TEMPORARY STOCKPILE WASTE MANAGEMENT PLAN

HANLIN AREA
HANLIN-ALLIED-OLIN SITE
MOUNDVILLE, WEST VIRGINIA

Prepared by:
GeoSyntec Consultants
1100 Lake Hearn Drive, NE, Suite 200
Atlanta, Georgia 30342
Project Number: GS1023-200
January 2001
# TABLE OF CONTENTS

1. INTRODUCTION ........................................................................................... 1  
   1.1 Terms of Reference........................................................................................... 1  
   1.2 Elements of the WMP ....................................................................................... 1  
   1.3 Stockpile History .............................................................................................. 2  
      1.3.1 Temporary Stockpile #1 ............................................................................. 2  
      1.3.2 Temporary Stockpile #2 ............................................................................... 2  
   1.4 Compliance with ARARs .................................................................................. 3  
   1.5 Design Details and Engineering Specifications................................................. 4  
      1.5.1 Temporary Stockpile #1 ............................................................................... 4  
      1.5.2 Temporary Stockpile #2 ............................................................................... 5  
   1.6 Waste Characterization and Management ...................................................... 5  
      1.6.1 Stockpile #1 ................................................................................................. 5  
      1.6.2 Stockpile #2 ................................................................................................. 5  
   1.7 Run-on, Run-off, and Leachate Management ................................................... 6  
      1.7.1 Temporary Stockpile #1 ............................................................................... 6  
      1.7.2 Temporary Stockpile #2 ............................................................................... 6  
   1.8 Short and Long-Term Monitoring Program ..................................................... 6  
      1.8.1 Temporary Stockpile #1 ............................................................................... 6  
      1.8.2 Temporary Stockpile #2 ............................................................................... 7  
   1.9 Inspection Schedule .......................................................................................... 7  

Appendix A Monthly Progress Reports
Appendix B Engineering Specifications
Appendix C Inspection Reports

FIGURE

GS1023-200/GA010040 01.01.18
1. INTRODUCTION

1.1 Terms of Reference

GeoSyntec Consultants (GeoSyntec), on behalf of Honeywell, Inc. (Honeywell), has prepared this Waste Management Plan (WMP) pursuant to a letter from Ms. Kate Lose, EPA Remedial Project Manager, to Mr. Mark Kamilow dated December 5, 2000, regarding the temporary stockpiles constructed during the Mercury Cell Building demolition at the Hanlin-Allied-Olin Site in Moundsville, West Virginia. The decommissioning and demolition of the Mercury Cell Building is associated with the Administrative Order by Consent for Response Removal Action Docket No. III-93-55-DC (the Consent Order). As part of the Consent Order, GeoSyntec is also preparing to perform an Engineering Evaluation and Cost Analysis (EE/CA) to address site-wide the chemically impacted soils and Solid Waste Management Unit (SWMU) materials. This WMP was prepared by Mr. James Deitsch, Ph.D. and Mr. Kirk J. Kessler, P.G.

1.2 Elements of the WMP

Per the letter received by Honeywell from EPA, the WMP will contain the following elements:

- design details and engineering specifications for the waste pile;
- waste characterization and waste management;
- compliance with ARARs;
- run-on, run-off, and leachate management;
- short and long-term monitoring program; and
- an inspection program.

These topics plus a brief history of the stockpiles are now discussed.
1.3 Stockpile History

As part of the CERCLA Removal Action Order, decommissioning and demolition of the former Mercury Cell Building at the Site was required. Demolition of the physical structure of the cell building commenced on September 27, 1999 (Monthly Progress Report (MPR) to EPA On-Site Coordinator Christine Wagner dated October 1, 1999) and was completed in December 1999 (MPR dated January 4, 2000). (Relevant MPRs are provided in Appendix A). Final decommissioning activities are continuing.

1.3.1 Temporary Stockpile #1

Eight borings were taken from porous block materials comprising the cell building prior to demolition, in order to provide a preliminary characterization of the material. The boring locations were selected in areas where mercury exposure was most likely to have occurred during the operation of the cell building. TCLP analyses for mercury were performed and showed that the eight samples exceeded TCLP threshold values for mercury. Thus, the results of the eight borings indicated that the debris generated from the cell building demolition activities, once stockpiled, could generate mercury-containing run-off. As a result, extra precautions were incorporated into the stockpile design to mitigate the run-off potential. As described in the October 1, 1999 MPR, the demolition debris was temporarily stockpiled (Stockpile #1) in an area west of the cell building. The creation of a temporary stockpile is consistent with procedures established at other sites that have previously operated under an EPA supervised Removal Action. Temporary Stockpile #1 was designed to: (1) avoid dermal exposure; (2) limit mercury vapor emissions; and (3) prevent runoff.

1.3.2 Temporary Stockpile #2

A second temporary stockpile (Stockpile #2) was created to contain materials generated from the removal of the coating from the cell-building basement floor. This epoxy coating material was sampled and found to contain elevated levels of total mercury. The physical characteristics of the material, however, were different from the materials contained in Temporary Stockpile #1; therefore, the scraping material was segregated from the demolition debris into a second pile, Stockpile #2.
1.4 Compliance with ARARs

The decommissioning and demolition of the Mercury Cell Building at the Site resulted in the construction of two stockpiles of debris that remain at the Site to date. The first stockpile contains building demolition debris, while the second stockpile contains primarily scarified floor scrapings from the cell room. RCRA classification (non-hazardous or hazardous, D009) of the material has not been determined, as this classification relies upon a standard USEPA protocol for stockpile sampling that has not been initiated to date. Preliminary analytical data indicate that both piles may eventually characterize as RCRA hazardous for mercury (D009).

The debris stockpiles are considered part of a CERCLA removal action. As such, and consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40, Code of Federal Regulations (CFR), Part 300.415(j)), the removal action should attain applicable or relevant and appropriate requirements (ARARs) that stem from federal or state environmental or siting regulations. The definitions section of the NCP (40 CFR 300.5) points out that ARARs include only substantive portions of the requirements, and do not include administrative portions, such as those requirements pertaining to permitting, recordkeeping, accumulation time, etc.

In this case, the primary federal ARAR is the “staging pile” regulation found in 40 CFR 264.554. These regulations have been adopted by reference by the West Virginia Department of Environmental Protection (WVDEP) under Title 33, Series 22, Part 7.9 of the West Virginia Code of State Rules (33 CSR 22-7.9). The federal rule defines a staging pile as “an accumulation of non-flowing remediation waste that is not a containment building and is used only during remedial operations for temporary storage at a facility” (40 CFR 264.554(a)). Clearly, the stockpiles, which contain demolition debris generated as part of a remedial action, meet this definition. The regulations provide that the use of a staging pile and its associated design/operating criteria may be designated on a site-specific basis at the discretion of the EPA (40 CFR 264.554(b)). The rule further provides that the EPA must consider the following performance criteria in designating a staging pile (40 CFR 264.554(d)(1)):

- the staging pile must facilitate a reliable, effective, and protective remedy; and
the staging pile must prevent or minimize releases of hazardous constituents into the environment and minimize cross-media transfer to protect human health and the environment.

The other significant federal ARAR pertaining to the Site’s staging piles addresses the issue of treatment and disposal of runoff. These requirements are codified under 40 CFR 122 (pertaining to the National Pollutant Discharge Elimination System (NPDES)) and are further described in Section 1.7 of this WMP.

Documentation of the Site’s approach to complying with the previously described performance standards is presented in the following sections of this WMP.

1.5 Design Details and Engineering Specifications

A design illustration of the basic construction of the two temporary stockpiles is provided in Figure 1.

1.5.1 Temporary Stockpile #1

For Stockpile #1, a 1-ft layer of fly ash was spread across the ground surface to separate the bottom of the stockpile from sharp and jagged objects on the ground surface. On top of the first layer of fly ash, a medium density liner was laid. A second 1-ft layer of fly ash was added on top of the polyethylene liner to protect the liner from being punctured. The demolition debris was then placed on top of the fly ash layer and the debris covered with a non-reinforced 40 mil EPDM (Ethylene, Propylene, Diene Terpolymer) liner. The liners and material were secured using railroad ties and “clean” soil piles. At the north end of Temporary Stockpile #1, a sump was integrated at the base of the pile to allow leachate from the pile to collect and to be removed. The overall dimensions of Stockpile #1 are 94’ width x 94’ length x 14’ height. Engineering specifications for the stockpile are presented in Appendix B.

GeoSyntec is currently preparing to perform an EE/CA for the site that will address the chemically impacted soils and SWMU materials. It is anticipated that the material contained within Stockpile #1 will meet the same material/waste profile of the impacted soils and SWMU material. Thus, the material contained in Stockpile #1 will be disposed of using the final remedy selected through the EE/CA process.
1.5.2 Temporary Stockpile #2

For Stockpile #2, a non-reinforced EPDM liner was laid on the concrete pad of the former cell building. The concrete pad contains drainage sumps to collect any incidental run-off. The material contained within Stockpile #2 is not characterized by sharp or jagged edges therefore fly ash was not used in the construction of Stockpile #2. The floor scrapings were laid directly upon the EPDM liner and covered by a second non-reinforced EPDM liner. The liners and material were secured using railroad ties and “clean” soil piles. The overall dimensions of Stockpile #2 are 17 ½’ width x 32’ length x 3’ average height. The engineering specifications for the Stockpile #1 are applicable to temporary Stockpile #2 (see Appendix B).

Temporary Stockpile #2 was designed to comply with the performance of Stockpile #1 (MPR, May 2, 2000). It is anticipated that the scarified floor scrapings contained in Temporary Stockpile #2 will be disposed of permanently using the final remedy identified through the EE/CA process. (See discussion in 1.5.1.)

1.6 Waste Characterization and Management

1.6.1 Stockpile #1

Eight borings were taken from porous block materials comprising the cell building prior to demolition, in order to provide a preliminary characterization of the material. The boring locations were selected in areas where mercury exposure was most likely to have occurred during the operation of the cell building. The results from the TCLP analyses for mercury ranged from 0.21 to 3.0 mg/L. Thus, the results of the eight borings indicated that the debris generated from the cell building demolition activities, once stockpiled, may be classifiable as RCRA hazardous (D listing). Sampling according to EPA Stockpile protocol and classification of the material contained in Stockpile #1 will be completed as requested.

1.6.2 Stockpile #2

Stockpile #2 is comprised of scarified scrapings that were accumulated during the removal of the top layer of the cell building basement floor. A sample from this waste
pile was obtained on 2/21/00 and found to contain elevated levels of total mercury. The May 2, 2000 MPR prematurely labeled the material as "hazardous, D009".

1.7 Run-on, Run-off, and Leachate Management

1.7.1 Temporary Stockpile #1

Encapsulated soil berms have been constructed around the perimeter of Stockpile #1 to prevent any incidental run-on from coming in contact with Stockpile #1. Any precipitation that falls directly on the stockpile is collected from a sump at the perimeter of the soil berms. The run-off is diverted to the Site's water treatment facility. As described in section 1.5, a sump is located at the north end of Stockpile #1. The sump is inspected on a weekly basis and after every storm event to determine whether leachate has collected in the sump; if leachate has collected in the sump, the leachate is pumped from the sump to 55 gallon barrels and sent to the water treatment facility for treatment. The water treatment facility uses a pH adjustment/filter process to precipitate mercury. Discharges from the water treatment facility are monitored regularly for compliance with WVDEP authority.

1.7.2 Temporary Stockpile #2

Stockpile #2 is situated on top of the former mercury cell building concrete pad. As discussed in Section 1.5, the stockpile is lined, covered and protected in order to minimize and manage incidental run-off. Sumps located on the concrete pad collect any incidental run-off that comes into contact with the stockpile. The run-off from the concrete pad is treated at the water treatment plant described in section 1.7.1.

1.8 Short and Long-Term Monitoring Program

1.8.1 Temporary Stockpile #1

Temporary Stockpile #1 is located within the former Mercury Cell Process (MCP) area. Previous characterizations of the area have delineated the extent of mercury contamination; the soils and groundwater within the MCP area have been impacted by mercury. Given the presence of elevated mercury concentrations beneath Temporary
Stockpile #1, the identification of mercury contamination resulting from the presence of Stockpile #1 is not technically achievable. Currently, there are no field techniques available that would be capable of differentiating the minor contributions of Stockpile #1 from the existing mercury contamination. Thus, short and long-term of Stockpile #1 is not technically practical. However, given the rigorous design of the stockpile, any contribution of mercury to the MCP area is expected to be inconsequential. Further, the groundwater within the MCP area is hydraulically contained by the pumping of Ranney wells A and D, thus the mercury would not present a threat since there are no ecological or human receptors.

1.8.2 Temporary Stockpile #2

Temporary Stockpile #2 is located on a concrete pad that contains sumps to collect any incidental run-off from the pad. As discussed in section 1.7, the run-off from the MCP area is collected and treated for mercury. The wastewater treatment plant discharge is controlled under WVDEP authority, thus the location of Temporary Stockpile #2 incorporates the stockpile into the existing WVDEP monitoring program.

1.9 Inspection Schedule

Honeywell’s on-site personnel conduct weekly inspections of Temporary Stockpiles #1 and #2. In addition to the scheduled weekly inspections, the waste piles are also inspected after storms to ensure tight seams and the absence of tears, punctures and ponded water. The sump located on the north side of Temporary Stockpile #1 is also inspected at this time for the presence of water. A copy of the inspection logs from 12/6/00 to 12/27/00 for temporary waste piles are presented in Appendix C.
APPENDIX A

MONTHLY PROGRESS REPORTS
October 1, 1999

Christine Wagner, OSC
USEPA (3HW33)
1650 Arch Street
Philadelphia, PA 19103-2029

RE: DOCKET NO. III-93-55-DC
HANLIN-ALLIED-QLIN SITE ("SITE")

Dear Ms. Wagner:

Pursuant to Section 8.7 of the above referenced Administrative Order by Consent; below is a progress report on activities at the Site for the period from September 1, 1999 to September 30, 1999. The progress report is being submitted for both Hanlin and AlliedSignal.

HAZARDOUS SUBSTANCE REMOVAL RAP

Substances Shipped Off-Site

16,500 gals of transformer oil sold to Petroleum Products, Zanesville, OH.
30 cubic yds of non-hazardous trash and debris to Wetzel County Landfill.
30 drums (17,874 lbs) of D009 waste to Salesco Systems, Phoenix, AZ (retort).
6 bags of asbestos material to Wetzel County Landfill.

Removals Anticipated for Next Period

Ongoing removal of nonhazardous trash and debris.

Wastewater
34,900 gallons of wastewater was treated and discharged.
Cell Room Decontamination Rap

Approximately 30 tons of decontaminated equipment was shipped off-site as scrap metal.
Demolition of the cell building commenced on September 27 and is projected to be completed by the end of the year. H & L Equipment, the current on-site contractor was awarded the bid. The hazardous debris will be temporarily stockpiled in an area immediately west of the cell building for disposal in an on-site landfill to be constructed later. The temporary stockpile has been designed to conform with any regulatory requirements.

Ranney Well Rap

No problems.

Health and Safety Plan

No injuries or accidents were reported.

ENGINEERING EVALUATION/COST ANALYSIS ("EE/CA")

EE/CA activities this period included:

- Continued data reduction and development of Site Characterization Reports.
- Continued work on Treatability Study Report.
- Reduction of data from Ranney well shutdown.
- Developing scope of work for soil sampling program.
- Meeting with WVDEP to discuss proposed modifications by the proposed order (Sept. 10).

OTHER

The following reports were submitted.
Monthly WV/NPDES

Hanlin's on-site laboratory has been re-certified by the W.Va. DEP-Office of Water Resources. This annual certification expires August 31, 2000.

The brine purification and cooling & drying areas have been cleared off. Photographs are attached.

The north river cell has sustained damage on river side, apparently being struck by a barge. The incident has been reported to the Corps of Engineers.

Please contact me if you have any questions.

Sincerely,

Don P. DeNoon
Facility Manager

cc:  Al Labuz, AlliedSignal
     Mark Kamilow, AlliedSignal
     Neil Davies, GeoSyntec
     Kate Lose, USEPA
     Jamie Fenske, WVDEP
     Mark Slusarski, WVDEP
     Naresh Shah, WVDEP
     Jim Gaston, WVDEP
December 1, 1999

Christine Wagner, OSC
USEPA (3HW33)
1650 Arch Street
Philadelphia, PA 19103-2029

RE: DOCKET NO. III-93-55-DC
HANLIN-ALLIED-OLIN SITE ("SITE")

Dear Ms. Wagner:

Pursuant to Section 8.7 of the above referenced Administrative Order by Consent, below is a progress report on activities at the Site for the period from November 1, 1999 to November 30, 1999. The progress report is being submitted for both Hanlin and AlliedSignal.

HAZARDOUS SUBSTANCE REMOVAL RAP

Substances Shipped Off-Site

42 cubic yds of non-hazardous trash and debris to Wetzel County Landfill.

Removals Anticipated for Next Period

Ongoing removal of nonhazardous trash and debris.

Wastewater

16,200 gallons of wastewater was treated and discharged.

Cell Room Decontamination Rap

Approximately 190 tons of decontaminated equipment was shipped off-site as scrap
metal. Demolition of the cell building is approximately 80% complete. Photographs are attached.

**Rannev Well Rap**

On November 18 a cut-out fuse on the power line going to Ranney well A tripped out. Notification was not required as the well was down for less than 24 hours. No other problems.

**Health and Safety Plan**

No injuries or accidents were reported.

**ENGINEERING EVALUATION/COST ANALYSIS ("EE/CA")**

EE/CA activities this period included:

- The site-wide soil sampling program commenced on 8 November 1999. Surveying was performed during the week of 8 November and sampling was performed during the weeks of 15 November and 22 November. Sampling activities are ongoing.
- A meeting was held at the GeoSyntec office in Atlanta on 10 November 1999. Representatives from AlliedSignal, Olin, and associated consultants were in attendance. The purpose of the meeting was to reinforce the goal of working together in characterizing the site. The draft outline and figures for the site-wide Groundwater Characterization Report were reviewed and review procedures established.
- Continued preparation of the site-wide Groundwater Characterization Report.
- Continued preparation of the Treatability Study Report.

**OTHER**

The following reports were submitted.

Water Table Levels for Second and Third Quarters of 1999
Monthly WV/NPDES

On November 2-3, 1999, Joseph Slayton and Sue Warner from the Office of Analytical Services and Quality Assurance, Ft. Meade, MD (EPA Region III) conducted a review of the laboratory and sampling procedures employed by Hanlin’s on-site laboratory for quarterly groundwater monitoring. A written response to the inspection team’s recommendations is due by January 14, 2000. There should be no problems implementing the recommendations.

Please contact me if you have any questions.

Sincerely,

Don P. DeNoon
Facility Manager

cc: Al Labuz, AlliedSignal
    Mark Kamilow, AlliedSignal
    Neil Davies, GeoSyntec
    Kate Lose, USEPA
    Jamie Fenske, WVDEP
    Mark Slusarski, WVDEP
    Naresh Shah, WVDEP
    Jim Gaston, WVDEP
January 4, 2000

Christine Wagner, OSC
USEPA (3HW33)
1650 Arch Street
Philadelphia, PA 19103-2029

RE: DOCKET NO. III-93-55-DC
HANLIN-ALLIED SITE ("SITE")

Dear Ms. Wagner:

Pursuant to Section 8.7 of the above referenced Administrative Order by Consent, below is a progress report on activities at the Site for the period from December 1, 1999 to December 31, 1999.

HAZARDOUS SUBSTANCE REMOVAL RAP

Substances Shipped Off-Site

36 cubic yds of non-hazardous trash and debris to Wetzel County Landfill.

Removals Anticipated for Next Period

Ongoing removal of nonhazardous trash and debris.

Wastewater

Wastewater is being accumulated until warmer weather. Storage capacity is not a concern.

Cell Room Decontamination Rap

Approximately 160 tons of decontaminated equipment was shipped off-site as scrap
metal. Demolition of the cell building is complete. Photographs are attached.

Ranney Well Rap

No problems.

Health and Safety Plan

No injuries or accidents were reported.
The annual HAZWOPER refresher training is scheduled for January 7.

ENGINEERING EVALUATION/COST ANALYSIS (“EE/CA”)

EE/CA activities this period included:

1. Field Activities
   Completion of the Fall 1999 Soil and SWMU Sampling Program
   • Surface and shallow boring soil sampling for Sitewide Soil Sampling program.
   • Surface and shallow boring soil sampling for Hg/PCB Targeted Soil Sampling Program.
   • Shallow boring soil/waste sampling for SWMU Sampling Program (included SWMUs M, E1, F, and K).

2. Reporting Activities
   • Revision of Treatability Study Report.
   • Revision of Groundwater Remedial Investigation Report (includes data exchange and collaboration with Olin Project Team).

OTHER

The following reports were submitted.

Monthly WV/NPDES

A problem has developed with plugged brine well No. 3. Seepage is coming out the
2" vent on the monument for this well. Initially the seepage was strictly drilling muds along with some vented gas. It has changed to a combination of drilling muds and a clear petroleum product (58.6 API gravity). A collection pot has been installed on the monument and is being emptied as required. Michael Lewis, UIC Program Director for the W.Va. DEP has been notified along with the contractor who plugged the wells, BJ Services.

Please contact me if you have any questions.

Sincerely,

Don P. DeNoon

Don P. DeNoon
On-Site Manager

cc: Al Labuz, Honeywell
    Mark Kamilow, Honeywell
    Neil Davies, GeoSyntec
    Kate Lose, USEPA
    Jamie Fenske, WVDEP
    Mark Slusarski, WVDEP
    Naresh Shah, WVDEP
    Jim Gaston, WVDEP
CELL BUILDING BEFORE DEMOLITION
May 2, 2000

Christine Wagner, OSC
USEPA (3HW33)
1650 Arch Street
Philadelphia, PA 19103-2029

RE: DOCKET NO. III-93-55-DC
HANLIN-ALLIED SITE ("SITE")

Dear Ms. Wagner:

Pursuant to Section 8.7 of the above referenced Administrative Order by Consent, below is a progress report on activities at the Site for the period from April 1, 2000 to April 30, 2000.

HAZARDOUS SUBSTANCE REMOVAL RAP

Substances Shipped Off-Site

Other than scrap metal, no shipments.

Removals Anticipated for Next Period

Ongoing removal of nonhazardous trash and debris.

Wastewater

The wastewater treatment plant was started up on April 6. Approximately 110,370 gallons was treated and discharged.

Cell Room Decontamination Rap

Work on the rough areas of the cell building floor continues. This polishing up is being done by hand. Removal of the coating from the cell building floor generated approximately 62 cubic yards of D009 waste. There was not enough room for this
material in the original stockpile which necessitated construction of a new stockpile. A photograph is attached. The second stockpile is located on a contained pad and was designed to comply with the performance criteria of the original stockpile.

Ranney Well Rap

No problems.

Health and Safety Plan

No injuries or accidents were reported. Annual physicals were completed for all current employees.

ENGINEERING EVALUATION/COST ANALYSIS (“EE/CA”)

EE/CA activities (Olin site included) this period included:

- Site visit was conducted between April 13-14th to provide an orientation to the project risk assessment team.
- A project planning meeting was held in Atlanta on April 18.
- Response to USEPA/WVDEP comments on the Olin Phase 2 Work Plan was submitted on April 19.
- Scoping and budgeting activities for FY2000 work.

OTHER

The following reports were submitted

- Monthly WV/NPDES
- Quarterly Allied park Monitoring Wells

There has been no more seepage from brine well No. 3. The well continues to be monitored.
Work is complete on clearing off the liquid chlorine and cooling tower areas. Photographs are attached. H&L Equipment is now clearing off the 70% and caustic loading areas.

Please contact me if you have any questions.

Sincerely,

Don P. DeNoon
On-site Manager

cc: Al Labuz, Honeywell
    Mark Kamilow, Honeywell
    Neil Davies, GeoSyntec
    Kate Lose, USEPA
    Jamie Fenske, WVDEP
    Mark Slusarski, WVDEP
    Naresh Shah, WVDEP
    Jim Gaston, WVDEP
NEW D009 STOCKPILE
APPENDIX B

ENGINEERING SPECIFICATIONS
PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor shall furnish all labor, materials and equipment necessary for the construction of a temporary stockpiling area. Location shall be as directed by the Owner. Temporary stockpile areas shall meet the minimum performance requirements included in this Section.

1.02 SUBMITTALS

A. Contractor shall submit conceptual details of the stockpiling area with his bid. Construction details shall be provided within five days of date of Award.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 FAMILIARIZATION

A. Prior to implementing any of the Work described in this Section, the Contractor shall become thoroughly familiar with the site, the site conditions, all portions of the Work falling within this Section. Contractor shall perform all Work in conformance with the substantive requirements of any regulatory requirements applicable to the site and site activities.

3.02 PERFORMANCE CRITERIA

A. Temporary stockpiles shall be designed by the Contractor, and shall comply with the following performance criteria:
1. Stockpile area shall be designed to accommodate a volume of material at least 10 percent greater than the maximum anticipated waste or debris volume.
2. Maximum height of stockpiles shall not exceed 15 feet above commencing surface level.
3. Waste materials shall be staged in a manner that ensures stability of the pile. In no case shall sideslopes of debris or soil exceed 2H:1V.
4. Waste materials shall be placed over an impermeable membrane protected by a minimum thickness of 12 inches of on-site soils. The footprint of the stockpile shall be bermed and include a collection sump for collection of potentially contaminated liquids.
5. Run-on shall be diverted away from the stockpile areas by ditches and other structures as required.
6. Stockpile shall be covered on a daily basis with an impermeable membrane suitably anchored to prevent wind uplift.
7. Uncontaminated run-off from completed stockpile areas shall be diverted to other site surface water management features.
8. Hanlin/AlliedSignal shall be responsible for collection and conveyance of potentially contaminated liquids to the on-site treatment system during operation of the temporary stockpile.

3.03 TRANSPORTATION OF MATERIALS

A. Contractor shall clean up any spills of potentially contaminated materials resulting from conduct of the Work, to the Hanlin’s/AlliedSignal’s satisfaction.

3.04 EROSION AND SEDIMENTATION CONTROL

A. Contractor shall provide and maintain erosion and sedimentation controls (e.g., silt fences, sediment traps, etc.) at all times during the operation of the temporary stockpile if deemed necessary by Hanlin/AlliedSignal. Controls shall be in accordance with state and local requirements.

3.05 FINAL COVER

A. Upon completion of the stockpile, the Contractor shall provide and install a final cover over the entire footprint of the temporary stockpile. Final cover shall consist of an exposed geomembrane with suitable anchoring system. Exposed geomembranes shall have a design life of at least five years, and shall be designed to withstand uplift from wind loading. The stockpile shall be arranged such that protective material is spread
over the debris in a manner that protects the geomembrane from subsequent puncture or damage.

B. Temporary stockpile shall be left in a stable condition, to the satisfaction of Hanlin/AlliedSignal.

3.06 PROTECTION OF WORK

A. Contractor shall use all means necessary to protect the Work. Any damage caused to temporary cover shall be repaired at Contractor’s expense.
Sure-Seal® and Brite-Ply™ EPDM Roofing Systems
July, 1997

Products

This section lists and describes products manufactured or marketed by Carlisle. Refer to the “Design Criteria” and/or respective "Application” sections in this manual for their use and applicability.

The components of Carlisle’s Roofing Systems are to be products of Carlisle or accepted by Carlisle as compatible. The installation, performance, or integrity of products by others, when selected by the specifier and accepted as compatible by Carlisle, is not the responsibility of Carlisle and is expressly disclaimed by the Carlisle Warranty.

Consult the Carlisle Technical Data Bulletins for the shelf life limitation, coverage rates and application procedures of each product. Refer to the manufacturer’s Material Safety Data Sheets for applicable precautions and warnings prior to the use of any product.

A. SURE-SEAL/BRITE-PLY EPDM MEMBRANES

1. Cured reinforced or non-reinforced EPDM (Ethylene, Propylene, Diene Terpolymer) compound elastomer.

2. The EPDM membrane is available in Sure-Seal (black) or Brite-Ply (white-on-black). Brite-Ply membrane must be installed with the white surface facing up.

3. Pre-KLEENED™ EPDM Membrane (mica dust has been removed during manufacturing) is available for sheets maximum 10 feet (3 m) wide. Refer to applicable “Application” sections for installation procedures.

4. Membrane is available in various sizes as outlined below.

   a. Sure-Seal (black) .065 inch (1.1 mm) thick non-reinforced EPDM membrane - maximum 50 feet (15.24 m) wide, maximum 200 feet (60.98 m) long which meets ASTM D4637 and ANSI/RMA IPR-1.

   b. Sure-Seal (black) .060 inch (1.5 mm) thick non-reinforced EPDM membrane - maximum 40 feet (12.20 m) wide, maximum 100 feet (30.49 m) long which meets ASTM D4637 and ANSI/RMA IPR-1.

   c. Sure-Seal (black) .065 inch (1.1 mm) and .060 inch (1.5 mm) thick reinforced EPDM membrane - 4-1/2 feet (1.37 m), 7 feet (2.1 m) or 10 feet (3.05 m) wide, maximum 100 feet (30.49 m) long; 7 feet (2.1 m) and 10 feet (3.05 m) wide .065 (1.1 mm) inch thick membrane are also available in lengths of 200 feet (60.98 m). Reinforced with polyester fabric which meets ASTM D4637 and ANSI/RMA IPR-2.

   d. Sure-Seal (black) Reinforced EXTRA™ EPDM membrane - approximately .065 inch (1.7 mm) thick, 10 feet (3.05 m) by 100 feet (30.49 m) long membrane offering enhanced puncture, tear and wind uplift resistance. Reinforced with polyester fabric which meets ASTM D4637 and ANSI/RMA IPR-2.

   e. Brite-Ply (white-on-black) .045 inch (1.1 mm) and .060 inch (1.5 mm) thick reinforced EPDM membrane - 4-1/2 feet (1.37 m), 7 feet (2.1 m), 10 feet (3.05 m) or 11 feet (3.37 m) wide, maximum 100 feet (30.49 m) long reinforced with polyester fabric which meets ASTM D4637 and ANSI/RMA RP-6.

   f. Brite-Ply (white-on-black) .060 inch (1.5 mm) thick non-reinforced EPDM membrane - maximum 10 feet (3.05 m) wide, maximum 100 feet (30.49 m) long which meets ASTM D4637 and ANSI/RMA RP-6.

Refer to the physical properties listed on pages 4 through 8.
SURE-SEAL (Black)
.045 and .060 INCH THICK REINFORCED EPDM MEMBRANE
STANDARD AND FIRE RETARDANT (FR)

The membrane is used for:

1. Sure-Seal Adhered Roofing Systems
2. Sure-Seal Mechanically-Fastened Roofing Systems
3. Sure-Seal Metal Retrofit Roofing Systems
4. Sure-Seal Design "B" Ballasted and Design "C" Roofing Systems

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Test Method</th>
<th>SPEC. (Pass)</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance on Nominal Thickness, %</td>
<td>ASTM D 751</td>
<td>±10</td>
<td>±10</td>
</tr>
<tr>
<td>Thickness Over Scrim, min. in. (mm)</td>
<td>Optical Method</td>
<td>.015 (.381)</td>
<td>.045-.016 (.406)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.060-.020 (.508)</td>
</tr>
<tr>
<td>Breaking Strength, min. lbf (N)</td>
<td>ASTM D 751</td>
<td>90 (400)</td>
<td>180 (800)</td>
</tr>
<tr>
<td>Elongation, Ultimate, min. %</td>
<td>ASTM D 751</td>
<td>250 **</td>
<td>500 **</td>
</tr>
<tr>
<td>Tear Strength, min. lbf(N)</td>
<td>ASTM D 751</td>
<td>10 (45)</td>
<td>30 (132)</td>
</tr>
<tr>
<td>Brittleness point, max. deg. F (deg. C)</td>
<td>ASTM D 2137</td>
<td>-49 (-45)</td>
<td>-75 (-59)</td>
</tr>
<tr>
<td>Resistance to Heat Aging,*</td>
<td>ASTM D 573</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Properties after 4 weeks @ 240°F</td>
<td>ASTM D 751</td>
<td>80 (355)</td>
<td>175 (780)</td>
</tr>
<tr>
<td>Elongation, Ultimate, min. %</td>
<td>ASTM D 751</td>
<td>200 **</td>
<td>250 **</td>
</tr>
<tr>
<td>Linear Dimensional Change, max. %</td>
<td>ASTM D 1206</td>
<td>±1.0</td>
<td>-0.7</td>
</tr>
<tr>
<td>Ozone Resistance*</td>
<td>ASTM D 1149</td>
<td>No Cracks</td>
<td>No Cracks</td>
</tr>
<tr>
<td>Conditions after exposure to 100 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ozone in air for 168 hours @ 104°F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen wrapped around 3 inch mandrel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to Water Absorption*</td>
<td>ASTM D 471</td>
<td>±4.0 **</td>
<td>+2.0 **</td>
</tr>
<tr>
<td>After 7 days immersion @ 158°F (70°C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in mass, max. %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to Outdoor (Ultraviolet) Weathering**</td>
<td>ASTM D 4637</td>
<td>No Cracks</td>
<td>No Crazing</td>
</tr>
<tr>
<td>Xenon-Arc, 7500 kJ/m² total radiant exposure at .70 W/m²</td>
<td>Conditions</td>
<td>No Crazing</td>
<td>No Crazing</td>
</tr>
<tr>
<td>Irradiance, 176°F (80°C) black panel temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting.

** Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced product.
APPENDIX C

INSPECTION REPORTS
HANLIN - ALLIED SITE
INSPECTION LOG - TEMPORARY WASTE PILES

The two temporary cell building debris/material waste piles must be inspected weekly and after storms to ensure tight seams and the absence of tears, punctures, ponded water, etc. The sump must also be inspected to detect the presence of water. The inspections shall be documented.

1. Date & Time of Inspection  12/6/00  8:30 AM

2. Inspector(s) Name(s)  HOMER MICKEY & RALPH CUNNEER

3. Findings/Remarks  NO TEARS, PUNCTURES OR PONDED WATER OBSERVED.  SUMP DRY.
HANLIN - ALLIED SITE
INSPECTION LOG - TEMPORARY WASTE PILES

The two temporary cell building debris/material waste piles must be inspected weekly and after storms to ensure tight seams and the absence of tears, punctures, ponded water, etc. The sump must also be inspected to detect the presence of water. The inspections shall be documented.

1. Date & Time of Inspection 12-13-00 9:45 AM
2. Inspector(s) Name(s) RALPH CONNER x HAMER MICKEY
3. Findings/Remarks NO TEARS, PUNCTURES or PONDED WATER OBSERVED, REMOVED 86 GALLONS OF WATER FROM SUMP.
The two temporary cell building debris/material waste piles must be inspected weekly and after storms to ensure tight seams and the absence of tears, punctures, ponded water, etc. The sump must also be inspected to detect the presence of water. The inspections shall be documented.

1. Date & Time of Inspection 12-20-00

2. Inspector(s) Name(s)  Homer Mickey

3. Findings/Remarks NO TEARS, PUNCTURES OR PONDED WATER OBSERVED. SUMP DRY
HANLIN - ALLIED SITE
INSPECTION LOG - TEMPORARY WASTE PILES

The two temporary cell building debris/material waste piles must be inspected weekly and after storms to ensure tight seams and the absence of tears, punctures, ponded water, etc. The sump must also be inspected to detect the presence of water. The inspections shall be documented.

1. Date & Time of Inspection 12-27-00

2. Inspector(s) Name(s) Homer Mickey

3. Findings/Remarks NO TEARS OR PUNCTURES FROZEN CONDITIONS