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SDMS 287049

March 24, 2000

Corporate Environmental Programs
General Electric Company
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**Re: GE-Pittsfield/Housatonic Site Upper ½-Mile Reach Removal Action:
Response to Questions/Comments on DNAPL Proposal**

Dear Mr. Tagliaferro and Mr. Olson:

This letter transmits a conceptual design for the installation of a dense non-aqueous phase liquid (DNAPL) recovery system associated with DNAPL excavation activities in Cell C as part of the Upper ½-Mile Reach Removal Action. This conceptual design has been developed as a contingency to the DNAPL excavation plan for the Cell C area which was submitted to the United States Environmental Protection Agency (USEPA) on March 3, 2000 (submittal entitled *Results of DNAPL Investigation and Proposal to Address the Presence of DNAPL*).

We trust the attached submittal will assist the USEPA in expediting final approval of the DNAPL excavation plan. Please contact me if you have any further comments or questions.

Very truly yours,

William Home / for

Andrew T. Silfer, P.E.
GE Project Coordinator

SDM/plh

Messrs. Tagliaferro and Olson
March 24, 2000
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Public Information Repositories ECL I-P-IV(A) (1)
GE Internal Repositories

**GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS**

UPPER ½-MILE REACH REMOVAL ACTION

**CONCEPTUAL DESIGN FOR THE INSTALLATION OF A DNAPL RECOVERY
SYSTEM**

I. INTRODUCTION

On March 3, 2000, the General Electric Company (GE) submitted *Results of DNAPL Investigation and Proposal to Address Presence of DNAPL* to the United States Environmental Protection Agency (EPA). This submittal presented the results of a recent investigation for further delineation of DNAPL encountered during sediment removal activities in Cell C as part of the Upper ½-Mile Reach Removal Action. Additionally, the submittal included a proposal to address the presence of DNAPL that was delineated by the investigation performed. The proposal involved additional excavation of the DNAPL-impacted materials and potential modifications to the restoration system in the Cell C area. In a March 9, 2000 letter, the EPA provided GE with comments on the proposal and indicated that if DNAPL or DNAPL-impacted material remains following excavation of sediments to elevation 960 feet above mean sea level (AMSL), EPA would likely require GE to use pumps or other liquid collection methods to remove DNAPL and perform long-term monitoring for the constituents present in the DNAPL.

In response to the above referenced EPA comment, this document presents a conceptual design for the installation of a DNAPL recovery system, as a contingency to the DNAPL excavation plan for the Cell C area.

II. DESCRIPTION OF CONCEPTUAL DNAPL RECOVERY SYSTEM

This section provides a general description of a conceptual DNAPL recovery system to be placed in the Cell C area if DNAPL or DNAPL-impacted material remains following excavation of sediments to a maximum elevation of 960 feet AMSL. Attachments 1 and 2 provide a conceptual design for two options for a DNAPL recovery system. Each option is further discussed below, however, it should be noted that since this is a contingency plan and the potential extent and location of any remaining DNAPL is not known, the construction of the DNAPL recovery system may be subject to field modification, in consultation with the EPA.

Option 1

In the event that DNAPL or DNAPL-impacted material remains following excavation activities and the extent of the impacted area extends to the source control sheeting, a recovery system consisting of a 6-inch diameter recovery pipe with a 12-inch diameter protective casing and stone drainage layer will be constructed within the DNAPL area (see Attachment 1). The base of the excavation within the extent of the area where DNAPL remains will be sloped (approximately 1 percent slope) to allow gravity drainage of DNAPL toward the recovery pipe. For the recovery pipe, a 1-foot sump will be excavated and an approximate one-foot length of solid 6-inch diameter pipe will be placed. The hole around the sump will be filled with bentonite pellets or cement/bentonite grout and a 2-foot-long 0.090-slotted screen will be placed above the sump. Approximately 2-feet of gravel will be placed, around the screened section. As a

conservative measure, the stone will be placed approximately 10 feet on each side of the maximum horizontal extent of the DNAPL remaining or until contact with the sheeting (or to any wedge of soil that remains in contact with the sheeting, within the removal area, for excavation stability). Following placement of the gravel, a geotextile filter fabric and a 6-inch sand layer will be placed. Above the sand layer, a 60-mil high density polyethylene (HDPE) liner will be placed and extended approximately 3 feet on each side of the maximum horizontal extent of the sand layer. In the event that the HDPE liner is placed in sections, these sections will be welded in accordance with manufacturer specifications and/or recommendations. Also, the HDPE liner will be sealed around the 12-inch diameter protective casing, the sheeting, and the new concrete headwall, as required, using an approximate 2-foot wide, 1-foot thick layer of bentonite pellets or cement/bentonite grout. The protective casing, along with the recovery pipe, will stick-up approximately 2 feet above final grade. The protective casing will be anchored to the sheeting using pipe collars and will also be threaded at the top so a cap will be able to be placed/removed, as necessary to remove DNAPL and protect the recovery pipe during a high flow event. The annulus between the 12-inch diameter protective casing and the 6-inch diameter recovery pipe will be filled with grout. Isolation layer material (i.e, the finer grain material originally approved) will be placed above the HDPE liner and the remainder of the area will be restored in accordance with the provisions set forth in the Upper ½-Mile Reach Removal Action Work Plan (BBL, August 1999).

Option 2

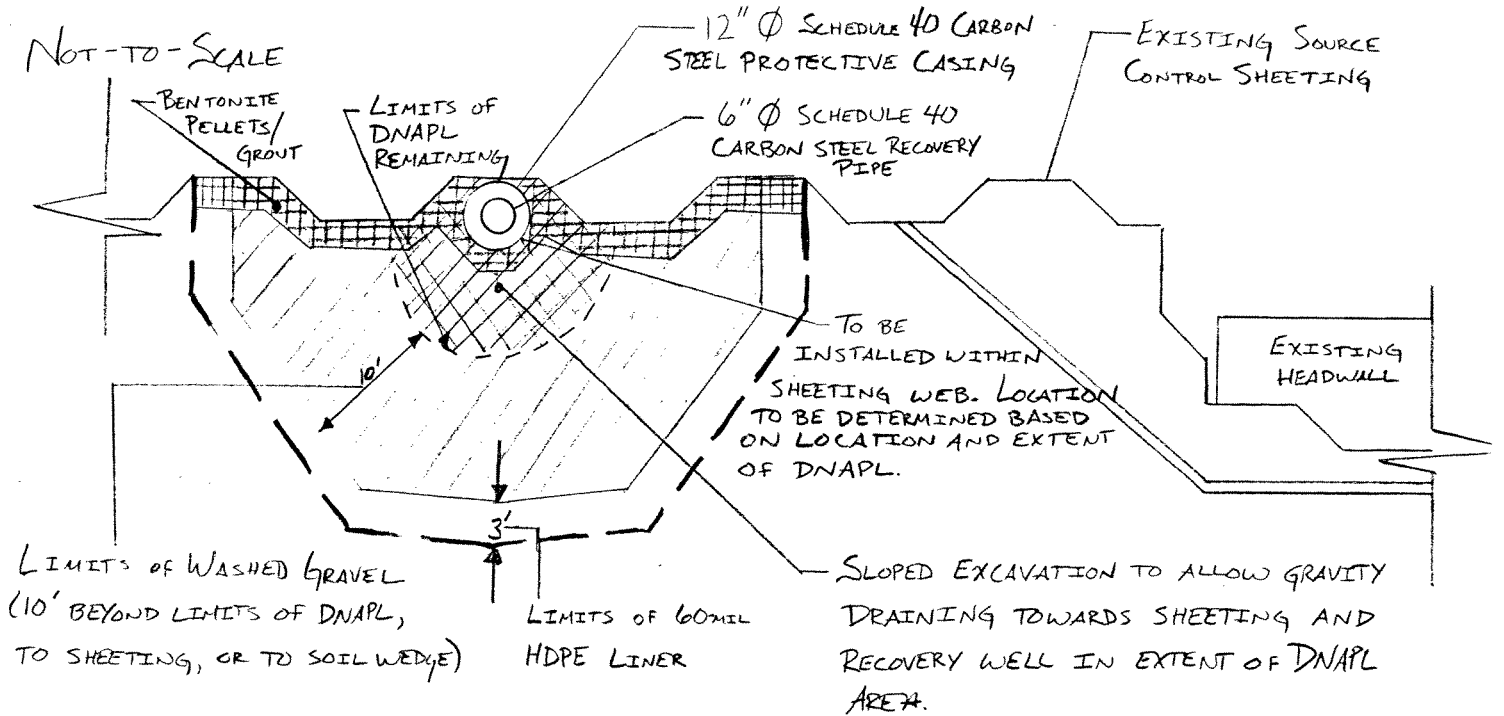
In the event that DNAPL or DNAPL-impacted material remains following excavation activities and the extent of the impacted area does not extend to the source control sheeting, a recovery system consisting of a 6-inch diameter perforated collection lateral within a stone drainage layer leading to a 6-inch diameter vertical recovery pipe and 12-inch diameter protective casing will be constructed within the DNAPL area (see Attachment 2). Similar to Option 1, the vertical recovery pipe will have a 1-foot sump. However, for Option 2 a 6-inch diameter collection lateral consisting of a perforated pipe within a gravel layer will be used to collect the DNAPL and transfer it to the vertical recovery pipe. The collection lateral will be sloped (approximately 1 percent slope) to allow gravity drainage of DNAPL toward the recovery pipe. In the area surrounding the DNAPL-impacted material approximately 2-feet of gravel will be placed throughout the base of the excavation. As a conservative measure, the stone will be placed approximately 10 feet on each side of the maximum horizontal extent of the DNAPL remaining or until contact with the sheeting (or to any wedge of soil that remains in contact with the sheeting, within the removal area, for excavation stability). Following placement of the gravel, a geotextile filter fabric and a 6-inch sand layer will be placed. Above the sand layer, a 60-mil HDPE liner will be placed and extended approximately 3 feet on each side of the maximum horizontal extent of the sand layer. In the event that the HDPE liner is placed in sections, these sections will be welded in accordance with manufacturer specifications and/or recommendations. Also, the HDPE liner will be sealed around the 6-inch diameter collection lateral, using an approximate 1-foot by 1-foot collar of bentonite pellets or cement/bentonite grout. The protective casing, along with the recovery pipe, will stick-up approximately 2 feet above final grade. The protective casing will be secured to the sheeting using pipe collars and will also be threaded at the top so a cap will be able to be placed/removed, as necessary to remove DNAPL and protect the recovery pipe during a high flow event. The annulus between the 12-inch diameter protective casing and the 6-inch diameter recovery pipe will be filled with grout. Isolation layer material (i.e, the finer grain material originally approved) will be placed above the

HDPE liner and the remainder of the area will be restored in accordance with the provisions set forth in the Upper ½-Mile Reach Removal Action Work Plan (BBL, August 1999).

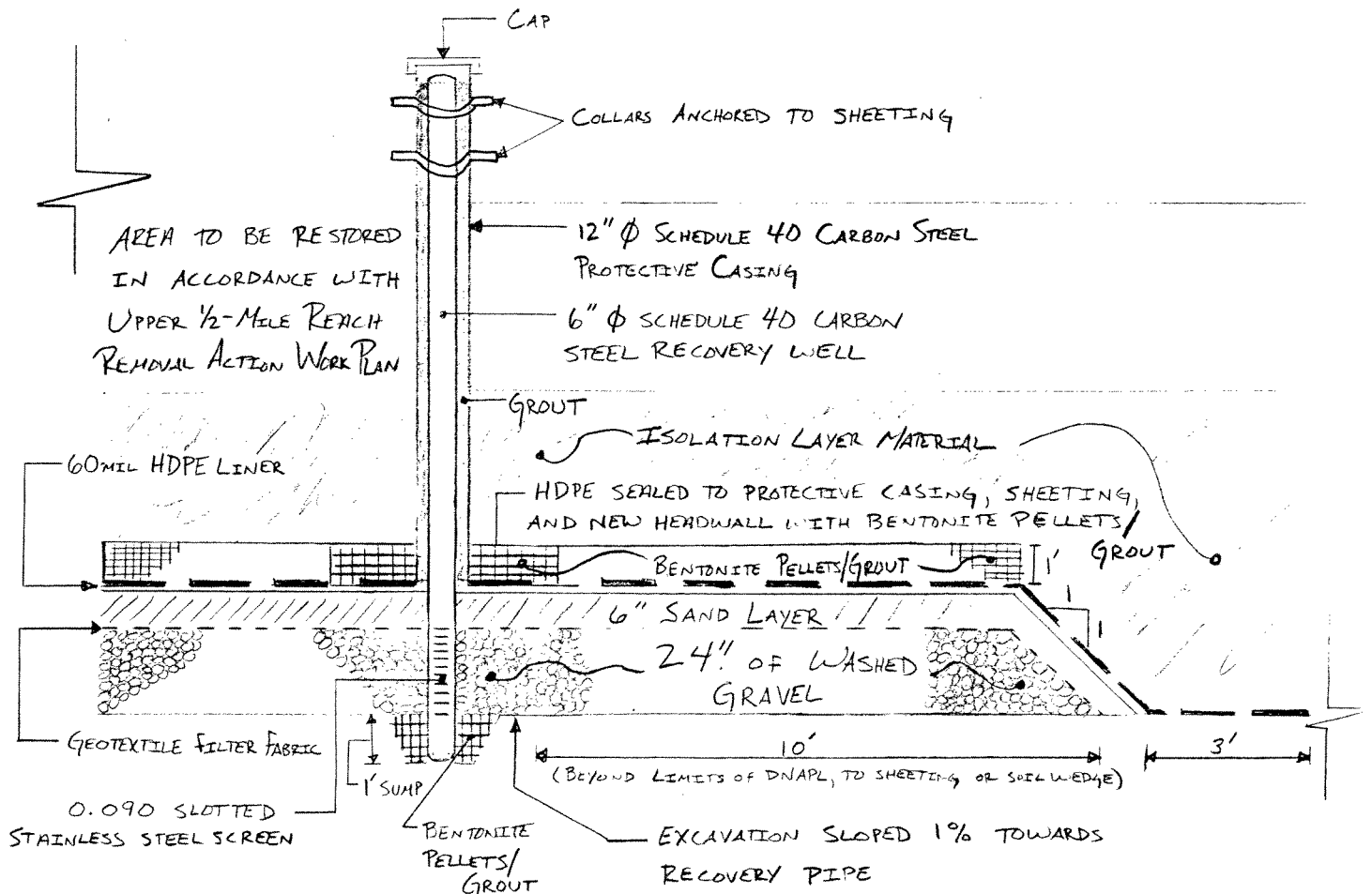
III. FUTURE ACTIVITIES

It is anticipated that, in the event a DNAPL recovery system is necessary to be installed in the River, the EPA will require long-term monitoring for the presence DNAPL. Long-term monitoring will consist of manually recovering DNAPL from the recovery pipe on a weekly basis. Also, in the event that DNAPL is consistently removed from the recovery pipe, GE will consider the performance of pumping tests to evaluate the need for an automated DNAPL collection system.

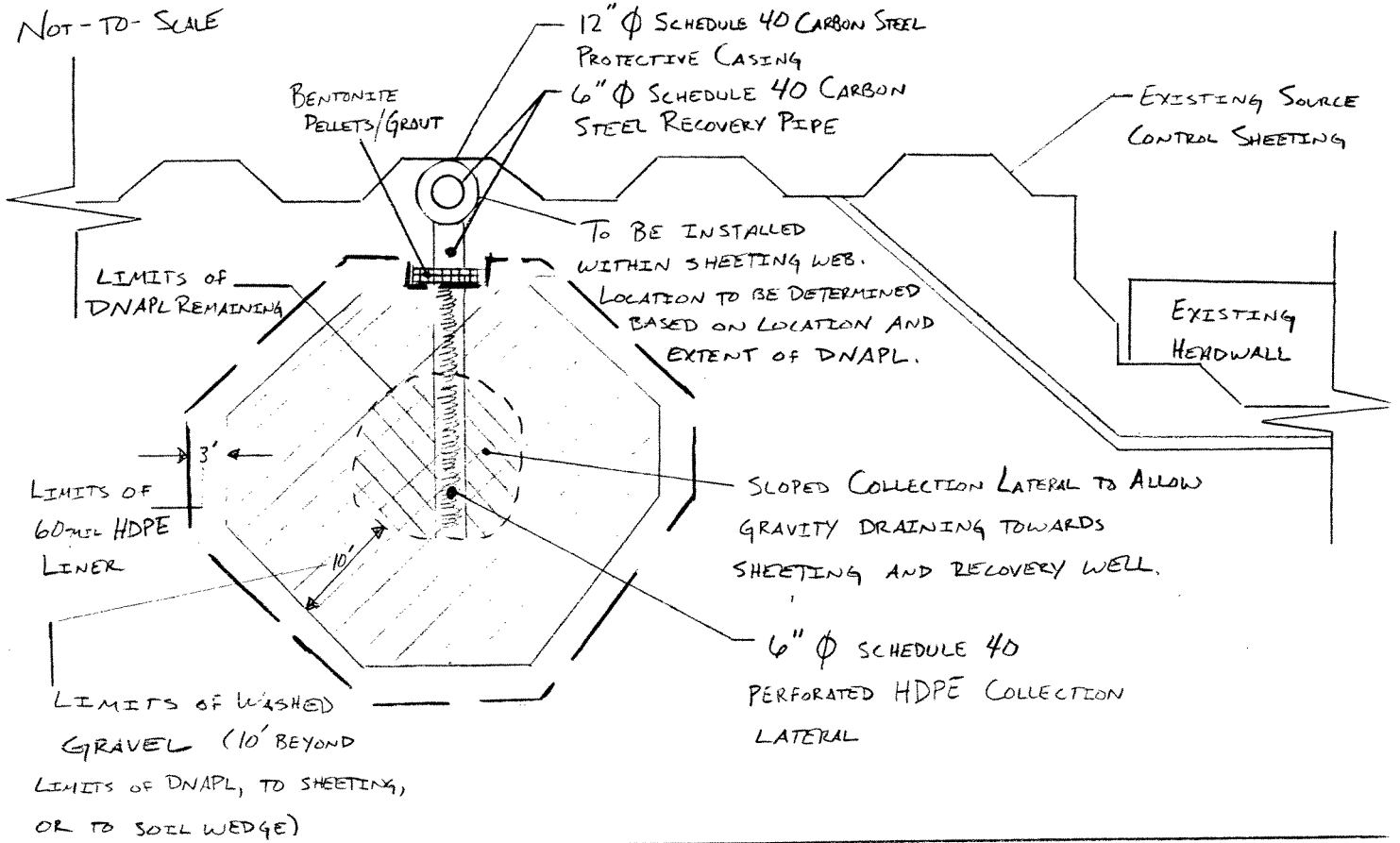
ATTACHMENT 1



NOT-TO-SCALE



ATTACHMENT 2



NOT-TO-SCALE

