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August 14, 1991

Meeting Minutes Transmittal/Approval
Unit Managers Meeting: 1100-EM-1 Operable Unit
WHC 450 Hills St., Richland, Washington
July 17, 1991

FROM/APPROVAL: Robert K Stewart Date 9/10/91
 Robert K. Stewart, 1100-EM-1 Operable Unit Manager (DOE-RL)

APPROVAL: Dave Einan Date 18 Sept 91
 Dave Einan, 1100-EM-1 Unit Manager, EPA

APPROVAL: Richard B Hibbard Date _____
 Richard Hibbard, 1100-EM-1 Unit Manager, WA Department of Ecology

Meeting Minutes are attached. Minutes are comprised of the following:

- Attachment #1 - Meeting Summary/Summary of Commitments and Agreements
- Attachment #2 - Attendance List
- Attachment #3 - Agenda For 1100-EM-1 Meeting
- Attachment #4 - Action Items Status List
- Attachment #5 - Geophysics Presentation
- Attachment #6 - Scope of Work for Characterization of HRL Burial Trenches
- Attachment #7 - PCB Results for HRL
- Attachment #8 - DSI from W. Greenwald to C. Malody (ANF), Request that ANF Provide Ground Water Data
- Attachment #9 - ANF Groundwater Activities Summary
- Attachment #10- Monitoring Well Sample Results

PREPARED BY: Robert Stewart Date 9/10/91
 SWEC Support Services

CONCURRENCE BY: Steven Clark Date 9/18/91
 WHC RI Coordinator



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1100-EM-1 Operable Unit Managers Meeting
July 17, 1991

Distribution:

Chuck Cline, WDOE
Ward Staubitz, USGS
Mike Thompson, DOE-RL (A6-95)
Mary Harmon, DOE-HQ, (EM-442)

John Stewart, USACE
Linda Powers, WHC (B2-35)
Tom Wintczak, WHC (B2-15)
Mel Adams, WHC (H4-55)
Steven Clark, WHC (H4-55)
Brian Sprouse, WHC (H4-22)
Diane Clark, DOE-RL (A5-55)
Bill Price, WHC (S0-03)
Don Kane, Battelle EMO (K1-74)
Donna Lacombe, PRC
Jim Patterson, WHC
Michael Beavers, WHC (G1-66)
Earl Oxford, WHC (G4-11)

Ronald D. Izatt (A6-95)
Director, DOE-RL, ERD
June M. Hennig (A5-21)
DOE-RL, WMD
Roger D. Freeberg (A6-95)
Chief, Rstr. Br., DOE-RL, ERD
Steven H. Wisness
TPA Proj. Mgr.
Richard D. Wojtasek (B2-15)
Prgm. Mgr. WHC

Victor Wilde
Don Praast, GAO (A1-80)
KaeRae Parnell, WHC (H4-18)
Dave Einan, EPA (B5-01)
Michael Neely, PNL (K6-96)
Chuck Malody, ANF

ADMINISTRATIVE RECORD: 1100-EM-1; Care of Susan Wray, WHC (H4-51C)

Please contact Doug Fassett if there are any deletions or additions to this list.

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7. Wendell Greenwald said ACE provided ANF with a letter that recommended that information was needed from wells at specific locations (see Attachment #8). Chuck Malody (ANF) said ANF was uncertain whether they would try to get existing wells certified by Ecology or EPA or if they would install new wells (see Attachment #9).
 8. Susan Keith (ANF Support) said that the groundwater investigation scope of work and work plan would be completed by late August or early September. A limited review of on and off-site well and water quality data, a review of the Phase II RI supplemental work plan and a review of the applicable regulatory requirements have been completed. Bob Stewart suggested that meetings be set up between ANF, DOE, ACE, EPA, and Ecology to discuss the work scope of the groundwater investigation. Chuck Malody agreed to look into the broad outline for the proposed ANF groundwater investigation.
 9. A discussion ensued between Ward Staubitz and Wendell Greenwald about EPA having adequate (2 weeks) time to review the geophysical data in order to determine the number and priority of the test pits. Wendell Greenwald said that ACE needed to develop the scope of work and that their schedule could be delayed. Ward Staubitz stated that EPA was to be given the geophysical report on June 15 and have 2 weeks to review it. He did not receive the report until about July 2 (due to the need to filter the data). He expected to have a response to the report on July 23 or 24. Bob Stewart said ACE should assume that there will be four test pits if it will help meet the schedule. Wendell Greenwald said that investigating test pit #8 which contains asbestos would require going to DOE-HQ for approval, and it would be difficult to exceed the FY 1992 budget. The budget for FY 1992 is set, therefore the number of test pits may be limited. Dave Einan (EPA) agreed with Wendell Greenwald's suggestion that the start of test pit work be postponed from August 15 to August 20. It was decided that a technical meeting would be held after EPA had the full two weeks to review the geophysical data.

Action Item #11EM1.84: The exact location and number of test pits is to be determined by a conference call on July 25 or 26. Action: Wendell Greenwald (ACE) (7/17/91).

10. Wendell Greenwald discussed the plans for handling Investigation Derived Wastes (IDW). Dave Einan sent Mr. Greenwald an example of a work plan for another site in Region 10 that was a good example of the handling of IDW from a test pit. Rich Hibbard (Ecology) said that the sampling plan portion of the ACE work plan had been inadequate. Donna Lacombe (EPA Support) said the Statement of Work lacked detail. Mr. Greenwald suggested that Ms. Lacombe review the work plan and call him with comments. Ms. Lacombe and Mr. Greenwald will finalize the scope of work and present it in the August UMM, thus it will be documented in the UMM minutes. When the final work plan is issued, it will include all revisions.
11. Wendell Greenwald discussed the work affected by the dispute. ACE believes they cannot complete the Phase II Supplemental Work Plan and the Phase I and II FS Report until the dispute is completed. The Phase

II RI Report and the Phase III FS Report are on hold. Interactions with ANF, in particular the schedule discussions, may be disrupted. Bob Stewart said that the Tri-Party Agreement states that work being directly impacted by the dispute is allowed a day for day delay until the dispute is resolved.

Outstanding Action Items - Wendell Greenwald presented the status of the open action items (see Attachment #4).

- 11EM1.55: The action is on hold pending the receipt of sample results in the groundwater report.
- 11EM1.64: The action is on hold pending the receipt of sample results in the groundwater report.
- 11EM1.65C: Dave Einan is planning to provide the needed information on sampling for vinyl chloride. The action is on hold pending the receipt of sample results in the groundwater report.
- 11EM1.68: A meeting on the Gephysical report is to be held on July 24.
- 11EM1.71: Closed; Bob Stewart participated in a meeting with Weston. He clearly informed Weston that their communication was unsatisfactory.
- 11EM1.73: Wendell Greenwald said he is proposing to make the red drum a remote storage area where decontamination water used in soil gas sampling can be disposed. Some discussion followed about the regulatory aspects of this proposal. A RCRA inspector will check out the drum to determine if the drum is being handled properly.
- 11EM1.75: Donna Lacombe will provide a copy of the Idaho (Idaho National Engineering Laboratories) interim response measure (IRM) procedure to DOE.
- 11EM1.76: Closed; Comments on the flow diagram for IRMs were provided at the June UMM.
- 11EM1.78: The change request was provided to Rich Hibbard.
- 11EM1.79: Closed; Rich Hibbard said a risk assessment would not be necessary if Model Toxic Control Act standards were exceeded.
- 11EM1.80: Closed
- 11EM1.81: Bob Stewart said the proposed plan for IRMs is on hold.
- 11EM1.82: A letter was sent to Bob Stewart from Dave Einan. It described additional soil sites that required remediation.

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Attachment #2

Attendance List

1100-EM-1 Unit Managers Meeting
July 17, 1991

Name	Organization	1100-EM-1 Responsibility	Phone
Stewart, R. K.	DOE-RL	Unit Manager	509-376-6192
Harmon, Mary	DOE-HQ	Oversight	301-353-8167
Hibbard, Richard	Ecology	Unit Manager	206-493-9367
Cline, Chuck	Ecology	Geohydrology	206-438-7556
Mullen, Richard	Parametrix	Ecology Support	206-455-2550
Kane, William	Parametrix	Ecology Support	206-455-2550
Einan, Dave	EPA	Unit Manager	509-373-3883
Angelos, Kent	GAI	WHC Support	206-883-0777
Lacombe, Donna	PRC	EPA Contractor	206-624-2692
Greenwald, Wendell	USACE	Tech. Manager	509-386-9504
Lias, Raimo	USACE	Env. Eng. (Tech)	509-522-6924
Stewart, John	USACE	Project Manager	509-522-6531
Staubitz, Ward	USGS	EPA Support	206-593-6510
Drost, Brian	USGS	EPA Support	206-593-6510
Clark, Steve	WHC	Env. Engr.	509-376-1513
Fassett, Jack	WHC	Geophysics	509-376-4224
Kunk, Joseph	WHC	Geophysics Support	509-376-4024
Patterson, Jim	WHC	ER Programs	509-376-0568
Singleton, Kevin	WHC	Geosciences	509-376-4526
Mix, P.D.	WHC	Activities Engr.	509-373-2902
Knox, Kathy	CNES	GSSC, DOE-RL	509-376-5011
Fassett, Doug	SWEC	GSSC, DOE-RL	509-376-5011
Fryer, Bill	SWEC	GSSC, DOE-RL	509-376-9830
Shigley, Diane	SWEC	GSSC, DOE-RL	509-376-5038

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Attachment #3

AGENDA FOR 1100-EM-1 UNIT MANAGERS MEETING

July 17, 1991
2:10 PM - 4:30 PM
450 Hills St., Rm. 47
Richland, Washington

1. Introduction
2. Work Progress
 - Geophysical Survey Report
 - Soil Sampling Results for HRL PCB
 - New Monitoring Wells Lab Analysis Results
 - Groundwater Summary Report Status
 - Radioactive Isotopic Analysis Results
3. Advanced Nuclear Fuels Status
 - ANF Requested to Provide Background and Plume Delineation Data
 - ANF Schedule
4. HRL Characterization of Burial Trenches Special Issues
 - Number of Test Pits to be Investigated
 - Order of Test Pits to be Excavated
 - Investigation Derived Waste
5. Dispute Status
 - Work Items Interrupted
 - o Phase II Supplemental Work Plan
 - o Phase I & II FS report
 - o Phase II RI report
 - o Phase III FS report
 - o Interactions with ANF involving project schedule
 - o Treatability Studies
 - o IRMs
 - o Combined Phase II RI/Phase III FS report
 - Need for Informal Meeting with Paul Day to Discuss Individual Work Items in Project Schedule
 - Statement of Dispute being Prepared for Delivery to EPA by July 27, 1991
6. Action Item Status

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Item No.

Action/Source of Action

Status

11EM1.71	Bob Stewart will attempt to get the radionuclide analyses from the laboratories. Action: Bob Stewart (5/24/91).	Open.
11EM1.72	Investigate use of the ^{C-018} CO-18 Water Treatment Facility to treat contaminated groundwater from the HRL plume. Action: Bob Stewart (5/24/91) - Wendell Greenwald (6/20/91).	Open.
11EM1.73	Investigate the red drum sitting near the burn cage at HRL. Action: Steve Clark (WHC) (6/6/91).	Open. 6/13/91
11EM1.74	The USACE will prepare an outline of the IRM Proposed Plan. Action: John Anderson (USACE) (6/6/91).	Closed. Presented 6/20/91.
11EM1.75	Locate and collect IRM and ROD guidance documents and copies of the INEL IRM documents. Action: Bob Stewart (DOE-RL), Dave Einan (EPA), Raimo Liias (USACE) (6/6/91).	Open.
11EM1.76	The USACE will construct a flow diagram of the process for doing the IRM's and leading to the final ROD. Action: Wendell Greenwald (USACE) and John Stewart (USACE) (6/6/91).	Open. Presented 6/20/91 Revisions Presented 7/17/91.

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Item No.	Action/Source of Action	Status
11EM1.77	The USACE will prepare a change requests for changing the TPA milestones to accomodate a revised schedule and to revise the budget to accomodate the new scope. They will also cost out the new plan involving IRM's. The TPA change request will be completed around 6/15/91. Jim Patterson (WHC) will supply the USACE with forms and instructions for the budget change request. Action: John Stewart (USACE) and Wendell Greenwald (USACE) (6/6/91).	Closed. TPA CR Request Submitted 6/10/91. Budget CR Open.
11EM1.78	Provide Rich Hibbard (Ecology) with separate copies of the change request submittals to insure his receipt of same. Action: Bob Stewart (DOE-RL) (6/6/91).	Open.
11EM1.79	EPA will evaluate the proposal to use MTCA's soil cleanup levels in lieu of performing a risk assessment for each IRM, recognizing that MTCA is an ARAR. Action: Dave Einan (EPA) (6/6/91).	Open.
11EM1.80	EPA and Ecology are to review the sample plan for the characterization of the waste from the excavation of the test pits. Comments are to be provided by July 3. The comments will include results of research by EPA and Ecology on the handling of investigation derived waste at other landfills. Action: Dave Einan and Rich Hibbard (6/20/91)	Open.
11EM1.81	Comments on the outline for the proposed plan for IRMs were requested by July 3 by DOE. Action: Bob Stewart, Rich Hibbard and Dave Einan (6/20/91)	Open.

Item No.

Action/Source of Action

Status

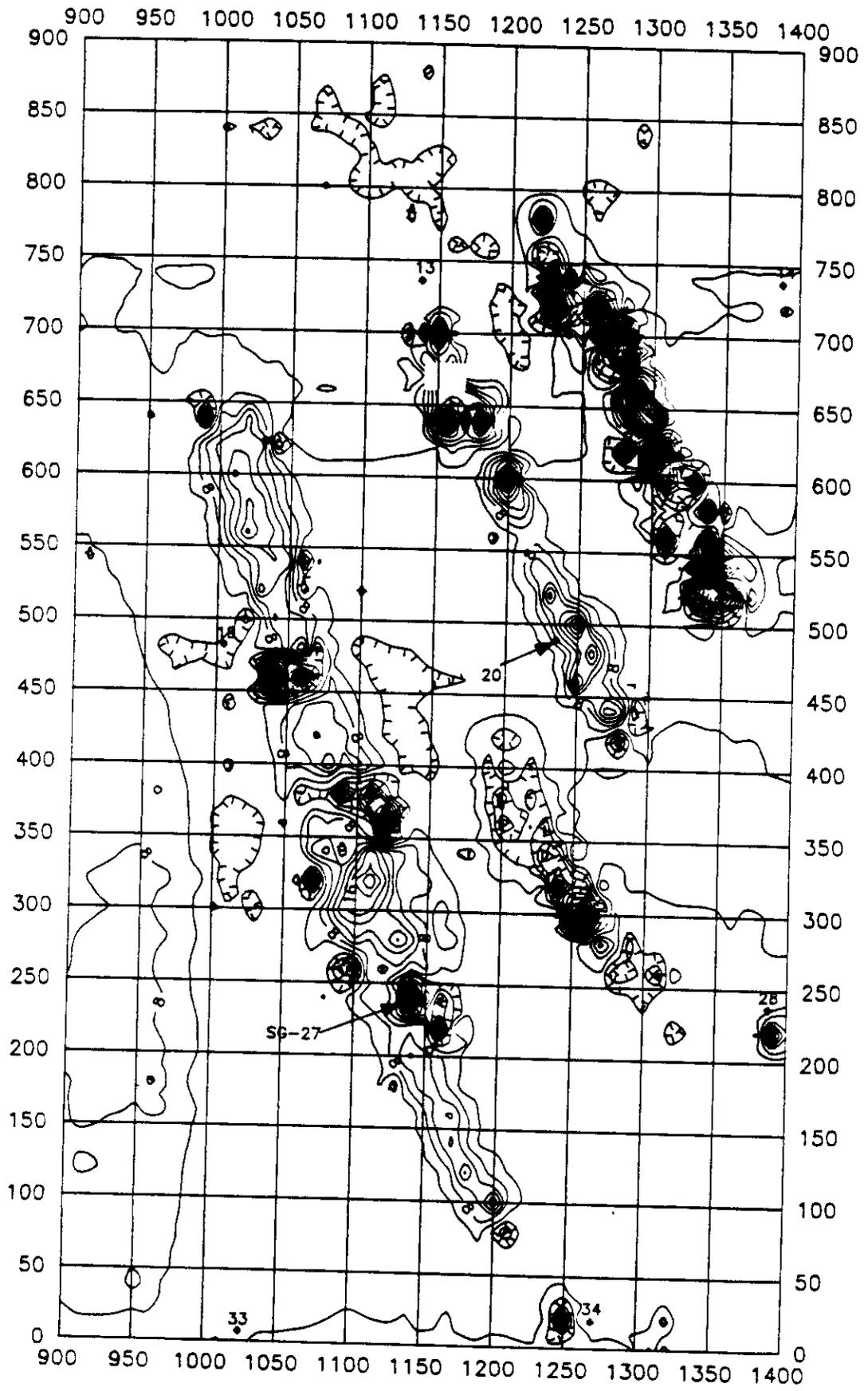
11EM1.82

EPA and Ecology are to discuss the MTCA based soil cleanup levels, revise the Soil Cleanup Level table, provide the revised table to DOE and provide conclusions on factors that control the required cleanup levels. This information is to be used for a discussion on adding additional "soil sites" to the group of proposed soil remediation IRMs. Action: Dave Einan and Rich Hibbard (6/20/91)

Open.

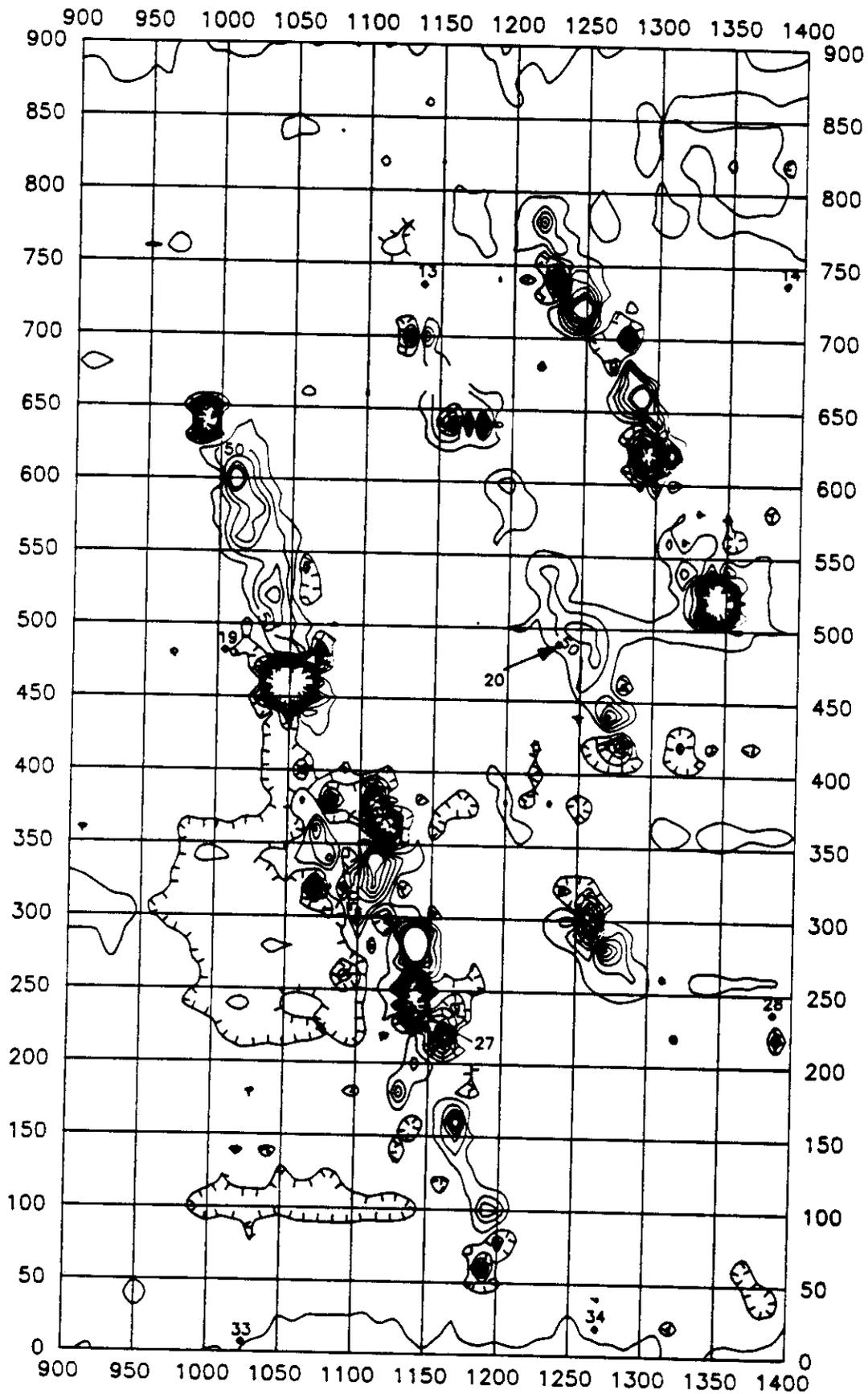
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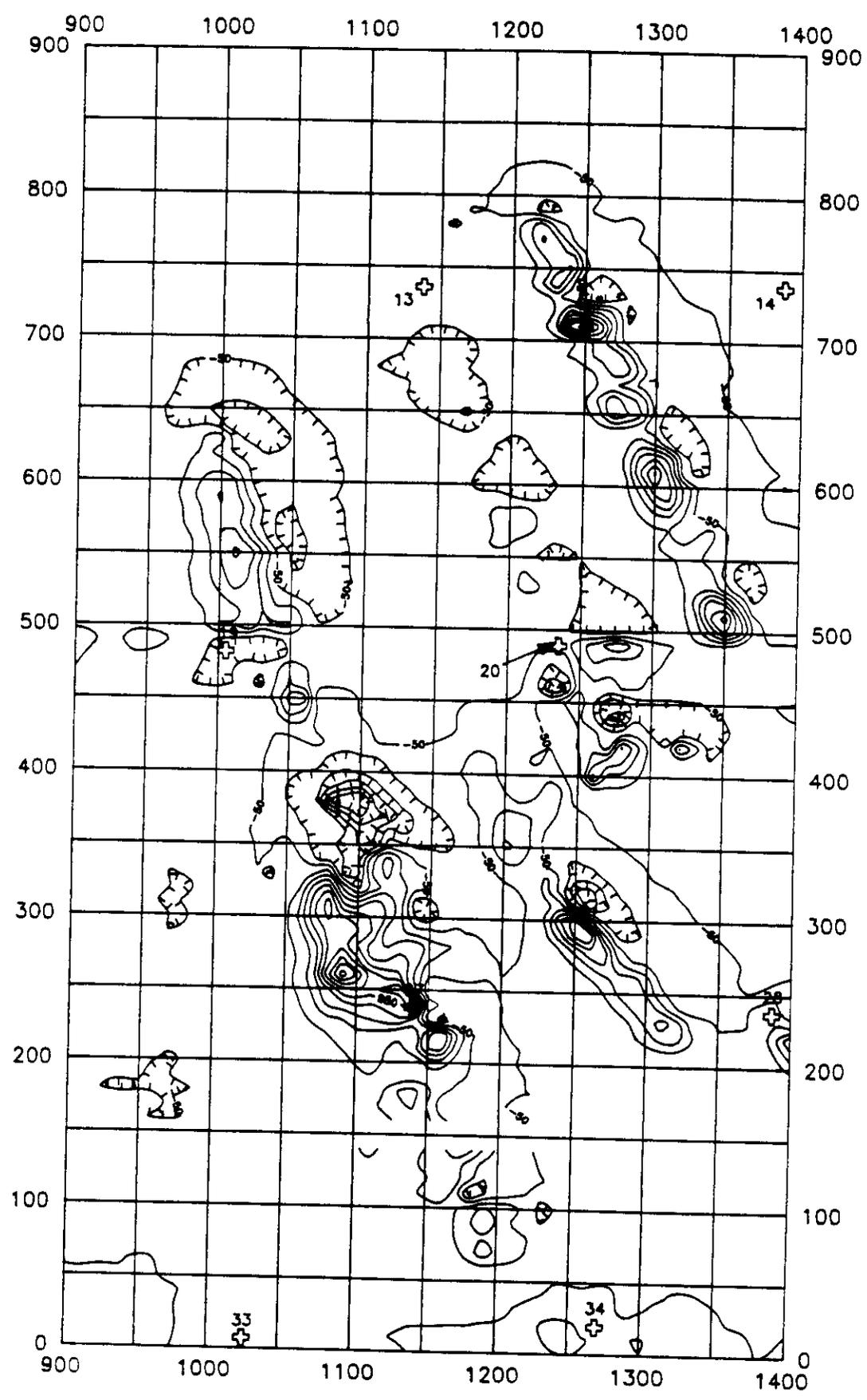
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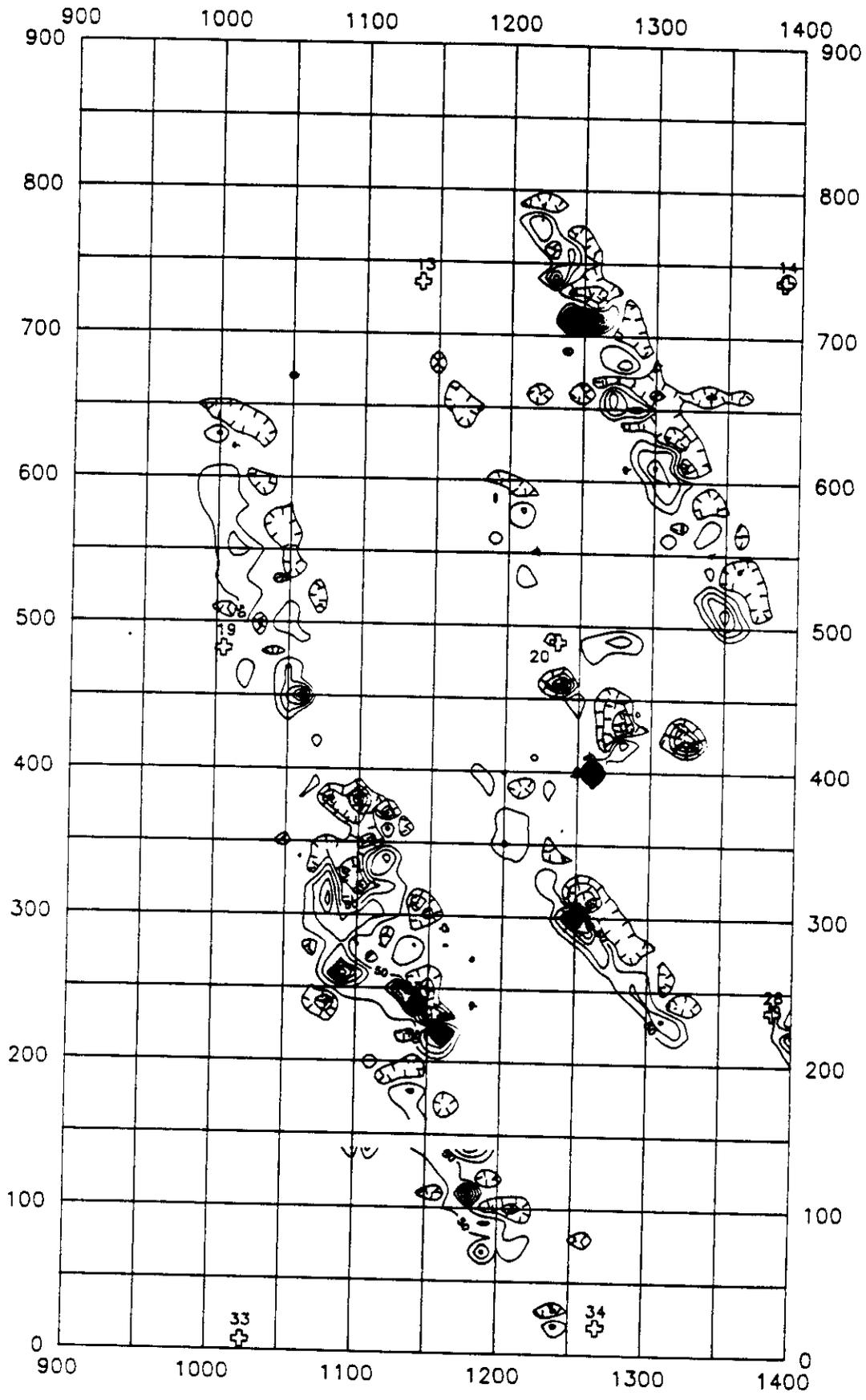
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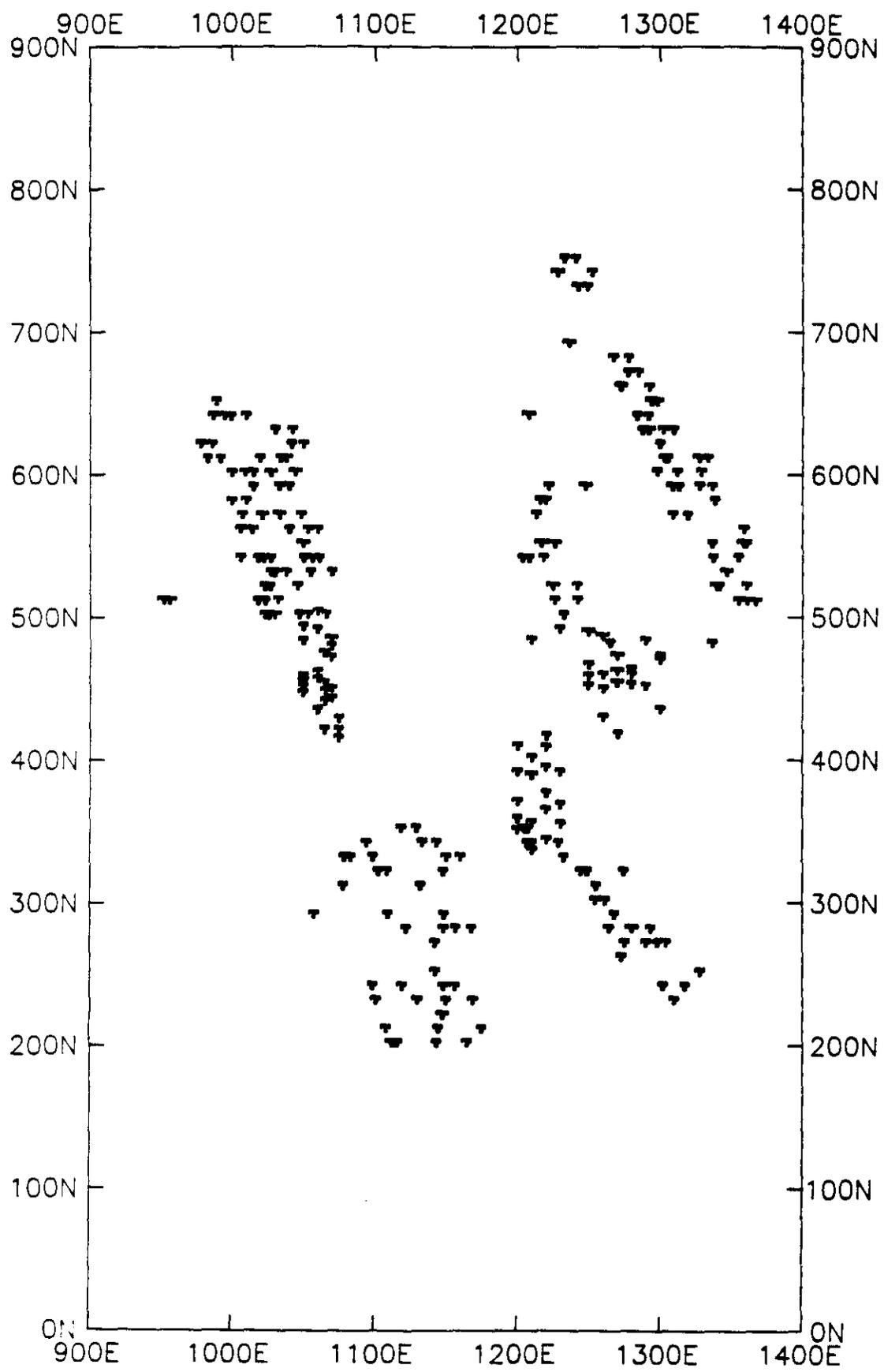
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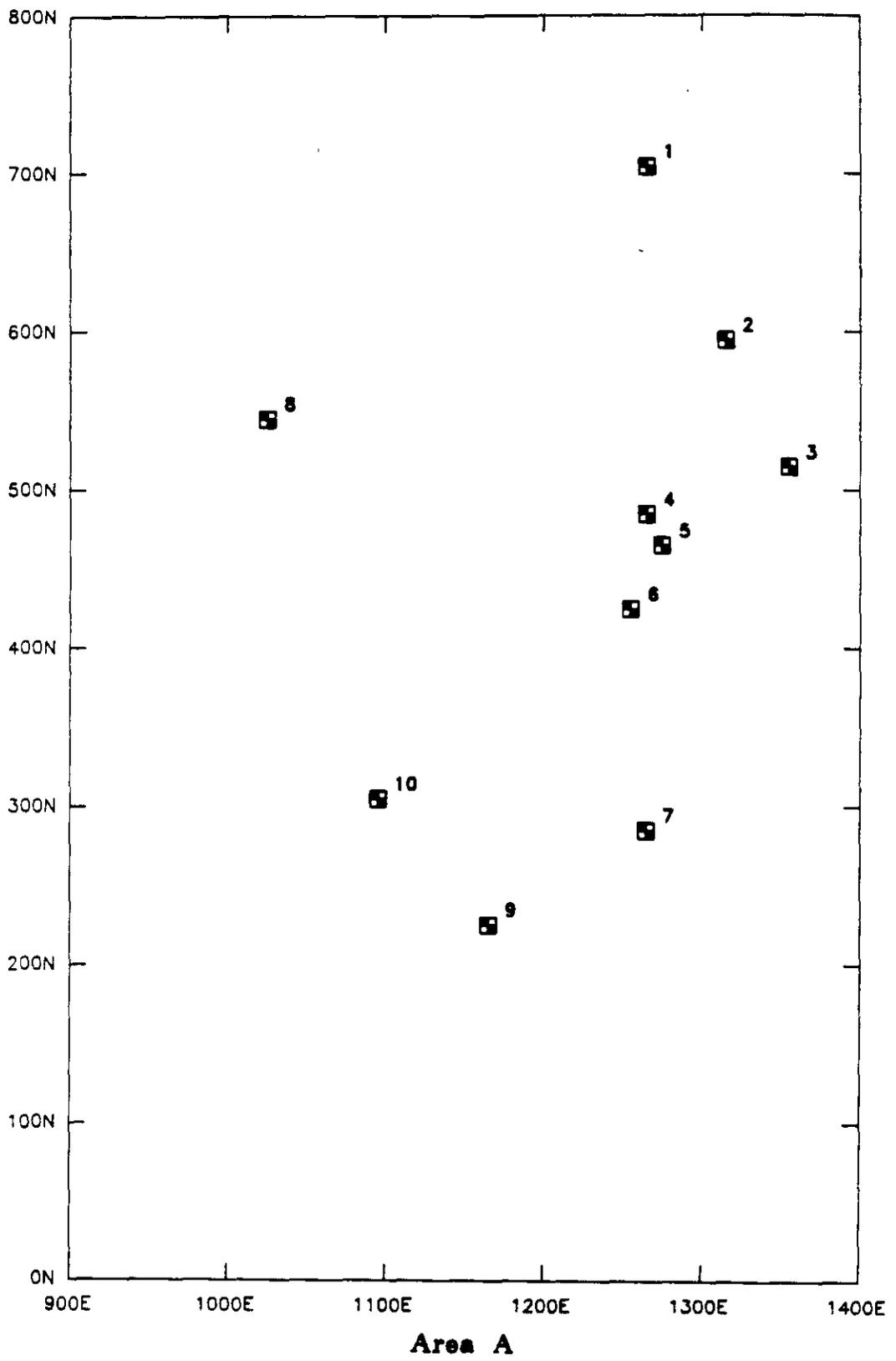
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GPR TARGET MAP

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PROPOSED TEST PIT LOCATIONS

GPR Target Criteria and Number of Targets

Target Character	Depth (ft)		
	0-5	5-10	>10
Parabolic, Ringing	51	51	18
Flat-lying Ringing	26	53	15
Chaotic	10	24	5

Test Pit Location Criteria

- EMI Quadrature: >20 mmhos/m; >20 ft diameter
- EMI In-Phase: >50 ppt; > 20 ft diameter
- Total Magnetic Field Anomaly: >300 gammas; > 40 ft diameter
- Total Field Gradient: > 50 gammas/ft; > 20 ft diameter
- High Amplitude, well defined GPR target within threshold areas

General Test Pit Program Logic

- Perform one test pit in each trench to evaluate general nature of trench materials
- Proceed with additional test pits only if initial test pits reveal potentially hazardous materials (i.e. drums)
- Excavate to 10 ft and evaluate materials prior to deeper excavation
- Minimize disturbance to landfill and avoid disrupting soil gas monitoring program

Proposed Test Pit Ranking

Rank	Test Pit Number	Comment
1	4/5	<ul style="list-style-type: none">• Adjacent to soil gas probe 20, which detected carbon tetrachloride
2	2	<ul style="list-style-type: none">• Peak magnetometer anomaly in trench #2• Multiple GPR targets
3	7	<ul style="list-style-type: none">• Peak magnetometer anomaly in trench #3• Peak EMI anomaly
4	8	<ul style="list-style-type: none">• Peak anomaly in northern part of asbestos trench• Flat lying ringing GPR target - shallow
5	10	<ul style="list-style-type: none">• Center of magnetometer anomaly

Scope of Work

Characterization of the Horn Rapids Landfill Burial Trenches 1100-EM-1 Operable Unit

1.0 Objectives and Scope

1.1 Objectives of Activity

This Scope of Work describes characterization activities planned to determine the contents of burial trenches in the Horn Rapids Landfill (HRL) in the 1100-EM-1 Operable Unit. This work is necessary to implement the CERCLA Phase-2 Remedial Investigation for the 1100-EM-1 Operable Unit.

The characterization work will take place in the Horn Rapids Landfill at past locations of trenching and disposal of waste materials (burial trenches). The number of test pits and specific locations have not been determined, but it is assumed that there will be 11 test pits located within the burial trenches shown on Attachment 1. The specific locations will be determined by 15 July 1991 following completion of geophysical survey reports which will identify areas where significant quantities of metallic materials (possibly drums of waste) have been buried. The final locations will be outside of areas of known hazards such as the burial trench containing asbestos material, a PCB spill area, and areas where surface chromium contamination of chromium were found.

The test pits will be excavated to identify the types of waste material disposed of in the trench, and to substantiate or disprove anecdotal information alluding to the disposal of significant quantities of solvents and other hazardous materials. Handling and containerizing of contaminated material encountered during the excavation of the test pit will be required.

1.2 Scope of Work

The test pit excavations and sampling will be conducted in accordance with EII 5.2 Appendix F, Surface Sampling Method (Test Pits/Trenches). The depth of the test pit excavation will be to undisturbed material (the bottom of the trenches may be up to 20 feet deep) and will vary from one test pit to the next. The excavation will not proceed into or beyond the water table or any perched water bearing intervals. The lateral extent of the excavation will be sufficient to achieve the required depth maintaining a 1:1 slope to prevent collapses of the test pit. The backhoes available on-site do not have a sufficient reach to excavate to the 20 foot depth without construction of a staging area at an intermediate depth (see Attachment 2 for assumed plan

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and section for excavation). If possible, backhoes having a 35 foot reach will be leased or rented so the test pit can be excavated entirely from the existing ground surface.

Containers or articles suspected of being contaminated and soils with visual indications of contamination will be sampled and containerized as directed by the field coordinator (see Sampling Plan for Characterization of Waste Encountered During Excavation at Horn Rapids Landfill Burial Trenches).

WHC has completed radiation and monitoring activities and the site has been released. All work shall be carried out in accordance with a pre-job safety plan as described in EII 2.1 of WHC-CM-7-7.

2. Task Descriptions

2.1 General: Prior to beginning excavation, site specific geophysical surveys will provide guidance as to the location and depth of suspected wastes. It is anticipated that backhoes and crawler tractors (dozers) will be used to remove any material which overlies the suspected waste materials (identified by the geophysical surveys). Top soil (if any) shall be stripped from the excavation area and stockpiled separately from all other materials. This top soil shall be spread over the excavation area upon completion of backfilling the test pit.

The backhoe will be located at the east or west end of the test pit, up-wind of the excavation, and the spoil pile accumulated to the south of the backhoe. An effort will be made to segregate material having high concentrations of trash and debris from soil material that is relatively free of debris into separate spoil piles. As the excavation nears the zone containing the suspected waste material, the excavation will be more cautious and will principally be by backhoe.

The initial excavation will not be closer than 12 inches to suspected buried waste. A pilot hole will be excavated by hand, for the last 12 inches, into the waste zone. The shovels and other equipment used will be spark-proof. Vapors and gases will be carefully monitored during the excavation of the pilot hole. If the target zone consists of innocuous debris, then excavation will proceed using the backhoe. If drums of wastes or contaminated soil is present in the target zone, then contingency procedures will be followed.

2.2 Investigation Derived Waste: The investigation derived wastes generated in the course of the test pit excavation shall be handled in accordance with the provisions which follows and portions of EII 4.3, Investigative Derived Waste as indicated

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below. Based upon observed surface debris and the types of local operations which may have disposed of wastes in the landfill, the debris is believed to generally be innocuous construction debris and trash. The excavated material from the test pit will be subjected to field screening as outlined in section 6.4, "Suspected Hazardous Waste Field Determination and Collection" of EII 4.3. The control, use, handling, maintenance, and calibration of the field screening equipment shall be in accordance with WHC-CM-7-7, EII 3.2, "Health and Safety Monitoring Instruments." The screening shall be conducted at regular intervals not to exceed every 10th bucket of material excavated by the backhoe and as directed by the Field Team Leader based upon his observations of the materials being excavated. Material identified by the field screening as suspected hazardous materials will be containerized within 72 hours of being excavated. The stockpile of material waiting to be containerized shall not exceed 50 cubic yards at any time.

Excavated 55 gallon drums, found to be empty, will be stored in salvage drum overpacks. Small items and soil will be stored in 55 gallon drums, and large or awkward items will be stored in 448 wood burial boxes. Waste containers shall comply with section 5 (including subsections), "Requirements," Section 6.1, "Container Preparation," section 6.6, "Sealing Container," section 6.7 (including subsections), "Management of Waste Containers," section 6.8, "Final Disposal," section 6.9, "Reporting," and section 6.10, "Records."

Non hazardous wastes, such as wood, construction debris, municipal type trash and soil materials determined not to be contaminated (based upon field screening) and materials classified as "Unknown Waste" in EII 4.3 will be stockpiled (spoil stockpile) adjacent to the test pit. Soil material which is relatively free of trash and debris will be stockpiled in a stockpile separately from the spoil stockpile containing trash and debris. Water shall be sprayed over the surface of the pit and the spoil stockpiles as outlined in the Safety Documentation for the Characterization of the Horn Rapids Landfill at the Hanford Site 1100-EM-1 Operable Unit, Operational Safety Limit, to prevent problems with blowing dust.

Decontamination fluids, Personal Protection Equipment and other materials used in the work (such as rags) shall be managed in accordance with section 6, "Procedure" of EII 4.3.

2.3 Backfilling the Test Pit Excavation: Upon completion of excavation, the bottom and sides of the test pit will be compacted by tamping with the bucket of the backhoe to reduce the permeability of the surface. Water will be sprayed onto the surface of the excavation during tamping to moisten the soil and facilitate compaction. The test pit will be backfilled using material from the spoil stockpile. As backfilling proceeds,

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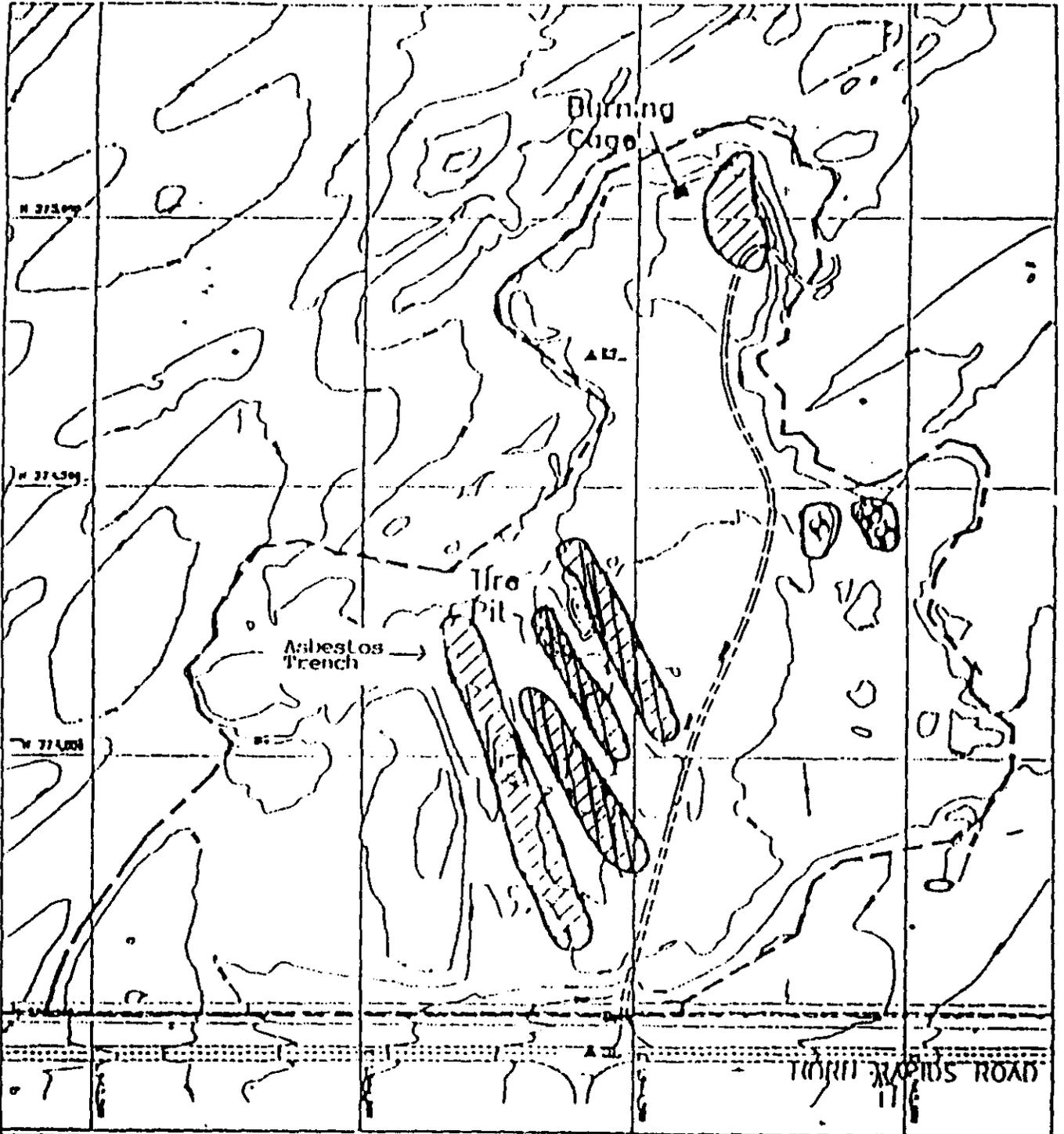
trash and debris will be placed in the lower portion of the trench and soil materials which are relatively free of debris will be used as a cap and the area dressed with top soil (if any top soil was present at the site).

2.4 Health and Safety Requirements/QA: Radiological controls and industrial safety will be in accordance with the Hazardous Waste Operations Permit (HWOP) and Radiation Work Permit (RWP).

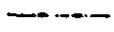
3. Contingency procedures shall be implemented to deal with unexpected situations, such as significant quantities of contaminated soil or containers of liquid contaminants. These contingency procedures will be consistent with the safety assessment for this work. Contingency procedures are shown in Attachment 3.

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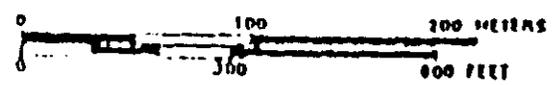


LEGEND:

-  Estimated Landfill Boundary
-  Burial Trench
-  Proposed Stage 1 Boring Location
-  Fence



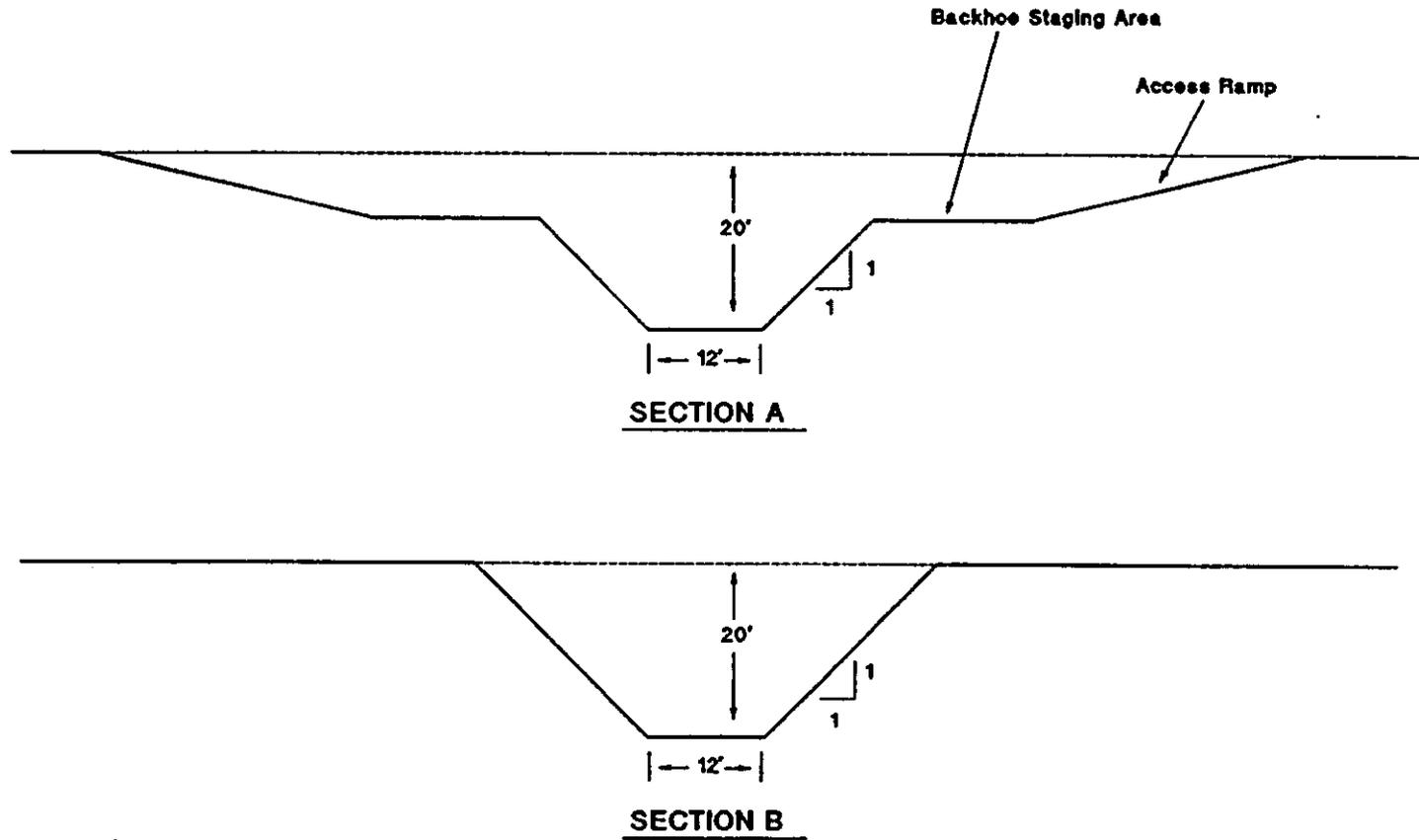
Burial Trenches to be Invest. by Test Pits



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June 6, 1991

DRAFT DRAFT

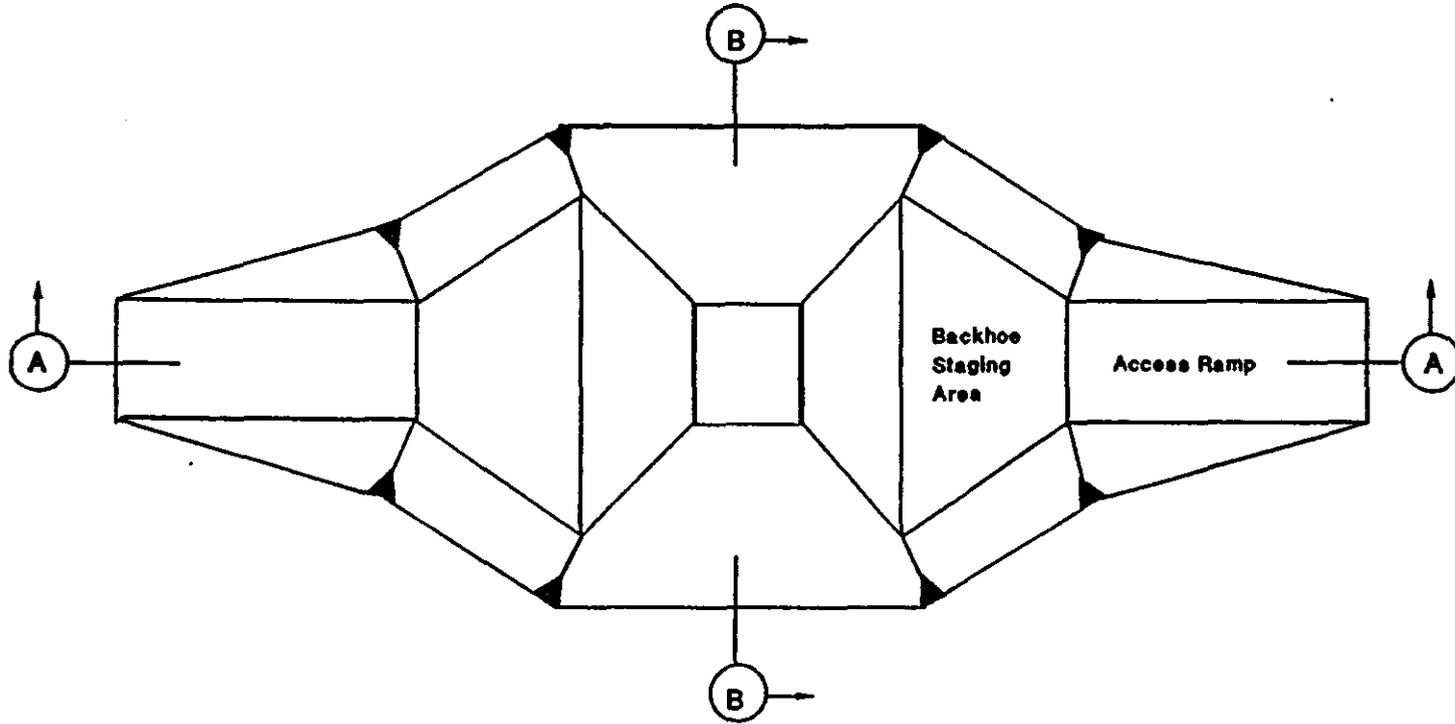


HORN RAPID LANDFILL INVESTIGATIVE REPORT

1991/06/06

June 6, 1991

DRAFT DRAFT



PLAN OF EXCAVATION

Excavation Volume = 1,200 cy

Surface Area = 5,800 sf

Contingency Procedures
HRL Test Pit Excavation

1. Detection of Hazardous Vapors or Gases

If hazardous vapors or gases are detected by the monitoring equipment or indicated by odors, all work will cease while the situation is evaluated by the SSO. If the SSO gives the signal to evacuate the site, then all personnel will immediately leave the excavation area and assemble at a pre-determined command post for further instructions from the SSO/FTL. Work will resume after the workers have the necessary personal protection equipment (PPE) (as required by the HWOP or directed by the SSO) or the vapors and gases have dissipated. When workers can reenter the excavation area, they will attempt to remove the source of the vapors or gasses (such as drums or contaminated soil) before proceeding with the excavation of the test pit.

2. Contaminated Soils

If contaminated soils are encountered during excavation, work will cease while the situation is evaluated by the SSO. The SSO will direct the wearing of personal protection equipment as warranted by the quantity of contamination encountered and the degree of exposure of individual workers. In most cases, only those workers directly handling the contaminated soils, such as laborers placing the waste materials in containers, will require personal protection equipment. The type of PPE used will be as required by the HWOP and directed by the SSO.

Soil in the open excavation will be immobilized with a soil fixative as necessary to prevent contamination spread. The HPT with HPT Supervisor and Site Safety Officer (SSO) concurrence will set a wind speed restriction on excavation if contamination is found. The contaminated soil will be removed from the excavation prism and containerized as described in section 2.2, "Investigation Derived Waste" of the Scope of Work. If the zone of contaminated soil extends beyond the limits of the excavation, so that the slope of the excavation would be undermined if the soil were removed, then the contaminated soils shall be removed to be flush with the 1:1 slope and that portion of the slope covered with 2 layers of 10 mil plastic. The plastic will extend three feet beyond the edges of the contamination and will be securely anchored with wooden stakes.

3. Contaminated Debris

If small quantities of debris contaminated by hazardous wastes, such as partially filled cans of solvent, contaminated

the event vessels are found other than drums, stop work and consult management. An approved special Procedure Change Authorization (PCA) will be required before work can be performed on other vessels, however, work can continue on drums. If the ambient temperature is above 60° F, check the drum lid temperature. If the drum top temperature is above 60° F, it will be necessary to cool the drum lid with a cup of liquid argon. Minimize lid exposure to direct sunlight. Allow argon to cool drum lid, then re-check temperature to assure it is 60° F or less.

Depending upon the field conditions, scaffolding and/or planking may be used to support personnel when working over drums. The site safety officer and field team leader will jointly verify that planking and/or scaffolding are adequate to support personnel and that there is no risk of cave-ins.

The SSO representative will test the drum vapor space with the combustible gas analyzer and chemical gas analyzer to determine drum vapor conditions. The depth of liquid will also be checked with a wooden dip stick. The sampling team will then sample the drum contents, with an HPT present to survey the sample. The liquid depth and other results will be recorded on the data sheet. Drip pans and extreme caution will be used when sampling to avoid dripping from the sample tubes. Samples from the drum will be tested in accordance with the Sensidyne/Haztech Hazcat Kit so that the nature of the waste can be determined. Further handling of the liquid wastes should consider the test results.

4.3 Drums with Failed Lids

Drums having failed lids and filled or partially filled with soil will be checked for moisture and/or free liquids, organic vapors, and the presence of radiation. If none of these are present, the drum and contents will be placed in the spoil pile. If moisture, free liquids (non-pumpable), organic vapors, or radiation are present, the drum will be removed intact, and packaged in an 85-gallon salvage drum.

4.4 Liquid Transfer to New Drums

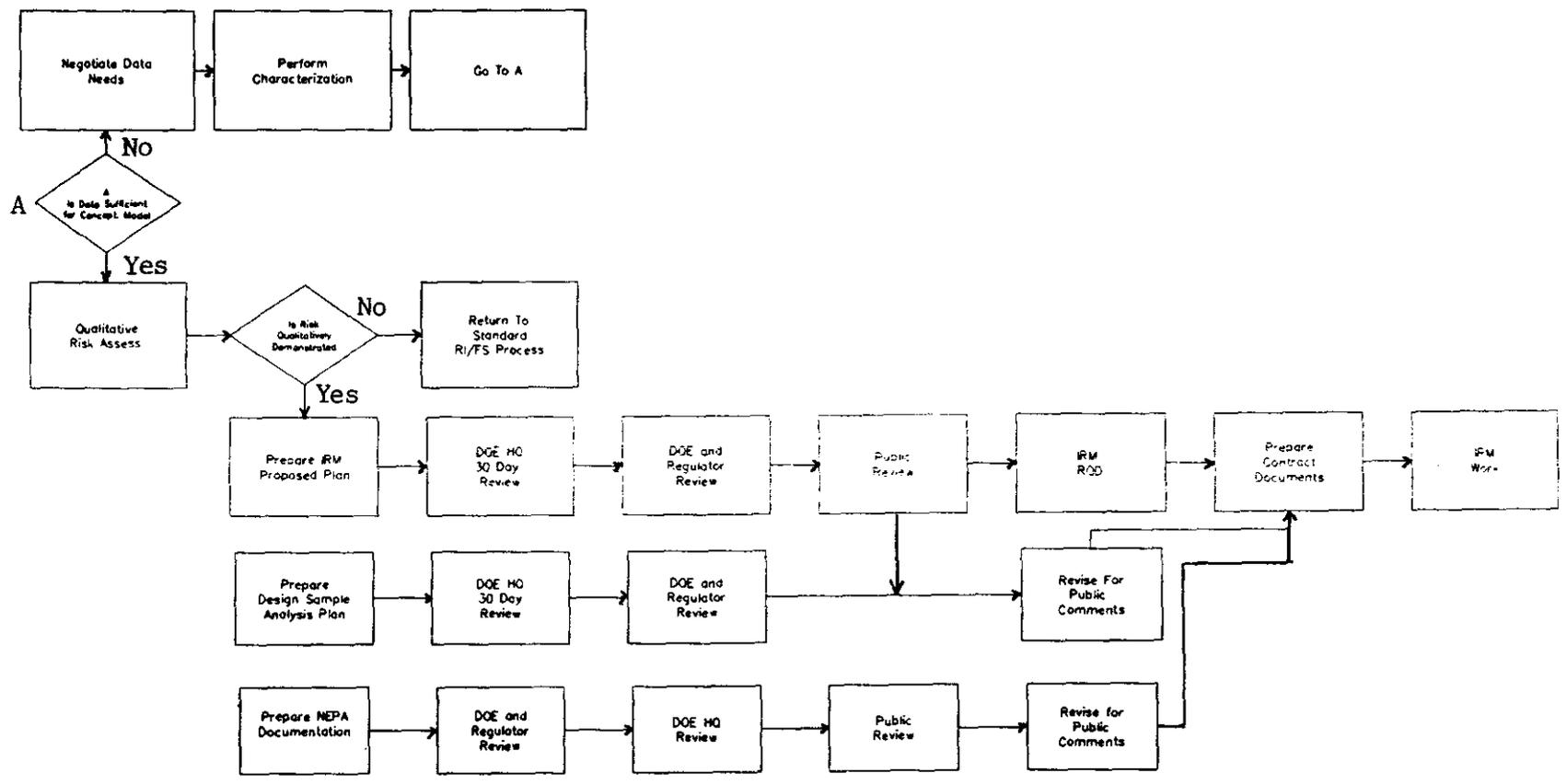
If the drums contain pumpable liquids, the system shown in Attachment 4 will be used to recover the liquids. The recovered liquids will be stored in DOT 17-E drums placed inside a salvage overpack drum. If liquid depth exceeds 26.4-inches, two receiver drums must be used. Stainless steel drums may only be pumped with an approved special PCA. A ground cable must be attached to the drum (as shown on Attachment 4) prior to beginning pumping to prevent sparking from static electricity.

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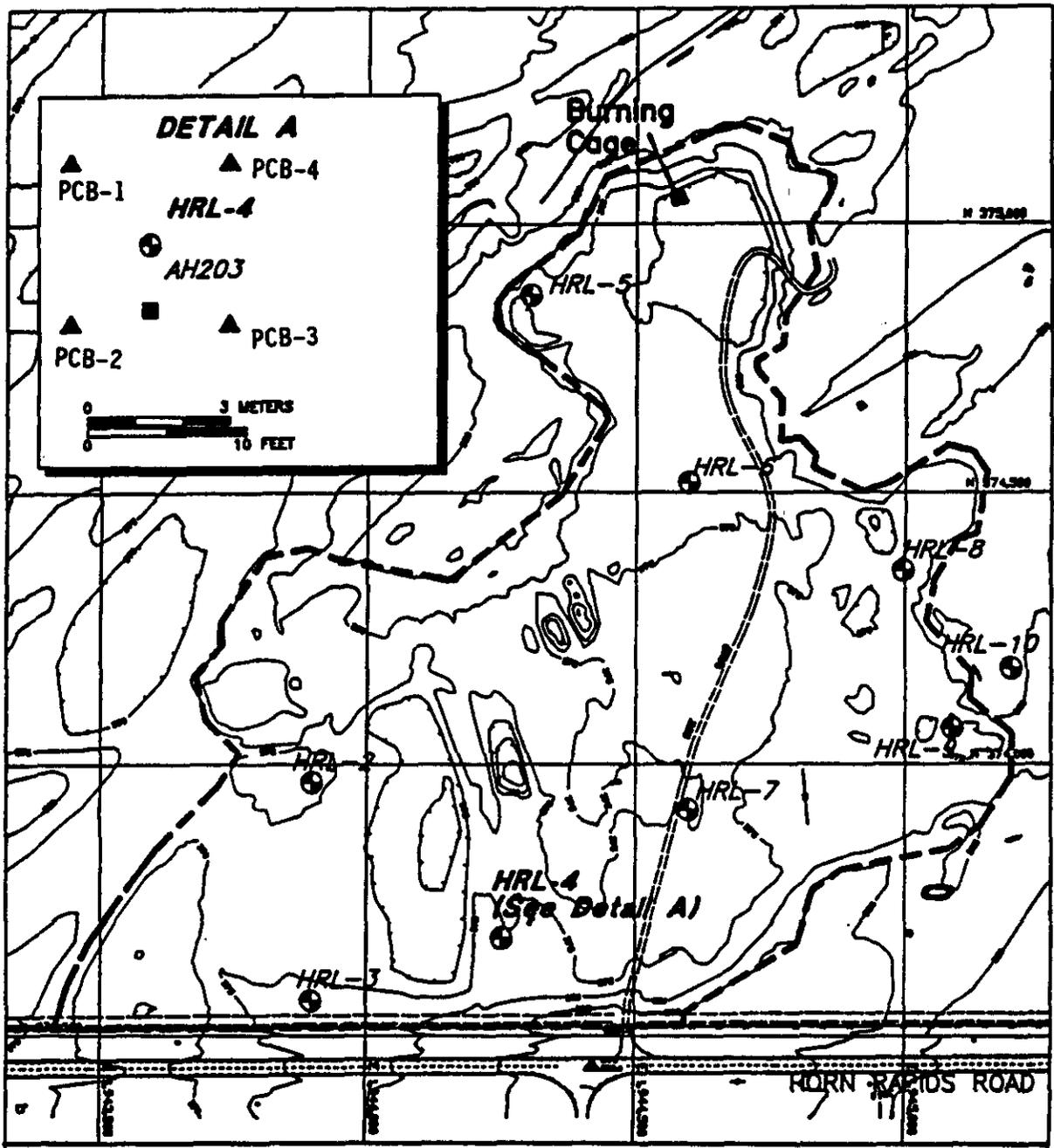
The receiving drum will be treated with 2 cups of argon liquid or 2 cups of crushed dry ice to render the drum inert. At minimum of 5 minutes will allowed for the dry ice to evaporate and render inert the drum vapor space. After insertion of the dip tub/vent assembly into the drum, the transfer will begin by slowly opening the nitrogen header valve on one dewar flask and then slowly opening the supply valve on the pump. The pump will be operated at moderate speed (approximately 30 strokes/minute) until the buried drum is empty. If the pump system should leak or a spill occur, any spilled liquid will be absorbed, and any solvent-soaked soil or absorbent transferred into a waste storage drum. When the pump begins to draw vapors, as evidenced by change in pump speed, allow the pump to run at moderate speed for another 2 minutes to complete emptying the transfer hose. When the drum is empty, the suction assemble will be removed from the buried drum and placed in the next drum to be pumped. A steel drip pan containing absorbent material, will be held under the suction assembly as it is moved to prevent dripping and spills. If the drum suction assembly must be stored, place it into a drum designated and marked for that purpose. Contents from one drum shall not be placed into a common receiver drum with the contents from another drum. The liquid level in the receiver drum will be measured with a wooden dip stick and the depth recorded on the data sheet. All receiver drums will be labeled as required by WHC-CM-2-14. If the liquid depth in the drum exceeds 26.4-inches, transfer enough liquid to another drum to reduce the level to 26.4-inches or less. Close the receiver drum and seal the overpack drum. When both receiver drums on a pallet are filled, the pallet may be moved to the drum storage area. Drums will be pumped and removed (to provide access to other drums) on a one-at-a-time basis until all drums have been emptied. The emptied drum will be sealed with a new bung cap (if bung was used), wooden or rubber plumb, or tape and plastic if a new drum opening was made.

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INTERIM REMEDIAL MEASURE Flow Chart



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SAMPLE SITE	DEPTH (ft.)	AROCLOR 1248 (ppb)
PCB-1	0-1	49,000
PCB-1	1-2	41,000
PCB-2	0-1	80,000
PCB-2	1-2	100,000
PCB-3	0-1	6,100
PCB-3	1-2	15,000
PCB-4	0-1	21,000
PCB-4	1-2	1,500

PCB Sample Results for HRL

DON'T SAY IT --- Write It!

DATE: July 1, 1991

TO: Chuck Malody ANF FROM: Wendell Greenwald USACE

Telephone: 6-9698

cc: Steve Clark
Bob Stewart

WHC
DOE

SUBJECT:

Request that ANF Provide Ground Water Data.

9 1 1 2 3 7

During the meeting on June 26, 1991 at your offices, it was agreed that DOE would provide ANF with a list of data required for the Horn Rapids Landfill (HRL) ground water investigation. Ground water chemistry and water surface data is required from wells at the following locations:

1. Data from background wells monitoring the flow of contaminants onto the HRL are necessary to write the Phase 2 Remedial Investigation/Phase III Feasibility Study report (RI/FS). Background for the HRL would be defined by wells located at the down gradient edge of ANF property. These wells would identify the wastes and distribution (plume delineation) of wastes carried by the ground water across the ANF property line to the HRL. Existing wells that would serve this purpose are wells number 14, 15 and 16 (if the Regulators consider them acceptable). If ANF has plans to install additional wells between the south pit and the HRL, data from these additional wells would be of interest to DOE.
2. Additionally, the RI/FS report will require delineation of the plume of wastes within the ground water on ANF's property. Wells for this purpose should provide a rough approximation of the volume and distribution of wastes which could cross from ANF onto the HRL at some future time. Existing wells which would serve this purpose are well numbers 9, 1, 2, 19, 4, 21 and 12 (if the Regulators will accept data collected from these wells).
3. Defining background conditions up gradient of ANF may be important to DOE's investigation depending upon the future direction provided by the Regulators and whether the RI/FS report considers ground water contamination only on DOE property or both ANF and DOE property. Wells which would serve this purpose are well numbers 22, 23, 24 and 25 (if the Regulators will accept data collected from these wells). If

ANF installs additional wells up gradient of the South Pit, data from these additional wells would be of interest to DOE.

Each well should be measured monthly for water surface elevation at approximately the same time period that the DOE monitoring wells are measured. Please coordinate with Don Moak (WHC, Environmental Field Services, Tel. 376-2312) on the anticipated dates for the DOE monitoring well reading. Additionally, please coordinate with Mr. George Evans (WHC, RR/ENV, Tel. 376-8939) to establish a common survey bench mark for the ground water surface elevations.

It is requested that the indicated wells be sampled and analyzed in August and November 1991 concurrent with sampling of DOE's monitoring wells. Please coordinate with Mr. Bruce Ford on the anticipated dates for the DOE sampling. Each well listed above should be sampled and analyzed for the contaminants of concern and analysis methods consistent with the objectives of the investigation. These objectives are as follows:

1. Compare upgradient ground water quality (background) with ground water quality at the HRL. This data will be used in the RI/FS report risk assessment which will determine the health risk posed by wastes (above background levels) in the ground water at HRL.
2. Compare background with ground water quality at the HRL and determine the quantity of waste above background. This will be used to determine the level of clean-up required by ARAR's (Model Toxics Control Act).
3. Identify the wastes, determine the approximate volumes of wastes and concentrations of wastes present in the ground water. This data will be used in evaluating remediation methods and determining which method is the most appropriate.

It is important that the radiochemical analyses accurately identify the isotopes and the concentrations of these isotopes. Evaluation of remediation methods is especially dependent upon the results of these analyses.

Your consultants may develop the contaminants of concern and analysis methods which are consistent with the objectives of the investigation, or you may use the list of contaminants and analysis methods which are presently used in the analysis of ground water samples at the HRL and shown in Table I. If you use laboratory methods other than the ones shown in Table I, please provide DOE with a description of the contaminants tested for, the analysis methods used and the validation of the analysis results (if any).

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TABLE I
ANALYTICAL METHODS FOR GROUND WATER SAMPLES

Analytes of Interest	Analytical Method	CRQL ^a	Precision ^b	Accuracy ^b
TCL Volatile Organics	CLP ^c	CLP ^c	±25	75-125
TCL Semivolatile Organics	CLP ^c	CLP ^c	±25	75-125
TCL Pesticide/PCB's	CLP ^c	CLP ^c	±25	75-125
TAL Inorganics	CLP ^c	CLP ^c	±20	75-125
Alkalinity	310.1 ^d	10,000 µg/l	±20	75-125
Ammonia as Nitrogen	350.3 ^d	30 µg/l	±20	75-125
Bromide	300.0 ^e	250 µg/l	±20	75-125
Chloride	300.0 ^e	10,000 µg/l	±20	75-125
Chemical Oxygen Demand	410.1 ^d	1,000 µg/l	±20	N/A
Coliform	502.1 ^f	1 col/100ml	±50	50-150
Specific Conductance ^g	120.1 ^d	25 µmhos/cm	±20	N/A
Fluoride	300.0 ^e	100 µg/l	±20	75-125
Nitrate	300.0 ^e	100 µg/l	±20	75-125
Nitrite	300.0 ^e	100 µg/l	±20	75-125
pH	150.1 ^d	N/A	N/A	N/A
Temperature ^g	170.1 ^d	N/A	±1°C	N/A
Phosphate	300.0 ^e	500 µg/l	±20	75-125
Sulfate	300.0 ^e	2,000 µg/l	±20	75-125
Dissolved Oxygen ^f	360.1 ^d	100 µg/l	±20	N/A
Total Dissolved Solids	160.1 ^d	10,000 µg/l	±20	N/A
Total Organic Carbon	415.1 ^d	1,000 µg/l	±20	75-125
Total Organic Halides	9020 ^f	5 µg/l	±20	75-125
Turbidity	180.1 ^d	0.05 NTU	0.05 NTU	N/A
Gross-Alpha	900.0 ^h	7.5 pCi/l	±20	75-125
Gross-Beta	900 ^h	25 pCi/l	±20	75-125
Gross-Gamma	900 ^h	10 pCi/l	±20	75-125
Isotope Identification	900 ^h	N/A	N/A	N/A

a CRQL = Contract required quantitation limit, values are to be considered requirements in the absence of known or suspected analytical interferences which may hinder achievement of the limit by the contract laboratory.

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- 9 1 1 2 1 3 1 4 1 5 1 6 1 7 1 8 1 9 0
- b Precision is expressed as relative percent difference; accuracy is expressed as percent recovery. These limits apply to sample results greater than five times the CRQL and are to be considered requirements in the absence of known or suspected analytical interferences which may hinder achievement of the limit by the contract laboratory.
 - c CLP = methods contained in USEPA Contract Laboratory Program Statement of Work for Organic Analysis: Multi-Media Concentration, U.S. Environmental Protection Agency, Sample Management Laboratory, Washington, D.C. and USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis: Multi-Media, Multi-Concentration, U.S. Environmental Protection Agency, Sample Management Laboratory, Washington, D.C.
 - d Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
 - e Lindahl, P.C., 1984, Determination of Inorganic Anions in Aqueous and Solid Samples of Ion Chromatography, EPA-600/4-84-017, Argonne National Laboratory, Argonne, Illinois.
 - f Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water; U.S. Environmental Protection Agency, Washington, D.C.
 - g Parameter measured in the field.
 - h Krieger, H.L., and E.L. Whittaker, 1980, Prescribed Procedures for Measurement of Radioactivity in Drinking Water, EPA-600/4-80-032, U.S. Environmental Protection Agency, Office of Research and Development, Cincinnati, Ohio.
 - i The Environmental Survey Manual, Appendix D, DOE/EH-0053, U.S. Department of Energy, Office of Environment; Washington, D.C.
 - j Standard Methods for the Examination of Water and Wastewater, 16th Edition, American Public Health Association, Washington, D.C.

ANF Groundwater Activities

1. Main Activity: Developing a Groundwater Investigation Scope of Work/Workplan

- Review of on-site and off-site data (wells, water quality, potential sources of contamination, etc.)
- Review of DOE/COE Reports, work plans and procedures manuals (well drilling, sampling and analysis, etc.)
- Review of regulatory objectives and requirements

Objectives:

- Define nature and extent of groundwater contamination on ANF property
- Distinguish ANF's potential contribution from South Pit, HRL and other potential sources
- To the extent feasible, consistency with DOE/Study
- Develop scientifically valid data
- Meet regulatory requirements

Work Product: Scope of Work/Work Plan identifying well locations, well design, well installation; groundwater quality sampling and analysis program; methodology for attaining objectives; QA/QC program.

Schedule: By late August/early September *a G.W. WP*

2. Have Completed:

- Limited review of on-site/off-site well and water quality data
- Review of Phase II RI Supplemental Work Plan
- Review of potential regulatory requirements

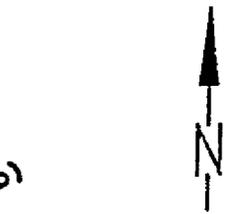
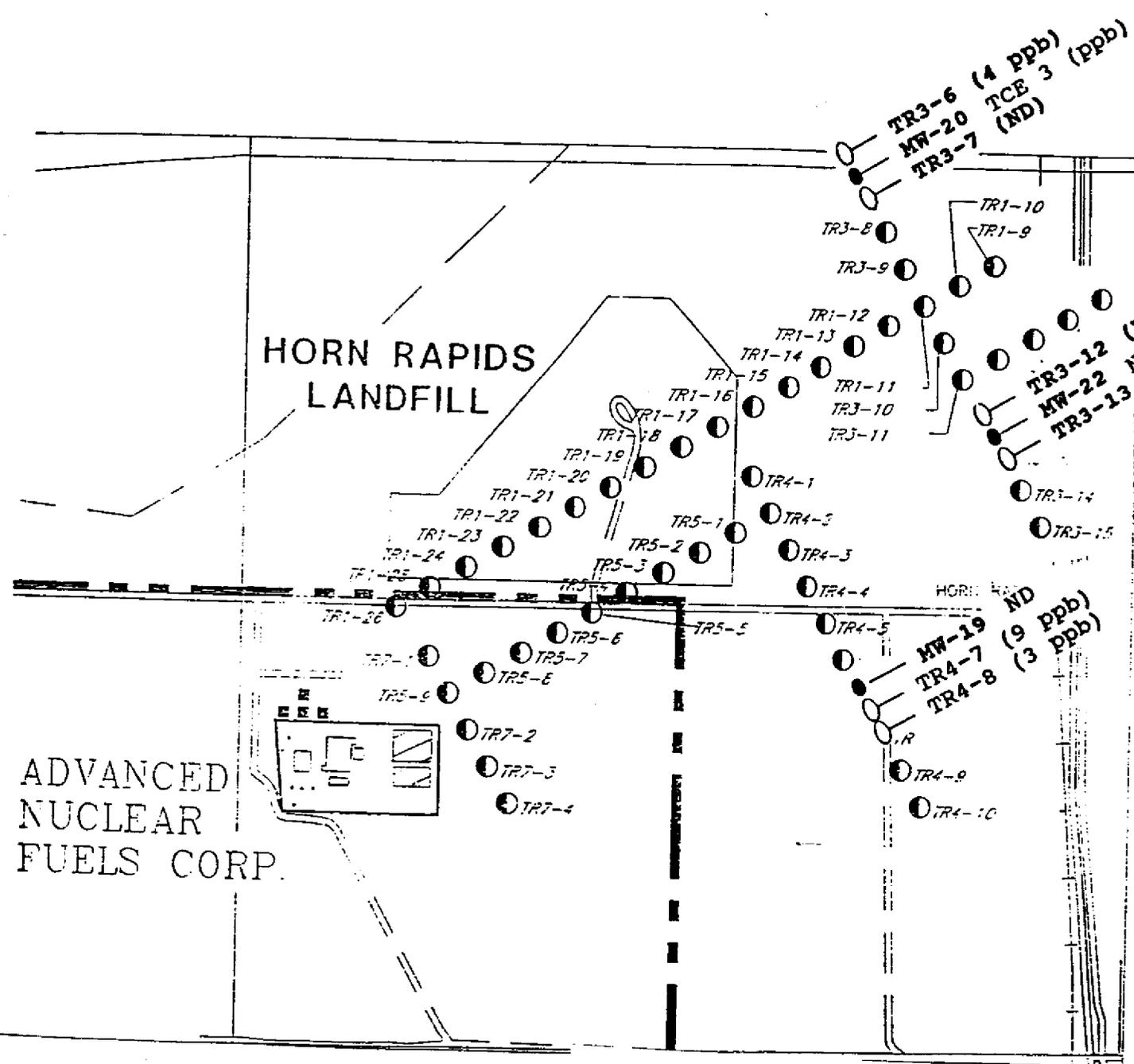
3. Still to be done:

- Compilation/Review of DOE/COE reports
 - Final RI available?
 - Summary of all groundwater quality results?
 - Final FS available?
 - Other reports?
- Need to obtain/review complete set of procedures manuals (EII's) requested from COE

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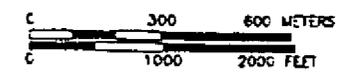


PREVIOUS SOIL GAS SURVEY

TR1-5 ○ Soil Gas Sampling Location and Designation

Soil Gas Survey 15-20 May 1991

○ TR4-5



Monitoring Well Sampling Results
New Monitoring Wells