

CDM FEDERAL PROGRAMS CORPORATION
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December 11, 1995

Ms. Alison Devine
U.S. Environmental Protection Agency
290 Broadway
New York, New York 10007-1866

PROJECT: ARCS II Contract No. 68-W9-0024
Work Assignment 078-2PN7

DOCUMENT NO.: 7720-078-EP-CJKR

SUBJECT: Technical Review of Draft Phase II Work Plan
Virgin Island Chemical Site
St. Croix, U.S. Virgin Islands
Document No. 7720-053-LR-CJKQ

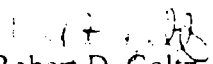
Dear Ms. Devine:

CDM FEDERAL PROGRAMS CORPORATION (CDM Federal) is please to submit this letter report entitled, "Technical Review of the Draft Phase II Work Plan for the Virgin Island Chemical Site" as partial fulfillment of the reporting requirements for this work assignment.

If you have any questions regarding this submittal, please do not hesitate to call Pamela Philip at (212) 393-9634.

Sincerely,

CDM FEDERAL PROGRAMS CORPORATION


Robert D. Goltz, P.E.
ARCS II Program Manager

cc: S. Henry, EPA
P. Philip, CDM Federal
P. Hastings, CDM Federal
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Document Control
Project File

TECHNICAL REVIEW OF THE
DRAFT PHASE II WORK PLAN
VIRGIN ISLAND CHEMICAL SITE
ST. CROIX, U.S. VIRGIN ISLANDS

Prepared for
U.S ENVIRONMENTAL PROTECTION AGENCY
290 Broadway
NewYork, New York 100

EPA Work Assignment No.:	078-2PN7
EPA Region:	II
Contract No.:	68-W9-0024
CDM Federal Programs	
Corporation Document No.:	7720-078-LR-CJKQ
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Date Prepared:	December 11,1995

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc

December 11, 1995

Ms. Sherrel Henry
Work Assignment Manager
U.S. Environmental Protection Agency
290 Broadway
New York, New York 10007-1866

PROJECT: ARCS II Contract No. 68-W9-0024
Work Assignment 078-2PN7

DOC. CONTROL NO.: 7720-078-LR-CJKQ

SUBJECT: Technical Review of Draft Phase II
Remedial Investigation Work Plan
Virgin Island Chemical Site
St. Croix, U.S. Virgin Islands

Dear Ms. Henry:

CDM FEDERAL PROGRAMS CORPORATION (CDM Federal) has completed the technical review of the "Draft Phase II Remedial Investigation Work Plan" (dated November 21, 1995) prepared for Island Chemical Company by the Potentially Responsible Party (PRP) contractor, Harding Lawson Associates, Inc. (HLA).

The Draft Phase II Work Plan was generated in response to comments presented in EPA's Draft Technical Review of the Draft Data Summary Report (DDSR) and in the October 6, 1995 meeting at EPA's offices in New York. In general, the plan fails to address many of the primary concerns discussed in both the technical review and the meeting. In addition, it is assumed that several non-field sampling related comments, which were discussed at the meeting and are not addressed in this Draft Phase II Work Plan, will be addressed in the Final Data Summary Report submittal. CDM Federal's general and specific comments on the Draft Phase II Work Plan are presented below.

GENERAL COMMENTS

1. CDM Federal's primary concern regarding the data presented in DDSR was the effectiveness of HLA's monitoring well network, with regards to the site specific

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groundwater flow, to adequately characterize groundwater quality. At the time of project planning, HLA anticipated the direction of shallow groundwater flow to be southeast towards the Caribbean Sea and subsequently designed the monitoring well network in respect to that flow direction. However, after several rounds of water level measurements, it has been determined that shallow groundwater flow is to the east-northeast.

Due to the actual flow direction, groundwater quality downgradient of several areas of concern (Areas B, D, E, and F) may have not been adequately characterized. Therefore, on-site conditions and potential contaminant pathways cannot be properly evaluated. HLA does not adequately address this issue in the Draft Phase II Work Plan. Additional monitoring wells, situated with regard to actual site groundwater flow direction, should be installed. At a minimum, justification for not installing additional wells, as well preliminary data from the ongoing continuous water level measurement program, should be provided to EPA for review.

2. Analytical results of samples collected in the tank farm area indicated elevated levels of ethylbenzene, xylenes, acetone, and toluene at various depths in the soil. Additionally, elevated concentrations of volatile organic compounds, some at levels above regulatory limits, were detected in a groundwater sample collected from the monitoring well in this area. Additionally, the tank farm area was cited by HLA in the DDSR as the "source of ethylbenzene in the groundwater". The proposed sampling program, which only evaluates surface soil quality, is inadequate as it will not characterize the **extent** of the tank farm contamination.
3. The additional site characterization activities that are to be conducted to assess the potential for conditions at the site to affect the coastal regions are not specified. These activities should include an assessment of historical site discharges to the River Gut from the site.
4. The relationship between the shallow and deeper aquifer zones, especially the potential for vertical migration of contaminants between the two zones, must be thoroughly examined.

SPECIFIC COMMENTS

1. **Section 1.3, Page 2, Bullet 5:** With the exception of continuously monitoring the shallow ground water table, the Draft Phase II Work Plan does not propose any .

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investigations to address EPA's concern regarding groundwater and the effectiveness of the existing monitoring well network

2. **Section 2.0, Page 4, Item #2:** The Draft Phase II Work Plan does not specify the additional site characterization activities that will be conducted to assess the potential for conditions at the site to affect the coastal regions. At a minimum, these activities should include an assessment of site historical discharges to the River Gut from the two known discharge pipes. Review of background information indicates these discharge pipes collected storm water and process water from both subsurface and surface drains located throughout the facility. Sampling previously conducted in the storm water drainage system indicted elevated levels of volatile organic compounds and metals in the sediments. In addition, sampling conducted following the removal of the drain line (55 gallon drums) to the River Gut indicated elevated levels of volatile organic compounds in the surrounding soils. Subsurface soil sampling, should be conducted in the area of the two discharge pipes and the former laboratory pit discharge point (area beneath the existing loading dock), to delineate the nature and extent of volatile organic and metals contamination in these areas. The borings should be advanced to the top of the water table.
3. **Section 2.0, Page 4, Item#3:** The Draft Phase II Work Plan calls for the collection of 12 surface soil samples in Area B (Tank Farm) to determine the extent of contamination identified. Surface soil samples are to be analyzed for benzene, toluene, ethyl benzene and xylenes (BTEX) only. Contamination was previously detected at various depths to the water table. Acetone, for example, was detected at a concentration of 19,000 parts per billion at a depth of six to eight feet below ground surface. Additionally, elevated levels of volatile organics, some at concentrations above regulatory limits, were detected in the tank farm monitoring well, MW1. With respect to this data, a sampling program which characterizes both the horizontal and **vertical** extent of contamination is necessary. Sampling should be advanced outwardly in all directions from boring SBB1/MW1 until the full delineation of the contaminants present has been achieved. The proposed sampling locations should be completed as borings that extend down to the water table. Samples should be analyzed for Target Compound List (TCL) volatile organic compounds.
4. **Section 2.0, Page 4, Item#7:** As discussed during the October 6 meeting, the extent of communication between the shallow and deep groundwater zones must be defined. The Draft Phase II Work Plan proposes the collection of water level measurements from the

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on-site production wells only. At a minimum, the deep production wells should also be sampled concurrently with the shallow wells for comparison and documentation. Information regarding the production wells' construction specifications and screened intervals should also be obtained via geophysical logging and/or downhole video methods. Construction specifications and geophysical logs should be provided to EPA for review.

5. **Section 3.2.2, Page 5:** The Draft Phase II Work Plan specifies the installation of one shallow ground water monitoring well in the area of the Process Pit. This well will provide groundwater quality data from a previously uncharacterized area. However, the plan does not address that after two rounds of water level measurements, groundwater flow is reported to be to the east-northeast not the south-southeast as originally projected. Therefore, several of the wells intended to monitor groundwater quality downgradient of several suspected source areas do not do so. Based on these findings, three additional shallow ground water monitoring wells should be installed. One well should be installed downgradient of well MW1 to delineate the horizontal extent of the contaminants detected in that well. A second well should be installed downgradient of Area of Concern D to provide data on groundwater quality downgradient of both the reported pyridine release and several areas of concern. A third well should be installed in the area of the generator building to provide upgradient groundwater quality data.

Additionally, one deep groundwater monitoring well should be installed in the area of the of the discharge pipe for the central storm drain adjacent to the River Gut. The well should be installed to an approximate depth of 90 feet below the surface and should be comparably screened as the two on-site production wells. This well could be used to triangulate the direction of the deeper zone groundwater flow and to characterize any contamination potentially migrating from the site.

6. **Section 3.2.4, Page 6:** Groundwater quality in the center of the site not yet been characterized. With respect to this lack of data, groundwater samples collected from the newly installed well must be analyzed for the full suite of parameters including pyridine. At this time, no justification exists for submitting the samples for a reduced analytical list.

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If you have any questions concerning this letter report, please feel free to contact me at
(212) 393-9634.

Sincerely,
CDM FEDERAL PROGRAMS CORPORATION

Pamela J. Philip
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Work Assignment Manager

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