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MCP INTERIM PHASE II REPORT
AND CURRENT ASSESSMENT SUMMARY
FOR UNKAMET BROOK AREA/
USEPA AREA 1

VOLUME I OF XIV

General Electric Company

Pittsfield, Massachusetts

January 1995



BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MCP INTERIM PHASE II REPORT AND CURRENT ASSESSMENT SUMMARY
FOR UNKAMET BROOK AREA/USEPA AREA 1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MA

JANUARY 1995

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MCP INTERIM PHASE II REPORT AND CURRENT ASSESSMENT SUMMARY
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SECTION 1 - INTRODUCTION

1.1 General

This report has been prepared on behalf of the General Electric Company (GE) by Blasland, Bouck & Lee, Inc. (BB&L), to meet two sets of requirements applicable to the GE facility in Pittsfield, Massachusetts. First, the report constitutes an Interim Phase II - Comprehensive Site Assessment Report for the Unkamet Brook Area (ID No. 1-0148), as required by the Massachusetts Department of Environmental Protection (MDEP), pursuant to the Massachusetts Contingency Plan (MCP) and a Consent Order executed by GE and the MOEP in July 1990. Second, this document constitutes a Current Assessment Summary (CAS) Report for the area designated as USEPA Area 1, pursuant to the requirements of a permit (the 'Permit') issued to GE by the United States Environmental Protection Agency (USEPA) in February 1991, under the corrective; action provisions of the federal Resource Conservation and Recovery Act (RCRA) as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). The Permit was originally issued in February 1991 and was reissued, as modified, effective January 3, 1994.

The MOEP and the USEPA have also executed a Memorandum of Understanding (MOU) that provides for coordination between them in reviewing GE's submittals related to the Consent Order and Permit. Pursuant to the MOU, this document has been prepared to facilitate a coordinated joint agency review.

A previous version of this report was submitted to the MOEP and the USEPA in April 1992 (Blasland & Bouck, April 1992). However, at that time, the USEPA Permit was stayed pending resolution of an appeal of the Permit by GE and others. Following that appeal, the USEPA modified certain portions of the Permit and issued final Permit modifications on December 1, 1993. The modified

Permit became effective on January 3, 1994. This document is being reissued to incorporate new information that has become available since April 1992.

As indicated above, this report is not only an MCP Interim Phase II Report, but also a CAS. Another document, which constitutes an MCP Supplemental Phase II Scope of Work (SOW) and a RCRA Facility Investigation (RFI) Proposal for this site (Supplemental Phase II SOW/RFI Proposal), is being submitted concurrently with this document. In addition, a Preliminary Health and Environmental Assessment (HEA) Proposal for this site is also being submitted concurrently with this document.

1.2 Background Information

Numerous investigations have been conducted at or near the Unkamet Brook Area/USEPA Area 1 Site. A chronological summary of the studies performed to date is presented in Table I-I. A brief discussion of the history of the site is provided below.

The Unkamet Brook Area has been designated as a 'disposal site" by the MDEP under the MCP and is considered to be in Phase II of the MCP process. This site is co-extensive with USEPA Area 1 under the Corrective Action Permit. [Note: In April 1994, the boundaries of the MDEP-designated Unkamet Brook Area Site were expanded to include the entire GE facility east of Plastics Avenue and the area surrounding Buildings OP-1 and OP-2, which was previously included in the MDEP-designated remainder of GE Facility Site (I.D. No. I-0563). This expansion was made so that the Unkamet Brook Area would be co-extensive with USEPA Area 1, to facilitate coordination between the MDEP and USEPA.] Figure 1-1 shows the general location of the Unkamet Brook Area/USEPA Area 1 Site, while Figure 1-2 shows a 'more detailed site plan.

The site is traversed by Merrill Road, Plastics Avenue, and several sets of railroad tracks. The entire portion of the site north of Merrill Road consists of

property owned by GE (see Figure I-2). The remainder of the site is composed of a commercial area and a lowland area. The GE-owned portion of the site is generally bounded by Dalton Avenue to the north, Merrill Road to the south, the Penn Central Railroad tracks to the east, and to the west by the eastern edge of the Building OP-2 parking lot. This area consists of an access-restricted facility to the west of Unkamet Brook and a large undeveloped marsh area to the east of the brook. The commercial area of the site is located south of Merrill Road between Merrill Road and the Penn Central Railroad tracks. To the east of the commercial area is Building OP-3, which is part of the access-restricted industrial facility at the site. The lowland area includes the lower reaches of Unkamet Brook from the Penn Central Railroad tracks to the brook's confluence with the east branch of the Housatonic River. The lowlands area also includes the immediate floodplain on both banks of the brook in this area, as well as the wide expanse of floodplain and wetland areas northeast of the brook.

All three of the manufacturing divisions located at the GE Pittsfield facility (Transformer, Ordnance, and Plastics) have at one time operated, or are currently operating, in the Unkamet Brook Area (sometimes known as the East Plant Area). Activities in this area (beginning in or around 1932) have involved a wide range of research and development activities and the manufacture of power transformer-related products, ordnance-related products, monomers, polymers, and industrial resins.

The ordnance-related operations at the GE Pittsfield facility, which take place in Buildings OP-1, OP-2, and OP-3, were sold to the Martin Marietta Corporation in 1993. GE continues to own the property at OP-1 and OP-2, while the U.S. Navy owns the property at OP-3. While Martin Marietta operates these facilities, the environmental investigations associated with these facilities will be performed under GE's direction.

Numerous investigations have been conducted at or near the Unkamet Brook/USEPA Area 1 Site. A summary of studies performed to date is presented in Table I-I, and a brief discussion of the history of the site is provided below.

For a number of years, process wastewater and non-contact cooling waters from the Plastics Division facility were discharged into an on-site, earthen waste stabilization basin. That basin, formed by constructing earthen embankments to enclose a portion of an existing bog area, provided clarification and equalization of process wastewater from the East Plant Area. The waste stabilization basin has been closed and remediated. Phase I of the basin's closure consisted primarily of the construction of the Building 119W oil/water separator in 1971 and the installation of process modifications. Phase II of the closure involved the construction of a wastewater source control plant (Building 120W) that began operations in February 1979 to handle oil contact waste flows. The actual basin remediation activities were performed between August 1980 and June 1981. Remediation consisted of removing the standing liquids and the sludge layer, covering the area with synthetic stabilization fabric, and covering the area with cement/bentonite materials and fill. A vegetative cover was then installed (O'Brien & Gere, August 1981).

North of the former waste stabilization basin is a former landfill area referred to as the former Interior Landfill. A study of the area starting in 1979 was prompted by the concern that some materials placed within this area may be a source of groundwater concern.

From 1979 to 1981, GE studied the effects of manufacturing activities on groundwater quality in the portion of the Unkamet Brook Area east of Plastics Avenue. The purpose of the investigation was to describe the nature and extent of groundwater concerns resulting from general operations within this area, and specifically related to the former Interior Landfill and the waste stabilization basin.

In 1981, GE entered into a Consent Order with the MDEP (then known as the Department of Environmental Quality Engineering). In May 1983, pursuant to that Consent Order, the USEPA, the MDEP, and GE agreed to a monitoring program for stream sediment, surface water, and groundwater in the Unkamet Brook area. The monitoring program consisted of sediment and surface water sampling, and mapping groundwater flow patterns at the site. The program also included describing lateral and vertical groundwater quality using the chemical data obtained from surface water and groundwater analysis. The areas included in the program were located along the perimeter of the former Interior Landfill, in the vicinity of the plume that is emanating from the former waste stabilization basin, along the length of the brook itself, and at a number of locations in the marshy area adjacent to the brook.

During the summer of 1983, ambient air PC6 monitoring was conducted in and around Unkamet Brook and the former Interior Landfill in response to the 1981 Consent Order. Additional air monitoring for volatile organic compounds (VOCs) was performed in 1988 within the basement of a building located above the VOC plume area (located in the commercial area south of Merrill Road).

In 1987, hydrogeologic investigations were conducted to assess the relationship (if any) between a small oil plume floating on the water table near Buildings 51, 59, and 119 and the storm water drainage system in these areas. Between 1988 and 1992, GE monitored the thickness of free-phase oil on the water table in this area and conducted oil recovery activities.

Pursuant to a Consent Order executed by GE and the MDEP, effective July 2, 1990, GE was required to undertake a Phase II Comprehensive Site Investigation of the site under the MCP, and prepare and submit a report thereon to the MOEP. In accordance with the MCP and the 1990 Consent Order, GE prepared a Scope of Work for the Phase II Comprehensive Site Assessment of the Unkamet Brook Area (Blasland & Bouck, August 1990a). That SOW, which

incorporated the MDEP's comments on a prior draft, was submitted to the MDEP in August 1990. The document was accompanied by an Unkamet Brook Supplemental Data Summary, which presented the results of investigations conducted prior to that date (Blasland & Bouck, August 1990b). The revised SOW was approved by the MDEP (subject to certain conditions) by letter dated November 7, 1990.

Investigations associated with the MCP Phase II Site Assessment were initiated in October 1990, and have since been completed. A detailed review of available data for the CAS as outlined in the USEPA Permit has also been performed. This report summarizes the scope and findings of the MCP Phase II investigation to date and provides the data necessary to fulfill the CAS requirements of the USEPA Permit. As indicated above, a previous version of this report was submitted to the MDEP and USEPA in April 1992 (Blasland & Bouck, April 1992). This document incorporates new information that has become available since April 1992.

1.3 Format of Document

This document is divided into several sections, including a detailed description of the site history and location, a summary of previous investigations conducted at the site, the results of the MCP Phase II investigations to date, and a characterization of the presence of polychlorinated biphenyls (PCBs) and other hazardous constituents associated with the site.

Specifically, Section 1 presents pertinent background information. while Section 2 describes the physical and environmental setting of the site, including site mapping, historic photographs, topography, surface drainage, vegetation, surface water, flooding potential, wetlands and critical wildlife habitats, geology, groundwater/hydrogeology, land use, climatology/meteorology and utilities.

Section 3 provides an identification and characterization of potential sources of contamination at the site, including a description of various Solid Waste Management Units (SWMUs), as identified in the Permit.

Sections 4 through 11 present and discuss the field investigations associated with the site, both prior to and as part of the MCP activities. In particular, Section 4 presents the hydrogeologic investigations and characterization. Section 5 discusses surface water investigations, Section 6 discusses sediment investigations, Section 7 discusses surficial soils investigations, Section 8 discusses miscellaneous investigations, Section 9 discusses air monitoring, Section 10 discusses the Building 51/59 oil plume investigations, and Section 11 discusses fish investigations at the site. Section 12 describes fate and transport characteristics associated with hazardous constituents detected at the site. Section 13 discusses potential migration pathways based on the information contained in previous sections, and Section 14 identifies remaining data needs. Finally, Section 15 presents conclusions and future activities.

In addition, Appendices A through O and the various tables and figures included herein provide supporting information referenced in this report.

SECTION 15 - CONCLUSIONS AND FUTURE ACTIVITIES

15.1 Conclusions

A number of conclusions have been presented in Sections 4 through 11 of this report. Although several data needs have been described in Section 14, it is helpful to summarize the preliminary key findings and conclusions to date associated with the various site investigations. These conclusions are summarized below:

- An analysis of groundwater trends related to the VOC plume emanating from the former waste stabilization basin indicates that the plume is stable and has not migrated beyond the previously defined plume boundaries. Portions of the plume with high concentrations of various constituents are not migrating downgradient. Additionally, deep soil borings which were performed to assess the possible presence of DNAPLs were successful in demonstrating that these materials are not present. The stable plume condition exists as a result of the source removal performed in the early 1980s, as well as the natural processes (i.e., attenuation, adsorption, and hydrogeologic dynamics including the flushing of soils near the river due to periodic reversals of the hydraulic gradient during times of high river flow) which affect the plume. Based on interpretation of the past 10 years of groundwater monitoring data, the plume configuration is expected to remain stable into the future.
- The VOC plume appears to be discharging to Unkamet Brook just upstream of the confluence with the Housatonic River, and some VOCs have been detected in the surface water both in the brook and, at low levels, in the river just downstream of the confluence with the brook. It is not clear whether if the presence of tow levels of VOCs (benzene

and chlorobenzene) in the river water immediately downstream of the confluence is the result of Unkamet Brook surface water discharge or a combination of groundwater and surface water discharge to the Housatonic River. This topic will be addressed further during, Supplemental Phase II/RFI activities, as discussed in the Supplemental Phase II SOW/RFI Proposal.

An evaluation of the concentrations of VOCs detected in the surface water of Unkamet Brook and the Housatonic River reveals the following:

The VOCs detected in the Unkamet Brook surface water were generally at higher concentrations near the confluence with the Housatonic River. This conclusion is thought to be the result of groundwater discharge to the brook, as noted above. The VOCs detected were all below USEPA ambient water quality criteria (AWQC) with one exception: chlorobenzene was detected in two brook samples in one of two sampling rounds at concentrations exceeding the 'chronic freshwater AWQC for chlorinated benzenes for protection of aquatic life (0.050 ppm). However, there were no exceedances of any acute AWQC for VOCs. Further, the VOC data show no exceedances of AWQC for consumption of aquatic organisms, which, in any event, should not be relevant since the brook lacks any appreciable population of edible-size fish of the type consumed by humans. The brook sustains only a limited aquatic population due to its small size.

The VOC data from the Housatonic River surface water investigation indicate that any contribution of VOCs from the Unkamet Brook Area/USEPA Area 1 Site to the river (whether via surface water or groundwater) has no significant impact on the

water quality of the river. The data on VOC concentrations in the river water below the confluence with the brook show no concentrations in excess of either the acute or the chronic AWQC for protection of aquatic life or of the AWQC for consumption of aquatic organisms.

Upon comparing the historical database of VOCs detected in the Unkamet Brook surface water between 1981 and 1989 to the results obtained during MCP Phase II activities, it is apparent that several VOCs that were detected in the past were not detected during Phase II activities, and that the remaining VOCs were within the range of concentrations observed in the past. Hence, the plume is not having an increasing impact on the brook, and, in fact, that impact is either stable or diminishing.

The groundwater divide study has shown that, based upon 12 months of monitoring data, Unkamet Brook and the Housatonic River act as discharge points for groundwater in the Unkamet Brook Area. It has been demonstrated that the plume does not pass under the Housatonic River, and that, therefore, concerns regarding that potential issue can be dismissed.

The preferential pathway analysis performed in the Unkamet Brook Area indicates that, in general, preferential migration of groundwater is not occurring in the vicinity of the former Interior Landfill or the former waste stabilization basin. One set of anomalous results, as well as an assessment of other potential preferential pathways at the site, will be examined further during Supplemental Phase II/RFI activities, as described in the Supplemental Phase II SOW/RFI Proposal.

PCBs were detected in the Unkamet Brook surface water, and at low flow generally increase in concentration from the former Interior Landfill

to the confluence with the Housatonic River. At high flow, the data appears more variable. Evaluation of these data indicates the following:

- The PCB concentrations detected were above the freshwater chronic AWQC, but below the acute AWQC. In any event, as noted above, the brook sustains only a limited aquatic population due to its small size.
- The PCBs in Unkamet Brook surface water appear to have no significant impact on the water quality of the Housatonic River. Surface water sampling and analysis of the Housatonic River above and below the confluence at similar timeframes as the brook sampling indicated that PCBs were not detected in the river above the detection limit.
- The PCB concentrations observed in Unkamet Brook surface water during MCP Phase II activities are within the range of PCB concentrations detected in the brook during monitoring rounds between 1981 and 1989. Thus, the PCB levels in the surface water do not appear to be increasing.

· PCBs were detected in Unkamet Brook sediments at each of seven locations that were sampled during Phase II activities. The highest concentrations were detected in the vicinity of the former Interior Landfill, while much lower concentrations were detected below Merrill Road. The distribution of PCBs below Merrill Road was generally consistent with results obtained from this stretch of brook in the past. This distribution, coupled with the vertical distribution of PCBs in the sediments, and the surface water PCB data described above, indicates that minimal transport of sediments, and therefore PCBs, is occurring in the brook. The sediment data obtained during the Housatonic River

Phase II activities at the location in the river below the Unkamet Brook confluence, which were analyzed for hazardous constituents including PCBs, indicated that PCBs were not found at that location, thus further supporting the conclusion of minimal PCB transport in Unkamet Brook.

Sediments from Unkamet Brook within the former Interior Landfill were analyzed for Appendix IX+3 constituents and sediments from five other locations in the brook were analyzed for VOCs, SVOCs, and metals. The results of these analyses indicate that VOCs and SVOCs are generally present within the former Interior Landfill at relatively low concentrations and then decrease in concentration downstream. No VOCs were detected above the detection limit in sediments just upstream of the Housatonic River confluence. SVOCs also decreased in concentration below the former Interior Landfill, except that they increased in concentration in the vicinity of the railroad tracks (unrelated to GE) below Merrill Road. This occurrence will be investigated further, as described in Section 14.

VOCs and SVOCs are detected at three floodplain transects and near Building OP-3, generally at low concentrations. These data indicate that little transport of these constituents from the GE facility to the floodplain has occurred. Although some VOCs were detected in floodplain soil samples collected near the railroad tracks below Merrill Road, this occurrence is most likely unrelated to GE activities and will be further investigated as noted above.

PCBs were detected at each of the three floodplain transects and at low but detectable concentrations in all 20 of the surficial soil samples collected, south of Building OP-3. The highest PCB concentration detected south of Building OP-3 was 14.3 ppm, and 18 of the 20 samples had PCB concentrations of less than 2.9 ppm. Along the

floodplain transects, the PCBs were detected in relatively close proximity to Unkamet Brook (in all cases less than 275 feet and in most cases much less). A more detailed evaluation of the extent of PCBs in the Unkamet Brook floodplain will be undertaken as part of Supplemental Phase II/RFI activities, as described in Section 7-4.

The results of the Building 51/59 oil plume monitoring indicate that the extent of the oil is fairly well defined, particularly to the north and east. Information supporting the definition of the plume boundary to the west and south is limited, and, therefore, additional work is necessary to confirm the existing information in those areas, as described in Section 14. The preferential pathway analysis related to the Building 51/59 oil plume indicates that preferential migration along utility trenches occurs only in limited areas for short periods of time, if at all. In general, it can be concluded that utilities have little or no impact on the migration of the oil plume.

- During two separate sampling events, a total of four fish of filletable size were collected from Unkamet Brook and analyzed for PCBs and lipids. The fish contained PCB concentrations ranging from 2.1 to 3.8 ppm. Although the results of this screening-level investigation indicate that PCBs are available to the aquatic biota of Unkamet Brook, human consumption of Unkamet Brook fish is highly unlikely to be an exposure route of concern (if it occurs at all), since the small size of the brook severely limits the population of edible-size fish of the type commonly consumed by humans.

15.2 Future Activities

Section 14 of this document has identified several data needs concerning the presence and extent of hazardous materials at the Unkamet Brook

Area/USEPA Area 1 Site. Following the MDEP's review and approval of this interim Phase II Report/CAS and the Supplemental Phase II SOW/RFI Proposal, the activities described in the latter document will be performed. Some of the additional field activities would be contingent on obtaining access agreements with associated property owners. After the performance of these activities, the results will be presented and interpreted in a Supplemental Phase II/RFI Report which will be submitted for MDEP/USEPA review and approval. At the same time, a Risk Assessment SOW/Supplemental HEA Proposal (which will be more detailed than the PHEAP being submitted concurrently with this document) will be submitted for MDEP/USEPA review and approval. After performance of the risk assessment activities, a report thereon will be submitted, together with a Media Protection Standards Proposal for this site.