impacts of an alternative to protect human health and the environment over time, once the 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 anticipated performance of treatment tant 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
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

4.2 EVALUATION OF ALTERNATIVES

4.2.1 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 ARARs in several areas of the building. With No Action scenarios are possible where individuals could be exposed to this material for extended periods of time resulting in an unacceptable risk. 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 the risks 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 ARARs.

Alternative 3, Building Decontamination of Buildings, would eliminate the potential for 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. Cashwell et al. (1986) have compiled the risks per kilometer. Risks are reduced by using shorter shipping distances. 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 surfaces in the building exceed criteria, 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.

4.2.2 Compliance with Federal and State Environmental Regulations

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 ARARs. Alternative 3, Decontamination, would be conducted in a manner that complies with ARARs. Post remedial surveys and analyses would be performed to assure compliance with the ARARs.

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

4.2.3 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. Alternatives 3 would be effective in reducing short and long term health risks and would eliminate radioactive materials at the site. Alternatives 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.

4.2.4 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 to meet the standards of any off-site disposal facility.

4.2.5 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. These include processes such as blasting, Blastrac, needle guns scabblers, vacuums, paint remover, and cloth cleaning.

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. Processes such as CO_2 blasting, media blasting, Blastrac, needle guns, scabblers, vacuums, paint remover, and cloth cleaning are readily available. One complexity for alternative 3 is due to the need to work around ongoing activities. Thus, the work will likely be done 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.

4.2.6 Cost

Alternative 1, No Action, would have no cost. Alternative 2, Continued Institutional Controls, is estimated to cost about $350,000 (mainly for monitoring and reviews over the next 30 years). Alternative 3, Building Decontamination, is estimated to cost approximately $400,000 ($350,000 to $430,000). Costs are in 1998 dollars. Costs could vary due to uncertainty in the amount of material, the actual disposal location and transportation distances, and other factors. However, the cost estimates represent a reasonable comparison of the alternatives. The cost range for Alternative 3, Building Decontamination, reflects cleanup volumes ranging from 6 cubic yards (the current best estimate) to 20 cy. The larger volume allows for possible volume increases if material is found in the trench or other areas.

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 about $ 15,000 each; Institutional controls, surveillance and monitoring for 30 years at about $530/month, and project management at about $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. Principle costs include:

WBS*, Activities	Cost (rounded to thousands)
• 32XX, studies and design	$64,000
• 331XX01 & 331XX21, mob and demobilization	$10,000
• 331XX02, monitoring, sampling and analysis	$18,000
• 331XX03, site work including equip.. relocation, & office	$68,000
• 331XX17, D&D	$ 4,000
• 331XX19, transportation and disposal	$15,000
• 331XX2201, supervision, safety & health, eng., waste mgmt.	$67,000
• 331XX9X, other including mgr., data, CR, permits	$129,000
• 333XX, construction management	$31,000
• 34XXX, HTRW (post construction)	$18,000

* The Work Breakdown Structure (WBS) and the cost estimate are shown in Appendix B.

4.2.7 State and Community Acceptance

The last two criteria, acceptability to the state and local community, will be evaluated after public input is received.

5. SELECTION OF THE PREFERRED ALTERNATIVE

The USACE prefers Alternative 3, Decontamination of Buildings. This alternative is 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). Decontamination to as low as reasonably achievable levels will be conducted by (1) removal of contamination at levels above those in Regulatory Guide 1.86, (2) performing additional decontamination attempts for areas with levels above 2,000 dpm/100 cm^2 (i.e., 2,000 dpm/cm^2 averaged over not more than 1 m^2 versus the 5,000 dpm/100 cm^2 in the Regulatory Guide), and (3) post remediation measurements and calculations to assure that the remediated site meets the 25 mrem/yr ARAR. This action would complete the remediation of the Bliss and Laughlin site.

Radioactive materials would be packaged and shipped according to the acceptance criteria of the disposal facility as well as applicable Department of Transportation requirements. Materials would 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 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 ARARs and to evaluate if the action meets the TBCs.

6. COMMUNITY ROLE IN THE SELECTION PROCESS

USACE invites members of the public to review the proposed plan and the supporting documents which further describe the conditions at the Bliss & Laughlin Site and the basis for the proposal. Those documents may be found in the administrative record for the Bliss & Laughlin Site at the Buffalo and Erie County Public Library-Dudley Branch, 2010 South Park Avenue, Buffalo, New York, 14220, and at the USACE FUSRAP Public Information Center, 1776 Niagara Street, Buffalo, New York, 14207. Members of the public who wish to comment upon this proposed plan may submit their comments to USACE at the following address:

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

Please refer to this proposed plan or to the Bliss & Laughlin Site in the comments. All comments will be reviewed and considered by USACE in determining the final remedy for the Bliss & Laughlin Site. Comments should be submitted no later than 30 days after the date of this proposed plan.

After the close of the comment period, USACE will review all public comments, as well as the information contained in the Administrative Record file for this site, and any new information developed or received during the course of this comment period, in light of the requirements of CERCLA and the NCP. An authorized official of USACE will then make a final selection of the remedial action to be conducted at this site. This decision will be documented in a Record of Decision, which will be issued to the public, along with a response to all comments submitted regarding this proposed plan.

7. 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.*

AEC (Atomic Energy Commission) Regulatory Guide 1.86. *Termination of Operating Licenses for Nuclear Reactors.*

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

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

NYSDEC, 1993. New York Department of Environmental Conservation Technical Administrative Guidance Memorandum (TAGM) 4003.

NUREG-1500. Dailey, 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.

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

Appendix A BLISS AND LAUGHLIN STEEL CHARACTERIZATION RESULTS

FUSRAP Project
Job 14501

128-95-
NO 012 Rev. No. 0

DATE: _____

FUSRAP TECHNICAL MEMORANDUM

TO: Eric T. Newberry

FROM: Laura M. Artates

DATE: May 11, 1995

SUBJECT: Bliss and Laughlin Steel Characterization Results

Prepared By	Team Lead Approval	Project Engineer Approval	Project Manager Approval
L.M. Artates	[signature]	[signature]	[signature] 5/15/95

SCOPE

This Technical Memorandum presents the results of the radiological and chemical characterization of the Bliss and Laughlin Steel site. Historically, the facility was the site of uranium metal machining; therefore, the primary radiological constituent of concern is U-238. The site was assigned to FUSRAP based upon a designation survey performed by the Oak Ridge Institute for Science and Education. Using the data reported in the ORISE designation survey (ORISE, 1992) 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 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 TCLP Total, which included metals, volatile organics, semi-volatile organics, pesticides, and herbicides.

PROCEDURES

To aid in identification of areas within the building the north-south support column lines were numbered 1 to 23 from west to east and the east-west column lines were labeled A to X from south to north (Figure 1). Each section of the floor is designated by the letter and number of the SW corner

column of that section. All sampling locations and areas of significant findings were identified such that the location can be referenced to the SW corner of a section. All fixed point measurements were performed to measure levels of alpha and beta-gamma radiation, although the conditions in the building (i.e. oil-covered floors) were expected to cause significant shielding of alpha radiation.

Three different levels of survey were performed on different areas of the floor. A Level I survey consisting of a 1-meter^2 five-point survey was conducted in the areas where elevated surface readings were identified (the Special Finishing Area). This survey was to clearly define the areas of elevated surface activity. A Level II survey consisting of a 100% scan using a floor monitor was conducted over a six-meter wide area surrounding all Level I survey areas. This survey was to verify that all elevated areas were bounded. A Level III survey, covering at least 50% of the floors in the remainder of the building, was performed to verify that no other areas of the building floors were radiologically elevated. Surface scan readings were considered to be elevated if they were twice background (Table 1) as used in the Level II and Level III surveys. Additional surveys were performed and samples were collected in the Special Finishing Area to determine the scope for potential remediation planning.

RESULTS

75% of the alpha readings on the floors were at or below background (<Lc), as compared to 31% of the beta-gamma readings, indicating that the majority of the alpha radiation was shielded by the material on the surfaces being scanned or measured. Because of this, both alpha and beta gamma results will be reported in the data tables, but only beta-gamma results will be discussed. The alpha results from the overheads correlated slightly better with the beta/gamma results, indicating that the overhead contamination is probably not being shielded by paint. References to all original data can be found in the Work Instruction (BNI WI-95-073).

Ceiling and Overhead Trusses

The overhead trusses above the Special Finishing Area were scanned to determine if they were above guidelines for beta-gamma contamination (Attachment 3). The survey results are presented in Figure 2 and Table 2.

- At a minimum, 50% of the surfaces of the bottom horizontal chords and the bottom two feet of the vertical members in the trusses were scanned. Twenty-one direct point measurements were recorded. There were no locations above fixed criteria, and only three locations where the direct readings were above transferable criteria (Table 2). Three composite dust samples were also collected and analyzed for radiological parameters: BLS014 from truss 19, BLS015 from truss 20, and BLS016 from truss 18 (Attachment 1). These samples had slightly elevated levels of uranium contamination, with the highest value at 15.6 pCi/g U-238. No samples were above criteria. No chemical characterization samples were collected from the overheads.

- The ceiling and upper sections of the trusses above the Special Finishing Area were surveyed by taking four direct readings on each truss and four readings on the ceiling areas near each truss. Six locations on the upper chords were smeared due to elevated readings. There were

two locations where direct measurements were above fixed criteria, and no locations where transferable measurements were above criteria (Table 2). It was not possible to access the roof vents, or to collect samples from the top portions of the trusses. There were no roof vents directly above the special finishing area.

- Accessible areas of the crane were scanned, and showed no elevated readings.

Floors

Three different levels of survey were performed on different areas of the floor. Much of the floor throughout the building was obstructed by storage racks filled with steel stock or operations equipment, and was not accessible.

Level I Survey

A Level I survey consisting of a 1-meter^2 five-point survey and a floor monitor scan was conducted in the area where contamination was previously identified in the designation report Elevated locations identified as part of the floor monitor scan were then defined and measured using hand-held instruments. The areas of Level I survey are indicated in Figure 3 by the smaller square grid. Complete 5-point survey data for the Level I survey is presented in Attachment 4.

- Figure 3 shows the area encompassed by the Level I survey and the locations identified as not accessible (NA), elevated but below criteria (2,000-5,000 dpm/100cm^2), above average criteria but below hotspot criteria (5,000 - 15,000 dpm/100cm^2), and above hotspot criteria (15,000 dpm/100cm^2).

- There were a total of ten locations above hotspot criteria. The direct beta/gamma readings for these locations ranged from approximately 17,000 to 280,000 dpm/100cm^2 (Table 3) and are indicated in Figure 3 by boxed X symbols.

- Eight locations fell between the average and hotspot criterias (5,000 - 15,000 dpm/100cm^2). These locations are indicated in Figure 3 by diamond symbols. The data for these locations is presented in Table 4.

- To aid in remedial design an additional 17 locations were identified as elevated, although none of these locations is above criteria (Table 5). These locations are indicated Figure 3 by open square symbols.

Level II Survey

A Level II survey consisting of a 100% scan of accessible areas using a floor monitor and/or hand held instruments was conducted over a six-meter-wide area around the Level I survey areas. The area included is indicated in Figure 3 by the larger square grid.

- This survey was used to verify that all elevated areas were bounded within the Level I survey area. No direct readings were taken in this survey. No areas at or above twice background were encountered in this survey.

Level III Survey

A Level III survey was conducted throughout the remainder of the building. The accessible floors in all areas outside the Level I and Level II areas were scanned using a floor monitor, based on the data quality objectives for this characterization. Large areas which were not accessible are indicated in Figure 1. The remainder of the floors were estimated to be accessible for survey on an average of 40% of the surface. 30 additional point measurements were taken throughout the building based on field observations (Figure 1).

- All 30 point measurements were well below criteria, showing no evidence of contamination. The results from this survey are presented in Table 6.

- Floor monitor surveys did not indicate the presence of any hotspots or elevated areas.

TCLP Results

One composite sample was collected from the floors in the Special Finishing Area and analyzed for TCLP Total. No RCRA hazardous constituents were identified (Attachment 2).

Trenches

Shallow drainage trenches in the vicinity of the special finishing area were surveyed using hand-held instruments. No trenches were located in areas of elevated surface activity. The accessible sections of trenches surveyed showed no elevated readings, so no samples were collected. The trenches have been added to the as-built drawing (Figures 1 and 3).

Support columns/Equipment/etc.

- Support columns E18 and E20 were surveyed with hand-held meters to 2 meters high to determine if they were above guidelines for beta-gamma surface contamination. Results show no elevated readings (Table 7).

- The equipment in the Special Finishing Area did not show evidence of contamination. Floor surfaces underneath equipment were surveyed as part of the Level I survey. One sample of floor material from under a piece of equipment was taken where radiological analysis results above guidelines were present (Attachment 1: BLS018 and Figure 3:E).

Subsurface Floor Sampling

Six core locations in the Level 1 survey area were selected based on surface features and floor scan results. These locations were in areas where the potential for downward contamination migration was the greatest, either near expansion joints, resurfaced or repaired floor areas, or irregular areas of the floor (Figure 3). Sample results are presented in Attachment 1.

- Core location 1 (Figure 3:H) was partially under one of the pieces of equipment, at an irregular area of the floor. The drilling location was approximately 2.5 ft. E of a location which showed elevated surface readings. The concrete extended deeper than the drill could reach, so no subsurface sample was obtained. The surface of the core showed no elevated readings. A surface sample from the nearby elevated location (Figure 3:E) was collected, and showed U-238 at 1,215 pCi/g (BLS018).

- Core location 2 was taken along the surface of an old equipment stand which had apparently been demolished to the floor surface (Figure 3:I). The first attempt was directly on the broken concrete on an elevated location, but refusal was met at a few inches in depth. A sample of the top of the concrete (BLS007) was below radiological criteria. A second hole approximately 6 inches over reached soil at seven inches deep. A soil sample was collected from the top seven inches of soil (BLS011), that was below radiological criteria.

- Two attempts were made to reach soil at core location 3, which was in a repoured area near the center of the Special Finishing Area (Figure 3:J). A vertical metal bolt was encountered in the first hole, and the second one reached the furthest extent of the drill (approximately 15 inches) without encountering soil. The cores and holes were scanned and showed no elevated direct readings, and no samples were collected.

- Core location 4 was in a repoured area between columns E18 and E20 (Figure 3:K). One core was drilled, and refusal was encountered at approximately 6 inches. The core was removed, revealing gravel and the open end of a section of pipe, indicating that a trench had been filled with debris and then sealed with concrete. The core and hole were scanned and showed no elevated readings, and no samples were collected.

- Core location 5 was adjacent to an expansion joint north of column E20, where elevated readings were measured on the floor (Figure 3:L). A core was removed (approximately 6 inches), and soil samples were collected. The top six inches of soil were sent for analysis (BLS009), and the next six inches were archived. Analysis results showed that the soil was below criteria. A scan of the core and the hole showed no elevated readings.

- Core location 6 was located in the additional level I survey area between columns E16 and E18, in the center of a filled-in trench (Figure 3:M). Approximately four inches of concrete core was removed, revealing old pipe debris, gravel, and black sediment-like material. This material showed elevated readings, and two samples were collected (BLS003 & BLS004). These samples showed 23.5 and 86.7 pCi/g of U-238, respectively. A subsurface soil sample was collected using a hand-auger for analysis (BLS005) which was not above criteria, indicating that the contaminated material is isolated in the debris used to fill in the trench prior to sealing with concrete.

All of the cores which scanned clean were either placed back in the holes or disposed of as clean trash, and all of the boreholes were filled with quick-setting concrete.

Open buried conduit

There is an eight inch deep irregular hole in the floor near Column E-20 in the Special Finishing Area which contains the open end of a buried two inch conduit from which the wires have been cut and removed (Figure 3:C). The hole and the end of the conduit were scanned and a sample of the material around the conduit was collected. The hole and conduit showed no elevated readings, and analysis results of material collected from the hole were below criteria.

Water Valve Access

There is a three-foot deep water valve access shaft with a 10-inch lid near E18; N4, E11 (Figure 3:D). The interior sides and bottom of the shaft surfaces were not elevated. A sample (Attachment 1: BLS008) was taken from the material in the top of the lid, which showed U-238 at 128 pCi/g.

SUMMARY

- Two locations out of 45 surveyed on the overheads above the special finishing area were above 5000 dpm/100 sq cm 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.
- No subsurface soil samples showed evidence of contamination. One sample from a core taken through a filled-in trench showed elevated uranium levels. This material contained no long-lived daughters, and appears to be limited to debris deposited in the trench prior to sealing with concrete. The soil collected below this material was not above criteria.
- The remainder of the building was surveyed as extensively as building conditions allowed, and showed no evidence of additional contaminated areas.
- A composite TCLP total sample from the floor in the Special Finishing Area showed no RCRA hazardous constituents.

WASTE

PPE and equipment was surveyed for release to minimize the volume of radiologically contaminated waste generated. Waste water generated from cooling the core drill was used to backfill the boreholes, and the remainder will be evaporated and the residues surveyed for radiological contamination.

Figures:

Figure 1. Map of building with detail showing survey locations and reference grid.
Figure 2. Overheads above Special Finishing Area with Survey Locations
Figure 3. Detail of Special Finishing Area with Survey Results and Sampling Locations

Attachments:

1. Bliss and Laughlin Radiological Data
2. Bliss and Laughlin Chemical Data
3. DOE 5400.5 Figure IV-1, Surface contamination Guidelines
4. Bliss and Laughlin Steel 5-point Survey Data

References:

ORISE 1992, Radiological Survey of the Former Bliss and Laughlin Steel Company Facility, Buffalo, New York, ORISE 92/G-6

BNI WI, Bliss and Laughlin Steel Characterization, WI-95-073

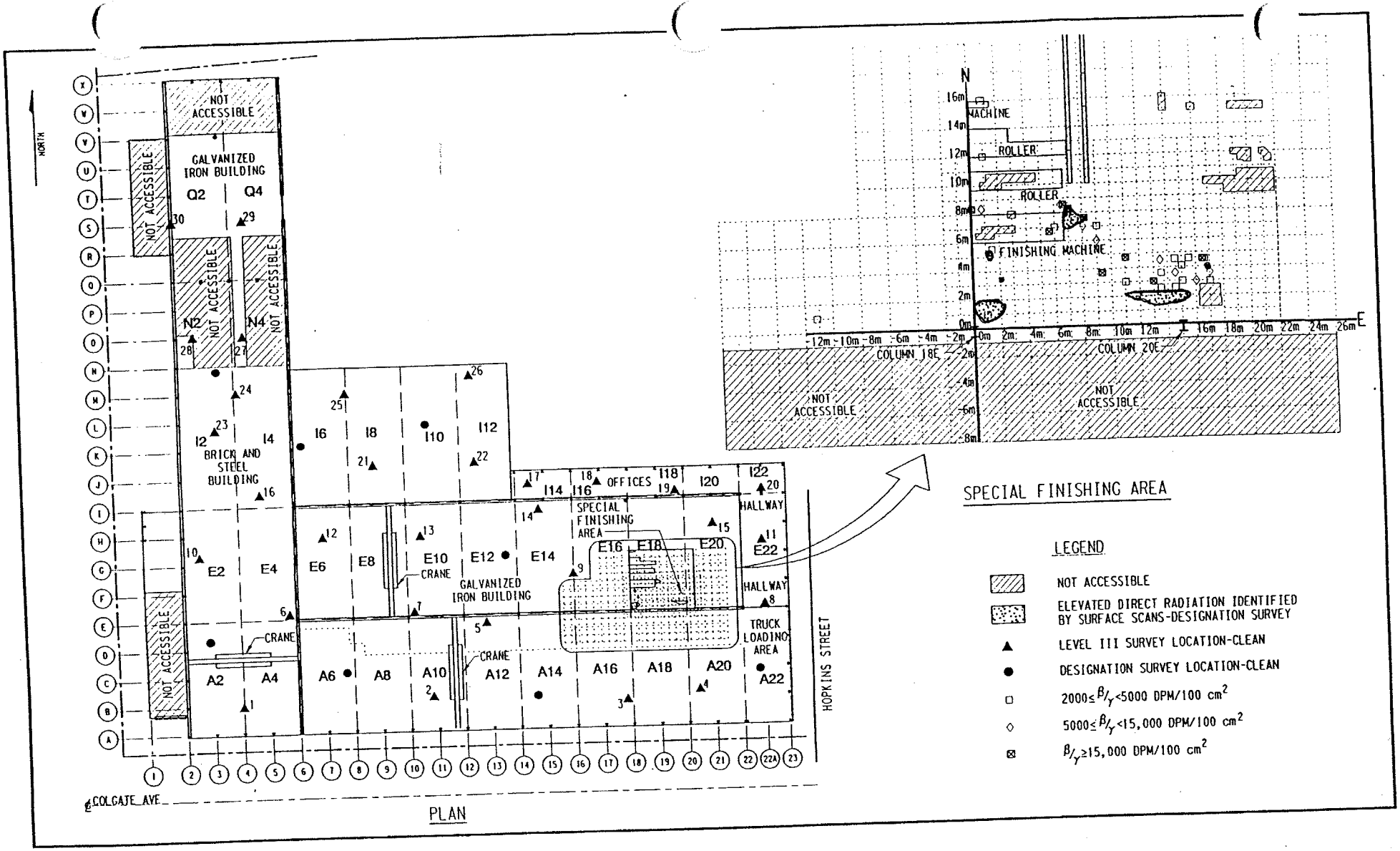

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Figure 1
Bliss and Laughlin Steel with Reference Grids and Survey Locations

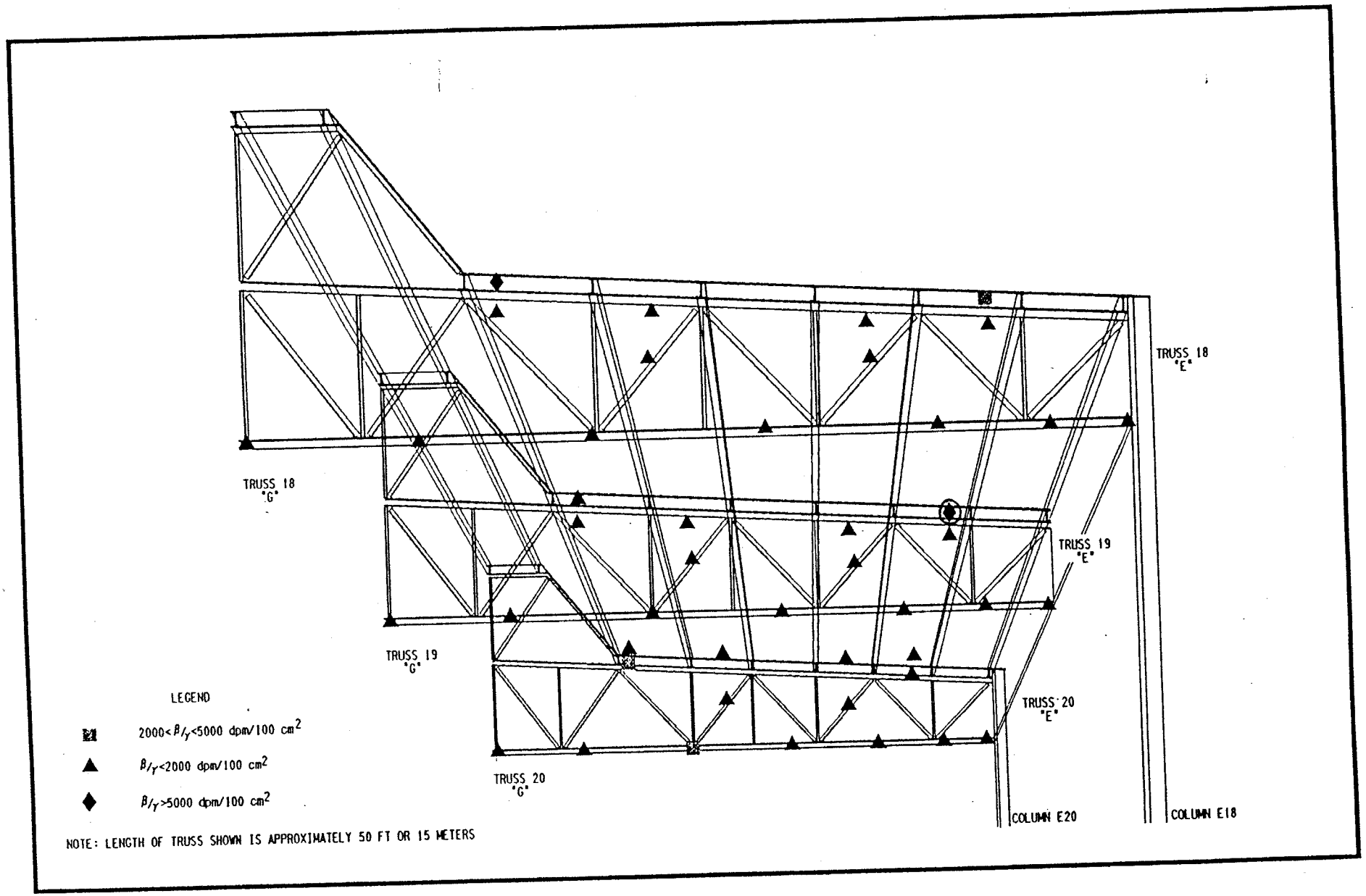

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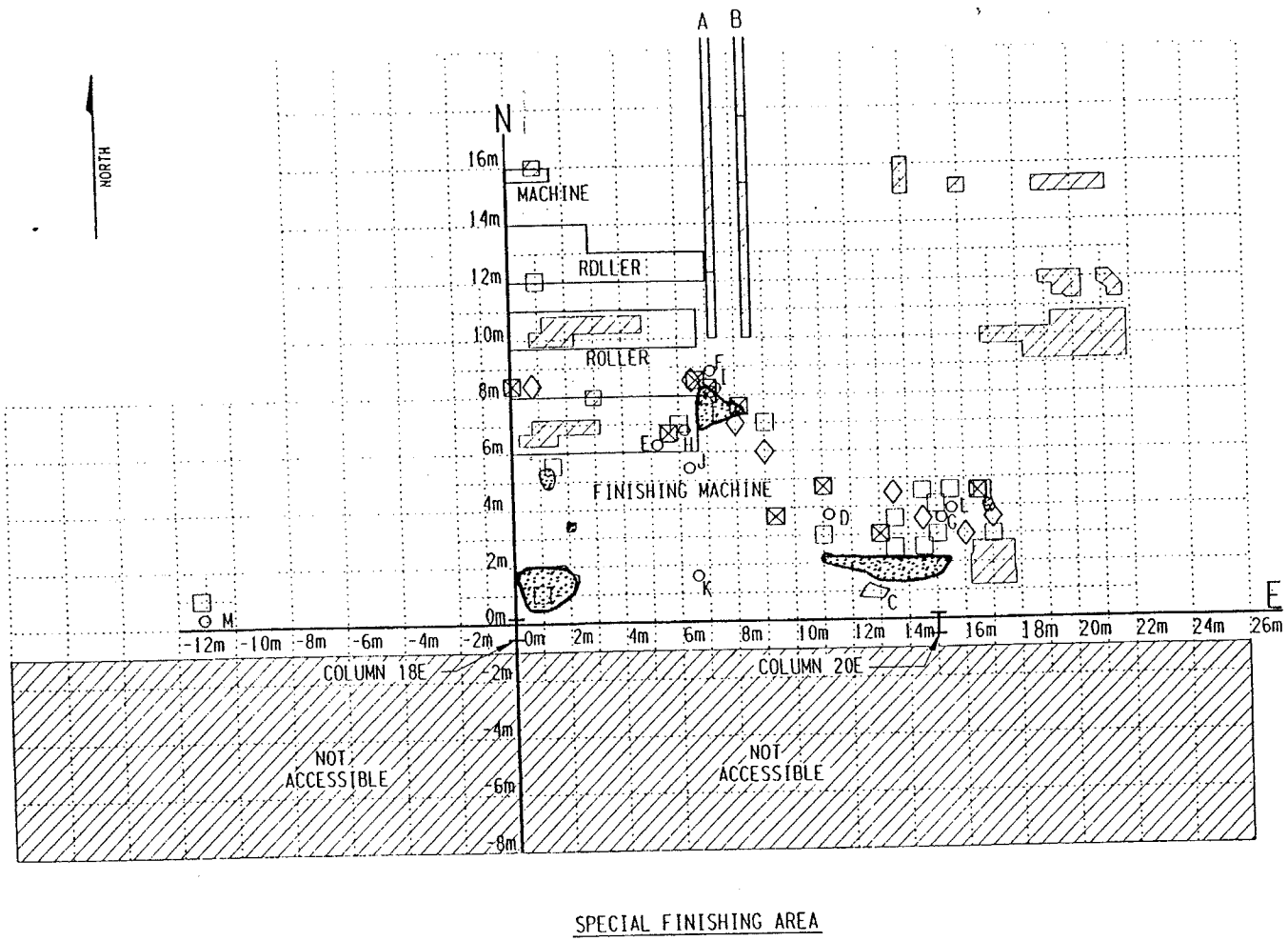
Figure 2
Overheads Above Special Finishing Area
with Survey Locations



SPECIAL FINISHING AREA

LEGEND

- NOT ACCESSIBLE
- ELEVATED DIRECT RADIATION IDENTIFIED BY SURFACE SCANS-DESIGNATION SURVEY
- $2000 \leq \beta/\gamma < 5000$ DPM/100 cm^2
- $5000 \leq \beta/\gamma < 15{,}000$ DPM/100 cm^2
- $\beta/\gamma \geq 15{,}000$ DPM/100 cm^2
- A — SAMPLING POINT WITH IDENTIFIER
- A — TRENCH, 4" DEEP, CONTAINING DRY MATERIAL. ACCESSIBLE FROM N10 TO N12.3
- B — TRENCH, 16" DEEP, CONTAINING MACHINE OIL/SLUDGE. ACCESSIBLE FROM N15.4 TO N17.7
- C — 8" DEEP HOLE WITH OLD 2" CONDUIT END, SAMPLE BLS002
- D — WATER VALVE ACCESS, 3' DEEP, SAMPLE BLS008 TAKEN FROM LID
- E — FLOOR SURFACE SAMPLE NEAR CORE LOCATION 1 (BLS018)
- F — FLOOR SURFACE SAMPLE NEAR CORE LOCATION 2 (BLS017)
- G — EXPANSION JOINT MATERIAL (BLS001)
- H — CORE LOCATION 1 (NO SAMPLE)
- I — CORE LOCATION 2 (BLS007 - TOP OF CONCRETE, BLS011 - SUBSURFACE SOIL)
- J — CORE LOCATION 3 (NO SAMPLE)
- K — CORE LOCATION 4 (NO SAMPLE)
- L — CORE LOCATION 5 (BLS009 - SUBSURFACE SOIL)
- M — CORE LOCATION 6 (BLS003-BLS004 - CONCRETE WITH DEBRIS) (BLS005 - SUBSURFACE SOIL)

128F003.DGN

Figure 3
Detail of Special Finishing Area with
Survey Results and Sampling Locations

Color 11x17

Table 1:
Bliss and Laughlin Steel Characterization
Background Values

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
GRID E-9	15	26	455	466	NA		NA	
GRID E-9	15	26	<Lc 107	426	NA		NA	
GRID E-9	<Lc 6	19	<Lc 187	436	NA		NA	
GRID E-9	24	32	375	457	NA		NA	
GRID E-9	<Lc 6	19	455	466	NA		NA	
GRID E-9	19	34	551	565	NA		NA	
GRID E-9	19	34	<Lc 32	504	NA		NA	
GRID E-9	<Lc 0	21	421	550	NA		NA	
GRID E-9	<Lc 10	28	<Lc 357	543	NA		NA	
GRID E-9	<Lc 10	28	616	572	NA		NA	

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

Table 2:
Bliss and Laughlin Steel Characterization
Survey of Overheads

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
TRUSS 20E-G								
CEILING @ 4M	<Lc 6	19	<Lc 54	420				
CEILING @ 7M	<Lc -4	5	348	454				
CEILING @ 11M	24	32	<Lc 134	429				
CEILING @ 13M	<Lc 6	19	482	469				
TOP OF TRUSS @ 13M	<Lc 6	19	1874	603	<Lc 0	0	<Lc 0	74
TOP OF ANGLE @ 11M	<Lc 6	19	509	472				
TOP OF ANGLE @ 7M	24	32	<Lc -107	400				
TOP OF TRUSS @ 4M	<Lc 6	19	2838	680	2	6	<Lc 37	78
TRUSS 19E-G	24	32	518	454				
CEILING @ 4M	<Lc -4	5	<Lc 294	448				
CEILING @ 7M	<Lc -4	5	<Lc 0	413				
CEILING @ 11M	24	32	<Lc 214	439				
CEILING @ 13M	<Lc 6	19	375	457				
TOP OF TRUSS @ 13M	24	32	5943	884	2	6	<Lc 49	80
TOP OF ANGLE @ 11M	15	26	562	478				
TOP OF ANGLE @ 7M	<Lc -4	5	455	466				
TOP OF TRUSS @ 4M	24	32	1365	558	2	6	86	83
TRUSS 18E-G								
CEILING @ 4M	<Lc -4	5	<Lc 214	439				
CEILING @ 7M	<Lc 6	19	<Lc 294	448				
CEILING @ 11M	15	26	<Lc -27	410				
CEILING @ 13M	<Lc 6	19	<Lc 54	420				
TOP OF TRUSS @ 13M	42	41	4149	773	11	11	<Lc 41	79
TOP OF ANGLE @ 11M	<Lc 6	19	<Lc -80	403				
TOP OF ANGLE @ 7M	24	32	616	484				
TOP OF TRUSS @ 4M	52	45	6318	906	5	8	<Lc 0	74
QC	33	36	5702	870	<Lc 0	0	<Lc 25	77
BOTTOM HORIZONTAL TRUSSES								
TRUSS #20 0m	<Lc -4	5	<Lc 285	428				
TRUSS #20 3m	15	26	<Lc 207	419				
TRUSS #20 6m	15	26	2228	614	NA			
TRUSS #20 9m	15	26	<Lc 259	425				
TRUSS #20 12m	15	26	700	474				
TRUSS #20 15m	<Lc -4	5	544	457				
TRUSS #20 18m	15	26	466	449				
TRUSS #19 0m	24	32	518	454				
TRUSS #19 3m	<Lc -4	5	<Lc 259	425				
TRUSS #19 6m	15	26	1036	508	NA			
TRUSS #19 9m	33	36	1062	510	NA			
TRUSS #19 12m	24	32	440	446				
TRUSS #19 15m	24	32	<Lc 26	397				
TRUSS #19 18m	<Lc 6	19	<Lc 285	428				
TRUSS #18 0m	<Lc 6	19	518	454				
TRUSS #18 3m	<Lc 6	19	<Lc 52	400				
TRUSS #18 6m	42	41	596	463				
TRUSS #18 9m	24	32	<Lc 207	419				
TRUSS #18 12m	<Lc 6	19	<Lc 285	428				
TRUSS #18 15m	24	32	363	437				
TRUSS #18 18m	24	32	829	487				

Comments: 0 is the center of the truss ("G"). Measurements are in meters moving south (towards "E").

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

lma:OVHDSTOT.XLS

Table 3:
Bliss and Laughlin Steel Characterization
Special Finishing Area - Survey locations above 15000 dpm/100 sq cm beta/gamma

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N3.0 E13.0	<Lc -4	20	108045	3303				
N8.0 E7.0	48	66	58554	2670	11	11	<Lc -21	73
N3.7 E9.35	15	26	42270	2126	5	8	<Lc 12	76
N7.6 E8.1	3165	335	135430	3755	224	50	1734	181
N8.1 E7.2	181	81	280257	5384	72	28	258	98
N8.5 E6.7	1129	200	29019	1776	17	14	152	89
N6.7 E5.7	42	41	17213	1393	23	16	184	92
N8.2 E0.1	98	60	218953	4763	<Lc 0	0	<Lc 33	78
N4.8 E11.0	33	36	55387	2422	<Lc 0	0	<Lc 25	77
N4.5 E16.5	88	57	71985	2752	2	6	<Lc 20	77

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

lma:LEV1_15K.XLS

Table 4:

Bliss and Laughlin Steel Characterization

Special Finishing Area - Survey locations between 5000 and 15000 dpm/100 sq cm beta/gamma

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N3.0 E16.0	24	37	6063	871	<Lc 2	6	<Lc -54	72
N3.5 E14.5	<Lc 28	50	7362	969	<Lc -1	0	<Lc -50	70
N4.5 E13.5	<Lc 9	43	5729	878	<Lc -1	0	<Lc 4	76
N6.0 E9.0	33	41	14717	1273	5	8	<Lc -13	76
N7.0 E8.0	77	74	5595	953	5	8	<Lc 46	80
N8.5 E6.5	64	62	6130	901	5	8	<Lc 59	81
N8.3 E0.9	15	26	14777	1300	<Lc 0	0	<Lc 33	78
N3.4 E17.0	<Lc 6	19	6559	919	2	6	<Lc -12	73

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

Table 5:
Bliss and Laughlin Steel Characterization
Special Finishing Area - Survey locations between 2000 and 5000 dpm/100 sq cm beta/gamma

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N1.0 E1.0	24	37	4949	805				
N12.0 E1.0	<Lc -10	47	3639	824	<Lc -2	6	<Lc -33	71
N2.5 E13.5	<Lc -9	35	3105	708	<Lc -1	0	<Lc 17	77
N2.5 E14.5	<Lc -9	35	2757	682	<Lc -1	0	<Lc -8	74
N3.0 E11.0	24	37	2176	609	<Lc -2	6	<Lc -8	77
N3.0 E15.0	24	37	4042	746	<Lc -1	0	<Lc -8	77
N3.0 E17.0	<Lc 6	27	4405	770	8	10	<Lc 0	78
N3.5 E13.5	<Lc 9	43	2329	649	<Lc -1	0	<Lc 8	76
N4.0 E15.0	<Lc 15	33	2565	640	<Lc -1	0	<Lc -33	74
N4.5 E14.5	55	59	2597	670	<Lc -1	0	<Lc -8	74
N4.5 E15.5	<Lc -9	35	3748	753	<Lc 2	6	<Lc -8	74
N4.5 E16.5	<Lc 9	43	2168	636	<Lc 2	6	<Lc -4	75
N5.5 E1.5	<Lc -28	24	2088	630	<Lc -1	0	<Lc -4	75
N7.0 E6.0	<Lc 10	54	2721	756	5	8	<Lc 13	76
N7.0 E9.0	<Lc -29	39	2905	770	<Lc 2	6	<Lc -21	73
N7.5 E7.5	<Lc 9	43	4819	823	<Lc 2	6	<Lc -33	71
N1.0 E-11.1	15	26	3641	738	2	6	<Lc 37	78

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

Ima:I_2TO5K.XLS

Table 6:
Bliss and Laughlin Steel Characterization
Level III Survey - 30 Points

		DIRECT				TRANSFERABLE			
		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
NO:	LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
1	A4; N7.0 E0.0	<Lc -10	47	1101	617	<Lc 2	6	<Lc -21	76
2	A11; N8.9 W1.4	<Lc 0	51	887	596	<Lc 2	6	<Lc -84	69
3	A18; N6.7 W1.5	NA	NA	<Lc 153	519				
4	A20; N9.2 E3.0	<Lc -29	39	642	572				
5	E12; S2.2 E6.2	<Lc -19	43	581	565				
6	E6; N1.2 W2.0	<Lc -39	34	<Lc 275	533				
7	E10; N1.0 E1.6	<Lc -19	43	459	553				
8	I20; S29.7 E20.3	<Lc -29	39	<Lc 336	539				
9	E16; N10.3 E0.0	<Lc -10	47	<Lc 306	536				
10	G2; N1.6 E4.3	<Lc 29	60	<Lc 214	526				
11	I20; S12.5 E20.3	<Lc -29	39	<Lc -31	498				
12	H2; S1.3 E80.0	<Lc -19	43	<Lc 367	543				
13	E10; N21.4 E3.9	<Lc -10	47	734	581				
14	I11; N2.8 W1.5	<Lc -39	34	<Lc 306	536				
15	I21; S7.5 E0.0	<Lc -19	43	<Lc 61	509				
16	J2; S4.6 E21.1	<Lc -39	34	550	562				
17	I14; N4.7 E4.0	<Lc -29	39	<Lc 367	543				
18	I16; N4.0 E8.4	<Lc -19	43	428	549				
19	I20; N0.7 W0.7	<Lc -48	28	<Lc 275	533				
20	I20; N0.7 E20.3	<Lc -48	28	581	565				
21	I9; N10.1 W1.0	<Lc -29	39	<Lc 275	533				
22	I12; N9.7 E4.3	<Lc -10	47	<Lc 245	529				
23	K2; N5.2 E9.8	<Lc -48	28	<Lc 275	533				
24	M6; N0.0 W7.5	<Lc -29	39	<Lc 275	533				
25	M8; S0.9 W0.3	<Lc 0	51	<Lc 367	543				
26	M12; N3.1 E3.4	67	71	550	562				
27	O6; N0.0 W12.4	<Lc -39	34	<Lc 367	543				
28	O2; N0.0 E4.1	<Lc -48	28	<Lc 306	536				
29	S6; N0.0 W11.4	<Lc -10	47	1070	614	<Lc -1	0	<Lc -105	66
30	S2; N4.0 E0.2	<Lc -19	43	581	565				

Comments: NA= AREA TOO WET TO OBTAIN ALPHA MEASUREMENTS
THE ALPHA NUMERIC CHARACTERS REPRESENT THE REFERENCED COLUMN USED TO OBTAIN THE COORDINATES
THE NUMBER REPRESENTS THE LOCATION AS SHOWN ON THE FIGURE.

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

Table 7:
Bliss and Laughlin Steel Characterization
Survey of Columns

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
COLUMN E-18A								
FRONT @ 1M	<Lc 0	21	<Lc 324	539				
BACK @ 1M	38	43	<Lc -195	476				
SIDE @ 1M	<Lc 10	28	<Lc -130	484				
SIDE @ 1M	<Lc 0	21	<Lc -130	484				
COLUMN E-18B								
FRONT @ 1M	19	34	<Lc 97	512				
BACK @ 1M	<Lc 0	21	<Lc -195	476				
SIDE @ 1M	<Lc 0	21	<Lc -389	449				
SIDE @ 1M	19	34	<Lc -195	476				
COLUMN E-18A								
FRONT @ 2M	<Lc -10	8	<Lc -227	471				
BACK @ 2M	<Lc -10	8	<Lc 32	504				
SIDE @ 2M	<Lc -10	8	<Lc -389	449				
SIDE @ 2M	<Lc 0	21	4085	871	8	10	111	85
QC	<Lc 0	21	3145	801	5	8	90	83
COLUMN E-18B								
FRONT @ 2M	<Lc 0	21	<Lc 162	520				
BACK @ 2M	<Lc 0	21	<Lc 0	500				
SIDE @ 2M	<Lc -10	8	<Lc -259	467				
SIDE @ 2M	67	54	<Lc -130	484				
COLUMN E-20A								
FRONT @ 1M	19	34	<Lc -130	484				
BACK @ 1M	<Lc -10	8	<Lc 162	520				
SIDE @ 1M	<Lc -10	8	<Lc -97	488				
SIDE @ 1M	19	34	<Lc 0	500				
COLUMN E-20B								
FRONT @ 1M	19	34	<Lc -130	484				
BACK @ 1M	<Lc -10	8	<Lc -162	480				
SIDE @ 1M	<Lc -10	8	<Lc -486	436				
SIDE @ 1M	<Lc -10	8	<Lc -162	480				
COLUMN E-20A								
FRONT @ 2M	<Lc 0	21	<Lc -32	496				
BACK @ 2M	<Lc -10	8	<Lc 97	512				
SIDE @ 2M	<Lc -10	8	<Lc -227	471	8	10	111	85
SIDE @ 2M	<Lc 0	21	<Lc -65	492				
COLUMN E-20B								
FRONT @ 2M	19	34	<Lc -130	484				
BACK @ 2M	<Lc 0	21	<Lc -454	440				
SIDE @ 2M	<Lc -10	8	<Lc -97	488				
SIDE @ 2M	<Lc 0	21	<Lc -227	471				
QC	<Lc 10	28	<Lc 0	500				

Comments: SMEARS COUNTED 3-13-95. FRONT = NORTH SIDE
COLUMN A= SMALLER COLUMN. COLUMN B= LARGER COLUMN.

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

lma:COLSTOT.XLS

Attachment 1:
Bliss & Laughlin Steel Characterization
Radiological Data

Bliss and Laughlin Radiological Data

Sample Location	Date Collected	Analyte	Result	Error	Units	MDL	BNI Flag
BLS001	3/4/95	AM-241	2	0	PCI/G	2	UJ
BLS001	3/4/95	K-40	0.29	9.9	PCI/G	35.2	UJ
BLS001	3/4/95	RA-226	3.9	0	PCI/G	3.9	UJ
BLS001	3/4/95	RA-228	9.8	0	PCI/G	9.8	UJ
BLS001	3/4/95	TH-228	9.8	0	PCI/G	9.8	UJ
BLS001	3/4/95	TH-232	7.5	0	PCI/G	7.5	UJ
BLS001	3/4/95	U-234	— 71.1	22.5	PCI/G	0.36	J
BLS001	3/4/95	U-235	4.1	1.7	PCI/G	0.34	J
BLS001	3/4/95	U-238	— 73.3	23.2	PCI/G	0.28	J
BLS002	3/5/95	AM-241	0.4	0	PCI/G	0.4	UJ
BLS002	3/5/95	K-40	3.9	1.8	PCI/G	5.7	UJ
BLS002	3/5/95	RA-226	1.1	0.22	PCI/G	0.6	
BLS002	3/5/95	RA-228	1.7	0	PCI/G	1.7	UJ
BLS002	3/5/95	TH-228	1.7	0	PCI/G	1.7	UJ
BLS002	3/5/95	TH-232	0.67	0.44	PCI/G	0.9	UJ
BLS002	3/5/95	U-234	5.1	1.4	PCI/G	0.11	U
BLS002	3/5/95	U-235	0.29	0.18	PCI/G	0.12	J
BLS002	3/5/95	U-238	4.8	1.3	PCI/G	0.05	
BLS003	3/5/95	AM-241	0.3	0	PCI/G	0.3	UJ
BLS003	3/5/95	K-40	8.4	1	PCI/G	1.9	J
BLS003	3/5/95	RA-226	0.53	0.1	PCI/G	0.28	
BLS003	3/5/95	RA-228	0.7	0	PCI/G	0.7	UJ
BLS003	3/5/95	TH-228	0.7	0	PCI/G	0.7	UJ
BLS003	3/5/95	TH-232	0.56	0	PCI/G	0.56	UJ
BLS003	3/5/95	U-234	30.8	9.3	PCI/G	0.17	J
BLS003	3/5/95	U-235	1.1	0.5	PCI/G	0.09	J
BLS003	3/5/95	U-238	23.5	6.1	PCI/G	2.6	
BLS004	3/5/95	AM-241	0.76	0	PCI/G	0.76	UJ
BLS004	3/5/95	K-40	12.4	2.2	PCI/G	2.2	J
BLS004	3/5/95	RA-226	0.27	0.1	PCI/G	0.35	UJ
BLS004	3/5/95	RA-228	1.1	0	PCI/G	1.1	UJ
BLS004	3/5/95	TH-228	1.1	0	PCI/G	1.1	UJ
BLS004	3/5/95	TH-232	0.92	0	PCI/G	0.92	UJ
BLS004	3/5/95	U-234	— 89.9	35.6	PCI/G	0.24	J
BLS004	3/5/95	U-235	6.2	2.9	PCI/G	0.5	J
BLS004	3/5/95	U-238	— 90.5	35.9	PCI/G	0.47	J
BLS005	3/5/95	AM-241	0.33	0	PCI/G	0.33	UJ
BLS005	3/5/95	K-40	12.1	1.5	PCI/G	2.8	J
BLS005	3/5/95	RA-226	1.3	0.17	PCI/G	0.4	
BLS005	3/5/95	RA-228	1.2	0	PCI/G	1.2	UJ
BLS005	3/5/95	TH-228	1.2	0	PCI/G	1.2	UJ
BLS005	3/5/95	TH-232	0.87	0	PCI/G	0.87	UJ
BLS005	3/5/95	U-234	5	1.5	PCI/G	0.12	U
BLS005	3/5/95	U-235	0.31	0.2	PCI/G	0.12	J
BLS005	3/5/95	U-238	6	1.8	PCI/G	0.13	
BLS007	3/5/95	AM-241	0.49	0	PCI/G	0.49	UJ
BLS007	3/5/95	K-40	18.3	2.8	PCI/G	3.8	J
BLS007	3/5/95	RA-226	0.78	0	PCI/G	0.78	UJ
BLS007	3/5/95	RA-228	1.6	0	PCI/G	1.6	UJ
BLS007	3/5/95	TH-228	1.6	0	PCI/G	1.6	UJ
BLS007	3/5/95	TH-232	1.3	0	PCI/G	1.3	UJ
BLS007	3/5/95	U-234	13.6	3.3	PCI/G	0.07	
BLS007	3/5/95	U-235	0.66	0.25	PCI/G	0.04	J
BLS007	3/5/95	U-238	15.3	3.7	PCI/G	0.03	

Bliss and Laughlin Radiological Data

Sample Location	Date Collected	Analyte	Result	Error	Units	MDL	BNI Flag
BLS008	3/5/95	AM-241	1.8	0	PCI/G	1.8	UJ
BLS008	3/5/95	K-40	2.6	7.6	PCI/G	26.6	UJ
BLS008	3/5/95	RA-226	3.2	0	PCI/G	3.2	UJ
BLS008	3/5/95	RA-228	8.2	0	PCI/G	8.2	UJ
BLS008	3/5/95	TH-228	8.2	0	PCI/G	8.2	UJ
BLS008	3/5/95	TH-232	5.7	0	PCI/G	5.7	UJ
BLS008	3/5/95	U-234	96.6	32.8	PCI/G	0.32	J
BLS008	3/5/95	U-235	5.4	2.3	PCI/G	0.23	J
BLS008	3/5/95	U-238	101.3	34.4	PCI/G	0.18	J
BLS009	3/4/95	AM-241	0.48	0	PCI/G	0.48	UJ
BLS009	3/4/95	K-40	28	3.1	PCI/G	2.1	J
BLS009	3/4/95	RA-226	1.3	0.22	PCI/G	0.58	
BLS009	3/4/95	RA-228	1.6	0	PCI/G	1.6	UJ
BLS009	3/4/95	TH-228	1.6	0	PCI/G	1.6	UJ
BLS009	3/4/95	TH-232	1.2	0.22	PCI/G	0.79	J
BLS009	3/4/95	U-234	1.6	0.59	PCI/G	0.12	U
BLS009	3/4/95	U-235	0.06	0.09	PCI/G	0.14	UJ
BLS009	3/4/95	U-238	1.4	0.53	PCI/G	0.07	U
BLS011	3/5/95	AM-241	0.56	0	PCI/G	0.56	UJ
BLS011	3/5/95	K-40	21.8	2.6	PCI/G	2.6	J
BLS011	3/5/95	RA-226	1.8	0.3	PCI/G	0.68	
BLS011	3/5/95	RA-228	1.9	0	PCI/G	1.9	UJ
BLS011	3/5/95	TH-228	1.9	0	PCI/G	1.9	UJ
BLS011	3/5/95	TH-232	1.4	0	PCI/G	1.4	UJ
BLS011	3/5/95	U-234	1.9	0.54	PCI/G	0.07	U
BLS011	3/5/95	U-235	0.07	0.07	PCI/G	0.08	UJ
BLS011	3/5/95	U-238	1.9	0.55	PCI/G	0.04	
BLS014	2/25/95	AM-241	0.49	0	PCI/G	0.49	UJ
BLS014	2/25/95	K-40	21.1	3.4	PCI/G	4.5	J
BLS014	2/25/95	RA-226	1	0	PCI/G	1	UJ
BLS014	2/25/95	RA-228	2.3	0	PCI/G	2.3	UJ
BLS014	2/25/95	TH-228	2.3	0	PCI/G	2.3	UJ
BLS014	2/25/95	TH-232	1.6	0	PCI/G	1.6	UJ
BLS014	2/25/95	U-234	13	5.5	PCI/G	0.39	J
BLS014	2/25/95	U-235	1.4	0.83	PCI/G	0.3	J
BLS014	2/25/95	U-238	15.6	6.5	PCI/G	0.34	J
BLS015	2/25/95	AM-241	0.64	0	PCI/G	0.64	UJ
BLS015	2/25/95	K-40	17.8	3.7	PCI/G	7.2	J
BLS015	2/25/95	RA-226	1.2	0	PCI/G	1.2	UJ
BLS015	2/25/95	RA-228	2.7	0	PCI/G	2.7	UJ
BLS015	2/25/95	TH-228	2.7	0	PCI/G	2.7	UJ
BLS015	2/25/95	TH-232	2	0	PCI/G	2	UJ
BLS015	2/25/95	U-234	12.4	5.3	PCI/G	0.27	J
BLS015	2/25/95	U-235	0.69	0.53	PCI/G	0.39	J
BLS015	2/25/95	U-238	11.8	5	PCI/G	0.16	J
BLS016	2/25/95	AM-241	0.3	0	PCI/G	0.3	UJ
BLS016	2/25/95	K-40	0.85	1.7	PCI/G	5.8	UJ
BLS016	2/25/95	RA-226	0.73	0	PCI/G	0.73	UJ
BLS016	2/25/95	RA-228	1.8	0	PCI/G	1.8	UJ
BLS016	2/25/95	TH-228	1.8	0	PCI/G	1.8	UJ
BLS016	2/25/95	TH-232	1.3	0	PCI/G	1.3	UJ
BLS016	2/25/95	U-234	10.3	4.4	PCI/G	0.26	J
BLS016	2/25/95	U-235	0.47	0.41	PCI/G	0.32	J
BLS016	2/25/95	U-238	11.4	4.9	PCI/G	0.26	J

Bliss and Laughlin Radiological Data

Sample Location	Date Collected	Analyte	Result	Error	Units	MDL	BNI Flag
BLS017	2/26/95	AM-241	37.2	0	PCI/G	37.2	UJ
BLS017	2/26/95	K-40	21.9	36.1	PCI/G	123	UJ
BLS017	2/26/95	RA-226	23	0	PCI/G	23	UJ
BLS017	2/26/95	RA-228	39.2	0	PCI/G	39.2	UJ
BLS017	2/26/95	TH-228	39.2	0	PCI/G	39.2	UJ
BLS017	2/26/95	TH-232	35.1	0	PCI/G	35.1	UJ
BLS017	2/26/95	U-234	24290	6664	PCI/G	64.7	
BLS017	2/26/95	U-235	1026	443.6	PCI/G	136.3	J
BLS017	2/26/95	U-238	23570	6471	PCI/G	64.4	
BLS018	2/26/95	AM-241	2.4	0	PCI/G	2.4	UJ
BLS018	2/26/95	K-40	12.2	2.5	PCI/G	5.8	J
BLS018	2/26/95	RA-226	3.8	0.39	PCI/G	1.2	
BLS018	2/26/95	RA-228	1.8	0	PCI/G	1.8	UJ
BLS018	2/26/95	TH-228	0.75	1.7	PCI/G	1.8	UJ
BLS018	2/26/95	TH-232	3.8	1.6	PCI/G	1.1	J
BLS018	2/26/95	U-234	1220	490.8	PCI/G	91.9	
BLS018	2/26/95	U-235	41.8	84.2	PCI/G	113.3	UJ
BLS018	2/26/95	U-238	1215	488.7	PCI/G	91.5	

Data Qualifier Flags

J	Estimate, qualitatively correct but quantitatively suspect
R	Reject, data are not suitable for any purpose.
UJ	Undetected-estimated.
U	Undetected. The blank's result is equal to the detection limit, or above the detection limit and the results of the sample are less than 5 times the blank's result.

Attachment 2:
Bliss & Laughlin Steel Characterization
Chemical Data

Bliss and Laughlin Chemical Data

Sample Location	Date Collected	Analyte	Result	Units	BNI Flag	Lab Flag	DL	Matrix
BLS013	3/9/95	1,1-Dichloroethene	0.05	mg/l		U	0.05	W
BLS013	3/9/95	Chlorobenzene	0.05	mg/l		U	0.05	W
BLS013	3/9/95	Vinyl Chloride	0.1	mg/l		U	0.1	W
BLS013	3/9/95	Chloroform	0.05	mg/l		U	0.05	W
BLS013	3/9/95	1,2-Dichloroethane	0.05	mg/l		U	0.05	W
BLS013	3/9/95	2-Butanone	0.1	mg/l		U	0.1	W
BLS013	3/9/95	Carbon Tetrachloride	0.05	mg/l		U	0.05	W
BLS013	3/9/95	Trichloroethene	0.05	mg/l		U	0.05	W
BLS013	3/9/95	Benzene	0.05	mg/l		U	0.05	W
BLS013	3/9/95	Tetrachloroethene	0.05	mg/l		U	0.05	W
BLS013	3/10/95	Silver, TCLP Leachate	2.5	ug/l	UJ	U	2.5	W
BLS013	3/10/95	Mercury, TCLP Leachate	0.1	ug/l		U	0.1	W
BLS013	3/10/95	alpha-Chlordane	0.5	ug/l		U	0.5	W
BLS013	3/10/95	Heptachlor	0.5	ug/l		U	0.5	W
BLS013	3/10/95	Selenium, TCLP Leachate	44.4	ug/l		U	44.4	W
BLS013	3/10/95	Lead, TCLP Leachate	20.5	ug/l	UJ	U	20.5	W
BLS013	3/10/95	gamma-Chlordane	0.5	ug/l		U	0.5	W
BLS013	3/10/95	Chromium, TCLP Leachate	17.7	ug/l		=	2.9	W
BLS013	3/10/95	Cadmium, TCLP Leachate	3.5	ug/l		U	3.5	W
BLS013	3/10/95	gamma-BHC (Lindane)	0.5	ug/l		U	0.5	W
BLS013	3/10/95	Arsenic, TCLP Leachate	25.5	ug/l		U	25.5	W
BLS013	3/10/95	1,4-Dichlorobenzene	0.1	mg/l		U	0.1	W
BLS013	3/10/95	2,4,5-T	5	ug/l		U	5	W
BLS013	3/10/95	2,4,5-TP (Silvex)	5	ug/l		U	5	W
BLS013	3/10/95	Barium, TCLP Leachate	866	ug/l	J	=	2.8	W
BLS013	3/10/95	Nitrobenzene	0.1	mg/l		U	0.1	W
BLS013	3/10/95	Pentachlorophenol	0.5	mg/l		U	0.5	W
BLS013	3/10/95	Hexachlorobenzene	0.1	mg/l		U	0.1	W
BLS013	3/10/95	2,4-Dinitrotoluene	0.1	mg/l		U	0.1	W
BLS013	3/10/95	2,4,5-Trichlorophenol	0.5	mg/l		U	0.5	W
BLS013	3/10/95	Heptachlor Epoxide	0.5	ug/l		U	0.5	W
BLS013	3/10/95	Hexachlorobutadiene	0.1	mg/l		U	0.1	W
BLS013	3/10/95	Endrin	1	ug/l		U	1	W
BLS013	3/10/95	Hexachloroethane	0.1	mg/l		U	0.1	W
BLS013	3/10/95	3- and/or 4-Methylphenol	0.1	mg/l		U	0.1	W
BLS013	3/10/95	2-Methylphenol	0.1	mg/l		U	0.1	W
BLS013	3/10/95	Pyridine	0.1	mg/l	UJ	U	0.1	W
BLS013	3/10/95	2,4-D	10	ug/l		U	10	W
BLS013	3/10/95	Toxaphene	10	ug/l		U	10	W
BLS013	3/10/95	Methoxychlor	5	ug/l		U	5	W
BLS013	3/10/95	2,4,6-Trichlorophenol	0.1	mg/l		U	0.1	W

Attachment 3:
DOE 5400.5, Figure IV-1
Surface Contamination Guidelines

Figure IV-1
Surface Contamination Guidelines

Radionuclides[2]	Allowable Total Residual Surface Contamination (dpm/100 cm²)[1]		
	Average[3,4]	Maximum[4,5]	Removable[4,6]
Transuranics, I-125, I-129, Ra-226, Ac-227, Ra-228, Th-228, Th-230, Pa-231.	RESERVED	RESERVED	RESERVED
Th-Natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232.	1,000	3,000	200
U-Natural, U-235, U-238, and associated decay product, alpha emitters.	5,000	15,000	1,000
Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.[7]	5,000	15,000	1,000

1/ As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

2/ Where surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.

3/ Measurements of average contamination should not be averaged over an area of more than 1 m². For objects of less surface area, the average should be derived for each such object.

4/ The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm.

5/ The maximum contamination level applies to an area of not more than 100 cm².

Attachment 4: Bliss & Laughlin Steel Characterization

5-point Survey Data Special Finishing Area,

Survey of Elevated Locations in the Special finishing Area Identified by Floor Monitor Scans,

5-point Survey of Area in Grid E16

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N-0.5 E-0.5	29	37	492	484				
N-0.5 E-1.5	29	37	751	510	<Lc -1	0	<Lc -4	77
N-0.5 E0.5	29	37	674	503	<Lc 2	6	<Lc -21	76
N-0.5 E1.5	<Lc -7	7	907	525	<Lc -1	0	<Lc -50	72
N-0.5 E10.5	39	41	<Lc 0	431				
N-0.5 E11.5	20	32	<Lc 155	449				
N-0.5 E12.5	<Lc 2	19	466	482				
N-0.5 E13.5	<Lc 11	27	<Lc 233	457				
N-0.5 E14.5	20	32	389	474				
N-0.5 E15.5	48	45	<Lc 285	463				
N-0.5 E16.5	20	32	777	513	<Lc -1	0	<Lc 8	79
N-0.5 E17.5	<Lc 11	27	<Lc 78	440				
N-0.5 E18.5	29	37	674	503	<Lc -1	0	<Lc -59	71
N-0.5 E19.5	20	32	<Lc 337	468				
N-0.5 E2.5	39	41	415	476				
N-0.5 E20.5	<Lc -7	7	<Lc 52	437				
N-0.5 E21.5	<Lc 11	27	<Lc 363	471				
N-0.5 E3.5	29	37	440	479				
N-0.5 E4.5	39	41	<Lc 363	471				
N-0.5 E5.5	<Lc 11	27	751	510	<Lc 2	6	<Lc -50	72
N-0.5 E6.5	<Lc 11	27	<Lc 104	443				
N-0.5 E7.5	<Lc 2	19	959	530	<Lc 2	6	<Lc -54	72
N-0.5 E8.5	<Lc 2	19	<Lc 181	451				
N-0.5 E9.5	<Lc -7	7	<Lc 363	471				
N-1.0 E-1.0	<Lc 11	27	518	487				
N-1.0 E-2.0	<Lc 11	27	700	505	5	8	<Lc 17	80
N-1.0 E0.0	<Lc 2	19	415	476				
N-1.0 E1.0	20	32	<Lc 52	437				
N-1.0 E10.0	<Lc 2	19	518	487				
N-1.0 E11.0	29	37	<Lc 285	463				
N-1.0 E12.0	20	32	700	505	<Lc 2	6	<Lc -25	75
N-1.0 E13.0	<Lc 11	27	415	476				
N-1.0 E14.0	<Lc 2	19	<Lc 207	454				
N-1.0 E15.0	20	32	<Lc 104	443				
N-1.0 E16.0	<Lc -7	7	<Lc 337	468				
N-1.0 E17.0	<Lc 2	19	440	479				
N-1.0 E18.0	20	32	<Lc -104	419				
N-1.0 E19.0	<Lc 11	27	<Lc 363	471				
N-1.0 E2.0	<Lc -7	7	440	479				
N-1.0 E20.0	<Lc 11	27	389	474				
N-1.0 E21.0	<Lc 2	19	389	474				
N-1.0 E22.0	29	37	<Lc 181	451				
N-1.0 E3.0	<Lc 11	27	<Lc 26	434				
N-1.0 E4.0	<Lc 2	19	466	482				
N-1.0 E5.0	<Lc 11	27	<Lc 52	437				
N-1.0 E6.0	<Lc 2	19	518	487				
N-1.0 E7.0	<Lc -7	7	415	476				
N-1.0 E8.0	<Lc -7	7	389	474				
N-1.0 E9.0	48	45	<Lc -52	425				
N-1.5 E-0.5	NA	NA	NA	NA				
N-1.5 E-1.5	NA	NA	NA	NA				
N-1.5 E0.5	NA	NA	NA	NA				
N-1.5 E1.5	NA	NA	NA	NA				
N-1.5 E10.5	NA	NA	NA	NA				

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

lma:LEV1REP.XLS

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N-1.5 E11.5	NA	NA	NA	NA				
N-1.5 E12.5	NA	NA	NA	NA				
N-1.5 E13.5	NA	NA	NA	NA				
N-1.5 E14.5	NA	NA	NA	NA				
N-1.5 E15.5	NA	NA	NA	NA				
N-1.5 E16.5	NA	NA	NA	NA				
N-1.5 E17.5	NA	NA	NA	NA				
N-1.5 E18.5	NA	NA	NA	NA				
N-1.5 E19.5	NA	NA	NA	NA				
N-1.5 E2.5	NA	NA	NA	NA				
N-1.5 E20.5	NA	NA	NA	NA				
N-1.5 E21.5	NA	NA	NA	NA				
N-1.5 E3.5	NA	NA	NA	NA				
N-1.5 E4.5	NA	NA	NA	NA				
N-1.5 E5.5	NA	NA	NA	NA				
N-1.5 E6.5	NA	NA	NA	NA				
N-1.5 E7.5	NA	NA	NA	NA				
N-1.5 E8.5	NA	NA	NA	NA				
N-1.5 E9.5	NA	NA	NA	NA				
N-2.0 E-1.0	NA	NA	NA	NA				
N-2.0 E-2.0	NA	NA	NA	NA				
N-2.0 E0.0	NA	NA	NA	NA				
N-2.0 E1.0	NA	NA	NA	NA				
N-2.0 E10.0	NA	NA	NA	NA				
N-2.0 E11.0	NA	NA	NA	NA				
N-2.0 E12.0	NA	NA	NA	NA				
N-2.0 E13.0	NA	NA	NA	NA				
N-2.0 E14.0	NA	NA	NA	NA				
N-2.0 E15.0	NA	NA	NA	NA				
N-2.0 E16.0	NA	NA	NA	NA				
N-2.0 E17.0	NA	NA	NA	NA				
N-2.0 E18.0	NA	NA	NA	NA				
N-2.0 E19.0	NA	NA	NA	NA				
N-2.0 E2.0	NA	NA	NA	NA				
N-2.0 E20.0	NA	NA	NA	NA				
N-2.0 E21.0	NA	NA	NA	NA				
N-2.0 E22.0	NA	NA	NA	NA				
N-2.0 E3.0	NA	NA	NA	NA				
N-2.0 E4.0	NA	NA	NA	NA				
N-2.0 E5.0	NA	NA	NA	NA				
N-2.0 E6.0	NA	NA	NA	NA				
N-2.0 E7.0	NA	NA	NA	NA				
N-2.0 E8.0	NA	NA	NA	NA				
N-2.0 E9.0	NA	NA	NA	NA				
N0.0 E-1.0		29	37	415	476				
N0.0 E-2.0	<Lc	11	27	570	492				
N0.0 E0.0	<Lc	-4	20	544	457				
N0.0 E1.0		42	45	803	484	<Lc	2	6	<Lc	-13	74
N0.0 E10.0	<Lc	6	27	<Lc	155	413					
N0.0 E11.0	<Lc	-4	20	<Lc	259	425					
N0.0 E12.0	<Lc	6	27	<Lc	259	425					
N0.0 E13.0	<Lc	15	33		492	451					
N0.0 E14.0	<Lc	-4	20	<Lc	155	413					
N0.0 E15.0	<Lc	-13	10	<Lc	104	406					

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

lma:LEV1REP.XLS

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N0.0 E16.0	33	41	492	451				
N0.0 E17.0	<Lc 15	33	<Lc 285	428				
N0.0 E18.0	24	37	<Lc 311	431				
N0.0 E19.0	<Lc 15	33	518	454				
N0.0 E2.0	<Lc 15	33	337	434				
N0.0 E20.0	<Lc 6	27	<Lc 155	413				
N0.0 E21.0	<Lc -4	20	<Lc 259	425				
N0.0 E22.0	<Lc 6	27	<Lc 259	425				
N0.0 E3.0	61	52	440	446				
N0.0 E4.0	<Lc 6	27	518	454				
N0.0 E5.0	<Lc 15	33	466	449				
N0.0 E6.0	24	37	492	451				
N0.0 E7.0	33	41	803	484	<Lc -1	0	<Lc 46	80
N0.0 E8.0	<Lc -13	10	492	451				
N0.0 E9.0	<Lc 6	27	440	446				
N0.5 E-0.5	29	37	415	476				
N0.5 E-1.5	<Lc -7	7	389	474				
N0.5 E0.5	<Lc -4	20	440	446				
N0.5 E1.5	33	41	<Lc 311	431				
N0.5 E10.5	<Lc 15	33	<Lc 207	419				
N0.5 E11.5	<Lc 15	33	389	440				
N0.5 E12.5	42	45	<Lc 181	416				
N0.5 E13.5	<Lc -4	20	<Lc 26	397				
N0.5 E14.5	24	37	596	463				
N0.5 E15.5	<Lc 15	33	<Lc 130	409				
N0.5 E16.5	<Lc 6	27	674	471				
N0.5 E17.5	42	45	518	454				
N0.5 E18.5	33	41	<Lc 104	406				
N0.5 E19.5	<Lc 15	33	570	460				
N0.5 E2.5	<Lc 15	33	725	476				
N0.5 E20.5	<Lc 15	33	<Lc 207	419				
N0.5 E21.5	<Lc 15	33	389	440				
N0.5 E3.5	<Lc -4	20	492	451				
N0.5 E4.5	33	41	570	460				
N0.5 E5.5	<Lc 6	27	544	457				
N0.5 E6.5	33	41	<Lc 259	425				
N0.5 E7.5	<Lc 15	33	1425	545	<Lc 2	6	<Lc -46	70
N0.5 E8.5	61	52	544	457				
N0.5 E9.5	<Lc -4	20	907	495	5	8	<Lc 0	75
N1.0 E-1.0	<Lc 2	19	<Lc 233	457				
N1.0 E-2.0	<Lc 11	27	674	503	<Lc -1	0	71	85
N1.0 E0.0	<Lc -4	20	<Lc 181	416				
N1.0 E1.0	24	37	4949	805				
N1.0 E10.0	33	41	<Lc 104	406				
N1.0 E11.0	24	37	<Lc 311	431				
N1.0 E12.0	42	45	518	454				
N1.0 E13.0	<Lc 15	33	<Lc 285	428				
N1.0 E14.0	<Lc 6	27	674	471				
N1.0 E15.0	33	41	492	451				
N1.0 E16.0	<Lc 15	33	<Lc 130	409				
N1.0 E17.0	<Lc -13	10	<Lc 104	406				
N1.0 E18.0	24	37	596	463				
N1.0 E19.0	<Lc -4	20	<Lc 155	413	<Lc 2	6	<Lc -21	76
N1.0 E2.0	<Lc -4	20	1114	515	<Lc 2	6	<Lc -17	76

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N1.0 E20.0	<Lc -4	20	<Lc 26	397				
N1.0 E21.0	<Lc 15	33	492	451				
N1.0 E22	42	45	<Lc 181	416				
N1.0 E3.0	<Lc 15	33	518	454				
N1.0 E4.0	<Lc -4	20	<Lc 233	422				
N1.0 E5.0	<Lc 15	33	544	457				
N1.0 E6.0	<Lc -4	20	777	482	<Lc 2	6	<Lc -46	73
N1.0 E7.0	24	37	674	471				
N1.0 E8.0	<Lc 6	27	<Lc 104	406				
N1.0 E9.0	<Lc 15	33	<Lc 233	422				
N1.5 E-0.5	<Lc -7	7	492	484				
N1.5 E-1.5	<Lc 2	19	<Lc 78	440				
N1.5 E0.5	<Lc -9	35	<Lc 134	442				
N1.5 E1.5	<Lc 18	47	<Lc -134	410				
N1.5 E10.5	<Lc 28	50	857	519	<Lc -1	0	<Lc -59	69
N1.5 E11.5	<Lc 9	43	482	481				
N1.5 E12.5	<Lc -18	30	1017	535	<Lc 2	6	<Lc 4	76
N1.5 E13.5	<Lc 0	40	<Lc 321	463				
N1.5 E14.5	<Lc 18	47	857	519	<Lc 2	6	<Lc -17	73
N1.5 E15.5	<Lc -18	30	883	522	<Lc -1	0	<Lc -29	72
N1.5 E16.5	NA	NA	NA	NA				
N1.5 E17.5	NA	NA	NA	NA				
N1.5 E18.5	<Lc -18	30	696	503				
N1.5 E19.5	<Lc 0	40	375	469				
N1.5 E2.5	<Lc -18	30	375	469				
N1.5 E20.5	<Lc 0	40	1365	568	<Lc -1	0	<Lc 29	78
N1.5 E21.5	<Lc 0	40	<Lc 294	460				
N1.5 E3.5	<Lc 9	43	<Lc 214	451				
N1.5 E4.5	<Lc -18	30	830	517	<Lc -1	0	<Lc 8	76
N1.5 E5.5	37	54	642	498				
N1.5 E6.5	<Lc -18	30	910	525	<Lc -1	0	<Lc 38	79
N1.5 E7.5	<Lc 0	40	<Lc 294	460				
N1.5 E8.5	<Lc 9	43	589	492				
N1.5 E9.5	<Lc -9	35	455	478				
N10.0 E-1.0	<Lc 2	19	<Lc 337	468				
N10.0 E-2.0	20	32	<Lc 259	460				
N10.0 E1.0	NA	NA	NA	NA				
N10.0 E10.0	<Lc 19	57	1040	611	<Lc -1	0	<Lc -4	75
N10.0 E11.0	<Lc 10	54	917	599	<Lc -1	0	<Lc 0	75
N10.0 E12.0	<Lc -19	43	520	559				
N10.0 E13.0	<Lc -48	28	734	581				
N10.0 E14.0	<Lc -48	28	703	578				
N10.0 E15.0	<Lc -39	34	<Lc 183	522				
N10.0 E16.0	<Lc 29	60	459	553				
N10.0 E17.0	NA	NA	NA	NA				
N10.0 E18.0	NA	NA	NA	NA				
N10.0 E19.0	NA	NA	NA	NA				
N10.0 E2.0	NA	NA	NA	NA				
N10.0 E20.0	NA	NA	NA	NA				
N10.0 E21.0	NA	NA	NA	NA				
N10.0 E22.0	<Lc -10	47	<Lc 214	526				
N10.0 E3.0	<Lc 0	51	<Lc 214	526				
N10.0 E4.0	<Lc -29	39	703	578				
N10.0 E5.0	<Lc -29	39	428	549				

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N10.0 E6.0	<Lc 0	51	<Lc -122	487				
N10.0 E7.0	<Lc -39	34	<Lc 397	546				
N10.0 E8.0	<Lc 10	54	<Lc 61	509				
N10.0 E9.0	<Lc -48	28	<Lc 306	536				
N10.5 E-0.5	<Lc 11	27	751	510	<Lc 2	6	<Lc -67	71
N10.5 E-1.5	<Lc 11	27	<Lc 259	460				
N10.5 E0.5	<Lc -9	35	<Lc 294	460				
N10.5 E1.5	NA	NA	NA	NA				
N10.5 E10.5	<Lc 18	47	776	511	<Lc -1	0	<Lc 25	78
N10.5 E11.5	46	57	723	506				
N10.5 E12.5	<Lc 0	40	482	481				
N10.5 E13.5	<Lc 9	43	<Lc 321	463				
N10.5 E14.5	<Lc -28	24	<Lc 161	445				
N10.5 E15.5	<Lc 28	50	375	469				
N10.5 E16.5	<Lc 28	50	803	514				
N10.5 E17.5	<Lc 0	40	<Lc -80	416	<Lc -1	0	<Lc -13	74
N10.5 E18.5	37	54	616	495	<Lc -1	0	<Lc 8	76
N10.5 E19.5	NA	NA	NA	NA				
N10.5 E2.5	NA	NA	NA	NA				
N10.5 E20.5	NA	NA	NA	NA				
N10.5 E21.5	NA	NA	NA	NA				
N10.5 E3.5	NA	NA	NA	NA				
N10.5 E4.5	NA	NA	NA	NA				
N10.5 E5.5	<Lc 9	43	535	487				
N10.5 E6.5	<Lc 28	50	<Lc 161	445				
N10.5 E7.5	<Lc 0	40	<Lc -348	382				
N10.5 E8.5	<Lc -9	35	<Lc 80	436				
N10.5 E9.5	<Lc 0	40	<Lc 54	433				
N11.0 E-1.0	<Lc -7	7	415	476				
N11.0 E-2.0	20	32	<Lc -104	419				
N11.0 E0.0	<Lc 6	27	415	443				
N11.0 E1.0	24	37	<Lc 52	400				
N11.0 E10.0	<Lc -13	10	<Lc 181	416				
N11.0 E11.0	<Lc 15	33	829	487	5	8	<Lc 38	82
N11.0 E12.0	24	37	725	476				
N11.0 E13.0	24	37	<Lc 285	428				
N11.0 E14.0	24	37	<Lc 311	431				
N11.0 E15.0	24	37	596	463				
N11.0 E16.0	33	41	415	443				
N11.0 E17.0	42	45	751	479				
N11.0 E18.0	52	49	725	476				
N11.0 E19.0	<Lc -4	20	1062	510	<Lc -1	0	<Lc -25	75
N11.0 E2.0	<Lc -4	20	<Lc -52	387				
N11.0 E20.0	<Lc -4	20	<Lc 130	409				
N11.0 E21.0	<Lc 6	27	<Lc 104	406				
N11.0 E22.0	<Lc -4	20	<Lc 78	403				
N11.0 E3.0	<Lc 6	27	<Lc 104	406				
N11.0 E4.0	<Lc -4	20	<Lc 104	406				
N11.0 E5.0	<Lc -4	20	<Lc 26	397				
N11.0 E6.0	<Lc -4	20	725	476				
N11.0 E7.0	<Lc -13	10	518	454				
N11.0 E8.0	<Lc 6	27	492	451				
N11.0 E9.0	<Lc 6	27	492	451				
N11.5 E-0.5	<Lc 2	19	<Lc 337	468				

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lma:LEV1REP.XLS

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N11.5 E-1.5	20	32	<Lc -52	425				
N11.5 E0.5	<Lc 28	50	<Lc 348	466				
N11.5 E1.5	<Lc -28	24	883	522	<Lc -1	0	<Lc -38	71
N11.5 E10.5	<Lc -28	24	<Lc 54	433				
N11.5 E11.5	<Lc 18	47	964	530	<Lc -1	0	<Lc 21	77
N11.5 E12.5	<Lc 9	43	509	484				
N11.5 E13.5	<Lc -9	35	<Lc 27	429				
N11.5 E14.5	<Lc -9	35	509	484				
N11.5 E15.5	<Lc 0	40	<Lc 321	463				
N11.5 E16.5	<Lc -9	35	<Lc 294	460				
N11.5 E17.5	<Lc 0	40	910	525	<Lc -1	0	<Lc -29	72
N11.5 E18.5	<Lc -18	30	509	484				
N11.5 E19.5	NA	NA	NA	NA				
N11.5 E2.5	<Lc 9	43	<Lc 241	454				
N11.5 E20.5	NA	NA	NA	NA				
N11.5 E21.5	NA	NA	NA	NA				
N11.5 E3.5	<Lc 0	40	<Lc 294	460				
N11.5 E4.5	<Lc -18	30	375	469				
N11.5 E5.5	<Lc 18	47	428	475				
N11.5 E6.5	<Lc 0	40	402	472				
N11.5 E7.5	<Lc 9	43	<Lc 80	436				
N11.5 E9.5	<Lc 0	40	<Lc 321	463				
N12.0 E-1.0	29	37	<Lc 285	463				
N12.0 E-2.0	39	41	<Lc 259	460				
N12.0 E1.0	<Lc -10	47	3639	824	<Lc 2	6	<Lc -33	71
N12.0 E10.0	<Lc 0	51	<Lc 397	546				
N12.0 E11.0	<Lc -10	47	1254	631	<Lc -1	0	<Lc -38	71
N12.0 E12.0	<Lc -10	47	581	565				
N12.0 E13.0	<Lc -19	43	917	599	<Lc -1	0	<Lc -38	71
N12.0 E14.0	<Lc -39	34	459	553				
N12.0 E15.0	<Lc -29	39	826	590	<Lc -1	0	<Lc -25	72
N12.0 E16.0	<Lc -10	47	581	565				
N12.0 E17.0	<Lc -10	47	1284	634	<Lc -1	0	<Lc -50	70
N12.0 E18.0	<Lc -39	34	673	575				
N12.0 E19.0	NA	NA	NA	NA				
N12.0 E2.0	<Lc -10	47	1712	673	<Lc -1	0	84	84
N12.0 E20.0	NA	NA	NA	NA				
N12.0 E21.0	NA	NA	NA	NA				
N12.0 E22.0	<Lc -58	21	459	553				
N12.0 E3.0	<Lc -19	43	1040	611	5	8	<Lc -21	73
N12.0 E4.0	<Lc -19	43	703	578	<Lc -1	0	<Lc 13	76
N12.0 E5.0	<Lc -29	39	917	599				
N12.0 E6.0	<Lc -29	39	1192	626	<Lc -1	0	<Lc 33	79
N12.0 E7.0	<Lc -19	43	612	569				
N12.0 E8.0	<Lc 19	57	<Lc 367	543				
N12.0 E9.0	<Lc 10	54	734	581				
N12.5 E0.5	64	62	535	487				
N12.5 E1.5	<Lc -9	35	776	511	<Lc -1	0	<Lc -50	70
N12.5 E10.5	39	41	<Lc 78	440				
N12.5 E11.5	48	45	596	495				
N12.5 E12.5	76	55	<Lc 52	437				
N12.5 E13.5	29	37	<Lc 181	451				
N12.5 E14.5	48	45	<Lc 0	431				
N12.5 E15.5	20	32	<Lc 311	465				

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lma:LEV1REP.XLS

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N12.5 E16.5	29	37	570	492				
N12.5 E17.5	<Lc 2	19	725	508	<Lc 2	6	<Lc -17	76
N12.5 E18.5	<Lc 2	19	<Lc -26	428				
N12.5 E19.5	<Lc -7	7	<Lc 52	437				
N12.5 E2.5	<Lc -7	7	<Lc 363	471				
N12.5 E20.5	20	32	<Lc 285	463				
N12.5 E21.5	<Lc 2	19	<Lc 207	454				
N12.5 E3.5	29	37	389	474				
N12.5 E4.5	<Lc 2	19	<Lc 285	463				
N12.5 E5.5	39	41	570	492				
N12.5 E6.5	29	37	<Lc 26	434				
N12.5 E7.5	<Lc 11	27	<Lc 104	443				
N12.5 E8.5	20	32	<Lc -52	425				
N12.5 E9.5	20	32	<Lc 155	449				
N13.0 E1.0	<Lc -39	34	<Lc 397	546				
N13.0 E10.0	<Lc -19	43	1559	659	<Lc 2	6	<Lc -33	71
N13.0 E11.0	<Lc 0	51	1223	629	<Lc -1	0	<Lc 4	76
N13.0 E12.0	<Lc -39	34	459	553				
N13.0 E13.0	<Lc 29	60	1009	608	<Lc -1	0	<Lc -42	71
N13.0 E14.0	<Lc 10	54	826	590	<Lc -1	0	<Lc -4	75
N13.0 E15.0	<Lc -10	47	948	602	<Lc 2	6	<Lc -59	69
N13.0 E16.0	<Lc 0	51	581	565				
N13.0 E17.0	<Lc -19	43	581	565				
N13.0 E18.0	<Lc -29	39	673	575				
N13.0 E19.0	<Lc -48	28	<Lc 153	519				
N13.0 E2.0	<Lc -19	43	642	572				
N13.0 E20.0	<Lc -19	43	734	581				
N13.0 E21.0	<Lc -19	43	550	562				
N13.0 E22.0	<Lc -19	43	734	581				
N13.0 E3.0	<Lc -39	34	<Lc -428	448				
N13.0 E4.0	<Lc -39	34	<Lc 61	509				
N13.0 E5.0	<Lc 10	54	<Lc 336	539				
N13.0 E6.0	<Lc -19	43	<Lc 336	539				
N13.0 E7.0	<Lc 0	51	<Lc 397	546				
N13.0 E8.0	<Lc -39	34	459	553				
N13.0 E9.0	<Lc -10	47	489	556				
N14.0 E0.0	24	37	<Lc 233	422				
N14.0 E1.0	42	45	363	437				
N14.0 E10.0	24	37	700	474				
N14.0 E11.0	<Lc 6	27	570	460				
N14.0 E12.0	<Lc 15	33	466	449				
N14.0 E13.0	24	37	337	434				
N14.0 E14.0	<Lc 15	33	959	500	5	8	<Lc -13	76
N14.0 E15.0	<Lc 15	33	<Lc 259	425				
N14.0 E16.0	<Lc -13	10	466	449				
N14.0 E17.0	<Lc 6	27	<Lc 285	428				
N14.0 E18.0	<Lc 6	27	<Lc 207	419				
N14.0 E19.0	<Lc 15	33	<Lc 0	393				
N14.0 E2.0	<Lc 6	27	622	465				
N14.0 E20.0	<Lc 6	27	<Lc 259	425				
N14.0 E21.0	<Lc -13	10	<Lc 207	419				
N14.0 E22.0	24	37	<Lc 311	431				
N14.0 E3.0	<Lc 15	33	<Lc 259	425				
N14.0 E4.0	<Lc -4	20	518	454				

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Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N14.0 E5.0	<Lc -13	10	518	454				
N14.0 E6.0	<Lc 6	27	<Lc 78	403				
N14.0 E7.0	<Lc -13	10	570	460				
N14.0 E8.0	<Lc -13	10	<Lc 130	409				
N14.0 E9.0	<Lc -4	20	<Lc -26	390				
N15.0 E1.0	<Lc -48	28	520	559				
N15.0 E10.0	<Lc 29	60	764	584	<Lc -1	0	<Lc -38	71
N15.0 E11.0	<Lc -39	34	887	596	<Lc -1	0	<Lc -21	73
N15.0 E12.0	<Lc -19	43	917	599	<Lc -1	0	<Lc -50	70
N15.0 E13.0	<Lc -19	43	<Lc 397	546				
N15.0 E14.0	NA	NA	NA	NA				
N15.0 E15.0	<Lc -48	28	<Lc 306	536				
N15.0 E16.0	<Lc -19	43	<Lc 275	533				
N15.0 E17.0	<Lc -10	47	550	562				
N15.0 E18.0	<Lc -10	47	<Lc 275	533				
N15.0 E19.0	NA	NA	NA	NA				
N15.0 E2.0	<Lc 0	51	642	572				
N15.0 E20.0	NA	NA	NA	NA				
N15.0 E21.0	NA	NA	NA	NA				
N15.0 E22.0	<Lc -10	47	550	562				
N15.0 E3.0	<Lc -19	43	1468	651	<Lc 2	6	<Lc -17	73
N15.0 E4.0	<Lc -10	47	948	602	<Lc -1	0	<Lc -4	75
N15.0 E5.0	<Lc -10	47	<Lc 183	522				
N15.0 E6.0	<Lc 29	60	<Lc 397	546				
N15.0 E7.0	<Lc -19	43	1009	608	5	8	<Lc -33	71
N15.0 E8.0	<Lc -10	47	703	578				
N15.0 E9.0	<Lc 19	57	917	599	<Lc 2	6	<Lc 42	80
N16.0 E1.0	NA	NA	NA	NA				
N16.0 E10.0	<Lc 0	51	1162	623	<Lc 2	6	<Lc -8	74
N16.0 E11.0	67	71	1009	608	5	8	<Lc 4	76
N16.0 E12.0	<Lc 10	54	1070	614	<Lc -1	0	<Lc 21	77
N16.0 E13.0	<Lc 10	54	887	596	<Lc -1	0	<Lc 0	75
N16.0 E14.0	NA	NA	NA	NA				
N16.0 E15.0	NA	NA	NA	NA				
N16.0 E16.0	<Lc -19	43	673	575				
N16.0 E17.0	<Lc 10	54	<Lc 367	543				
N16.0 E18.0	<Lc -39	34	<Lc 92	512				
N16.0 E19.0	<Lc -19	43	<Lc 367	543				
N16.0 E2.0	<Lc -39	34	703	578				
N16.0 E20.0	<Lc -10	47	<Lc 245	529				
N16.0 E21.0	<Lc 10	54	520	559				
N16.0 E22.0	<Lc -19	43	<Lc 397	546				
N16.0 E3.0	<Lc 19	57	<Lc 306	536				
N16.0 E4.0	<Lc -10	47	428	549				
N16.0 E5.0	<Lc -10	47	489	556				
N16.0 E6.0	<Lc 0	51	428	549				
N16.0 E7.0	<Lc -19	43	<Lc 275	533				
N16.0 E8.0	<Lc -39	34	489	556				
N16.0 E9.0	<Lc -10	47	1223	629	<Lc -1	0	<Lc -17	73
N2.0 E-1.0	48	45	<Lc 363	471				
N2.0 E-2.0	<Lc 2	19	622	498	<Lc -1	0	<Lc -42	73
N2.0 E0.0	24	37	<Lc 259	425				
N2.0 E1.0	<Lc -4	20	363	437				
N2.0 E10.0	<Lc 6	27	389	440				

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lma:LEV1REP.XLS

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N2.0 E11.0	52	49	1218	525	<Lc -1	0	<Lc -38	74
N2.0 E12.0	24	37	622	465				
N2.0 E13.0	<Lc 6	27	1347	537	<Lc -1	0	<Lc -13	76
N2.0 E14.0	<Lc 6	27	596	463				
N2.0 E15.0	61	52	389	440				
N2.0 E16.0	NA	NA	NA	NA				
N2.0 E17.0	NA	NA	NA	NA				
N2.0 E18.0	24	37	1114	515	<Lc -1	0	<Lc -38	74
N2.0 E19.0	<Lc -4	20	725	476				
N2.0 E2.0	24	37	<Lc 181	416				
N2.0 E20.0	<Lc -4	20	466	449				
N2.0 E21.0	<Lc -13	10	570	460				
N2.0 E22.0	<Lc -4	20	<Lc 78	403				
N2.0 E3.0	<Lc -4	20	<Lc 181	416				
N2.0 E4.0	<Lc 15	33	674	471				
N2.0 E5.0	<Lc -4	20	415	443				
N2.0 E6.0	33	41	389	440				
N2.0 E7.0	24	37	466	449				
N2.0 E8.0	<Lc -13	10	363	437				
N2.0 E9.0	<Lc -13	10	<Lc 26	397				
N2.5 E-0.5	<Lc -7	7	674	503	<Lc -1	0	<Lc -42	73
N2.5 E-1.5	<Lc 11	27	<Lc 233	457				
N2.5 E0.5	<Lc -18	30	750	509	<Lc 2	6	<Lc -17	73
N2.5 E1.5	<Lc 9	43	482	481				
N2.5 E10.5	<Lc -18	30	1419	572	<Lc -1	0	<Lc -63	68
N2.5 E11.5	<Lc -9	35	883	522	<Lc 2	6	<Lc 4	76
N2.5 E12.5	<Lc -9	35	883	522	<Lc -1	0	<Lc 4	76
N2.5 E13.5	<Lc -9	35	3105	708	<Lc -1	0	<Lc 17	77
N2.5 E14.5	<Lc -9	35	2757	682	<Lc -1	0	<Lc -8	74
N2.5 E15.5	<Lc 28	50	1419	572	<Lc -1	0	<Lc -13	74
N2.5 E16.5	NA	NA	NA	NA				
N2.5 E17.5	NA	NA	NA	NA				
N2.5 E18.5	<Lc -9	35	723	506	<Lc -1	0	<Lc -42	71
N2.5 E19.5	<Lc 9	43	<Lc 321	463				
N2.5 E2.5	<Lc 18	47	<Lc -134	410				
N2.5 E20.5	<Lc -9	35	<Lc 321	463				
N2.5 E21.5	<Lc 9	43	<Lc 321	463				
N2.5 E3.5	<Lc 0	40	1151	548	<Lc 2	6	<Lc -33	71
N2.5 E4.5	<Lc -18	30	1553	584	<Lc 2	6	<Lc -33	71
N2.5 E5.5	<Lc -9	35	562	489				
N2.5 E6.5	<Lc 0	40	455	478				
N2.5 E7.5	<Lc -18	30	803	514	<Lc -1	0	<Lc -29	72
N2.5 E8.5	<Lc 9	43	482	481				
N2.5 E9.5	<Lc -28	24	803	514				
N3.0 E-1.0	<Lc 11	27	518	487				
N3.0 E-2.0	20	32	<Lc 155	449				
N3.0 E0.0	<Lc 6	27	<Lc 104	406				
N3.0 E1.0	24	37	440	446				
N3.0 E10.0	<Lc -4	20	959	500	<Lc -1	0	<Lc -21	76
N3.0 E11.0	24	37	2176	609	<Lc 2	6	<Lc -8	77
N3.0 E12.0	<Lc 15	33	829	487	<Lc 2	6	<Lc -13	76
N3.0 E13.0	<Lc -4	20	108045	3303				
N3.0 E14.0	33	41	1399	542	<Lc 2	6	<Lc -25	75
N3.0 E15.0	24	37	4042	746	<Lc -1	0	<Lc -8	77

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Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N3.0 E16.0	24	37	6063	871	<Lc 2	6	<Lc -54	72
N3.0 E17.0	<Lc 6	27	4405	770	8	10	<Lc 0	78
N3.0 E18.0	<Lc 15	33	648	468				
N3.0 E19.0	<Lc -4	20	725	476				
N3.0 E2.0	<Lc 15	33	622	465				
N3.0 E20.0	<Lc 6	27	<Lc 155	413				
N3.0 E21.0	<Lc 6	27	<Lc 207	419				
N3.0 E22.0	125	71	337	434				
N3.0 E3.0	70	55	803	484				
N3.0 E4.0	<Lc 15	33	622	465	5	8	<Lc -4	77
N3.0 E5.0	<Lc -4	20	674	471				
N3.0 E6.0	<Lc 15	33	725	476				
N3.0 E7.0	33	41	751	479				
N3.0 E8.0	<Lc 6	27	466	449				
N3.0 E9.0	<Lc 15	33	518	454				
N3.5 E-0.5	<Lc 11	27	<Lc -207	406				
N3.5 E-1.5	20	32	<Lc 285	463				
N3.5 E0.5	<Lc -9	35	375	469				
N3.5 E1.5	<Lc -9	35	375	469				
N3.5 E10.5	<Lc 0	40	1526	582	<Lc -1	0	<Lc -25	72
N3.5 E11.5	<Lc -9	35	<Lc 348	466				
N3.5 E12.5	<Lc 9	43	375	469				
N3.5 E13.5	<Lc 9	43	2329	649	<Lc -1	0	<Lc 8	76
N3.5 E14.5	<Lc 28	50	7362	969	<Lc -1	0	<Lc -50	70
N3.5 E15.5	<Lc -28	24	535	487				
N3.5 E17.5	<Lc 18	47	1258	558				
N3.5 E18.5	<Lc -28	24	<Lc 268	457				
N3.5 E19.5	<Lc -9	35	<Lc 294	460				
N3.5 E2.5	64	62	696	503				
N3.5 E20.5	<Lc -28	24	509	484				
N3.5 E21.5	<Lc 0	40	482	481				
N3.5 E3.5	<Lc 9	43	1071	540	<Lc 2	6	<Lc -21	73
N3.5 E4.5	<Lc 0	40	1660	594				
N3.5 E5.5	<Lc 18	47	375	469	8	10	<Lc -42	71
N3.5 E6.5	<Lc -18	30	616	495				
N3.5 E7.5	<Lc -9	35	535	487				
N3.5 E8.5	74	65	616	495				
N3.5 E9.5	74	65	937	527	<Lc 2	6	<Lc 46	80
N4.0 E-1.0	<Lc 2	19	<Lc 207	454				
N4.0 E-2.0	<Lc -7	7	518	487				
N4.0 E0.0	<Lc -4	20	415	443				
N4.0 E1.0	42	45	492	451				
N4.0 E10.0	24	37	1036	508	<Lc -1	0	<Lc -21	76
N4.0 E11.0	<Lc 15	33	1036	508	<Lc -1	0	<Lc -33	74
N4.0 E12.0	<Lc 15	33	648	468				
N4.0 E13.0	24	37	959	500	<Lc 2	6	<Lc 33	81
N4.0 E14.0	<Lc 6	27	674	471				
N4.0 E15.0	<Lc 15	33	2565	640	<Lc -1	0	<Lc -33	74
N4.0 E16.0	<Lc 6	27	777	482	<Lc -1	0	<Lc -38	74
N4.0 E17.0	<Lc -4	20	700	474				
N4.0 E18.0	<Lc 6	27	544	457				
N4.0 E19.0	<Lc -4	20	1062	510	<Lc -1	0	<Lc -67	71
N4.0 E2.0	<Lc 6	27	933	498	<Lc -1	0	<Lc -17	76
N4.0 E20.0	<Lc 6	27	518	454				

<Lc indicates less than the critical level of activity which can be said to be above background.
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Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N4.0 E21.0	<Lc -4	20	570	460				
N4.0 E22.0	<Lc 15	33	440	446				
N4.0 E3.0	24	37	415	443				
N4.0 E4.0	<Lc -4	20	337	434	<Lc -1	0	<Lc 4	78
N4.0 E5.0	42	45	<Lc 311	431				
N4.0 E6.0	52	49	751	479				
N4.0 E7.0	24	37	<Lc 285	428				
N4.0 E8.0	<Lc 6	27	492	451				
N4.0 E9.0	<Lc 15	33	363	437				
N4.5 E-0.5	<Lc -7	7	959	530	<Lc -1	0	<Lc -42	73
N4.5 E-1.5	20	32	466	482				
N4.5 E0.5	<Lc 0	40	535	487				
N4.5 E1.5	<Lc -28	24	402	472				
N4.5 E10.5	46	57	883	522	<Lc 2	6	<Lc 21	77
N4.5 E11.5	55	59	1365	568	<Lc -1	0	<Lc -8	74
N4.5 E12.5	46	57	<Lc 0	426				
N4.5 E13.5	<Lc 9	43	5729	878	<Lc -1	0	<Lc 4	76
N4.5 E14.5	55	59	2597	670	<Lc -1	0	<Lc -8	74
N4.5 E15.5	<Lc -9	35	3748	753	<Lc 2	6	<Lc -8	74
N4.5 E16.5	<Lc 9	43	2168	636	<Lc 2	6	<Lc -4	75
N4.5 E17.5	<Lc 28	50	1044	538	<Lc -1	0	<Lc -46	70
N4.5 E18.5	<Lc 28	50	455	478				
N4.5 E19.5	<Lc 9	43	<Lc 348	466				
N4.5 E2.5	<Lc 28	50	<Lc 214	451				
N4.5 E20.5	<Lc 9	43	402	472				
N4.5 E21.5	<Lc -18	30	<Lc 187	448				
N4.5 E3.5	37	54	669	501				
N4.5 E4.5	<Lc 28	50	589	492				
N4.5 E5.5	<Lc 9	43	776	511	8	10	<Lc -38	71
N4.5 E6.5	<Lc 9	43	<Lc 348	466				
N4.5 E7.5	<Lc -9	35	<Lc 214	451				
N4.5 E8.5	46	57	1151	548	<Lc 2	6	<Lc -21	73
N4.5 E9.5	46	57	1231	555	8	10	<Lc 46	80
N5.0 E-1.0	20	32	<Lc 155	449				
N5.0 E-2.0	<Lc 11	27	<Lc 285	463				
N5.0 E0.0	<Lc 15	33	544	457				
N5.0 E1.0	33	41	<Lc 285	428				
N5.0 E10.0	<Lc 6	27	363	437				
N5.0 E11.0	<Lc -4	20	648	468				
N5.0 E12.0	61	52	674	471				
N5.0 E13.0	<Lc 15	33	1658	566	<Lc -1	0	<Lc -63	71
N5.0 E14.0	61	52	725	476				
N5.0 E15.0	<Lc -4	20	700	474				
N5.0 E16.0	<Lc -13	10	751	479				
N5.0 E17.0	<Lc -13	10	544	457				
N5.0 E18.0	33	41	<Lc 285	428	<Lc -1	0	<Lc -67	71
N5.0 E19.0	<Lc -4	20	1114	515	5	8	<Lc 50	83
N5.0 E2.0	33	41	<Lc 233	422				
N5.0 E20.0	<Lc -4	20	<Lc 104	406				
N5.0 E21.0	<Lc -13	10	337	434				
N5.0 E22.0	24	37	363	437				
N5.0 E3.0	<Lc 15	33	415	443				
N5.0 E4.0	24	37	622	465				
N5.0 E5.0	33	41	596	463				

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Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N5.0 E6.0	33	41	725	476				
N5.0 E7.0	<Lc -4	20	1866	583	<Lc 2	6	<Lc 0	78
N5.0 E8.0	<Lc -4	20	518	454				
N5.0 E9.0	<Lc -4	20	<Lc 207	419				
N5.5 E-0.5	<Lc 11	27	1036	537	<Lc -1	0	<Lc -88	68
N5.5 E-1.5	<Lc 11	27	<Lc 155	449				
N5.5 E0.5	<Lc -18	30	883	522	<Lc 2	6	<Lc -59	69
N5.5 E1.5	<Lc -28	24	2088	630	<Lc -1	0	<Lc -4	75
N5.5 E10.5	<Lc -9	35	<Lc 294	460				
N5.5 E11.5	<Lc 28	50	937	527	<Lc -1	0	<Lc -13	74
N5.5 E12.5	<Lc 28	50	1151	548	<Lc -1	0	<Lc 4	76
N5.5 E13.5	<Lc 28	50	<Lc -27	423				
N5.5 E14.5	<Lc 18	47	<Lc -80	416				
N5.5 E15.5	<Lc 9	43	455	478				
N5.5 E16.5	<Lc 0	40	<Lc 27	429				
N5.5 E17.5	<Lc -9	35	<Lc 241	454				
N5.5 E18.5	<Lc -9	35	723	506	<Lc -1	0	<Lc 21	77
N5.5 E19.5	<Lc 0	40	<Lc 268	457				
N5.5 E2.5	<Lc 18	47	<Lc 268	457				
N5.5 E20.5	<Lc -9	35	375	469				
N5.5 E21.5	<Lc -9	35	642	498				
N5.5 E3.5	<Lc -9	35	455	478				
N5.5 E4.5	<Lc -9	35	642	498				
N5.5 E5.5	37	54	1606	589	<Lc -1	0	<Lc 4	76
N5.5 E6.5	37	54	1231	555	5	8	<Lc -13	74
N5.5 E7.5	37	54	562	489				
N5.5 E8.5	<Lc 18	47	402	472				
N5.5 E9.5	<Lc 28	50	803	514	<Lc 2	6	<Lc -46	70
N6.0 E-1.0	<Lc 2	19	674	503	<Lc -1	0	<Lc -8	77
N6.0 E-2.0	57	48	<Lc 363	471				
N6.0 E0.0	<Lc 6	27	570	460				
N6.0 E1.0	<Lc 6	27	907	495	<Lc 2	6	<Lc -59	71
N6.0 E10.0	33	41	<Lc 0	393				
N6.0 E11.0	<Lc -4	20	389	440				
N6.0 E12.0	<Lc -4	20	725	476				
N6.0 E13.0	<Lc -4	20	492	451				
N6.0 E14.0	<Lc -4	20	855	490	<Lc 2	6	<Lc -13	76
N6.0 E15.0	<Lc -4	20	622	465				
N6.0 E16.0	<Lc -13	10	622	465				
N6.0 E17.0	<Lc 6	27	985	503	<Lc -1	0	<Lc -63	71
N6.0 E18.0	<Lc -4	20	544	457				
N6.0 E19.0	<Lc 6	27	518	454				
N6.0 E2.0	<Lc -4	20	<Lc 285	428				
N6.0 E20.0	<Lc 15	33	570	460				
N6.0 E21.0	<Lc 6	27	570	460				
N6.0 E22.0	33	41	777	482	<Lc -1	0	<Lc -25	75
N6.0 E3.0	<Lc -13	10	<Lc 104	406				
N6.0 E4.0	24	37	596	463				
N6.0 E5.0	<Lc 6	27	570	460				
N6.0 E6.0	33	41	829	487	<Lc -1	0	<Lc -84	69
N6.0 E7.0	<Lc 15	33	725	476				
N6.0 E8.0	24	37	751	479				
N6.0 E9.0	33	41	14717	1273	5	8	<Lc -13	76
N6.5 E-0.5	20	32	622	498	<Lc -1	0	<Lc -21	76

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Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N6.5 E-1.5	<Lc 2	19	751	510	<Lc -1	0	<Lc -8	77
N6.5 E0.5	NA	NA	NA	NA				
N6.5 E1.5	NA	NA	NA	NA				
N6.5 E10.5	<Lc 0	51	1040	611	<Lc -1	0	<Lc -38	71
N6.5 E11.5	<Lc 19	57	887	596	<Lc -1	0	<Lc -17	73
N6.5 E12.5	<Lc -39	34	978	605	<Lc 2	6	<Lc 17	77
N6.5 E13.5	<Lc -19	43	<Lc 397	546				
N6.5 E14.5	<Lc -58	21	612	569				
N6.5 E15.5	<Lc -10	47	<Lc 336	539				
N6.5 E16.5	<Lc -29	39	<Lc 92	512				
N6.5 E17.5	<Lc 19	57	826	590	<Lc 2	6	<Lc -33	71
N6.5 E18.5	<Lc -29	39	581	565				
N6.5 E19.5	<Lc -10	47	<Lc 397	546				
N6.5 E2.5	<Lc 10	54	734	581				
N6.5 E20.5	<Lc -19	43	<Lc 336	539				
N6.5 E21.5	<Lc -39	34	<Lc 275	533				
N6.5 E3.5	<Lc -48	28	612	569				
N6.5 E4.5	<Lc 0	51	<Lc 306	536				
N6.5 E5.5	<Lc 29	60	703	578				
N6.5 E6.5	<Lc -19	43	1987	696	<Lc 2	6	<Lc 25	78
N6.5 E7.5	<Lc -19	43	<Lc 245	529				
N6.5 E8.5	<Lc 10	54	612	569				
N6.5 E9.5	<Lc 19	57	1254	631	<Lc 2	6	<Lc -21	73
N7.0 E-1.0	<Lc 2	19	<Lc 78	440				
N7.0 E-2.0	76	55	<Lc 78	440				
N7.0 E1.0	NA	NA	NA	NA				
N7.0 E10.0	<Lc -19	43	<Lc 306	536				
N7.0 E11.0	<Lc -10	47	<Lc 214	526				
N7.0 E12.0	<Lc -19	43	520	559				
N7.0 E13.0	<Lc -48	28	489	556				
N7.0 E14.0	<Lc 0	51	795	587	<Lc -1	0	<Lc -8	74
N7.0 E15.0	<Lc 10	54	550	562				
N7.0 E16.0	<Lc -48	28	<Lc 122	516				
N7.0 E17.0	<Lc -10	47	703	578				
N7.0 E18.0	<Lc -10	47	550	562				
N7.0 E19.0	<Lc -29	39	459	553				
N7.0 E2.0	NA	NA	NA	NA				
N7.0 E20.0	<Lc -19	43	<Lc 367	543				
N7.0 E21.0	<Lc 10	54	<Lc 397	546				
N7.0 E22.0	<Lc -48	28	1009	608	<Lc -1	0	<Lc -21	73
N7.0 E3.0	NA	NA	NA	NA				
N7.0 E4.0	<Lc -39	34	428	549				
N7.0 E5.0	48	66	612	569				
N7.0 E6.0	<Lc 10	54	2721	756	5	8	<Lc 13	76
N7.0 E7.0	<Lc 0	51	948	602	5	8	<Lc 42	80
N7.0 E8.0	77	74	5595	953	5	8	<Lc 46	80
N7.0 E9.0	<Lc -29	39	2905	770	<Lc 2	6	<Lc -21	73
N7.5 E-0.5	57	48	751	510	<Lc -1	0	<Lc -50	72
N7.5 E-1.5	48	45	<Lc 285	463				
N7.5 E0.5	<Lc 28	50	<Lc 241	454				
N7.5 E1.5	<Lc -9	35	723	506	8	10	<Lc -88	65
N7.5 E10.5	<Lc -28	24	<Lc 0	426				
N7.5 E11.5	<Lc 9	43	642	498				
N7.5 E12.5	<Lc 9	43	455	478				

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Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N7.5 E13.5	<Lc -18	30	<Lc 187	448				
N7.5 E14.5	<Lc -9	35	1017	535	<Lc 2	6	<Lc 0	75
N7.5 E15.5	<Lc -18	30	696	503				
N7.5 E16.5	<Lc 0	40	509	484				
N7.5 E17.5	<Lc 9	43	616	495				
N7.5 E18.5	<Lc -9	35	<Lc 161	445				
N7.5 E19.5	<Lc -28	24	455	478				
N7.5 E2.5	<Lc -18	30	616	495				
N7.5 E20.5	<Lc 9	43	<Lc 241	454				
N7.5 E21.5	<Lc 0	40	482	481				
N7.5 E3.5	<Lc -9	35	803	514	<Lc 2	6	<Lc 0	75
N7.5 E4.5	55	59	1419	572				
N7.5 E5.5	55	59	669	501				
N7.5 E6.5	258	103	857	519	<Lc -1	0	<Lc -4	75
N7.5 E7.5	<Lc 9	43	4819	823	<Lc 2	6	<Lc -33	71
N7.5 E8.5	<Lc -18	30	1767	603				
N7.5 E9.5	<Lc 0	40	1365	568	<Lc 2	6	<Lc -71	67
N8.0 E-1.0	<Lc 11	27	1088	542	<Lc 2	6	<Lc -33	74
N8.0 E-2.0	39	41	<Lc 0	431				
N8.0 E1.0	<Lc -39	34	<Lc 153	519				
N8.0 E10.0	<Lc -48	28	642	572				
N8.0 E11.0	<Lc -19	43	948	602	<Lc -1	0	<Lc 25	78
N8.0 E12.0	<Lc 19	57	1376	643	<Lc -1	0	<Lc -38	71
N8.0 E13.0	<Lc 10	54	917	599	<Lc -1	0	<Lc -4	75
N8.0 E14.0	<Lc -48	28	581	565				
N8.0 E15.0	<Lc -19	43	<Lc 367	543				
N8.0 E16.0	<Lc -10	47	459	553				
N8.0 E17.0	<Lc 29	60	642	572				
N8.0 E18.0	<Lc 0	51	<Lc 275	533				
N8.0 E19.0	<Lc -39	34	734	581				
N8.0 E2.0	<Lc -29	39	<Lc 122	516				
N8.0 E20.0	<Lc -39	34	550	562				
N8.0 E21.0	<Lc 0	51	550	562				
N8.0 E22.0	<Lc -58	21	<Lc 397	546				
N8.0 E3.0	NA	NA	NA	NA				
N8.0 E4.0	<Lc 19	57	<Lc 336	539				
N8.0 E5.0	<Lc -19	43	734	581				
N8.0 E6.0	<Lc -10	47	1590	662	<Lc 2	6	<Lc 17	77
N8.0 E7.0	48	66	★ 58554	2670	11	11	<Lc -21	73
N8.0 E8.0	<Lc 19	57	1101	617	<Lc 2	6	<Lc 0	75
N8.0 E9.0	<Lc -10	47	489	556				
N8.5 E-0.5	<Lc 2	19	674	503	5	8	<Lc -63	71
N8.5 E-1.5	39	41	466	482				
N8.5 E0.5	<Lc 9	43	<Lc 294	460				
N8.5 E1.5	<Lc -18	30	642	498				
N8.5 E10.5	<Lc 9	43	402	472				
N8.5 E11.5	<Lc -9	35	857	519	<Lc 2	6	<Lc -8	74
N8.5 E12.5	<Lc 0	40	803	514	<Lc 2	6	<Lc -13	74
N8.5 E13.5	<Lc -18	30	723	506	5	8	<Lc 4	76
N8.5 E14.5	<Lc -18	30	455	478				
N8.5 E15.5	<Lc 0	40	<Lc 214	451				
N8.5 E16.5	<Lc 0	40	402	472				
N8.5 E17.5	<Lc 9	43	750	509	<Lc 2	6	<Lc -17	73
N8.5 E18.5	<Lc 0	40	883	522	<Lc -1	0	<Lc 17	77

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Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N8.5 E19.5	<Lc -18	30	<Lc -294	389				
N8.5 E2.5	<Lc 18	47	<Lc 294	460				
N8.5 E20.5	<Lc -28	24	<Lc 161	445				
N8.5 E21.5	<Lc 9	43	<Lc 214	451				
N8.5 E3.5	<Lc 9	43	375	469				
N8.5 E4.5	<Lc 18	47	<Lc 134	442				
N8.5 E5.5	<Lc -18	30	<Lc 187	448				
N8.5 E6.5	64	62	6130	901	5	8	<Lc 59	81
N8.5 E7.5	<Lc 9	43	509	484				
N8.5 E8.5	<Lc 18	47	<Lc 294	460				
N8.5 E9.5	<Lc 18	47	616	495				
N9.0 E-1.0	<Lc 11	27	<Lc 259	460				
N9.0 E-2.0	20	32	<Lc 130	446				
N9.0 E0.0	<Lc -13	10	725	476				
N9.0 E1.0	<Lc 15	33	829	487	<Lc -1	0	<Lc -17	76
N9.0 E10.0	24	37	<Lc 181	416				
N9.0 E11.0	<Lc 6	27	751	479				
N9.0 E12.0	<Lc 15	33	855	490	<Lc 2	6	<Lc -67	71
N9.0 E13.0	42	45	337	434				
N9.0 E14.0	<Lc -4	20	648	468				
N9.0 E15.0	24	37	363	437				
N9.0 E16.0	<Lc -4	20	<Lc -52	387				
N9.0 E17.0	<Lc -13	10	518	454				
N9.0 E18.0	<Lc -4	20	<Lc 311	431				
N9.0 E19.0	<Lc 6	27	<Lc 285	428				
N9.0 E2.0	<Lc 6	27	985	503	<Lc 2	6	<Lc -59	71
N9.0 E20.0	<Lc -4	20	<Lc 78	403				
N9.0 E21.0	<Lc 6	27	<Lc 104	406				
N9.0 E22.0	<Lc -4	20	<Lc 311	431				
N9.0 E3.0	33	41	<Lc 155	413				
N9.0 E4.0	<Lc 6	27	415	443				
N9.0 E5.0	24	37	570	460				
N9.0 E6.0	33	41	<Lc 207	419				
N9.0 E7.0	<Lc -4	20	<Lc 181	416				
N9.0 E8.0	<Lc -4	20	440	446				
N9.0 E9.0	33	41	518	454				
N9.5 E-0.5	<Lc 2	19	<Lc 78	440				
N9.5 E-1.5	20	32	<Lc 233	457				
N9.5 E0.5	<Lc 28	50	<Lc 107	439				
N9.5 E1.5	<Lc -18	30	<Lc 27	429				
N9.5 E10.5	37	54	1419	572	<Lc 2	6	<Lc 4	76
N9.5 E11.5	<Lc 9	43	428	475				
N9.5 E12.5	<Lc 0	40	<Lc 241	454				
N9.5 E13.5	46	57	562	489				
N9.5 E14.5	<Lc 9	43	<Lc 294	460				
N9.5 E15.5	<Lc -18	30	<Lc 54	433				
N9.5 E16.5	<Lc 0	40	402	472	5	8	<Lc -25	72
N9.5 E17.5	<Lc -9	35	1151	548				
N9.5 E18.5	NA	NA	NA	NA				
N9.5 E19.5	NA	NA	NA	NA				
N9.5 E2.5	<Lc 9	43	<Lc 107	439				
N9.5 E20.5	NA	NA	NA	NA				
N9.5 E21.5	NA	NA	NA	NA				
N9.5 E3.5	<Lc 9	43	1098	543	<Lc -1	0	<Lc 38	79

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

Bliss and Laughlin Steel Characterization
Special Finishing Area - 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N9.5 E4.5	<Lc -9	35	<Lc 187	448				
N9.5 E5.5	<Lc 0	40	<Lc 161	445				
N9.5 E6.5	<Lc -9	35	<Lc 241	454				
N9.5 E7.5	<Lc 18	47	<Lc 187	448				
N9.5 E8.5	<Lc -28	24	<Lc 214	451				
N9.5 E9.5	<Lc 0	40	<Lc 54	433				

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

lma:LEV1REP.XLS

Bliss and Laughlin Steel Characterization
Survey of Elevated Locations in the Special Finishing Area Identified by Floor Monitor Scans

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N 3.7 E 9.35	15	26	42270	2126	5	8	<Lc 12	76
N 7.6 E 8.1	3165	335	135430	3755	224	50	1734	181
N 8.1 E 7.2	181	81	280257	5384	72	28	258	98
N 8.5 E 6.7	1129	200	29019	1776	17	14	152	89
N 6.7 E 5.7	42	41	17213	1393	23	16	184	92
N 8.2 E 0.1	98	60	218953	4763	<Lc 0	0	<Lc 33	78
N 8.3 E 0.9	15	26	14777	1300	<Lc 0	0	<Lc 33	78
N 4.8 E 11	33	36	55387	2422	<Lc 0	0	<Lc 25	77
N 4.5 E 16.5	88	57	71985	2752	2	6	<Lc 20	77
N 3.4 E 17	<Lc 6	19	6559	919	2	6	<Lc -12	73

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

Bliss Laughlin Steel Characterization
Area in Grid E16, 5-point Survey

	DIRECT				TRANSFERABLE			
	ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM		ALPHA/100 SQ CM		BETA-GAMMA/100 SQ CM	
LOCATION/ITEM COORDINATES	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV	SMPL DPM	STD DEV
N 0 E 3	15	26	562	478				
N 1 E 3	24	32	589	481				
N 2 E 3	42	41	562	478				
N 0.5 E 3.5	24	32	669	489				
N 1.5 E 3.5	42	41	<Lc 187	436				
N 0 E 4	24	32	1526	572	5	8	<Lc 25	77
N 1 E 4	15	26	3641	738	2	6	<Lc 37	78
N 2 E 4	<Lc 6	19	402	460				
N 0.5 E 4.5	<Lc 6	19	642	487				
N 1.5 E 4.5	15	26	<Lc 321	451				
N 0 E 5	52	45	990	522	<Lc 0	0	<Lc 33	78
N 1 E 5	42	41	589	481				
N 2 E 5	24	32	1205	543	<Lc 0	0	<Lc 12	76
QC	33	36	937	517	<Lc 0	0	<Lc 0	74

<Lc indicates less than the critical level of activity which can be said to be above background.
A negative value is the calculated result of a reading which is below the instrument-specific background.

lma:E16LEV1.XLS

Appendix B COST ESTIMATE

Bliss & Laughlin Cost Estimate
Alternative 2
Institutional Controls
Cost in FY1998$

WBS Element	Activity	Total Cost (FY98)	Total Cost (FY98) (W/ Contingency)
		$ 302,537	$ 347,917
3XXX	Bliss & Laughlin Project	$ -	$ -
32XX	Studies and Design	$ -	$ -
33XXX	Htrw Construction Activities	$ -	$ -
331XX	Htrw Remedial Action (Construction)	$ -	$ -
331XX01	Mobilization And Preparatory Work	$ -	$ -
331XX02	Monitoring, Sampling, Testing, And Analysis	$ -	$ -
331XX0201	RA	$ -	$ -
331XX0202	Exc/Transp	$ -	$ -
331XX03	Site Work	$ -	$ -
331XX0301	Site Work - Preliminary	$ -	$ -
331XX0302	Site Work - Sustaining	$ -	$ -
331XX04	Oe-Cwm Removal And Destruction	$ -	$ -
331XX05	Surface Water Collection And Control	$ -	$ -
331XX06	Groundwater Collection And Control	$ -	$ -
331XX07	Air Pollution/Gas Collection And Control	$ -	$ -
331XX08	Solids Collection And Containment	$ -	$ -
331XX0801	Excavation	$ -	$ -
331XX0802	Backfill	$ -	$ -
331XX09	Liquids/Sediments/Sludges Collection And Containment	$ -	$ -
331XX10	Drums/Tanks/Structures/Misc Demolition And Removal	$ -	$ -
331XX11	Biological Treatment	$ -	$ -
331XX12	Chemical Treatment	$ -	$ -
331XX13	Physical Treatment	$ -	$ -
331XX14	Thermal Treatment	$ -	$ -
331XX15	Stabilization/Fixation/Encapsulation	$ -	$ -
331XX16	(Reserved For Future Use)	$ -	$ -
331XX17	Decontamination And Decommissioning (D&D)	$ -	$ -
331XX18	Disposal (Other Than Commercial)	$ -	$ -
331XX1801	Transportation to Storage/Disposal Facility	$ -	$ -
331XX1802	Disposal Fees and Taxes	$ -	$ -
331XX19	Disposal (Commercial)	$ -	$ -
331XX1901	Transportation to Storage/Disposal Facility	$ -	$ -
331XX1902	Disposal Fees and Taxes	$ -	$ -
331XX20	Site Restoration	$ -	$ -
331XX21	Demobilization	$ -	$ -
331XX22	General Requirements (Optional Breakout)	$ -	$ -
331XX2201	Supervision, Management & Administration	$ -	$ -
331XX2202	ICSM RA	$ -	$ -
331XX9X	Other (Use Numbers 90-99)	$ -	$ -
332XX	Engineering During Construction (Edc)	$ -	$ -
333XX	Supervision & Admin (S&A) (Construction Management)	$ 302,537	$ 347,917
34XXX	HTRW (POST CONSTRUCTION)	$ 302,537	$ 347,917
342XX	HTRW OPERATION AND MAINTENANCE (POST CONSTRUCTION)	$ 88,599	$ 101,889
342XX01	MONITORING, SAMPLING, TESTING, AND ANALYSIS	$ 191,520	$ 220,248
342XX02	ICSM O&M	$ 22,418	$ 25,780
342XX03	Project Management	$ -	$ -
343XX	Supervision & Admin (S&A) (Construction Management)		

Contingency is a standard 15% unless otherwise noted.

Bliss & Laughlin Cost Estimate
Alternative 3
Building Decontamination
Cost in FY1998$

WBS Element	Activity	Total Cost (SPV98)	Total Cost (SPV98) (W/ Contingency)
3XXX	Bliss and Laughlin Project	$ 305,664	$ 351,514
32XX	Studies and Design	$ -	$ -
33XXX	Htrw Construction Activities	$ 290,437	$ 334,003
331XX	Htrw Remedial Action (Construction)	$ 264,034	$ 303,639
331XX01	Mobilization And Preparatory Work	$ 4,729	$ 5,439
331XX02	Monitoring, Sampling, Testing, And Analysis	$ 15,049	$ 17,307
331XX0201	RA	$ 14,780	$ 16,997
331XX0202	Exc/Transp	$ 269	$ 309
331XX03	Site Work	$ 59,255	$ 68,143
331XX0301	Site Work - Preliminary	$ 50,000	$ 57,500
331XX0302	Site Work - Sustaining	$ 9,255	$ 10,643
331XX04	Oe-Cwm Removal And Destruction	$ -	$ -
331XX05	Surface Water Collection And Control	$ -	$ -
331XX06	Groundwater Collection And Control	$ -	$ -
331XX07	Air Pollution/Gas Collection And Control	$ -	$ -
331XX08	Solids Collection And Containment	$ -	$ -
331XX0801	Excavation	$ -	$ -
331XX0802	Backfill	$ -	$ -
331XX09	Liquids/Sediments/Sludges Collection And Containment	$ -	$ -
331XX10	Drums/Tanks/Structures/Misc Demolition And Removal	$ -	$ -
331XX11	Biological Treatment	$ -	$ -
331XX12	Chemical Treatment	$ -	$ -
331XX13	Physical Treatment	$ -	$ -
331XX14	Thermal Treatment	$ -	$ -
331XX15	Stabilization/Fixation/Encapsulation	$ -	$ -
331XX16	(Reserved For Future Use)	$ 3,736	$ 4,296
331XX17	Decontamination And Decommissioning (D&D)	$ -	$ -
331XX18	Disposal (Other Than Commercial)	$ -	$ -
331XX1801	Transportation to Storage/Disposal Facility	$ -	$ -
331XX1802	Disposal Fees and Taxes	$ 5,379	$ 6,186
331XX19	Disposal (Commercial)	$ 1,959	$ 2,253
331XX1901	Transportation to Storage/Disposal Facility	$ 3,420	$ 3,933
331XX1902	Disposal Fees and Taxes	$ -	$ -
331XX20	Site Restoration	$ 4,504	$ 5,180
331XX21	Demobilization	$ 58,917	$ 67,754
331XX22	General Requirements (Optional Breakout)	$ 57,853	$ 66,531
331XX2201	Supervision, Management & Administration	$ 1,064	$ 1,224
331XX2202	ICSM RA	$ 112,464	$ 129,334
331XX9X	Other (Use Numbers 90-99)	$ -	$ -
332XX	Engineering During Construction (Edc)	$ 26,403	$ 30,364
333XX	Supervision & Admin (S&A) (Construction Management)	$ 15,227	$ 17,511
34XXX	HTRW (POST CONSTRUCTION)	$ 13,843	$ 15,919
342XX	HTRW OPERATION AND MAINTENANCE (POST CONSTRU	$ 3,695	$ 4,249
342XX01	MONITORING, SAMPLING, TESTING, AND ANALYSIS	$ 532	$ 612
342XX02	ICSM O&M	$ 9,615	$ 11,058
342XX03	Project Management	$ 1,384	$ 1,592
343XX	Supervision & Admin (S&A) (Construction Management)		

Contingency is a standard 15% unless otherwise noted.

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Contact Wendee Ryan to request a copy.