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CTO 303

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1510 GILBERT ST
NORFOLK, VA 23511-2699

TELEPHONE NO
757-322-4751

IN REPLY REFER TO:
5090
1823RGS:clm
JUL 02 1997

CERTIFIED MAIL RETURN RECEIPT REQUESTED

North Carolina Department of Environment,
Health, and Natural Resources
Attn: Mr. Dave Lown
P.O. Box 27687
401 Oberlin Road
Raleigh, NC 27611

Re: MCB Camp Lejeune May 28 Meeting

Dear Mr. Lown:

Enclosed please find minutes of the May 28, 1997 meeting at the NC DEHNR Wilmington Regional offices. The topics of this meeting were the Feasibility Studies for OU 6; and the proposal of Natural Attenuation for groundwater remediation for Sites 36, 54 & 86.

Please direct any questions or comments to Bob Schirmer at (757) 322-4751.

Sincerely,

L. G. SAKSVIG, P.E.
Head
Installation Restoration Section (South)
Environmental Programs Branch
Environmental Division
By direction of the Commander

Enclosure

Copy to:
NCDEHNR, Wilmington Regional Office (Mr. Rick Shiver, Mr. Charles Stehman, Mr. Jim Gregson, Ms. Diane Rossi)
NCDEHNR, Superfund Section (Mr. Jack Butler)
EPA Region IV (Ms. Gena Townsend)
MCB Camp Lejeune (Mr. Neal Paul, Mr. Brian Marshburn)
Baker Environmental, Inc. (Mr. Matt Bartman, Ms. Kathy Chavara, Mr. Rich Bonelli)
Activity Admin Record File

Meeting Minutes, May 28, 1997
OU6 Draft FS Meeting
MCB, Camp Lejeune, North Carolina

A meeting was conducted on May 28, 1997 at the NC DEHNR Regional Office in Wilmington, North Carolina. The purpose of the meeting was: (1) to discuss the selection of Natural Attentuation as the recommended remediation alternative for ground water for Sites 36, 54 & 86 of OU 6, (2) discuss the status of Sites 43 & 44 of OU6, and (3) discuss the initial results of the KGB and UVB in-well aeration systems at Site 69 of OU14.

The following personnel attended this meeting:

Ms. Katherine Landman, RPM, LANTDIV
Mr. Bob Schirmer, RPM, LANTDIV
Mr. Neal Paul, IR Program Director, MCB, Camp Lejeune
Brian Marshburn, MCB, Camp Lejeune
Mr. David Lown, Environmental Engineer, NC DEHNR Superfund
Mr. Charles Stehman, NC DEHNR Groundwater
Ms. Diane Rossi, NC DEHNR Groundwater
Mr. Jim Gregson, NC DEHNR Surface Water
Richard Bonelli, Project Manager, Baker
Ms. Kathy Chavara, Project Engineer, Baker

The meeting commenced at approximately 10:00 AM and concluded at 1:30 PM.

Mr. Paul initiated the discussions with an introduction of CTO 303 (*Remedial Investigation/Feasibility Study* (RI/FS) for OU6). Mr. Bonelli then briefly discussed the content of the handouts that Baker provided each attendee for Sites 36, 54, and 86. (Due to the size of the handouts, they are not included as part of these minutes)

The order of site review proceeded as follows: Site 36, Site 86, Site 54, Sites 43 and 44, and concluded with an overview of the on-going treatability study (in-well aeration) being conducted at Site 69. These meeting minutes will be presented using the following format: questions/concerns will be presented first in italics, followed by the response in normal printed text; action items will be provided when appropriate under separate heading following the applicable comment and response.

Site 36 - Camp Geiger Area Dump

TCRA of PCB contaminated soil is being finalized. Natural Attenuation is currently the recommended FS remediation alternative for ground water, and this alternative will be continually evaluated during the monitoring process to verify the proper results are being achieved.

Mr. Stehman raised a question related to the established detection limits within the RI/FS for Sites 36, 54, and 86. The detection limits for several of the constituents (e.g., benzene) were reported above the 2L NC state groundwater criteria. Baker and Ms. Landman discussed detection limits, including the J qualifiers, that were used within the RI/FS. The discussion also noted that the establishment of these detection limits were determined with respect to Environmental Protection Agency (EPA) guidance.

Action Item: Baker will draft a letter to NC DEHNR, attention Mr. Stehman, including information that was formally included within the Draft FS Comment Response (dated January 31, 1997), as well as additional information acquired from the laboratory related to the confidence and acceptability of the CTO 303 RI/FS results.(Baker currently drafting letter)

Mr. Stehman and Ms. Rossi voiced concerns regarding the possibility of an additional source related to the detections of 1,2-DCE within existing wells 36-GW04, 36-GW08, and 36-GW15; each of which are located up gradient of the volatile organic compound (VOC) area of concern. Baker reviewed a plan view of the volatile detections and the affected cross section, handout Figures 36-11 and 36-6. As noted within the RI/FS, the 1,2-DCE detections appear to be isolated and the presumed result of unintentional spillage. Baker also identified that wells located between Site 36 and Site 35 (located upgradient of Site 36) resulted in non-detections. In addition, existing wells 36-GW05, 36-GW06 and 06DW, 36-GW07 and 07DW, and 36-GW14 were also found to have non-detections of VOCs.

Action Item: Baker will install an additional well west of existing wells 36-GW07 and 36-GW08, south of existing well 36-GW06, and north of 36-GW05. This new well (36-GW17) will be included within the monitoring program under the natural attenuation remedial action. See attached Figure for Site 36.

At this point, Baker provided an overview of the RI/FS findings related to the volatile contamination detected at Site 36. This review included the discussion of the non-detections of volatiles within Brinson Creek, the location of the volatile contamination within the surficial aquifer, and the overall northeastern groundwater flow direction toward Brinson Creek. A brief review of the NC Risk Analysis Framework completed for Site 36 was included to highlight the results which indicate no adverse volatile impact to Brinson Creek.

Action Item: Following the conclusion of the meeting, the placement of an additional well was recommended by Mr. Lown. This second, additional well will be installed south of existing wells 36-GW10 and 36-GW12, and north of existing well 36-GW09. This new well (36-GW16IW) was recommended in lieu of the proposed well, 36-GW16, as identified on handout Figure 36-17. See attached Figure for Site 36.

Baker identified the FS alternatives, including the recommendation for the Natural Attenuation Remedial Action. Natural Attenuation, as defined within the Draft Final FS, includes monitoring the groundwater in accordance with the Air Force Center for Environmental Excellence (AFCEE) document entitled: Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. Proposed monitoring under this alternative includes monitoring both the groundwater and the Brinson Creek surface water for total compound list (TCL) VOCs and for the associated natural attenuation parameters. Monitoring would be initiated quarterly for the first five years, followed by sampling twice a year for the remainder of the monitoring period. Groundwater results will be documented, and long-term monitoring reports are anticipated to include groundwater modeling to predict the migration and on-going reduction of the contaminant plume via the effects of natural attenuation.

Mr. Gregson questioned the availability of data related to Brinson Creek, specifically the fish samples collected to date. Baker reviewed the results of the fish and crab data as identified on page 33 of the Site 36 handouts; arsenic and mercury concentrations were detected in the fish samples and arsenic and lead concentrations were detected in the crab samples. Although pesticides were detected in the fish samples, their detected concentrations were similar to other U.S. water bodies (e.g., the Great Lakes).

Action Item: Baker will provide Mr. Gregson with a copy of the fish and crab data collected to date for his distribution to the Marine Corp Fisheries. This information is being submitted to Mr. Gregson under separate cover.

Mr. Gregson questioned the tidal amplitude of Brinson Creek. Baker noted that at the point of interest along Brinson Creek closest to the volatile contamination, Brinson Creek is tidally influenced.

Site 86 - Tank Area AS419-AS421 At MCAS

Natural Attenuation is currently the recommended FS remediation alternative for ground water, and this alternative will be continually evaluated during the monitoring process to verify the proper results are being achieved.

Mr. Stehman and Ms. Rossi voiced concerns regarding the possibility of additional sources, as well as, the potential for migration of the volatile area of concern. Baker reviewed a plan view of the volatile detections and the affected cross section, Site 86 handout Figures 86-7 and 86-3. Baker discussed the proposed placement of additional wells as presented on Site 86 handout Figure 86-18. In addition to the proposed location of well 86-GW28IW, two additional well locations were discussed (one located north of existing well 86-GW23IW and south of proposed well 86-GW28IW, and the other new well would be located south of existing wells 86-GW26IW and 86-GW27IW).

Action Item: Baker will install the additional wells as described above and as shown on the attached Figure for Site 86. These new wells will be included within the monitoring program under the natural attenuation remedial actions.

Mr. Stehman questioned the source of the volatile contamination identified at Site 86. Baker responded by identifying and discussing the function and time frame of the previous above ground storage tanks and associated distribution piping. The adjacent aircraft maintenance facilities, located to the southwest of Site 86 were included in the discussion related to additional potential sources. However, the former tanks contained various waste oils and liquids, and the tank samples indicated the presence of TCE.

Action Item: As identified under the previous action item for Site 86, Baker will install additional wells to verify the bounds of the identified volatile plume. In addition, the results of this additional sampling will be used to better estimate the potential of additional or secondary contaminant source(s) and track the plumes migration.

Mr. Stehman and Ms. Rossi identified concerns over the nearest receptors. Baker noted that the nearest supply well is located side gradient of Site 86, approximately 1,200 feet northwest of the site. Based on the groundwater flow patterns identified during the RI/FS, it appears unlikely that this supply well would be impacted by the volatile contamination identified at Site 86. Additionally, in the direction of groundwater flow (north to northeast), the New River is located approximately one (1) mile from Site 86. As for surface drainage, the existing drainage swales and catch basin collect and distribute surface drainage from this and neighboring areas directly to the New River. The depths of the catch basins within the immediate Site 86 local are approximately 5 feet.

Baker provided an overview of the RI/FS findings related to the volatile contamination detected at Site 86. This review included discussions related to: the geologic and hydrogeologic conditions, (see Site 86 handout Figures 86-3, 86-4, and 86-5); the volatile detections within the surficial and upper Castle Hayne aquifers; conclusion that the highest contamination was detected within the limestone unit between 30 and 60 feet bgs; and that volatile contamination was not detected in the deeper wells (90 feet bgs) which are located below a semi-confining layer starting around 60 feet bgs. A review of the groundwater modeling results, (i.e.; Solute one dimensional transport model) was introduced and briefly discussed in relation to the natural migration of the maximum TCE concentrations. Although the groundwater model supported the natural attenuation alternative, this model was not included within the Draft Final FS as interpretation of the results appeared somewhat overstated. Additional groundwater models have been included within the scope of the proposed

natural attenuation remedial alternative.

Baker briefly discussed the Natural Attenuation Remedial Alternative as presented within the Draft Final FS. Under the proposed remedial actions, the groundwater at Site 86 would be monitored for TCL volatiles and associated natural attenuation parameters. As discussed for Site 36, the Natural Attenuation remedial alternative would initially include quarterly monitoring for the first five years, followed by monitoring twice a year for the remainder of the monitoring period.

Baker discussed the overall concerns related to hot spot removal via a pump and treat alternative. Based upon the preliminary results of the on-going pump and treatment facility at Site 82, low pumping rates coupled with minimal recovery serve as design and operation concerns that render this alternative unattractive. In addition, concerns related to maintaining the structural integrity of the adjacent buildings while dewatering shallow and intermediate groundwater zones also created an unfavorable impression of a pump and treat alternative for Site 86.

Site 54 - Crash Crew Fire Training Burn Pit

Natural Attenuation is currently the recommended FS remediation alternative for ground water, and this alternative will be continually evaluated during the monitoring process to verify the proper results are being achieved. Operational controls at this site currently being evaluated as discussed below.

Mr. Stehman and Ms. Rossi were concerned that a gap in the sampling between existing wells 54-GW05 and 54-GW09. As discussed during the meeting, proposed well 54-GW12 identified under the Natural Attenuation Remedial Alternative (see handout Figure 54-13) will be shifted to the south to eliminate the gap in sampling. This shifted well is identified as well 54-GW13 on the attached Figure for Site 54. In addition, proposed well location 54-GW11 and a post-meeting proposed well location, 54-GW12 (see attached Figure for Site 54) will be located west of existing well 54-GW07.

Following a brief discussion of the existing use and function of the site, Mr. Stehman voiced concerns related to the operations of the fire training facility. Mr. Stehman recommended that a splash zone or containment area be promptly implemented to eliminate the potential for on-going source contamination. Baker discussed the proposed Operational Controls as defined for all of the FS Alternatives (except the No Action alternative). Through the use of the cleaner-burning fuel, propane, the proposed Operational Controls would eliminate the current potential for on-going spills and splashes related to the fuel dousing needed to simulate crashes.

Action Item: Mr. Paul and Mr. Marshburn agreed to review the operations and procedures used during the training exercises. Mr. Paul will respond directly with Mr. Stehman regarding the current use and the future plans that the Fire Department and/or Military Construction may currently have for the Site 54 Burn Pit.

Mr. Gregson questioned the availability of surface water samples and the location of the nearest receptors. Baker noted that although two swales or ditches drain the area toward the south, these ditches are general dry. Therefore, surface water was not available for sample collection. The results of the Ecological Risk Assessment, as presented on page 23 of the Site 54 handouts, were reviewed with respect to the use of groundwater results for determination of aquatic, ecological risks.

Mr. Stehman questioned the volatile and semivolatile soil results. Baker reviewed the findings of the soil analyses collected from the site, and although the RI results indicated semivolatile compounds in the surface and subsurface soils, their presence and concentrations were consistent with the current use of the site (results were generally less than 500 mg/kg). Additionally, the acetone that was detected in the subsurface soil was determined to be primarily attributable to hexane which is used during the decontamination process.

Site 43 - Agan Street Dump and Site 44 - Jones Street Dump

No Remediation Action is the current FS recommendation at these sites.

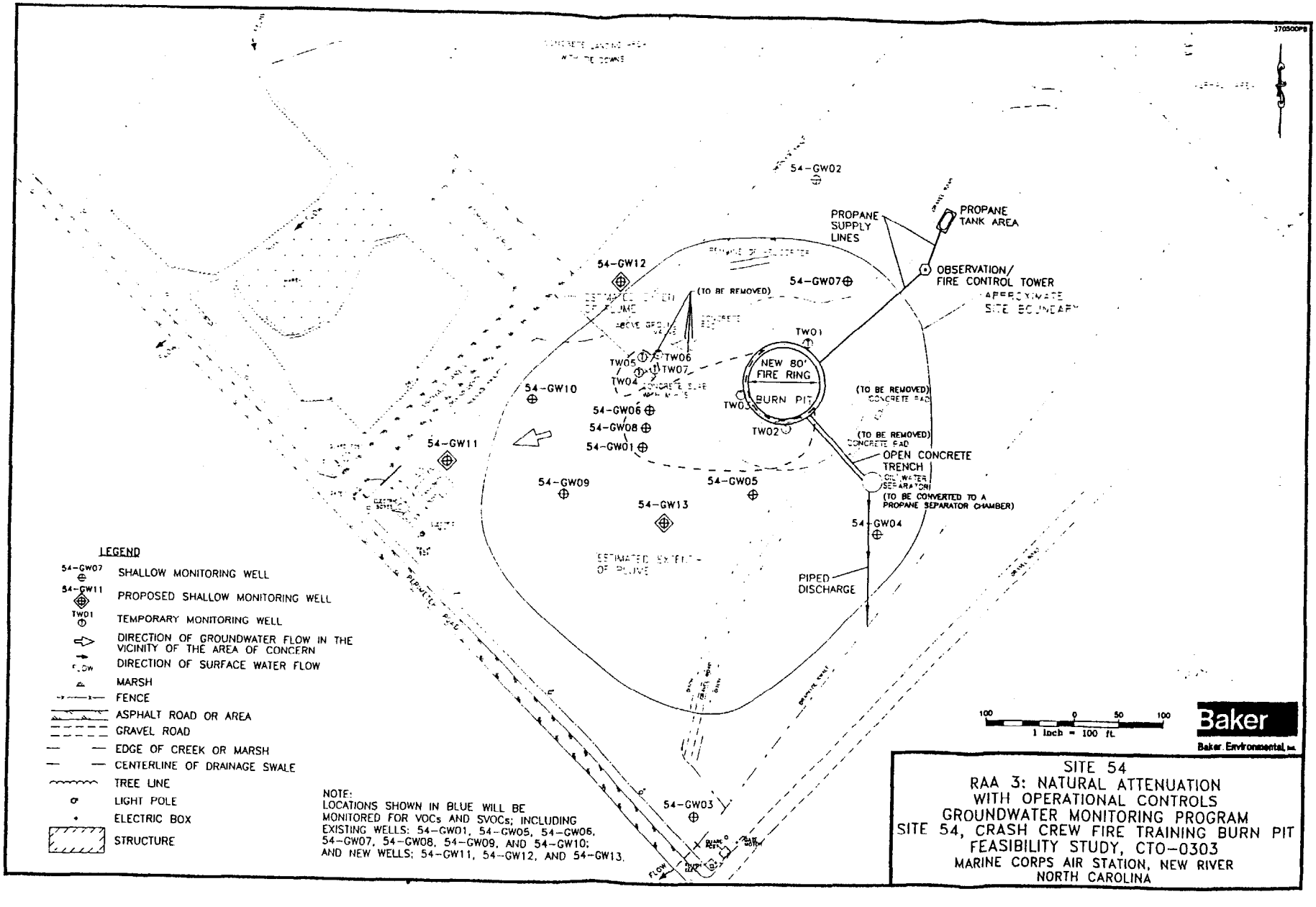
A brief review of Sites 43 and 44 was conducted. The detection of pesticides within the site soil, surface water, and sediment was of primary concern; however, the concentrations detected did not generate unacceptable human health risks. The pesticide detections were considered similar to the concentrations noted throughout MCB, Camp Lejeune, and are attributed to previous, routine pesticide applications.

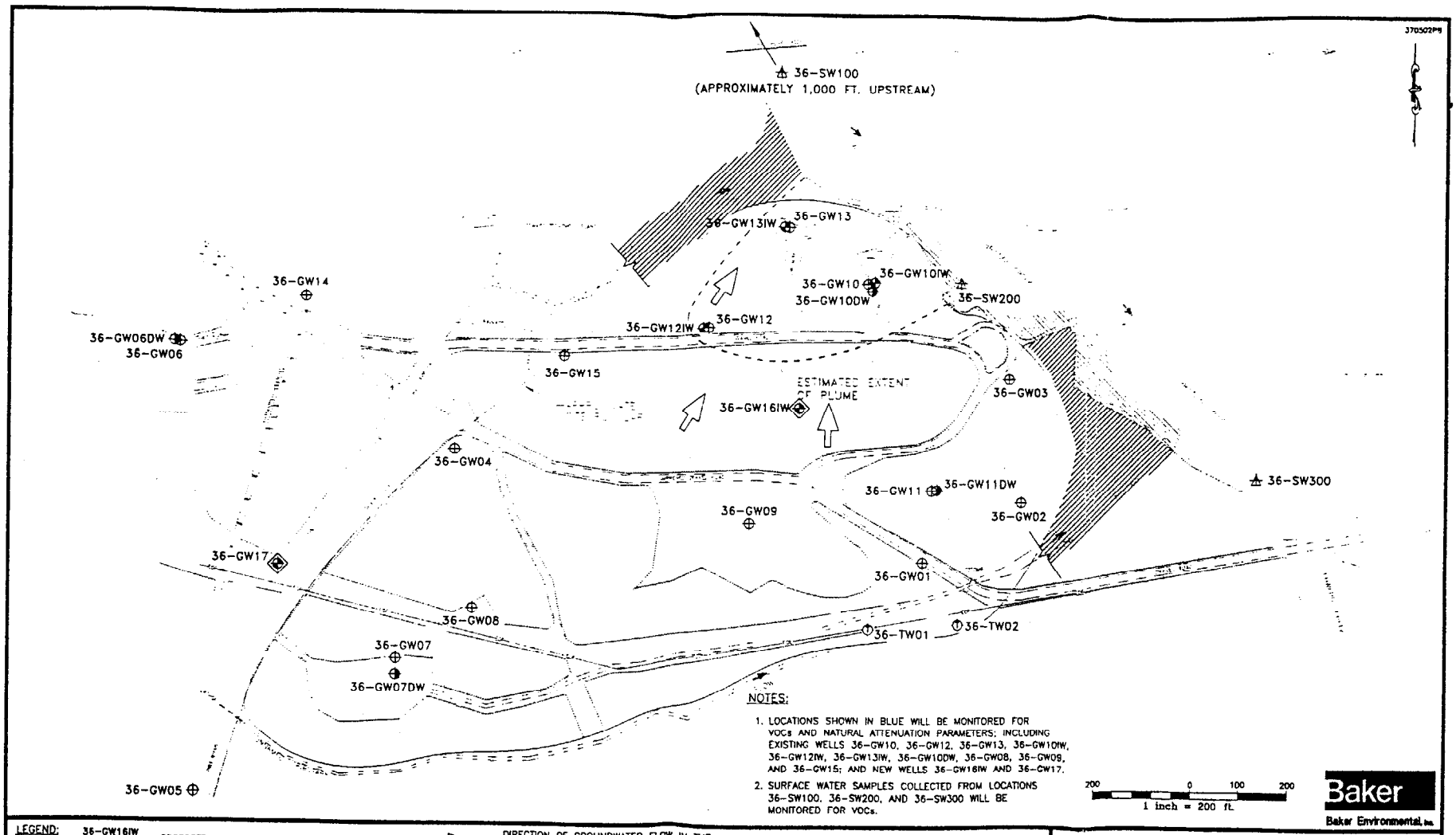
Mr. Stehman was concerned with the volatile detections within Edwards Creek. After reviewing the location of Site 44 with respect to several of the current RI sites which have been determined to be the source of the volatile contamination (Sites 89, 93), Mr. Stehman requested that language be added to the documents to clearly define the source of the contamination.

Action Item: Additional information related to the up-stream sources of volatile contamination detected within Edwards Creek in the vicinity of Site 44 will be added to both the final PRAP and ROD documents.

CTO 332 (OU 14): Site 69 - Rifle Range Chemical Dump

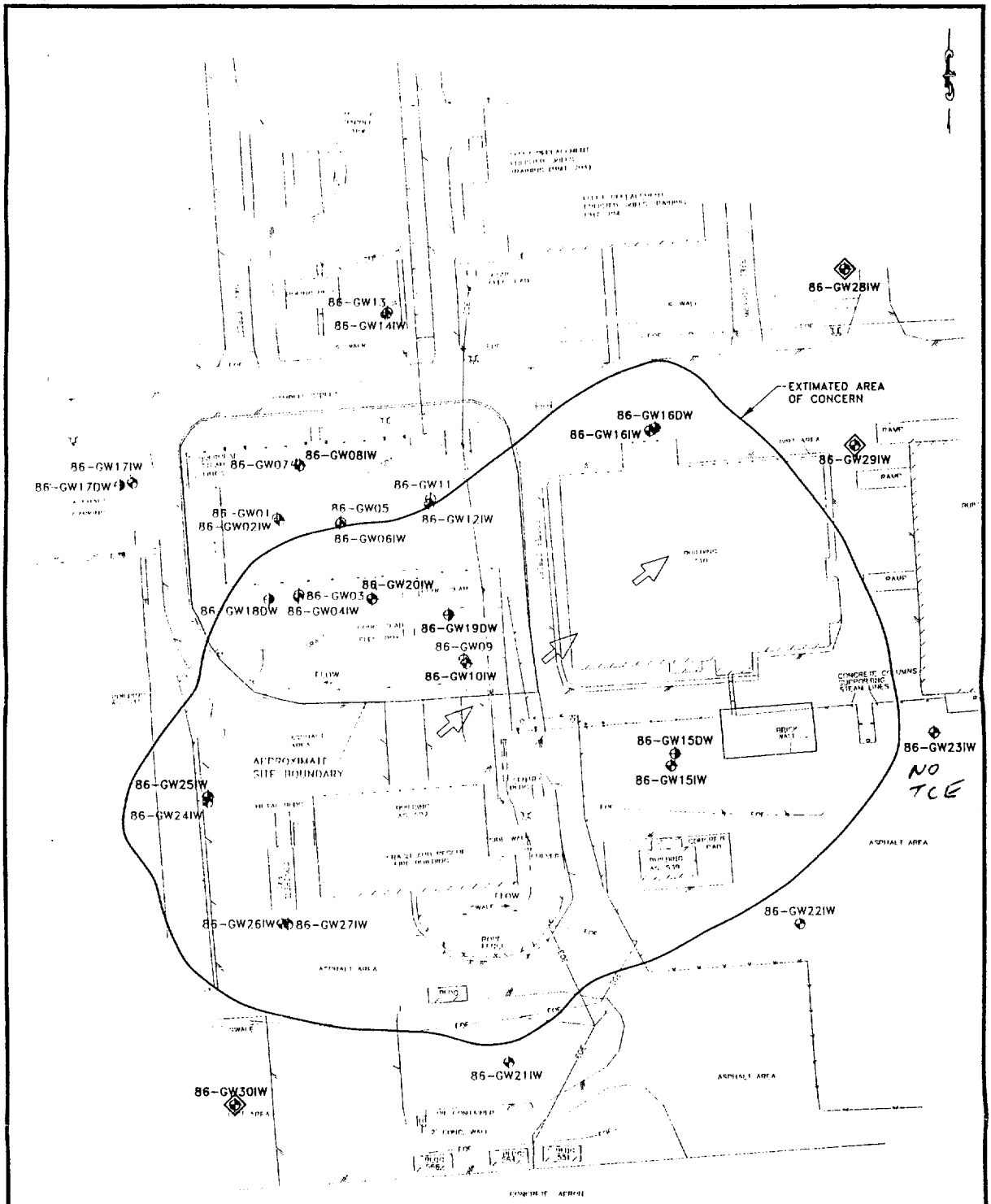
Mr. Stehman requested an update to the In-well Aeration Treatability Study. Ms. Landman discussed in brief the results of the initial KGB and UVB in-well aeration systems that were conducted at Site 69. The UVB system will be moved to a more source-specific location and will be conducted for approximately 3 months. Based on the inconclusive results of the initial KGB system, use of this shallow system will not be continued. A treatability study report documenting the overall study results, as well as the additional UVB treatment results will be completed later this year. Mr. Stehman was in agreement that the UVB system should continue and that the results should be documented. Mr. Stehman also noted that Exxon has documented various attempts and the results of their experiences with the in-well aeration technology.


54-GW02
PROPANE SUPPLY LINES
PROPANE TANK AREA
OBSERVATION/ FIRE CONTROL TOWER
APPROXIMATE SITE BOUNDARY
54-GW12
54-GW07
(TO BE REMOVED)
TW01
TW05
TW06
TW07
TW04
NEW 80' FIRE RING
BURN PIT
TW03
TW02
54-GW10
54-GW06
54-GW08
54-GW01
54-GW11
(TO BE REMOVED) CONCRETE PAD
OPEN CONCRETE TRENCH
OIL WATER SEPARATOR
(TO BE CONVERTED TO A PROPANE SEPARATOR CHAMBER)
54-GW09
54-GW05
54-GW13
54-GW04
ESTIMATED EXTENT OF PLUME
PIPED DISCHARGE
54-GW03
FLOW
LEGEND
54-GW07 SHALLOW MONITORING WELL
54-GW11 PROPOSED SHALLOW MONITORING WELL
TW01 TEMPORARY MONITORING WELL
DIRECTION OF GROUNDWATER FLOW IN THE VICINITY OF THE AREA OF CONCERN
FLOW DIRECTION OF SURFACE WATER FLOW
MARSH
FENCE
ASPHALT ROAD OR AREA
GRAVEL ROAD
EDGE OF CREEK OR MARSH
CENTERLINE OF DRAINAGE SWALE
TREE LINE
LIGHT POLE
ELECTRIC BOX
STRUCTURE
NOTE:
LOCATIONS SHOWN IN BLUE WILL BE MONITORED FOR VOCs AND SVOCs; INCLUDING EXISTING WELLS: 54-GW01, 54-GW05, 54-GW06, 54-GW07, 54-GW08, 54-GW09, AND 54-GW10; AND NEW WELLS: 54-GW11, 54-GW12, AND 54-GW13.
100 0 50 100
1 Inch = 100 ft.
Baker
Baker Environmental, Inc.
SITE 54
RAA 3: NATURAL ATTENUATION WITH OPERATIONAL CONTROLS
GROUNDWATER MONITORING PROGRAM
SITE 54, CRASH CREW FIRE TRAINING BURN PIT
FEASIBILITY STUDY, CTO-0303
MARINE CORPS AIR STATION, NEW RIVER
NORTH CAROLINA



SITE 36
RAA 3: NATURAL ATTENUATION MONITORING PROGRAM
SITE 36, CAMP GEIGER AREA DUMP
FEASIBILITY STUDY, CTO-0303

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



NOTE:
LOCATIONS SHOWN IN BLUE WILL BE MONITORED FOR VOCs AND THE NATURAL ATTENTUATION PARAMETERS, INCLUDING EXISTING WELLS: 86-GW08IW, 86-GW10IW, 86-GW15IW, 86-GW16IW, 86-GW20IW, 86-GW23IW, 86-GW25IW, 86-GW15DW, 86-GW16DW, AND 86-GW19DW; AND NEW WELLS: 86-GW28IW, 86-GW29IW, AND 86-GW30IW.

370501P8

LEGEND

- 86-GW01 — SHALLOW MONITORING WELL
- 86-GW04IW — INTERMEDIATE MONITORING WELL
- 86-GW18DW — DEEP MONITORING WELL
- 86-GW28IW — PROPOSED INTERMEDIATE MONITORING WELL
- DIRECTION OF SURFACE WATER FLOW
- OVERHEAD ELECTRIC LINE & UTILITY POLE
- ASPHALT ROAD
- CENTERLINE OF DRAINAGE SWALE
- LIGHTPOLE
- DIRECTION OF GROUNDWATER FLOW IN THE VICINITY OF THE AREA OF CONCERN
- STRUCTURE
- FENCE
- GUY WIRE
- FIRE HYDRANT

SOURCE: LANTDIV, OCT. 1991

80 0 40 80
1 inch = 80 ft

Baker
Baker Environmental, Inc.

SITE 86
RAA No.3: NATURAL ATTENUATION
SITE 86, TANK AREA AS-419-AS421 AT MCAS
FEASIBILITY STUDY, CTO-0303

MARINE CORPS AIR STATION, NEW RIVER
CAMP LEJEUNE

0 UST