

CTO-0059/000169

CLEAN II
Interoffice Memorandum

To: David Cowser Bechtel

Subject: Meeting Minutes for the Progress Meeting
Phase II RI/FS Work Plans
MCAS El Toro, CTO-059

Date: 28 October 1994

From: Tim Latas

Of: Kleinfelder

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MEETING DATE: 28 October 1994
MEETING TIME: 0830 - 1200
ATTENDEES: See Attached Sheet

Introduction - Purpose and Objectives

Jason Ashman of SWDIV began the October 28 RI/FS Update Meetings held at Kleinfelder, San Diego with a brief introduction and a review of the Team Building which had occurred on the two previous days. The October 28 Update Meeting was held to discuss the specific approaches and sampling strategies associated with the RI/FS activities designed for the landfill sites at MCAS El Toro. The update meeting specifically covered the possible field activities required to accurately perform remedial investigations and feasibility studies for each of the four landfills so that they may be properly handled during base closure. The information presented and comments submitted during the meetings are to be used in preparing the Work Plan, FSP, and QAPP. These plans are scheduled to be submitted to the reviewing agencies on December 9, 1994. On October 28, Katrina Lyons presented information on the four landfills so that these decisions could be made and approved by the agencies involved with the RI/FS activities at MCAS El Toro.

Team Building

Jason Ashman presented a brief summary of some of the activities that occurred at Team Building. Team Building occurred on October 26 and 27. Representatives from agencies on the BCT and the contractors attended. Roles, responsibilities and the interactions between the different agencies were discussed. Problem solving exercises were also practiced. All of the current projects at MCAS El Toro were listed and a set of priorities were assigned. OU-1 was named a top priority. On November 10, the Navy will distribute a chart which will help the agencies determine priorities. The chart will include information such as which projects are funded and the short-term and long-term goals associated with the projects. Also to be distributed by the facilitator are the flip charts used during Team Building. These should be distributed on Wednesday, November 2.

Bonnie Arthur mentioned that the BCT has a meeting schedule for November 22. Attendees for this meeting still have to be determined.

Other things mentioned in Team Building were missions, visions, behaviors, and meeting rules. The Navy has not been determined if appointed facilitators will be at all future meetings. Ginny Garelick mentioned that Team Building was very significant by showing senior management how hard it was to make priorities between all the various projects and complete all expected deliverables. Bonnie Arthur noted how difficult it was to vote on the projects and come to a consensus assigning priorities to all the projects. David Cowser mentioned that it should be noted that budget constraints facing the Navy play a significant role. Ginny Garelick mentioned that there are also political constraints and noted that more clean-up projects are better than extended studies. It was noted that future funding often depends on how many parcels have been cleaned and delivered.

A discussion ensued describing the criterias for success as developed by each of the agencies. Often involved in these criterias include number of acres cleaned up, number of parcels turned over, number of removal activities, number of acres in re-use. Also included in the criterias for success are meeting RAB priorities. Jason Ashman stated that these would all be included in the follow up handout for Team Building. It was noted that Team Building was primarily successful.

Tim Latas mentioned that the OU-3 sites would not be discussed in this meeting. It was stated that discussion for the OU-3 sites would be approximately 6 to 8 hours long in order to determine specifics for each of the sites. This meeting will need to be scheduled.

David Cowser brought in positions papers for CLEAN II to be distributed.

The paper describing the field screening methods for VOCs was also distributed.

Review of the VOC Source Area

A brief discussion regarding the meeting on Monday, October 24 was held for comments had developed in that time. Sherrill Beard presented questions regarding the placement of the mud rotary borings and the air sparging pilot test. Ms. Beard expressed a concern that if the mud rotary borings were being used to develop parameters for a soil vapor extraction system, then they should be concentrated in the source area. She stated that it would be too difficult to create a cross-section with the borings if they were too far apart. Ms. Beard stated that she would recommend bringing the borings closer together in the source area.

Pat Brooks responded that the mud rotary borings were to be used to correlate the soil gas area with the contaminated groundwater area and that was why they were placed far apart. The intent was to connect the three plumes (soil gas, soil, and groundwater).

Joe Zarnoch questioned whether the soil gas survey could be performed before the mud rotary borings. Pat Brooks stated that they had planned to perform the soil gas survey while installing the hollow-stem auger borings and that

the information from the mud rotary borings would be beneficial in doing this. Joe Zarnoch stated that if deeper soil gas hits were not found north of Building 297, then there would be no need to install borings in this area. Pat Brooks responded by stating that they did anticipate getting deeper soil gas hits there. The reasoning was that there had to be some pathway illustrating how the contamination migrated from the source area to the groundwater and that it should be possible to track this migration. John Broderick concurred with Pat Brooks stating that this disagreement with Sherrill Beard and Joe Zarnoch would be noted.

Sherrill Beard then questioned how the air sparging pilot test would be designed. Pat Brooks stated that the two sparge wells would be installed by well 45 and that the bubble flux from the sparge wells would be monitored to track the effect and the radius of influence created by the sparging. Mr. Brooks explained that the wells would be installed by well 45 so that the monitoring well would be influenced immediately and results could be reported. It was also explained that vapor extraction wells would be installed in the vadose zone and that the sparge wells will be installed in the same boring as the vapor extraction wells to facilitate the sparging and extraction effectively. Bruce Bosshard has written a paper on measuring the radius of influence with the bubble flux. It was noted to distribute this paper to all the agencies and directly to Sherrill Beard.

Action Items

1. Jason Ashman is to distribute the handouts from Team Building.
2. A meeting to discuss the OU-3 sites is to be scheduled.
3. Bruce Bosshard's paper on air sparging is to be distributed to interested agency parties.

Phase II RI/FS Sampling Strategy for the Landfill Sites (OU-2)

Katrina Lyons gave a presentation on the investigation and sampling strategies for the Phase II RI/FS Landfill sites (OU-2). Handouts were distributed with an outline of the presentation, site specific details for each landfill, and a map of each landfill. The purpose of this meeting was to determine the primary goals of the RI/FS for each landfill and to determine the which methods would be best used to achieve these goals. The major points of the presentations for each landfill are highlighted below.

Site 2

- The results of the previous investigations include information from aerial photographs, the Air SWAT, and data from surface geophysical tests.
- The Phase II Investigation is to consist of the following:
 1. Surface geophysics (EM-31); the data from these tests will be used to define the refuse boundaries which will be used to design a Cap Footprint.
 2. Soil gas investigation; this will detect the presence of any VOCs which will be used to characterize any potential Hot Spots.
 3. Groundwater Monitoring; in conjunction with borings drilled with hollow stem augers from which BAT samples may be taken, will be used to delineate the plume. A pump test with a nested piezometer observation well will be used to determine the aquifer characteristics. The data yielded from these activities will contribute to the feasibility study and the remedial design.
- A deep borings will be installed at Well #1 to delineate the vertical extent of contamination. If contamination is found in this well, the a well cluster will be installed further downgradient.
- Additional well clusters will be installed if the plume is found to be continuous to Site 5.
- The upgradient well and southern defining well proposed by CH2MHILL have been moved. Borings will be drilled and sampled before determining the locations of these wells. Wells 7 and 6 were also moved in towards the site, however the exact locations of these wells, as also to be done for Well #9, will be determined in the same manner as previously described.
- All existing wells will be sampled, and water level measurements taken, before drilling any additional wells. This will occur during Tier 1. The main compounds of concern were identified as TCE.

- Limited trenching will be done around the perimeter of the site to clarify anomalies found through the geophysical analyses.
- The soil gas survey will be performed on a 100 foot grid to 10 feet below ground surface. A flux chamber will also be used if the data is necessary for a risk assessment.
- It was stated that it will be proposed that this landfill be capped. Thus, the feasibility study will be based on how to best design the cap.
- The figures to be used in the Work Plan will show the boundaries identified by CH2MHill as well as the potential boundaries identified by the CLEAN II Team.
- The area identified as Stratum 2 by CH2MHill is being included in the investigation as a possible part of the landfill. However, it was re-emphasized that the boundaries are flexible dependent upon the results of the field investigation.

Discussion Points:

1. At the beginning of the presentation, Tim Latas emphasized the use of the tiered approach for the Work Plan and the associated Phase II investigations. Sherrill Beard agreed that the tiered approach was a good format to follow.
2. Bonnie Arthur questioned if there was a mechanism in place to notify the regulators of the events occurring in the field. Ms. Arthur mentioned a form that had been used for other projects. It was stated that the contractors can fill out this form at the conclusion of each week of field work and then FAX the information to the associated regulators. It was agreed that these weekly notifications, or field variances, would be extremely helpful. Dave Cowser mentioned the possibility of having weekly field meetings on site to discuss that past week of field work as well as the upcoming week's events.
3. While discussing drilling the proposed borings and monitoring wells, Chuck Elliott emphasized that these borings and wells would need to be drilled extremely deep to get the data proposed.
4. During the discussion regarding the possible components of concern, John Broderick mentioned that Vinyl Chloride may be present. Jerry Jackson agreed stating that it would be logical to look for it. Stacy Wissler commented that several of the types of analytical tests involved in this investigation could be performed in a mobile laboratory.
5. A discussion ensued regarding Stratum 2. Bonnie Arthur questioned why it had been identified separately from the landfill. Chuck Elliott responded that it had only be discovered through aerial photographs and recommended to be studied in Phase II. Other new discoveries identified at the south of the site had been incorporated in the landfill, but parts of the north end of the landfill had not yet been identified. Joe Zarnoch stated that it is significant to assess these areas and determine if they are to be part of the landfill. John Broderick mentioned that some of these areas may have been caused due to a flood in the area. Katrina Lyons reiterated that these areas would be investigated. Bonnie Arthur mentioned that it is important to limit the boundaries of the landfill. Jerry Jackson agreed but commented that the limits of the study may not necessarily be the limits of the landfill.
6. A discussion ensued regarding the possibility of trenching. Katrina Lyons stated that the surface geophysics and trenching will be performed when necessary in order to determine the limits of the landfill. If it is necessary, further investigations will be performed in hot spot areas.

Action Items:

1. Bonnie Arthur is to distribute a variance form to possibly be used for field notification.
2. The Navy needs to determine how to handle the other areas outside of the landfills that have been requested by the agencies to be investigated.

Site 3

- The results of the previous investigations include information from aerial photographs, the Air SWAT, and data from surface geophysical tests.
- The Phase II Investigation is to consist of the following:

1. Surface geophysics (EM-31); the data from these tests will be used to define the refuse boundaries which will be used to determine the deed restrictions to be associated with the site.
 2. A limited Air SWAT will be performed to detect surface emissions. A new SWAT will be performed as the previous SWAT had potential cross contamination and did not include nearby buildings. The new SWAT will be used to validate previous data and to be used for the risk assessment.
 2. Soil gas investigation; this will detect the presence of any VOCs which will be used to characterize any potential Hot Spots. Specifically, this will be used to identify the possible location of a solvent spill and to determine the drilling location for a slant boring.
 3. Groundwater Monitoring will be performed to verify contaminant concentrations if contaminants are detected in the groundwater. It will also be used to confirm non-detects reported in the Phase I investigation.
 4. Vadose zone monitoring will be performed through the installation of a slant boring with a landfill gas probe. This will determine if any contaminants are present in the vadose zone and will determine if further investigation to characterize leakage is necessary.
- The previous boundaries identified by CH2MHill have extended to include possible fill areas identified.
 - No new monitoring wells (outside of the 4 proposed by CH2MHill) have been proposed for this site.
 - The soil gas survey will be used to determine where to install the slant wells. The borings will be sampled as it is installed.
 - The location of the former incinerator will be investigated through the Tiered approach. In Tier 1, the site will be investigated through surface geophysics and a soil gas survey. If hits are found during this investigation, soil samples will be taken in this area during Tier 2.

Discussion Points

1. Yueh Chuang stated that he thought another cluster of downgradient wells were necessary. This is due to the proximity of the tank farm and attempts to determine if the tank farm or the landfill is responsible for the possible groundwater contamination. John Broderick questioned if it was part of this study to include downgradient well coverage to differentiate between the landfill and the tank farm. The discussion continued and questions and responses regarding the contamination in the groundwater and the necessity of distinguishing between the two sites was debated. Ginny Garelick thought it was only necessary to discuss the landfill for this project. If the tank farm is an issue, Mr. Garelick stated that it should be an issue to be addressed by the BCP. She also stated that this had been decided previously, that this problem was associated with and to be handled by the tank farm. Tim Latas questioned what the plans for Tank 398 are. It was commented that it had been removed and the project to start working on the plans for remedial action had begun.
2. Yueh Chuang then stated that the intention of this well was for regional coverage. It was stated that this issue regarding the responsibility for the regional wells has not be resolved.
3. Bonnie Arthur stated that she thought it would be necessary to assess wells 64 and 65 during Tier 1. If contamination is detected, then she would like a well to be installed farther away from the site to discern horizontal as well as shallow groundwater contamination. Katrina Lyons agreed and stated that this would be incorporated in the Work Plan.
4. Joe Zarnoch stated that he did not think it was necessary to install additional wells to assess shallow groundwater. He commented that he thought vertical delineation of groundwater contamination would be more significant. For this, he thought an additional downgradient well cluster would be necessary. The discussion regarding the purpose of the wells (for the landfill or for the tank farm) resumed. Jerry Jackson stated that when the water levels are taken, the groundwater gradient can be determined and then it would be possible to discern if downgradient wells associated with the landfill are necessary.
5. John Broderick voiced a concern with the use of a soil gas survey over the entire landfill. He mentioned that this is the oldest landfill on the base and that it may not have volatiles any more. Katrina Lyons commented that the soil gas information would also be used to determine where to install the slant boring. Chuck Elliott stated that CH2MHill did propose a soil gas survey for the entire landfill to collect necessary data for closure. Ms. Lyons stated that the current proposed soil gas survey was for a 75 foot grid. John Broderick stated that he thought a smaller soil gas survey grid would be acceptable. Joe Zarnoch stated that it would be necessary to have soil gas information from the incinerator area. John Broderick agreed and stated that regulations are

negotiable citing that the RWQCB has accepted a SWAT from a landfill from which no soil gas is detected along with four quarters of groundwater monitoring.

6. At this point the regulators took a break to discuss possibilities. Upon returning, the regulators mentioned that they did want to see trenching around the perimeter of sites 2 and 17 to confirm the geophysics. However, to hold off on this action for sites 3 and 5, and only perform trenching if necessary. Katrina Lyons agreed to incorporate this in the Work Plan. Larry Vitale also mentioned that during the remedial investigation, data should be taken from test pits to demonstrate how much cover is on the landfill. Bonnie Arthur stated that the soil gas survey grid should be increased to 200 feet, but to tighten around certain areas depending upon the types of source areas there might be. Sherrill Beard stated that a certain number of samples could be taken, but only some analyzed. The additional samples could be held and analyzed as needed to confirm or characterize the area as needed.
7. Joe Zarnoch stated he thought additional soil samples from the incinerators area would be necessary, but that Bonnie Arthur should talk to the EPA toxicologist. However, it was mentioned that additional soil samples may not be necessary depending on how the deed restriction is written. It was agreed that there are many unknown areas in Site 3 and that it should be investigated with the deed restriction in mind.
8. Joe Zarnoch stated that under the presumptive remedy approach, the soil gas can serve two purposes. It can identify discrete hot spots which can be remediated and that it can also be used to possibly wave the vadose zone monitoring if hot spots can be ruled out.
9. Bonnie Arthur requested to discuss the vertical extent of contamination and are monitoring wells necessary for this. Tim Latas stated that this may be warranted as contamination was detected at great depths. Joe Zarnoch stated that the contamination found at such levels was primarily fuel contamination. Jerry Jackson and Chuck Elliott agreed that it was strange to be so deep, however it was stated that this area is in a recharge zone with a very steep downward gradient. This could result in a very large smear zone, which could be a large problem. Tim Latas stated that if there is a smear zone, then contamination would be detected at shallow groundwater depths, which it was confirmed that there is contamination at shallower depths in groundwater.
10. Andy Piszkin confirmed that the tank farm is being handled in a separate CTO associated with the Alton Parkway expansion. This study will install more wells to assess the delineation of groundwater contamination as well as a soil gas survey. However, if additional wells are necessary to monitor Site 3, then this should be done in this investigation.
11. Andy Piszkin also mentioned the possibility of using an EE/CA for some of these sites as opposed to an RI/FS. John Broderick stated that it may possibly help for sites 2 and 17, but not for 3 and 5. John Broderick stated that this is so because the Navy is striving for no further action for sites 3 and 5. In order to meet CERFA requirements and obtain appropriate data for a risk assessment, the soil gas survey performed under the RI/FS is extremely important. Sites 2 and 17 also have important ecological habitats to consider. It is not likely to obtain an early action without involving California Fish and Game, U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers. Mr. Broderick emphasized the importance of having a good relationship with these consulting agencies.
12. The issue of putting more soil generated from the remedial actions of the other sites into one of the landfills was also discussed. Bonnie Arthur stated that she was not sure of this possibility and would have to check at EPA. The question was posed to the RWQCB if this would be acceptable. John Broderick replied that it would be acceptable if the landfill was classified for designated waste and if the soils to be used to underlie the landfills do not have hazardous waste levels. Joe Zarnoch mentioned that if the hazardous waste levels were a problem, overexcavation is a possibility. If this is to be a possibility, which landfill to accept soil must be determined because this landfill must be left open. It was agreed that Site 17 would be the best site for this possibility.
13. The issue regarding the EE/CA versus the RI/FS was discussed. It was agreed that there are several alternatives for the landfills, however time is a significant issue which should drive the investigation. Bonnie Arthur stated that a flow-chart illustrating paths for the landfills would be very helpful in identifying what needs to be to most efficiently accomplish closure. It was again mentioned that consulting agencies must be involved.
14. If some of the landfills are to be capped and also have significant ecological habitats, this could be a great problem and must be discussed in the BCP, especially if it is being considered to put new soils into the landfill.

15. Joe Zarnoch mentioned the possibility of Site 9 overlying Site 3. The question was raised if water infiltration from Site 9 is a possible source and if it should be considered a waste disposal area. If it is part of the site, it needs to be included in the remedial design.

Action Items:

1. Jason Ashman is to find out the status of Tank 398 and Tank Farms 5 and 6 and their associated investigations to see which investigation is responsible for determining the responsibility for the groundwater contamination.
2. Bonnie Arthur is to determine EPA's view on disposing of soil generated from the RI/FS into one of the landfills.
3. Dante Tedaldi is to determine the possible beneficial use of an EE/CA as opposed to an RI/FS to be followed during the investigations of the landfills.
4. Jason Ashman is to contact Vish Parpriani or Barbara Wilson to involve California Fish and Game in the upcoming investigations.

Site 5

- The results of the previous investigations include information from aerial photographs, the Air SWAT, and data from surface geophysical tests.
- The Phase II Investigation is to consist of the following:
 1. Surface geophysics (EM-31); the data from these tests will be used to define the refuse boundaries which will be used to determine the deed restrictions to be associated with the site, and possible monitoring well locations.
 2. A limited Air SWAT will be performed to detect surface emissions. The new SWAT will be used to validate previous data and to be used for the risk assessment.
 2. Soil gas investigation; this will detect the presence of VOCs which will be used to characterize potential hot spots. This data will also be used to determine the drilling location for a slant boring.
 3. Groundwater monitoring will be performed to verify contaminant concentrations if contaminants are detected in the groundwater. It will also be used to confirm non-detects reported in the Phase I investigation.
 4. Vadose zone monitoring will be performed through the installation of a slant boring with a landfill gas probe. This will determine if any contaminants are present in the vadose zone and will determine if further investigation to characterize leakage is necessary.
- One new monitoring well has been proposed for this site. This will be installed after some initial investigation has been completed.
- The contaminants for which the samples will be analyzed are for general chemistry parameters and metals.
- The presentation for this site concluded stating that additional remedial work does not appear to be necessary; perhaps the cap needs to be tighten at a maximum.

Discussion Points

1. John Broderick mentioned that it was revealed from the interviews with individuals who had worked at the landfill, that the landfill is actually much deeper than expected, possibly 40 feet deep.
2. Yueh Chuang stated that field screening should notice high hits of contaminants at approximately 15 to 25 feet; this was the depth at which CH2MHill experienced several high hits.
3. John Broderick stated that this was a significant landfill for the base for at least 15 years, and burning and salvage also occurred at this landfill.
4. Chuck Elliott commented on the new well proposed by the CLEAN II Team. He stated that the well proposed by CH2MHill had been for regional coverage. Ginny Garelick questioned if there is a listing of all wells which were for regional coverage. Chuck Elliott replied that these wells were primarily those downgradient of sites 2, 3, 5, and also a well halfway between Sites 13 and 16. Wells surrounding Site 17 are also included. Ms. Garelick requested a map from CH2MHill illustrating wells proposed for regional coverage and are now intended for OU-1.

5. Andy Piszkin mentioned that there is designated waste in “burritos” as well as clean fill currently on top of this landfill.

Action Items

1. The Navy needs to determine which investigation is responsible for the installation of the groundwater monitoring wells intended for regional coverage.
2. CH2MHill is to provide a map which illustrates which proposed groundwater monitoring wells were intended for regional coverage.

Site 17

- The results of the previous investigations include information from aerial photographs, the Air SWAT, and data from surface geophysical tests.
- The Phase II Investigation is to consist of the following:
 1. Surface geophysics (EM-31); the data from these tests will be used to define the refuse boundaries which will be used to design the cap footprint.
 2. Soil gas investigation; this will detect the presence of any VOCs which will be used to characterize any potential hot spots.
 3. Groundwater monitoring will be performed to verify contaminant concentrations if contaminants are detected in the groundwater. It will also be used to confirm non-detects reported in the Phase I investigation. Measurements also taken during groundwater monitoring will include groundwater elevations so that the gradient can be determined.
- The previous boundaries identified by CH2MHill have extended to include possible fill areas identified.
- Two new monitoring wells are proposed for this site.

Discussion Points

1. Chuck Elliott mentioned that the upgradient well proposed by the CLEAN II Team is proposing to place the upgradient well in Tertiary bedrock and that installation could be very difficult. Yueh Chuang agreed with Mr. Elliott stating that they did experience great difficulties while attempting to put a well in this area. One reason a well was not installed in this area was that water was not encountered until approximately 250 feet below ground surface.
2. John Broderick stated that some type of upgradient well would be necessary, but a well downgradient would also be necessary in order to establish the groundwater gradient.
3. Chuck Elliott explained how CH2MHill had proposed to determine the gradient with the wells they had proposed to install. The upgradient well would be a well installed at Site 3. Other than this method, Mr. Elliott was not sure how it would be possible to get an upgradient well.
4. John Broderick stated that, for monitoring purposes, a well must be placed for upgradient water quality. A cross-gradient well may be acceptable, however it must be demonstrated how the cross-gradient well has the same groundwater quality as an upgradient well. However, if only three wells were to be installed for the monitoring network, the locations must be certain.
5. Sherrill Beard questioned if there were mapped faults underlying this landfill. Yueh Chuang responded that there were.
6. Andy Piszkin commented that it appeared that many holes may be drilled in attempts to install only 3 wells.
7. John Broderick reiterated that if this landfill were to accept designated waste, then it must be capped and it must be monitored.
8. Yueh Chuang mentioned that the existing well did not have contamination in the groundwater, but the soil samples from the deep boring did have contamination.
9. Jerry Jackson commented that three wells proposed by CH2MHill appeared to be a good method to determine the groundwater gradient. Dr. Jackson stated that it would be better to have the CLEAN II Team go back and examine the boring logs and field notes from Phase I and then illustrate in the Work Plan how the location of

this well will be approached. John Broderick reiterated not focusing only on the upgradient well, but perhaps the cross-gradient well, as long as the quality of the groundwater is consistent.

10. Chuck Elliott explained why the southwest corner of the landfill was included in the CH2MHill proposed boundary which was not included in the CLEAN II Team boundary of the landfill. He stated that there is a physical disturbance in the soil which is visibly noticeable. Mr. Elliott also mentioned that the site has become overgrown and it is now home to some endangered species. This must be considered while planning the Phase II field work.
11. John Broderick stated that this is the youngest landfill on the base and the decomposition is possible. A soil gas survey is significant and data using a flux chamber may also be necessary in order to gather enough data to design a cap.
12. It was stated that these issues do need to be addressed in the Feasibility Study.

Action Items

1. Yueh Chuang is to present the field notes taken while attempting to drill the upgradient well so that specific problems can be identified.
2. Katrina Lyons is to schedule a trip to the site with a representative from CH2MHill to look at possible boundaries and well locations.

Upon the conclusion of the meeting, Jason Ashman requested that any individual who had comments on the day's proceedings to call either him, Tim Latas, or Katrina Lyons.

MEETING ATTENDEES - OCTOBER 28, 1994

David Cowser	Bechtel
Sherrill Beard	CalEPA
Alice Gimeno	CalEPA/DTSC
Joe Zarnoch	CalEPA/DTSC
Yueh Chuang	CH2MHILL
Chuck Elliott	CH2MHILL
Pat Brooks	Kleinfelder
Jerry Jackson	Kleinfelder
Tim Latas	Kleinfelder
Katrina Lyons	Kleinfelder
Homa Moaddel	Kleinfelder
Linda Nebiker	Kleinfelder
Stacie Wissler	Kleinfelder
John Broderick	RWQCB
Larry Vitale	RWQCB
Jason Ashman	SWDIV
Ginny Garelick	SWDIV
Andy Piszkin	SWDIV
Bonnie Arthur	USEPA

MCAS EL TORO OCTOBER 28, 1994

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LANDFILL SITES

INTRODUCTION

October 28, 1994

- **RI/FS APPROACH**
- **INDIVIDUAL SITE DISCUSSIONS**

LANDFILL SITES RI/FS APPROACH

Site	Hot Spots Evaluation ¹	Resolution (per EPA Presumptive Remedy)			
		Institutional (deed restrict)	Cap ²	G/water monitor ³	Leachate monitor ⁴
2	— [X] →	X	X	X ⁵	NFA
3	— [X] →	X ²	NFA	X	X
5	— [X] →	X ²	NFA	X	X
17	— [X] →	X	X	X	NFA

Notes:

1) 100 ft soil gas grid

2) surface geophysics and trenching (if necessary)

3) up/down-gradient locations

4) slant drilling w/ LFG probe

5) data necessary for engineered approach

LANDFILL SITES

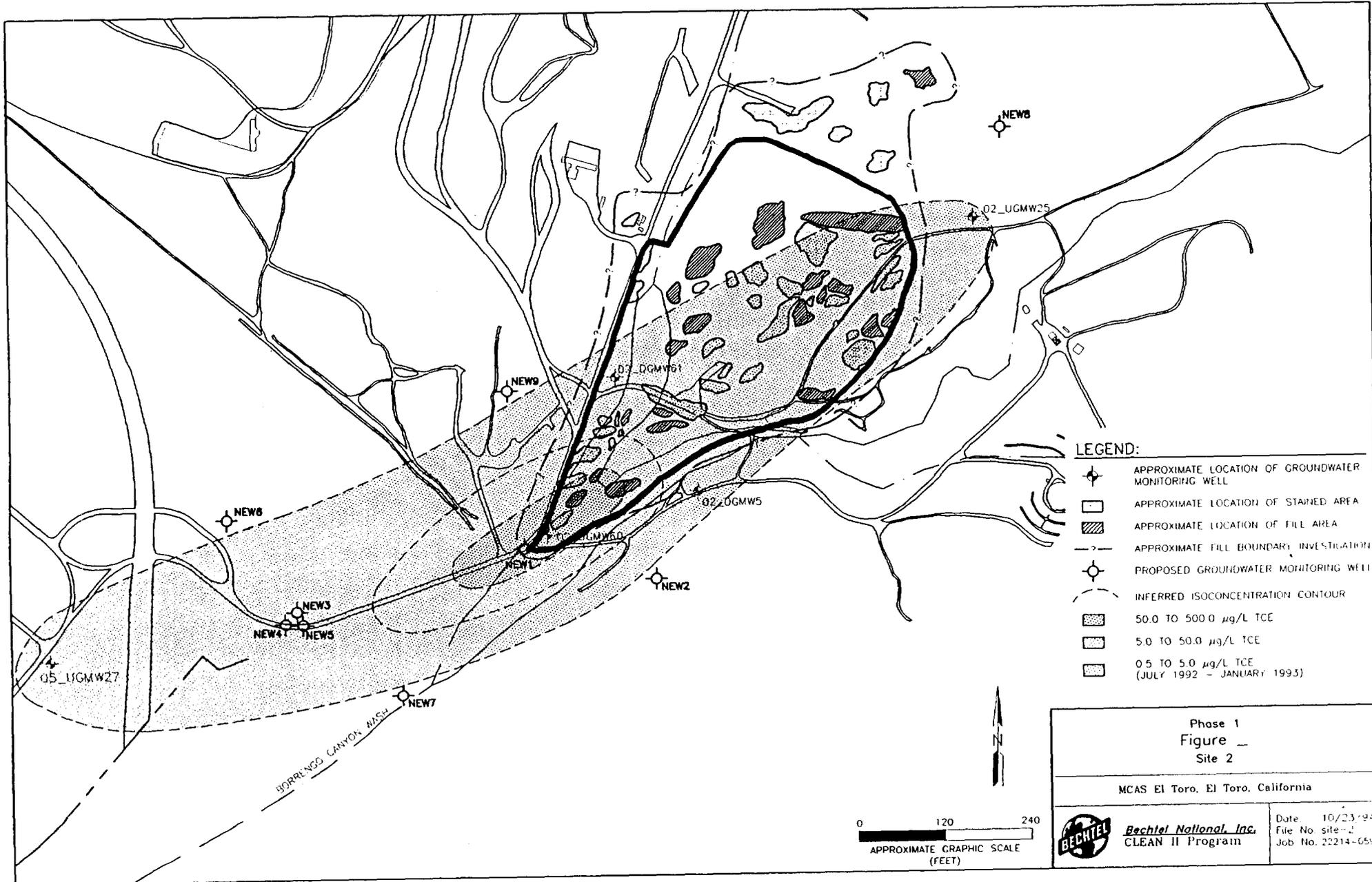
SITE 2

- **SITE BACKGROUND**
- **RESULTS OF PREVIOUS INVESTIGATIONS**
 - Aerial Photographs
 - Air SWAT
 - Surface Geophysics
- **PHASE I RESULTS SUMMARY**
- **PHASE II INVESTIGATION**

<u>Activity</u>		<u>Data</u>		<u>Use</u>
Surface Geophysics	→	Refuse Limits	→	Cap Footprint
Soil Gas	→	VOC Presence	→	Hot Spots
Groundwater	→	Plume Delineation*/	→	Feasibility Study/
-Monitoring		Aquifer Characteristics**		Remedial Design
-(Pump Test)				

* Hollow stem auger drilling with BAT sampler

**Pump test with piezometer observation well (nested)

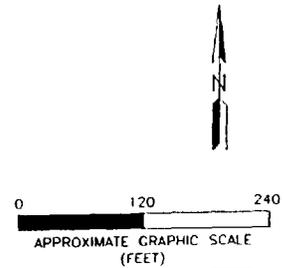


- LEGEND:**
- APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
 - APPROXIMATE LOCATION OF STAINED AREA
 - APPROXIMATE LOCATION OF FILL AREA
 - APPROXIMATE FILL BOUNDARY INVESTIGATION
 - PROPOSED GROUNDWATER MONITORING WELL
 - INFERRED ISOCONCENTRATION CONTOUR
 - 50.0 TO 500.0 µg/L TCE
 - 5.0 TO 50.0 µg/L TCE
 - 0.5 TO 5.0 µg/L TCE (JULY 1992 - JANUARY 1993)

Phase 1
Figure _
Site 2

MCAS El Toro, El Toro, California

Bechtel National, Inc. CLEAN II Program	Date: 10/23/94 File No: site-2 Job No: 22214-059
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LANDFILL SITES

SITE 3

- **SITE BACKGROUND**

- **RESULTS OF PREVIOUS INVESTIGATIONS**

 - Aerial Photographs

New

 - -Air SWAT

 - Surface Geophysics

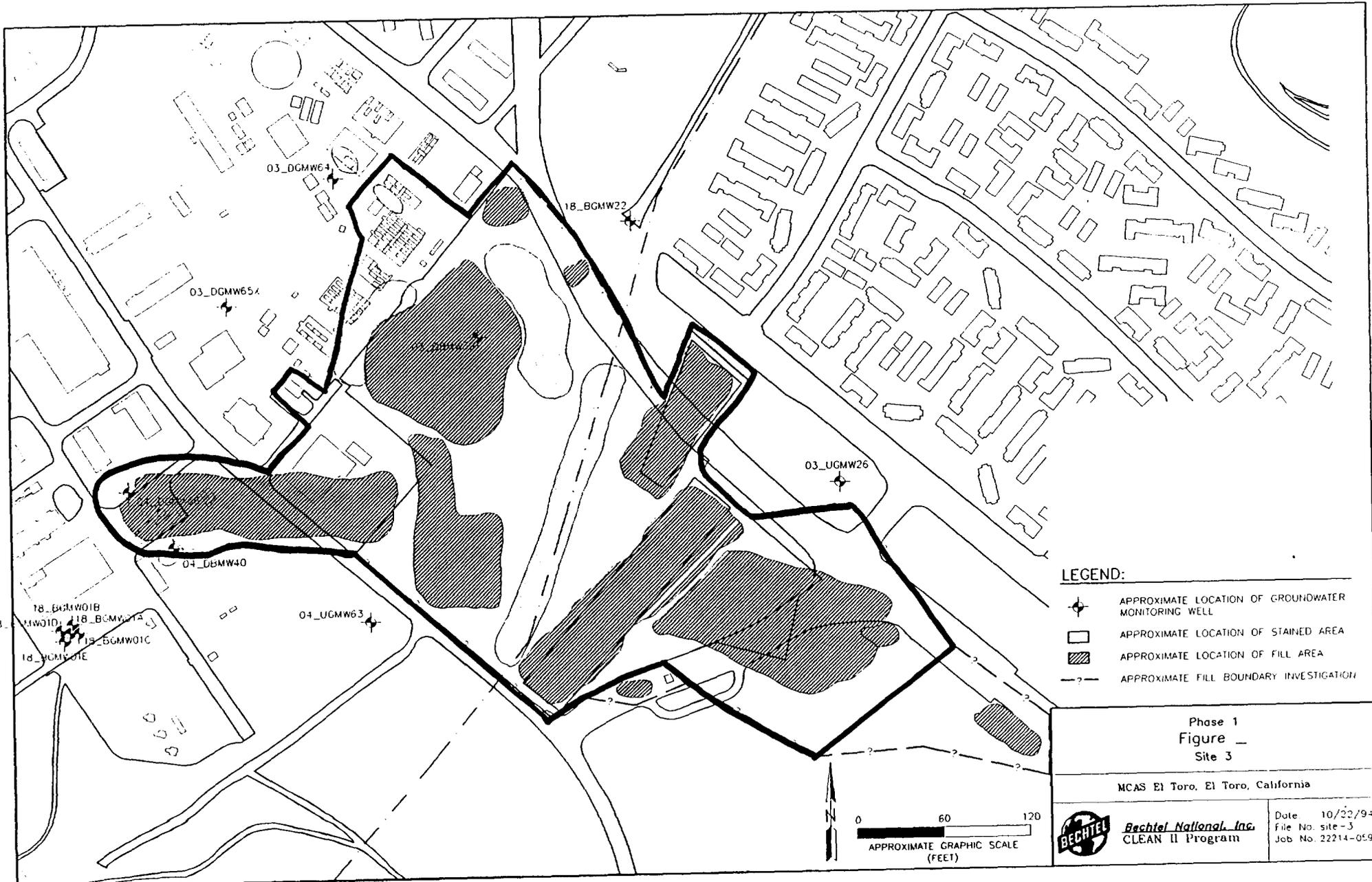
- potential cross contamination in old SWAT - also did not include buildings to delineate boundaries for deed restrictions

- **PHASE I RESULTS SUMMARY**

- **PHASE II INVESTIGATION**

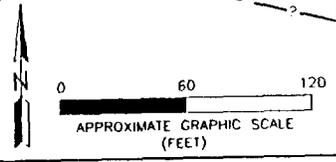
<u>Activity</u>	<u>Data</u>	<u>Use</u>
Surface Geophysics	Refuse Limits	Deed Restrictions
Limited Air	Surface Emissions	Data Validation/ Risk Assessment
Soil Gas	VOC Presence	Hot Spot (Solvent Spill) / Slant Drill
Groundwater	Contamination Concentration	Confirm NDs
Vadose Zone*	Contaminant Presence	Investigate Leakage

* Slant drill with landfill gas probe



- LEGEND:**
- APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
 - APPROXIMATE LOCATION OF STAINED AREA
 - APPROXIMATE LOCATION OF FILL AREA
 - APPROXIMATE FILL BOUNDARY INVESTIGATION

Phase 1 Figure — Site 3	
MCAS El Toro, El Toro, California	
	Bechtel National, Inc. CLEAN II Program
Date 10/22/94 File No. site-3 Job No. 22214-059	



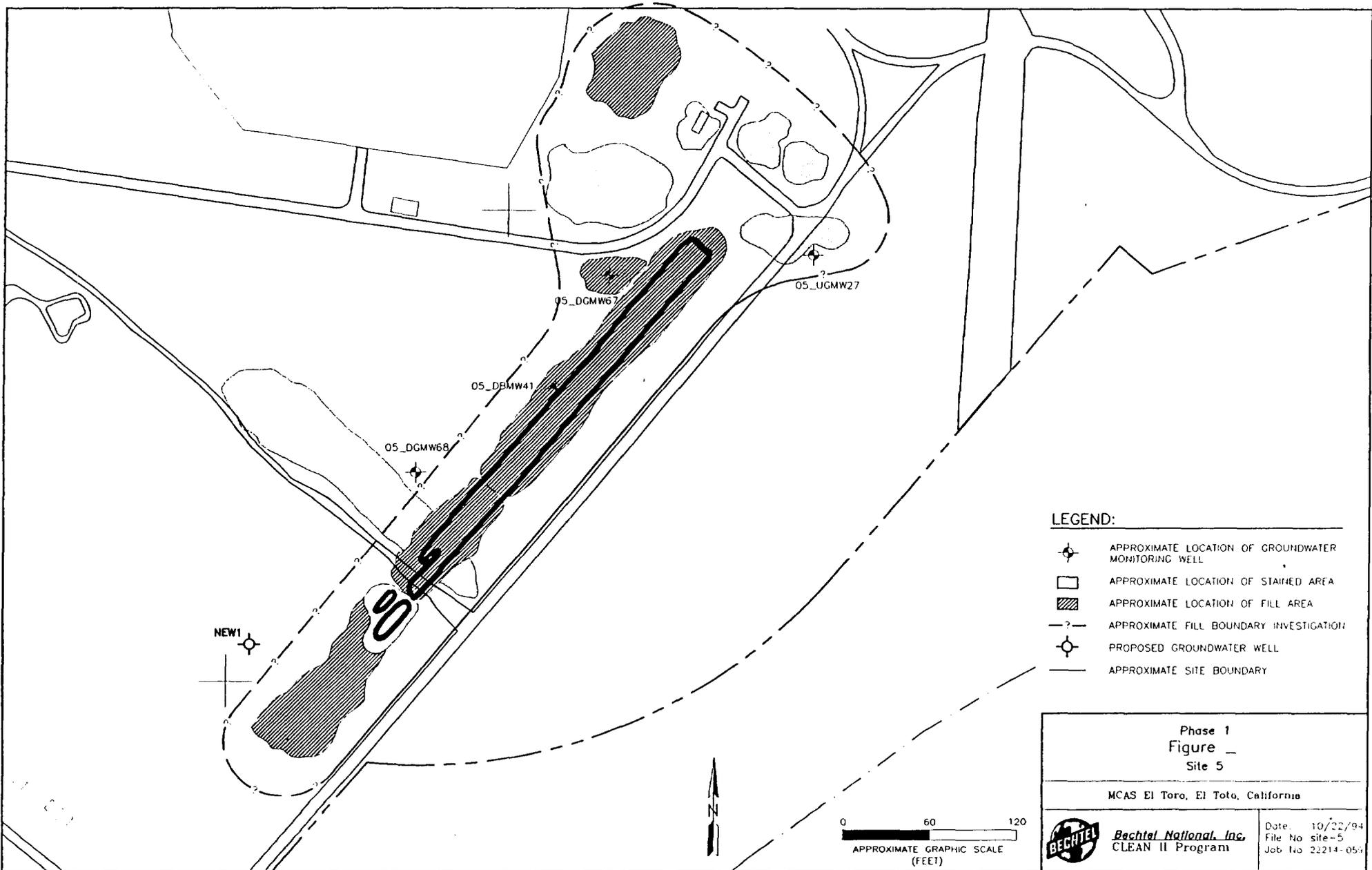
LANDFILL SITES

SITE 5

- **SITE BACKGROUND**
- **RESULTS OF PREVIOUS INVESTIGATIONS**
 - Aerial Photographs
 - Air SWAT
 - Surface Geophysics
- **PHASE I RESULTS SUMMARY**
- **PHASE II INVESTIGATION**

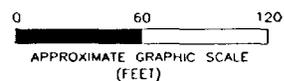
<u>Activity</u>	<u>Data</u>	<u>Use</u>
Surface Geophysics	Refuse Limits	Deed Restrictions Well Location
Limited Air	Surface Emissions	Data Validation/ Risk Assessment
Soil Gas	VOC Presence	Hot Spot & Slant Drill
Groundwater	Contamination Concentration	Confirm NDs Confirm SW NDs
Vadose Zone*	Contaminant Presence	Investigate Leakage

* Slant drill with landfill gas probe



- LEGEND:**
-  APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
 -  APPROXIMATE LOCATION OF STAINED AREA
 -  APPROXIMATE LOCATION OF FILL AREA
 -  APPROXIMATE FILL BOUNDARY INVESTIGATION
 -  PROPOSED GROUNDWATER WELL
 -  APPROXIMATE SITE BOUNDARY

Phase 1 Figure _ Site 5	
MCAS El Toro, El Tota, California	
	Date: 10/22/94 File No site-5 Job No 22214-053
Bechtel National, Inc. CLEAN II Program	



LANDFILL SITES

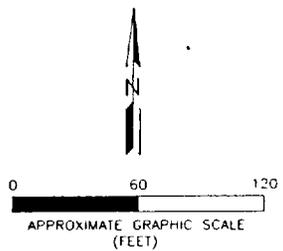
SITE 17

- **SITE BACKGROUND**
- **RESULTS OF PREVIOUS INVESTIGATIONS**
 - Aerial Photographs
 - Air SWAT
 - Surface Geophysics
- **PHASE I RESULTS SUMMARY**
- **PHASE II INVESTIGATION**

<u>Activity</u>	<u>Data</u>	<u>Use</u>
Surface Geophysics	Refuse Limits	Cap Footprint
Soil Gas	VOC Presence	Hot Spots
Groundwater	Contaminant Concentration	Confirm NDs Gradient
	Groundwater Elevation	Compliance



- LEGEND:**
-  APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
 -  APPROXIMATE LOCATION OF STAINED AREA
 -  APPROXIMATE LOCATION OF FILL AREA
 -  APPROXIMATE FILL BOUNDARY INVESTIGATION
 -  PROPOSED GROUNDWATER MONITORING WELL
 -  APPROXIMATE SITE BOUNDARY



Phase 1
Figure _
Site 17

MCAS El Toro, El Toro, California

	Bechtel National, Inc. CLEAN II Program	Date: 10/22/94 File No Site-17 Job No 22214-055
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