



SITE MANAGEMENT PLAN

BASF SOUTH 40

**BASF Corporation
36 Riverside Avenue
City of Rensselaer, Rensselaer County, New York**

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Prepared For:
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FIGURES

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APPENDICES

- Appendix A – Soil Management Plan
- Appendix B – Site Inspection Checklist

1.0 INTRODUCTION

This Site Management Plan (SiteMP) has been prepared for Besicorp – Empire Power Company, LLC (BEPCO) for the BASF Corporation (BASF) South 40 Parcel (Site), Rensselaer, New York. The Site is located in a heavy industrial zoned area of the City of Rensselaer, New York (Figure 1-1). The Site is located to the south of the BASF former Main Plant manufacturing facility property (Main Plant site). The South 40 parcel covers an area of approximately 35 acres (Figure 1-2).

Pursuant to NYCRR Part 375-1.8 (5) this SiteMP has been prepared and includes (i) a Engineering Control/Institutional Control Plan (EC/IC); (ii) a Monitoring Plan; and (iii) a Operation and Maintenance Plan. This SiteMP has been prepared to document the requirements and procedures for the Engineering Controls (ECs) and Institutional Controls (ICs) for the capped portion of BASF South 40 Site as shown in Figure 1-3. This SiteMP does not supercede any federal, state, or local statutes, regulations, or ordinances pertaining to the environment, current and future holders of interests of property within the Site will remain obligated to comply with the same. This SiteMP will be used to facilitate the redevelopment of the Site in compliance with the Brownfield Site Cleanup Agreement (index A4-0507-0604), and has been prepared to outline general construction practices for redevelopment of the Site and future management thereof. The primary purposes of these controls are (1) to limit exposure of people and the environment to subsurface contaminants remaining at the Site by ensuring the protection and maintenance of the soil cap which was constructed per the Remedial Action Work Plan (RAWP) for the Site; (2) minimize impacts of construction-related activities; (3) to prevent or restrict activities in certain areas of the Site that may increase the risk of damage to the soil cap; and (4) to manage stormwater to prevent unacceptable impact to the soil cap and underlying groundwater.

The New York State Department of Environmental Conservation (NYSDEC), its agents, employees, or other representatives of New York State government may enter and inspect the Site in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

This SiteMP has been prepared as a mechanism to assure that consistent and effective inspection and maintenance and enforcement activities are occurring and will occur in the future throughout the Site. These objectives and those detailed below will be achieved primarily through the implementation of EC/ICs defined in this SiteMP. Future owners of any portion of the Site will be bound by the provisions of this SiteMP that are relevant to the portion of the property they own or control on the Site.

1.1 OBJECTIVES

The specific objectives of this SiteMP are as follows:

- To describe the binding and enforceable ECs/ICs to be implemented that will facilitate future construction activities on the Site while at the same time maintaining the short-term and long-term effectiveness of the remedy established in the RAWP.
- To establish controls on any construction-related activities (deep excavations, borings, or foundations) impacting the soil cap within the defined area of the Site.
- To establish controls on groundwater use.
- To establish the requirements through which disturbance will be allowed.

- To identify the specific mechanisms (inspection requirements, deed restrictions, etc.) that will be used to establish and enforce the ECs/ICs contained in this SiteMP.
- To define the monitoring requirements.
- To outline the maintenance requirements for the Site.

2.0 SITE SUMMARY

2.1 BACKGROUND INFORMATION

The Site is located in a heavy industrial zoned area of the City of Rensselaer, New York (Figure 1-1). The Site is located to the south of the BASF former Main Plant manufacturing facility property (Main Plant site).

According to various sources, properties along Riverside Avenue in Rensselaer have been characterized by chemical industrial activity for over 100 years. The effect of regional industrial operations on soil and groundwater quality is well documented by regulatory agencies. It is possible that much of the soil in the waterfront area is composed of fill materials and Hudson River dredged materials. The historic use of the Hudson River could result in metals and natural organic contents in the historic fills above the background levels of natural in-situ soils (Roux, 2001 – Note – Refer to the Final Engineering Report dated September 2007 for the document identifications).

The South 40 parcel covers an area of approximately 35 acres (Figure 1-2). The parcel was bisected into two areas by the construction of the Port of Rensselaer Access Highway in 1992. The northern portion of the parcel is 26.19 acres in size and lies to the north of the Port of Rensselaer Access Highway. The 8.8-acre portion of the parcel located to the South of the Port of Rensselaer Access Highway is isolated from the remainder of the parcel and has not been historically impacted by disposal activities. As such, that portion of the parcel was not subject to remediation.

A CSX Transportation (CSX) rail spur physically separates the Site from the former Main Plant and Landfill properties. The Site is bounded on the west by Riverside Avenue and across the street by the Port of Rensselaer Property, which includes the Rensselaer Cogeneration powerplant, a metal scrap recycling facility, and the Hudson River beyond. Located east of the Site is the Port of Rensselaer Access Highway and CSX railroad tracks, with residential and commercial properties beyond. Undeveloped land and several tank farms are located to the south. Potable water and sewer services are provided by the City of Rensselaer.

The Site is located in an area that has been heavily industrialized by chemical and other manufacturing facilities since the 1870s. The Main Plant site has been used since the 1880s for the manufacturing of dyestuffs, including coal-tar dyestuffs. BASF acquired the Site when it purchased the entire manufacturing facility from GAF Corporation (GAF) on April 1, 1978. Following the acquisition of the facility by BASF, the NYSDEC alleged that GAF disposed of an unknown quantity of industrial wastes/solvents on the Site. It is also alleged that dredge spoil from the Hudson River has been deposited here, although no records have been located to confirm this allegation. A 1950s-era photograph of the Site shows that a staging area and Site entry road were being used at the time. No filling is known to have occurred in recent years. BASF contacted GAF for information about the alleged waste disposal at the Site; however, GAF could not confirm or deny the allegation. Based upon this lack of information, the NYSDEC requested that BASF perform a Phase II Site Investigation under Order on Consent Index Number 04-0326-85-07, which was completed in 1992 (Roux, 2001).

2.2 REMEDY

In compliance with the Brownfield Site Cleanup Agreement, the remedy consisted of excavation of all identified anomaly areas and removal of buried drum carcasses encountered. Also arsenic contaminated soils with concentrations greater than 500 ppm total arsenic were excavated and shipped off-site for disposal. The excavation areas were sampled on a grid pattern and backfilled with certified clean soil. The final portion of the remedy included installation of a demarcation layer over the entire approximate 8 acre area and covering the demarcation layer with one foot of clean backfill soil.

3.0 ENGINEERING AND INSTITUTIONAL CONTROLS

3.1 ENGINEERING CONTROLS

Engineering Controls (ECs) are physical mechanisms which restrict access to the Site and site contaminants. Engineering Control shall mean any physical barrier or methods employed to actively or passively contain, stabilize, or monitor hazardous waste, restrict the movement of hazardous waste to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to hazardous waste.

Engineering controls for this site include, but are not limited to:

1. **Soil Cap** – As part of the RAWP a soil cover (Soil Cap) was constructed over approximately 8 acres of the Site; the limits of the Soil Cap are defined in Figure 1-3. This Soil Cap encompasses the contaminated soils area that contains levels of arsenic above 7.5 ppm. The Soil Cap consists of an orange demarcation layer that separates the contaminated soil from the clean soil cover. The Soil Cap provides protection from exposure for human health and the environment and will be maintained in accordance with the Soil Management Plan.
2. **Site Access Controls** – The existing six (6) foot high chain link fence with barbed wire will be maintained as part of the engineering control plan. Future modifications to the exact location of the chain link fence will be allowed during site construction; however the Site will always be secured with the fence. Access to the site will be restricted by a fence surrounding the Site. The existing fence will be maintained as needed to prevent the public from entering areas where residual contamination has been identified in excess of NYSDEC RSCOs identified in TAGM 4046.
3. **Replacement of Soil Cap** – As part of the construction plans, portions of the Soil Cap may be covered with asphalt, concrete or other material. These will be detailed in the action-specific Soil Management Plan .
4. **Signage** – “Posted” signs will be placed on the perimeter fence to notify the community that the site has restricted access and that no trespassing is allowed.

3.2 INSTITUTIONAL CONTROLS

Institutional controls are non-physical mechanisms which restrict the use of a site, limit human exposure, and prevent any actions which would threaten the effectiveness or operation and maintenance of a remedy at or pertaining to the site. Under NYSDEC policy, institutional controls apply when contaminants remain at a site at levels above the SCGs that would otherwise allow unrestricted human use of the property. Institutional controls may include restrictions on the use of structures, land and groundwater as well as deed notices and covenants.

Institutional controls to protect human health and the environment will be implemented at the Site through an Environmental Easement (Appendix [F] of the Final Engineering Report). The following institutional controls will be implemented and enforced through a deed restriction associated with the Environmental Easement:

1. **Site Use Restriction.** The owner of the Site will prohibit it from being used for purposes other than for industrial use and the services associated with such use. Future use of the Site is expected to be a nominal 528-megawatt combined-cycle cogeneration power plant. As such, the planned future use of the Site will be consistent with the current land use (i.e., industrial).
2. **Soil Management Plan.** A generic Soil Management Plan (Appendix A), set forth procedures to be followed by Site owners, their agents or any future party for activity involving excavation, the management and disposal of excavated material, or the use of imported soil/fill for purposes such as backfill, grading or landscaping. In accordance with the Soil Management Plan, an action-specific Soil Management Plan will be submitted for all such activities in the future.
3. **Groundwater Use Restriction.** The use of groundwater underlying the site will be prohibited except for uses allowed under the approved Soil Management Plan.
4. **Groundwater Monitoring.** The Site owner will monitor groundwater quality at down gradient locations at the site perimeter until data indicate that groundwater standards have been achieved. This will be conducted annually for a minimum of 5 years and will be terminated once all samples have met NYSDEC groundwater standards for two consecutive years.
5. **Notification.** An IC notification in accordance with the Soil Management Plan will be made to the NYSDEC whenever intrusive activities are to be performed on the Soil Cap area that requires contaminated soil to be disturbed. The purpose of the IC notification is to notify the NYSDEC of any intrusive activities in the Soil Cap area that will be performed on Site and to ensure that the controls remain effective over time.
5. **Certification** The Site owner will certify on a yearly basis that the institutional controls are in place and remain effective for the protection of public health and the environment. The Site owner will identify any activities undertaken pursuant to the SiteMP during the past year, and identify anticipated forthcoming activities that may require implementation of the SiteMP.

As part of this certification the following will be provided:

1. A certification prepared by a professional engineer or other qualified environmental professional, which must certify that the institutional controls and/or engineering controls employed at such site are :

- a. unchanged from the previous certification, unless otherwise approved by the Department, consistent with the SiteMP;
- b. in place and effective;
- c. performing as designed; and that nothing has occurred that would
 1. impair the ability of the controls to protect the public health and environment; or
 2. constitute a violation or failure to comply with any operation and maintenance plan for such controls.
2. On a yearly basis that no new information has come to the Site owner`s attention, including groundwater monitoring data from wells located at the site boundary, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid; and
3. Every five years, the assumptions made in the qualitative exposure assessment will be reviewed to ensure they remain valid.

4.0 MONITORING PLAN

4.1 GROUNDWATER MONITORING

To monitor the effectiveness of the remedial action and the Site's groundwater quality, four (4) monitoring wells will be monitored. These monitoring wells will be sampled once per year for contaminants-of-concern as illustrated in Table 1. Groundwater samples collected will be shipped, following QA/QC procedures to a NYSDOH certified laboratory following the NYSDEC Analytical Protocols. The first annual sampling period will be conducted during the summer months of 2008 in order to include the results in the first annual compliance certification report.

Table 1 - BASF South 40 Groundwater Monitoring Well Sampling			
Monitoring well	Contaminants-of-concern	Groundwater Criteria	Detection Limit (ppb)
All Monitoring Wells BW-3 BW-4 BW-5 BW-6	Arsenic	25 ppb	4.0
	Mercury	0.7 ppb	0.2
	1,2-Dichlorethane	5 ppb	5.0
	Total Phenols	1 ppb	1.0

5.0 SITE MAINTENANCE PLAN

This maintenance plan is intended to serve as a summary and guide for all the post-closure monitoring and at the Site. All aspects of the Site inspection and maintenance procedures shall be performed in accordance with this SiteMP.

5.1 MAINTENANCE ACTIVITIES

5.1.1 Site Fence

The existing site perimeter fencing, including gates, shall be inspected regularly to ensure security. Any damage that is observed shall be recorded and repaired immediately by restoring or replacement of the damaged materials. Any disturbed or eroded soil below the fence line shall be filled and vegetation restored to ensure security of the site.

5.1.2 Signs

All signs posted on the site shall be inspected regularly. Any signs that are determined to be missing shall be replaced immediately. Any sign that has been damaged beyond legibility shall be replaced immediately. If it is determined that a new sign is necessary at the site, the sign shall be posted as soon as possible. All damage to signage shall be promptly repaired.

5.1.3 Soil Cap

Areas over the Soil Cap where loss of cover soils or vegetation is noted shall be repaired by replacing and compacting the eroded soil and re-establishing the vegetative cover. Siltation controls such as hay bales shall be temporarily placed around these restored areas. Records shall be kept of all observed damage to the cover system, as well as all subsequent repairs to the cover system.

The surface of the cover system shall be regularly inspected for areas of settlement and subsidence. These areas shall be noted and repaired immediately. These areas shall be repaired by placing and compacting additional fill materials to create a uniformly sloping surface with the surrounding grade.

Any proposed changes to the Soil Cap will be approved by the NYSDEC through the notification requirements of the Soil Management Plan and the submittal of action-specific Soil Management Plans.

5.2 INSPECTION ACTIVITIES

5.2.1 Maintenance Schedule

The maintenance activities included in Section 5.1 shall be performed annually or sooner if deemed necessary. A Site Inspection Checklist is provided in Appendix B. The checklist shall be employed for every inspection and incorporated into an annual report to the NYSDEC.

5.3 REPORTING

A report shall be generated at the end of each monitoring event that summarizes the findings of each annual inspection report and provides all information related to maintenance and monitoring activities, including groundwater monitoring for the first five years. Results of the first five years of groundwater monitoring will be used to determine if monitoring beyond those five years is required. The first certification report will be submitted one year after the filing of the Environmental Easement.