NOTICE

All drawings located at the end of the document.

0000091684
CORRES. CONTROL
OUTGOING LTR NO.

93 RF 11421

DIST.	LTR	ENC
BENEDETTI, R.L.	X	
BENJAMIN, A.		
BERMAN, H.S.		
BRANCH, D.B.		
CARNIVAL, G.J.		
COPP, R.D.		
DAVIS, J.G.		
FERRERA, D.W.		
HANNI, B.J.		
HARMAN, L. K.		
HEALY, T.J.		
HEDAHL, T.		
HILBIG, J.G.		
KIRBY, W.A.		
KUESTER, A.W.		
LEE, E.M.		
MANN, H.P.	X	
MARX, G.E.		
McDONALD, M.M.		
McKENNA, F.G.		
MONTROSE, J.K.		
MORGAN, R.V.		
POTTER, G.L.		
PIZZUTO, V.M.		
RILEY, J.H.		
SANDLIN, N.B.		
SHEPLER, R.L.		
STEWART, D.L.		
SULLIVAN, M.T.		
SWANSON, E.R.		
WILKINSON, R.B.	X	
WILLIAMS, S. (ORC)		
WILSON, J. M.		
ZANE, J. O.		
Mast EC	M	
Busby WS	X	
OU 5 File	X	
CORRES CONTROL	X	X
ADMIN RECORD		
TRAFFIC		
Record Ctr (2)	X	

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UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE

DOCUMENT CLASSIFICATION REVIEW WAIVER PER

DATE CLASSIFICATION OFFICE

IN REPLY TO RFP CC NO:
N/A

ACTION ITEM STATUS
☐ OPEN ☒ CLOSED
☐ PARTIAL

LTR APPROVALS:
WSB: ECM:

ORIG & TYPIST INITIALS
ECM/dmf

RF-6469 (Rev 3-93)

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

September 15, 1993

93-RF-11421

Richard J. Schassburger
Acting Director
Environmental Restoration Division
DOE, RFO

Attn: J. Pepe

OPERABLE UNIT (OU) 5 MEETING MINUTES REGARDING THE FIELD SAMPLING PLAN - WSB-351-93

This letter transmits the minutes (Attachment 1- 16) for the August 30, 1993 meeting at Advanced Sciences, Inc. (ASI) offices in Lakewood, Colorado regarding the Operable Unit (OU) 5 completion of field activities, the request for an Interagency Agreement (IAG) schedule extension, and the potential for an addendum to the Phase I field activities.

Attachments 1 through 14 address the results of the implementation of the recently completed Field Sampling Plan (FSP) and the presentation on the potential addendum to the Phase I FSP.

Attachments 15 (the minutes) and 16 are the documents from the presentation that was given to the Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH) on the justification for milestone extensions. Advanced Sciences, Inc. was excused from these discussions.

The meeting was attended by individuals from EG&G Rocky Flats, Inc., the Department of Energy, Rocky Flats Office (DOE, RFO), EPA, and CDH. If you have any questions regarding the transmittal, please contact E. C. Mast of Remediation Project Management at extension 8589.

W S Busby

W. S. Busby
Acting Director
ERM/Remediation Project Management

ECM:dmf

Attachments:
As Stated

Orig. and 1 cc - R. J. Schassburger

ADVANCED
SCIENCES, INC.

MEETING MINUTES

DATE: 30 August 1993
SUBJECT: Status of OU5 RFI/RI
LOCATION: ASI Office, Lakewood, CO
ATTENDERS: (Attachment 1)

The meeting convened at approximately 9:00 am. The following is a summary of the significant points made during the meeting.

Issue 1 Agenda of Meeting.

Action 1 Mike Waltermire opened by discussing the agenda of the meeting (Attachment 2) and introducing all involved parties.

Issue 2 IHSS 115 (Original Landfill) Borings in soil gas anomalies.

Action 2 Theresa Santangelo-Dreiling presented the following information. A soil gas survey was conducted at the old landfill. This survey consisted of a total of approximately 345 soil gas points. As stated in the letter to Ed Mast dated May 7, 1993, the survey resulted in the identification of three areas of anomalous concentrations of organic compounds.

The first plume, identified as area A, (Attachment 3) detected 1,1,1-TCA and TCE at peak concentrations of 13 ppb. The boundary line shown represents a concentration of 1.0 ppb. This area was not accessible for a drilling rig therefore well points, 60993 and 61093, were installed here using a hydraulic rig mounted on an ATV. Soil samples were also collected at these locations and sent in for analyses. As seen on the table (Attachment 3), recent water levels indicate that little to no water is present at these locations. Well point 60993 is dry, as it was at the time of installation. And just downgradient from this location at 61093, there is a saturated interval of only 0.19 feet. During the installation of these wells nothing unusual was encountered. There were no readings from the field instruments and no unusual geology.

The second plume, identified as area B (Attachment 3), detected PCE and TCE at peak concentrations of 7.6 and 28 ppb, respectively. Again, the boundary line shown here represents a concentration of 1.0 ppb. Three borings were installed within this plume at locations where the highest soil gas readings were taken. These borings were 58393, 58493, and 58593. Groundwater was not encountered in any of these borings. However, during the drilling of these borings a material which appeared to be graphite was encountered between 1 and 3.2 feet below the

ground surface and ranged in thickness between 3.4 and 8.7 feet. Also, within this material we pulled up what looked like dried up chunks of paint and other debris. When the OVM was placed directly on the material that appeared to be paint at boring 58393, readings of 10 and 3 ppm were registered. There were no other readings indicated from the field instruments on that boring or any of the other borings placed in this anomaly.

The third plume, identified as area C (Attachment 3), detected PCE at a peak concentration of 1.2 ppb. Again, the boundary line shown represents a concentration of 1.0 ppb. Only one boring, 58693, was installed within this plume due to its small size. This boring was installed at the location of the highest soil gas reading. Groundwater was encountered at this boring at a depth of about 12 feet. As per the letter dated May 7, 1993, a one-time water sample was collected using the Hydropunch II system. Also during the drilling of this boring the graphite like material was encountered at a depth of 4.4 feet. The exact thickness of this material at this boring is not known because the hydropunch was installed within this interval. There were no readings indicated from the field instruments at this anomaly.

This generalized cross-section (Attachment 3) shows the estimated graphite thickness within the alluvium and the approximate bedrock depth. Also shown on this figure is the depth of groundwater encountered in boring 58693.

Issue 3 IHSS 115 FIDLER Surveys and Surficial Soil Sampling

Action 3 Doug Dennison began the presentation by restating the purpose of the FIDLER surveys conducted at IHSS 115. The purpose of these surveys was two-fold -1) to better define the source(s) of radiation detected by the 1990 HPGe survey and 2) to identify surface soil sampling locations. A survey grid measuring 300 feet on each side and centered on each of the HPGe anomalies was established. Within this area lines spaced 4 feet apart were slowly walked with the FIDLER.

The results of this survey were then presented by Mr. Dennison. He stated that of the 10 HPGe anomalies encompassed by this survey, anomalous readings with the FIDLER were only obtained within the grids surrounding HPGe stations B-7, B-8, and SP-2 (Attachment 4). Mr. Dennison stated that at those HPGe stations where anomalous FIDLER were not obtained, surface soil samples were collected at the center point of the survey grid (i.e., the HPGe station). Mr. Dennison also explained that two radiologically controlled areas (RCAs) had been established after the HPGe survey near HPGe station SP-2. He stated that the FIDLER surveys confirmed that the piece of metallic material protruding from the ground within the northern RCA at SP-2 was the source of radiation detected at this station. He also stated that no anomalous FIDLER, or other field instrument,

readings were obtained within the southern RCA at this location. Mr. Dennison indicated that EG&G Radiological Engineering would likely request that the RCA posting at the southern location be removed. Therefore, one surface soil sample was collected immediately downslope of the metallic material within the northern RCA.

Mr. Dennison then presented the results of the FIDLER survey in the area surrounding HPGe stations B-7 and B-8 (Attachment 4). The FIDLER survey at these locations identified numerous sources of radiation. As a result of the FIDLER survey, Mr. Dennison explained, nine areas within the grids surrounding these two HPGe stations had been posted as RCAs. Mr. Dennison then explained that surface soil samples were collected from within only 4 of these RCAs. The remaining 5 RCAs were not sampled because pipe, metal shavings, and other large debris within these RCAs appeared to be the source of the radiation detected. Mr. Dennison also explained that the surface soil samples collected within 2 of the RCAs exhibited sufficiently high radioactivity, as detected with field instrumentation, to require that they be counted by EG&G Radiological Engineering onsite to determine proper shipping requirements. In addition, Mr. Dennison discussed the discovery of a radioactive cylindrical-shaped piece of material that was uncovered during surface soil sampling within one of these RCAs. This piece of material was also counted by EG&G Radiological Engineering with a portable HPGe detector. The results of the analyses of the soil samples and of this material were presented as indicated on the figure.

Issue 4 IHSS 115 Well Point Installation

Action 4 As "background and introduction" Paul Jordan stated the purpose of these well points was to help characterize the presence and extent of groundwater contamination. He also stated the following evaluation of both CPT and SOV results and pertinent information from other surveys, as well as discussions at the last meeting, groundwater sampling locations were selected.

He then reiterated that the original criteria as stated in TM-6 was that they would be located at 50-foot spacings through anomalies identified with the SOV survey data. Additionally, one to two groundwater sampling points were to be placed in each significant bedrock low or other suspected migration pathways (i.e. saturated sand). There were no anomalies identified along the lower SOV lines. A total of ten well points were installed. Six locations were identified in three bedrock lows, three where water was encountered with the CPT, and one was placed in the small drainage-way directly downhill (gradient) of the "former ponds".

At this point he displayed an overhead showing the approximate (unsurveyed) locations of the ten well points in IHSS 115 (Attachment 5). He pointed out that

one was moved into the drainage directly below the "Former Ponds" but it was dry.

He stated they range in total depth from approximately 9.79 to 17.75 feet and that during installation there were no anomalous RAD or VOA reading/measurements on any of the equipment or downhole. He then pointed out that there are three dry well points, one almost dry one, and six wet ones. Bonnie Lavelle asked if we are going to continue to monitor the water levels in the well points. Both Ed Mast and Mr. Jordan pointed out that these were to only be measured once but could be measured at later dates.

Mr. Jordan then explained that early in July, they were developed with a single effort (typically to dryness).

He emphasized that one-time samples for chemical analysis were obtained from 6 of the 10 well points. The other four were either dry or had insufficient water to obtain a representative sample. At this time he explained that although not specifically related to these well points, Well Points/Mini-wells 60893, 60993, 61093, and 63193 and springs and seeps well points 62793 and 62893 were also sampled because of their proximity to IHSS 115. Barb DeAngelis of PRC asked what the difference was between a mini-well and a well point was. Mr. Jordan explained that a well point is hand perforated 3/8-inch tubing with sand pack in a 1.25-inch hole and a mini-well is with machine slotted 1/2-inch PVC with sand pack in a 1.5-inch hole. The mini-wells also have protective steel casings with concrete pads and locks. Whereas the well points are not locked.

Mr. Jordan then showed Table 1 (Attachment 5) which is a summary of well point information.

He pointed out that the pH of the samples ranged from approximately 6.3 to 7.1: Specific conductance measurements in the samples ranged from approximately 430 to 2680 µmhos/cm: and the temperature ranged from 17.7 to 21.8. Have not received analytical results for these samples yet. He then displayed a map showing approximate well point locations and pH and specific conductance values. He indicated that in general specific conductance increase towards the middle of the landfill in an east-west direction, which also crudely corresponds to the amount of waste above a given point.

Issue 5 IHSS 115 Monitoring Well Installation

Action 5 Theresa Santangelo-Dreiling presented the following information. According to the OU5 Work Plan, a total of 7 monitoring wells were to be installed stipulating that the exact location, type, and number of monitoring wells will depend on the results of the preliminary Phase I investigations. A letter to EG&G dated June 2,

1993, proposed five wells to be installed downgradient of the landfill and one well to be installed within the old pond area. While we were attempting to install the five downgradient wells, two of the locations turned out to be dry. These locations ended up being boreholes BH59193 and BH59293, and the well locations were moved to where wells 59793 and 61293 are shown in Attachments 3 and 6.

Of the five downgradient wells, only two wells, 59593 and 63193 have a saturated interval to speak of. The remaining wells have minimal to no water. Cross-section A-A' shows the screened intervals of these wells, the water levels encountered at the time of drilling and recent water levels taken in the later part of this month (Attachment 6). This figure also shows the approximate bedrock depth. The well installed in the old pond area has a saturated interval of 8.35 feet. Also shown on this table is the information for the soil gas mini wells. Cross-section D-D' shows the recent water levels and the water levels encountered at the time of drilling in the mini wells and the well installed in the old pond area (Attachment 6).

To sum it up there were a total of eight wells installed either downgradient of the landfill or within the landfill. Three of these wells are mini wells and the remaining wells are 2-inch ID PVC wells. Also, during the installation of these wells there were no anomalous field readings taken.

Issue 6 IHSS 133 (Ash Pits) Surficial Soil Sampling

Action 6 Briefing overheads and figures as presented by Dan Baughn are provided in Attachment 7).

Issue 7 IHSS 133 Investigation of Magnetic Anomaly

Action 7 Doug Dennison presented the currently available information regarding investigation of a magnetic anomaly located west of the 133-Series IHSSs (Attachment 8). Mr. Dennison began the presentation by explaining that this investigation was not within the original scope of the Phase I RFI/RI but was prompted by the apparent lack of success in defining the location and extent of ash pits in this area. He explained that the identification of ash pits and locations of borings within these ash pits was originally based on the correlation of information provided by aerial photograph reviews and geophysical and HPGe surveys. He further explained that the identification of a previously unknown pit by the results of the HPGe surveys that was not corroborated by the aerial photographs or the geophysical surveys indicated a need to further examine each source of information individually. Mr. Dennison presented a map from the report on the geophysical surveys of the 133-series IHSSs which shows a magnetic

anomaly west of the known IHSSs. The geometry of this magnetic anomaly appears to be consistent with that of a trench, and Mr. Dennison explained that a decision was made by EG&G and DOE to investigate this area further.

Mr. Dennison then described the investigation of this magnetic anomaly. He stated that the area was surveyed with the FIDLER on lines spaced 4 feet apart and that no anomalous areas of radiation were detected. He then discussed the drilling of three boreholes, BH64493, BH64593, and BH64693, within the magnetic anomaly. These boreholes were drilled using a pick-up-mounted Geoprobe rig and were continuously cored and sampled using the Kansas sampler. Mr. Dennison stated that 6-foot composite samples were collected from these boreholes for analysis of radionuclides and metals.. He also stated that no above-background radiation or organic vapor readings were obtained with field instruments during drilling, and no metallic or other waste material was encountered during drilling.

Issue 8 IHSS 133 Monitoring Well Installation

Action 8 Theresa Santangelo-Dreiling presented the following information. The OU5 Work Plan proposed the installation of three wells but stipulated that the exact location, type, and number of monitoring wells will depend on the results of the preliminary Phase I investigations. Technical Memorandum 9 proposed 4 wells to be installed downgradient of IHSS 133 to monitor future and present contaminant levels downgradient of the IHSS, and to help establish future or present contaminant migration problems.

While attempting to install these 4 wells, 6 separate locations were drilled where no groundwater was encountered. These are the locations shown as crosses (Attachment 9). Since so many dry holes were being drilled, we ended up installing only three wells. The two outer most wells, 59093 and 58793 ended up where they were originally proposed to be. The central well, 63093 was finally located after several attempts. The first attempt of installing a central well encountered waste, BH58893. This boring was then abandoned and five other attempts to find groundwater were made before well 63093 was installed.

Of the 3 wells that were installed, well 58793 has the greatest saturated interval of 11.12 feet (Attachment 9). Well 59093 has a saturated interval of 2.17 feet and well 63093 only has a saturated interval of 0.98 feet. These saturated intervals are calculated from water levels taken on the 19th of this month. Cross-section B-B' shows the screened intervals of these wells, the recent water levels, and the water level taken in the borehole of well 58793 after it had remained open for 2.5 days (Attachment 9). When this boring was drilled it was dry, but after it sat open over the weekend water was present. The other two wells were dry during drilling. This figure also shows the approximate bedrock depth.

To sum it up there were a total of 3 wells installed downgradient of the IHSS all of which are 2-inch ID PVC wells. Also, during the installation of these wells there were no anomalous field readings taken.

Issue 9 IHSS 142 (C-Series Ponds) Surface Water and Sediment Sampling

Action 9 Tyler Smart presented those items provided in Attachment 10.

Issue 10 IHSS 142 Well Point Monitoring

Action 10 Jim Kunkel presented those items provided in Attachment 11.

Issue 11 Aquifer Testing

Action 11 Rose Zeiler presented those items provided in Attachment 12.

Issue 12 Schedule Extension

Action 12 Jen Pepe excused ASI staff and presented the project schedule (Attachment 13).

Issue 13 Modification to Field Sampling Plan (FSP)

Action 13 Jen Pepe excused ASI staff and presented the proposed Phase I FSP addendum (Attachment 14).

Other items discussed:

Q: Bonnie Lavelle. Will the draft RI include validated data?
A: Ed Mast. No only unvalidated due to the lag time associated with validation.

The meeting was adjourned at approximately 1330 hours.

Attachment 1

OU5-WOMAN CREEK PRIORITY DRAINAGE
PHASE I RFI/RI IMPLEMENTATION

MEETING SIGN-IN SHEET

Date: 8/30/93 Time: 9:00 Location: ASI LAKEWOOD OFFICE

Name	Affiliation	Office Address	Phone/Pager/FAX
MIKE HARKENRIDER	ASI - OU5 PM	405 URBAN #401 LAKEWOOD, CO.	980-0036/980-1226
Doug Dennison	ASI	"	" "
Joe Schieffelin	CDH	4300 S. Cherry Ck Dr Glendale CO.	692-3354 / 759-5355
Ed Mast	EG&G	P.O. Box 464 Golden, Colo 80402	966-8589/ op 4672
Jen Pepe	DOE	PO 928 Bldg T117A Golden Co 80402	966-2184
~~Theresa Santangelo-Dreiling~~	ASI	405 Urban #401 Lakewood	980-0036
BONNIE CAVELLE	EPA	999 18th St Suite 500 DENVER, CO 80202 (8HWM-FF)	294-1067
BARB DEANGELIS	PRC	1099 18th St. Suite 1960 DENVER CO 80202	295-1101

OU5-WOMAN CREEK PRIORITY DRAINAGE
PHASE I RFI/RI IMPLEMENTATION

MEETING SIGN-IN SHEET

Date: 8/30/93 Time: 9:00 Location: ASI LAKEWOOD OFFICE

Name	Affiliation	Office Address	Phone/Pager/FAX
PAUL J. JORDAN	ASI	LAKEWOOD	980-0036
J.R. KUNKEL	ASI	405 URBAN ST., STE 401 LAKEWOOD 80228	980-0036/980-1206
Timothy D Stanley	ASI	"	"
Tyler Smart	ASI	"	"
Ron M. Zyler	ASI	"	"

1100-1200 only

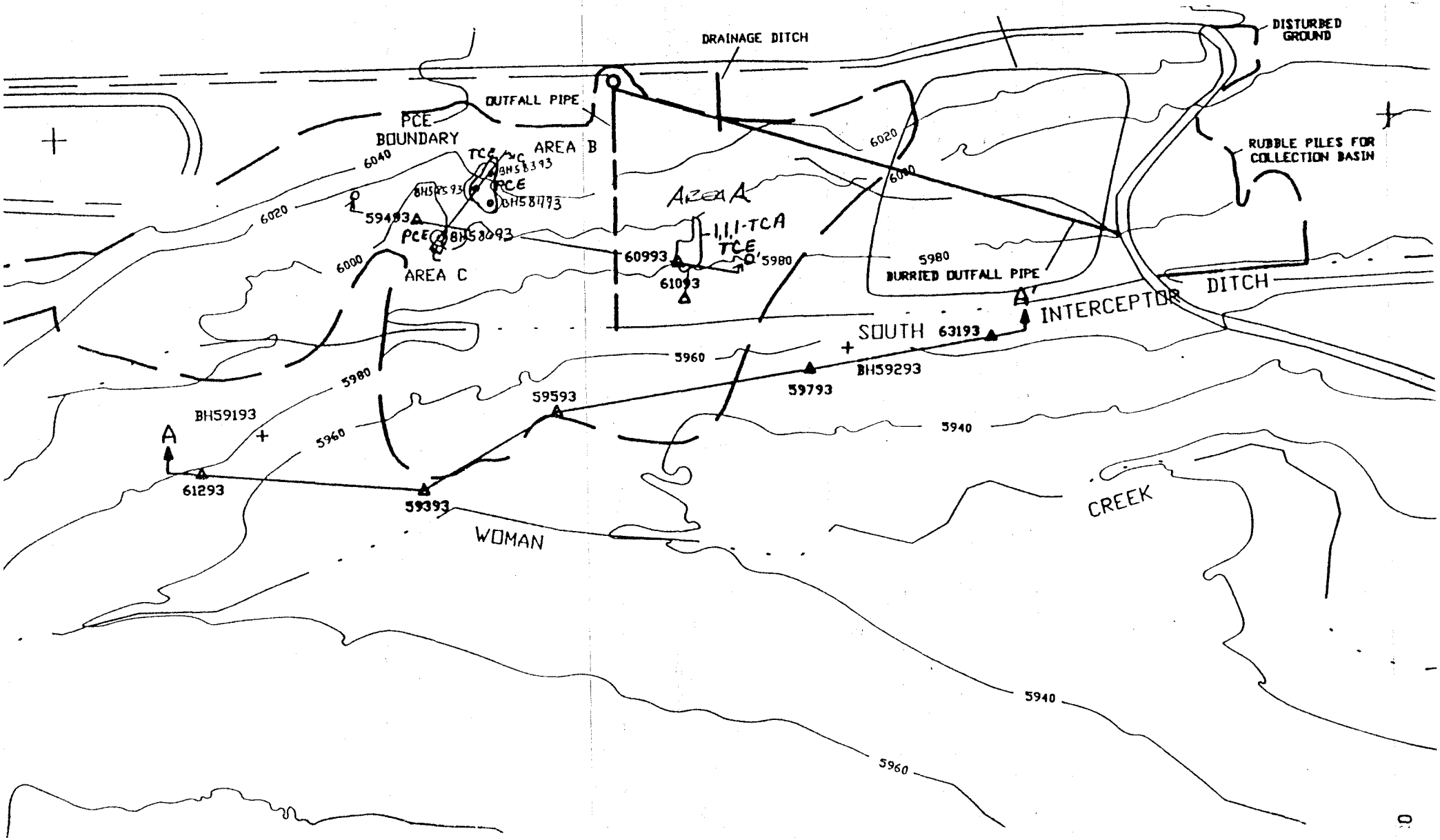
Attachment 2

AGENDA

STATUS OF OPERABLE UNIT NO. 5 RFI/RI
FIELD OPERATIONS
ADVANCED SCIENCES, INC.
AUGUST 30, 1993

Time	Subject
9:00-9:10	Introduction - M. Waltermire, ASI
	IHSS 115 - ORIGINAL LANDFILL
9:10-9:25	Borings in Soil Gas Anomalies - T. Santangelo-Dreiling, ASI
9:25-9:35	FIDLER Surveys - D. Dennison, ASI
9:35-9:45	Surficial Soil Sampling - D. Dennison, ASI
9:45-10:00	Well Point Installation - P. Jordan, ASI
10:00-10:15	Monitoring Well Installation - T. Santangelo-Dreiling, ASI
	IHSS 133 - ASH PITS, INCINERATOR, & CONCRETE WASH PAD
10:15-10:20	Surficial Soil Sampling - D. Baughn, ASI
10:20-10:30	Investigation of Magnetic Anomaly - D. Dennison, ASI
10:30-10:50	Monitoring Well Installation - T. Santangelo-Dreiling, ASI
10:50-11:00	BREAK
	IHSS 142 - C-1 and C-2 PONDS
11:00-11:15	Surface Water/Sediment Sampling - T. Smart, ASI
11:15-11:30	Well Point Monitoring - J. Kunkel, ASI
	IHSS 209 & OTHER SURFACE DISTURBANCES
11:30-11:40	Surface Water/Sediment Sampling - T. Smart, ASI
11:40-11:55	AQUIFER TESTING - R. Zeiler, ASI
11:55-12:15	SCHEDULE EXTENSION - J. Pepe, DOE & E. Mast, EG&G
12:15-	MODIFICATION TO FSP - E. Mast, EG&G

Attachment 3


DRAINAGE DITCH
DISTURBED GROUND
OUTFALL PIPE
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BOUNDARY
AREA B
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PCE
RUBBLE PILES FOR COLLECTION BASIN
6040
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AREA A
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TCE
59493
PCE
60993
61093
5980
BURRIED OUTFALL PIPE
AREA C
INTERCEPTOR
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61293
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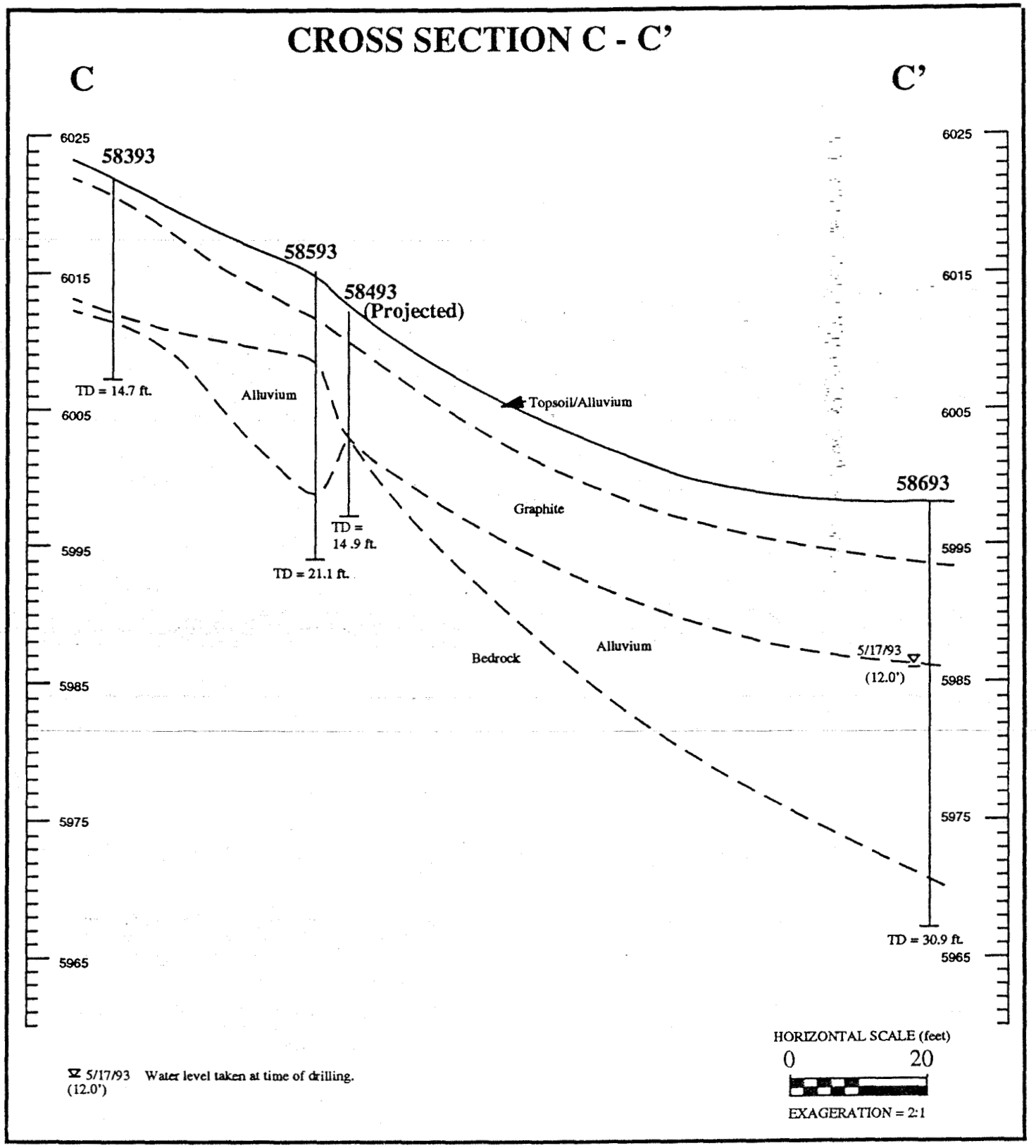
WOMAN
CREEK

Summary of Borings/Wells Installed
in Soil Gas Anomolies

Borehole	58393	58493	58593	58693	60993	61093
Estimated Surface Elevation	6022	6012	6015	5998	5980	5975
Depth to Graphite	1.0 ft.	2.5 ft.	3.2 ft.	4.4 ft.	NA	NA
Graphite Thickness	8.7 ft.	6.9 ft.	3.4 ft.	7.6/11.1 ft.*	NA	NA
Depth to Groundwater	Dry	Dry	Dry	12.0 ft.	Dry	7.01 ft.
Saturated Interval	0	0	0	15.5 ft.	0	0.19 ft.
Depth to Bedrock	10.5 ft.	9.4 ft.	16.5 ft.	27.5 ft.	3.8 ft.	7.2 ft.
Total Depth	14.7 ft.	14.9 ft.	21.1 ft.	30.9 ft.	8.0 ft.	13.0 ft.
Field Instrument Readings And Associated Depths						
OVM (ppm)	2' to 4' 10.0 4' to 6' 3.0	0	0	0	0	0
Alpha Meter (cpm)	<250	<250	<250	<250	<250	<250
Beta/Gamma Meter (cpm)	<250	<250	<250	<250	<250	<250

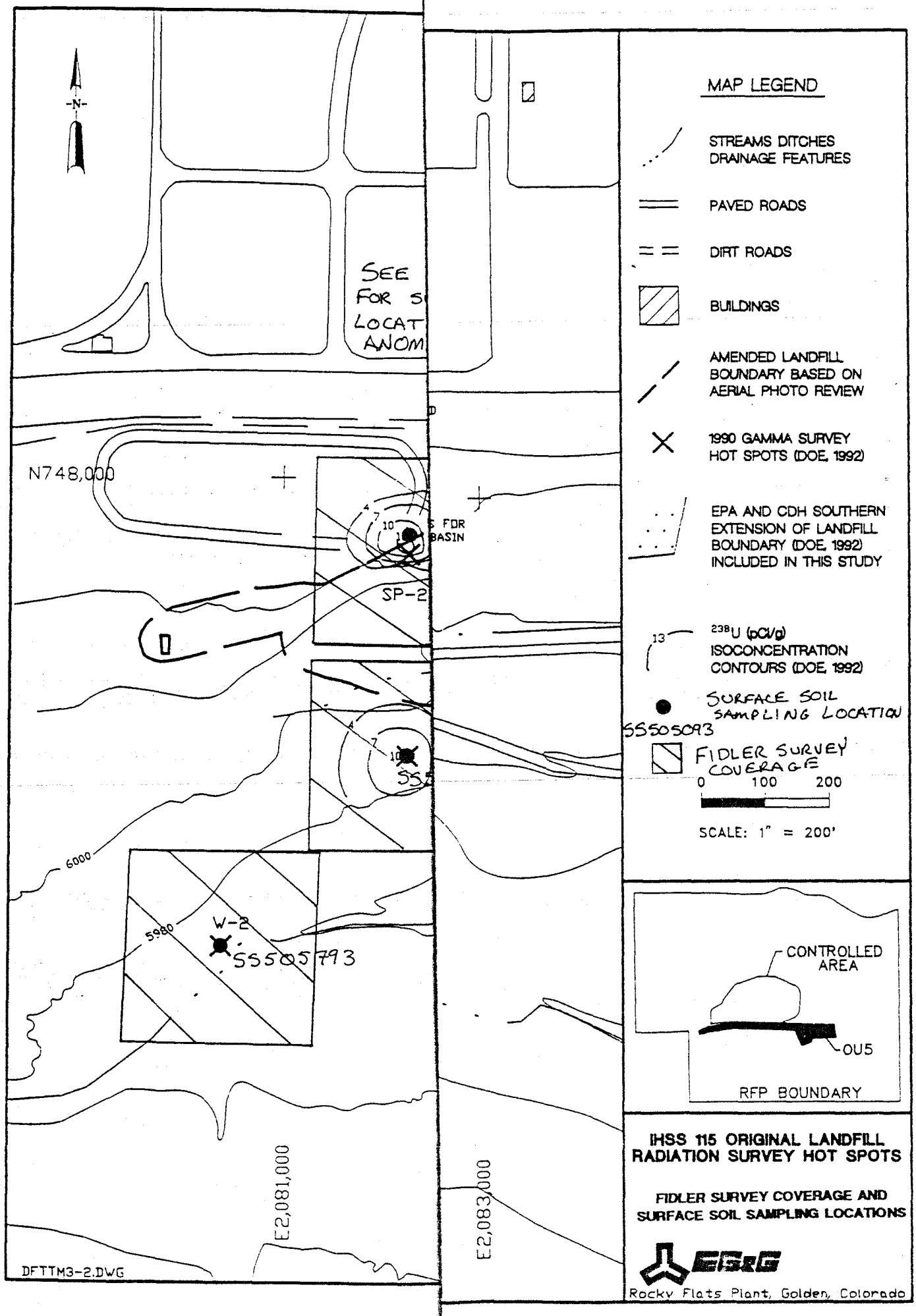
* The exact thickness is not known since there was no recovery from 12.0 ft. to 15.5 ft. due to hydropunch installation.

CROSS SECTION C - C'



Generalized Cross Section
Soil Gas Borings

Attachment 4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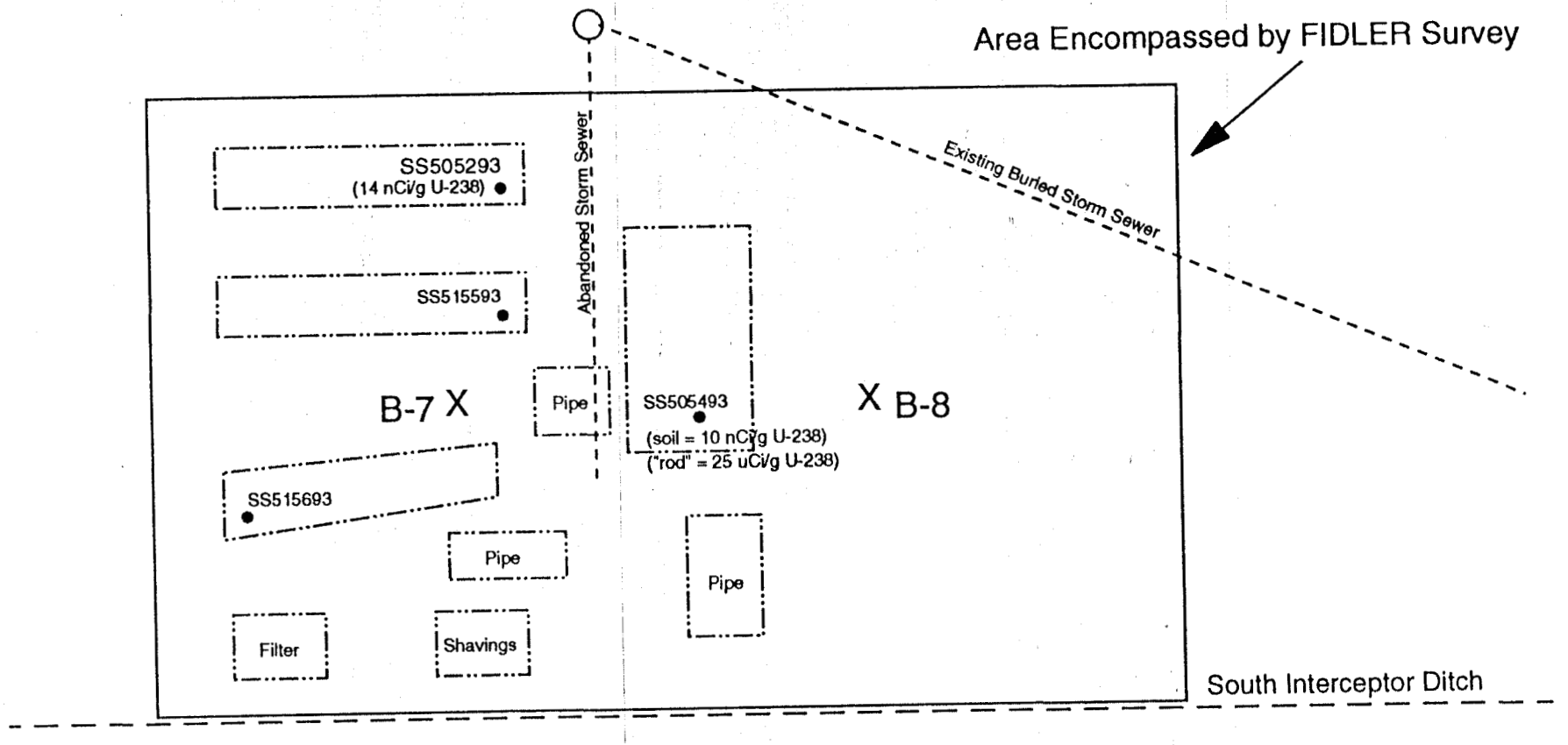
SS505793
E2,081,000
E2,083,000
DFTTM3-2.DWG
MAP LEGEND
STREAMS DITCHES
DRAINAGE FEATURES
PAVED ROADS
DIRT ROADS
BUILDINGS
AMENDED LANDFILL
BOUNDARY BASED ON
AERIAL PHOTO REVIEW
1990 GAMMA SURVEY
HOT SPOTS (DOE, 1992)
EPA AND CDH SOUTHERN
EXTENSION OF LANDFILL
BOUNDARY (DOE, 1992)
INCLUDED IN THIS STUDY
13
238U (pCi/g)
ISOCONCENTRATION
CONTOURS (DOE, 1992)
SURFACE SOIL
SAMPLING LOCATION
SS505093
FIDLER SURVEY
COVERAGE
0
100
200
SCALE: 1" = 200'
CONTROLLED
AREA
OU5
RFP BOUNDARY
IHSS 115 ORIGINAL LANDFILL
RADIATION SURVEY HOT SPOTS
FIDLER SURVEY COVERAGE AND
SURFACE SOIL SAMPLING LOCATIONS
EG&G
Rocky Flats Plant, Golden, Colorado



LEGEND

X B-7 HPGe Station

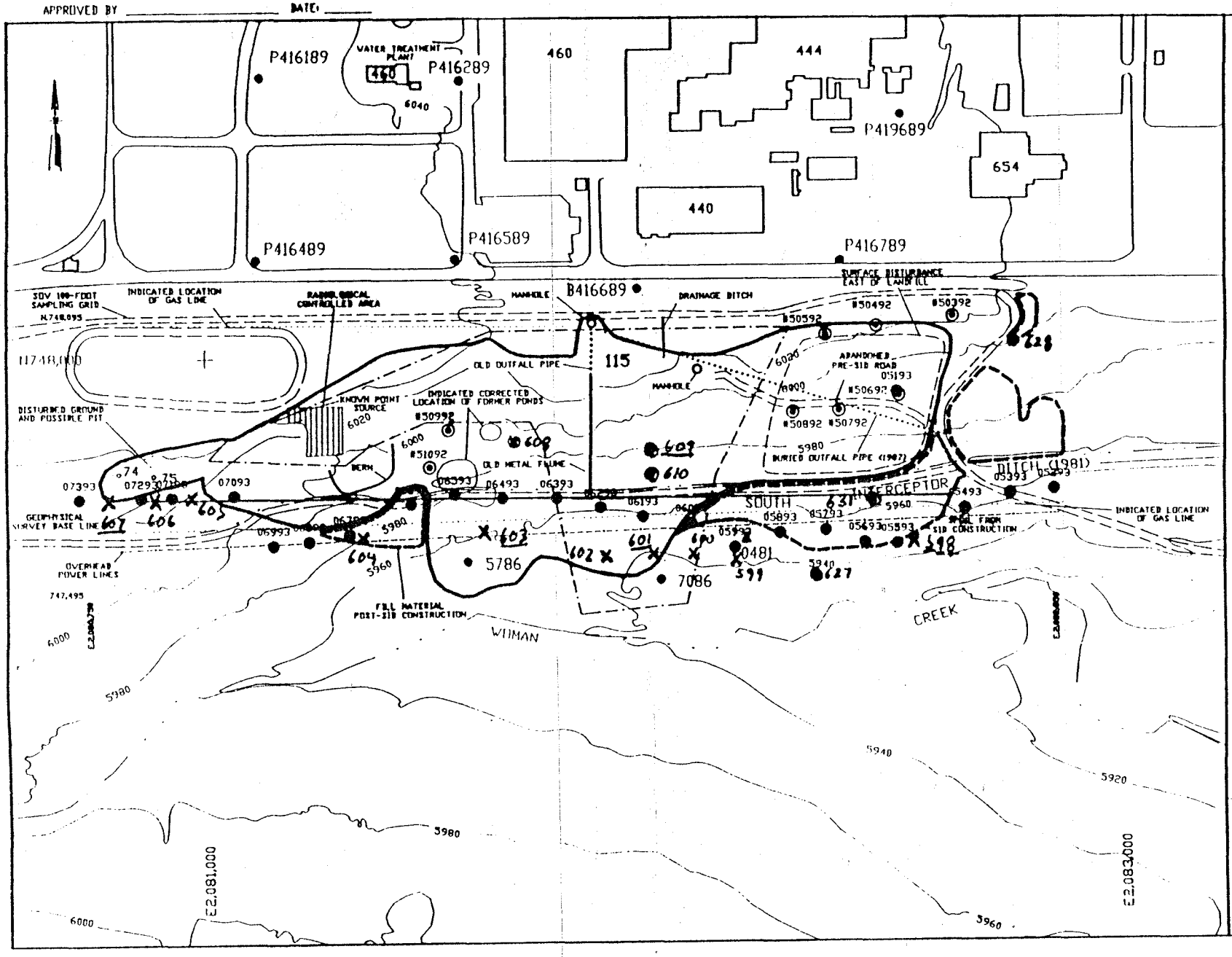
Radiologically Controlled Area (RCA)

• SS505293 Surficial Soil Sample Location

APPROXIMATE LOCATION OF SURFICIAL SOIL SAMPLES WITHIN HPGe ANOMALIES B-7 AND B-8

Attachment 5

APPROVED BY _____ DATE: _____

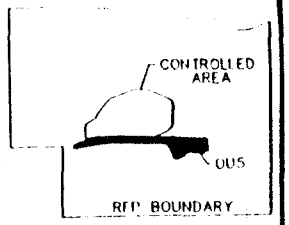


MAP LEGEND

- STREAMS DITCHES DRAINAGE FEATURES
- PAVED ROADS
- DIRT ROADS
- ORIGINAL LANDFILL AND SURFACE DISTURBANCE, PRE - SID
- LANDFILL AND DISTURBANCE POST - SID
- EPA/ODH LANDFILL BOUNDARY (Incl IAG BOUNDARY OF IHSS 115)
- 7086 EXISTING ALLUVIAL GROUNDWATER MONITORING WELL
- 0481 PRE - 1986 MONITORING WELL
- #50792 SOIL CORES AND BORINGS
- CONE PENTROMETER TESTING (CPT) LOCATIONS

0 100 200

SCALE: 1" = 200'



PLANNED LOCATION OF CPT SITES

THIS - CPT AND RAT® TESTING

OU5 PHASE I RFI/RI IMPLEMENTATION

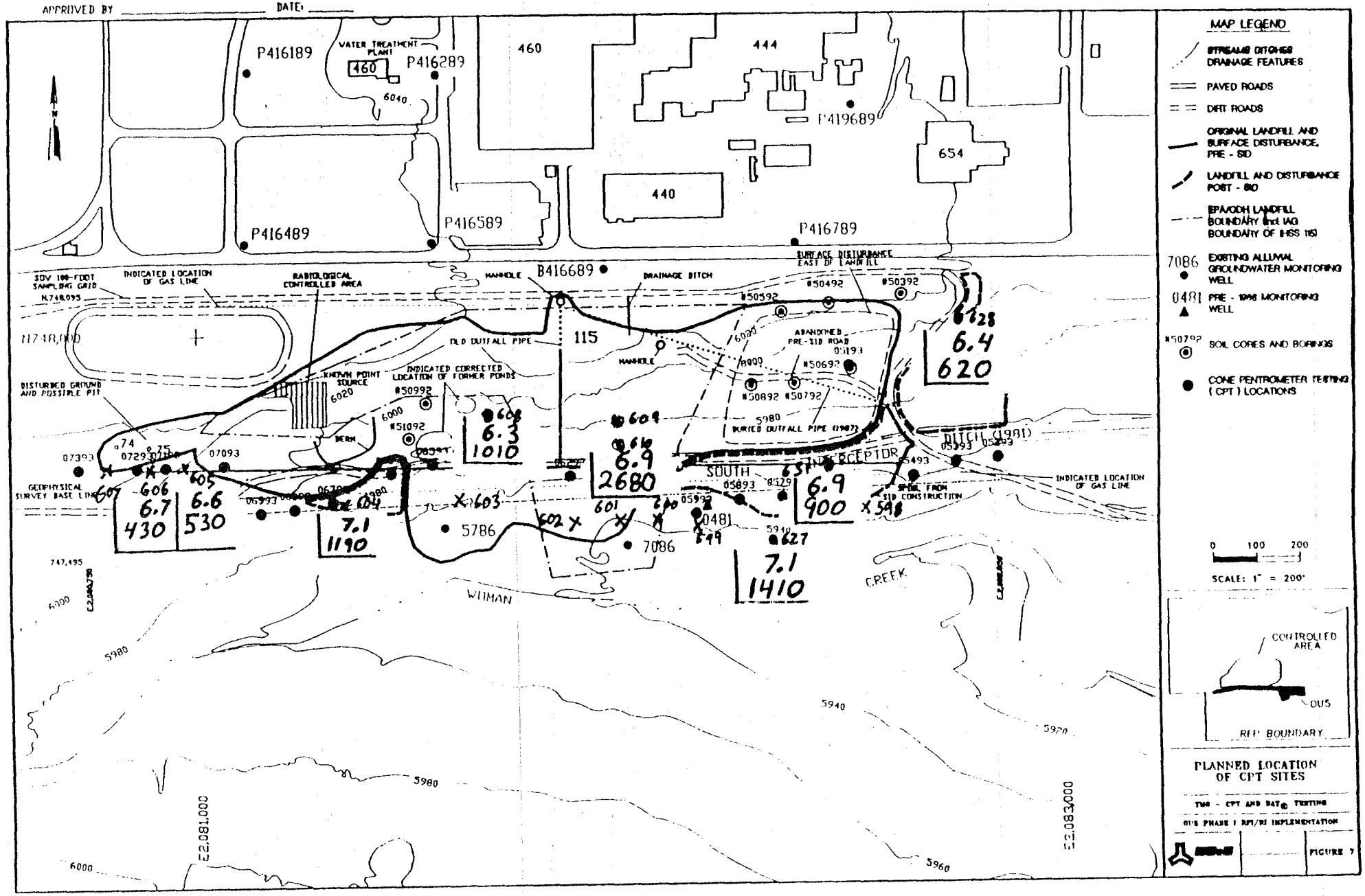
FIGURE 7

TABLE 1: Summary of IHSS 115 Well Point Information

Well Point Number	Total depth from TOC (feet)	Depth to Water (feet)	Saturated Thickness (feet)	SAMPLE					Field Parameters		
				VOA	RADS	METALS	SVOA	OTHERS	pH (units)	Spec. Cond. (umhos/cm)	Temperature (degrees C)
59893	14.63	14.39	0.24						NA	NA	NA
59993	15.96	7.87	8.09	X	O				NM	NM	NM
60093	9.79	9.14	0.65	X					NM	NM	NM
60193	10.08	DRY	0.00						NA	NA	NA
60293	11.96	7.35	4.61	X	X	X	X	X	NM	NM	NM
60393	11.35	DRY	0.00						NA	NA	NA
60493	14.03	9.93	4.10	X					7.06	1190	20.2
60593	15.40	12.63	2.77	X					6.58	530	20.5
60693	17.75	14.99	2.76	X					6.69	430	20.5
60793	15.95	DRY	0.00						NA	NA	NA
# 60893	23.25	13.53	9.72	X	O				6.32	1010	21.8
# 60993	9.90	DRY	0.00						NA	NA	NA
# 61093	14.79	6.48	8.31	X	X	X	X	X	6.94	2680	19.4
# 62793	11.82	3.87	7.95	X	O				7.07	1410	17.7
# 62893	14.88	1.09	13.79	X	O				6.41	620	18.8
# 63193	21.25	10.60	10.65	X	X	X	X	X	6.91	900	19.2

NOTES: 1) TOC = Top of Casing (for well points, well and protective casings are the same height.
2) Water levels measured in early July prior to development.
3) Saturated thickness is actually depth of water in well point.
4) NA = Not Applicable.
5) NM = Not Measured.
6) # = Well points not specifically installed for TM-6 (CPT/BAT Sampling).
7) X = sample obtained.
8) O = partial sample obtained.

APPROVED BY _____ DATE: _____

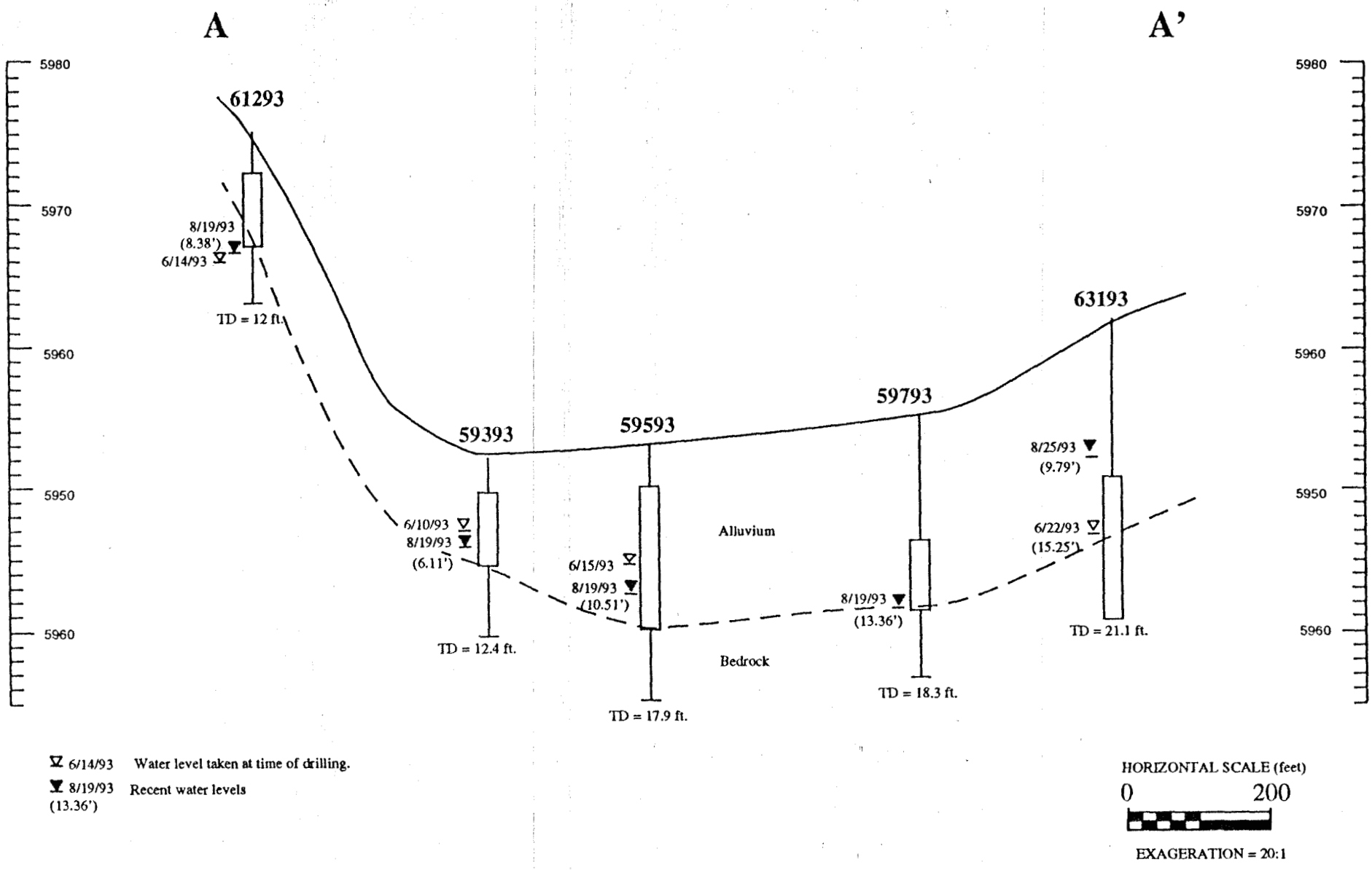


Attachment 6

Summary of Wells Installed
in IHSS 115

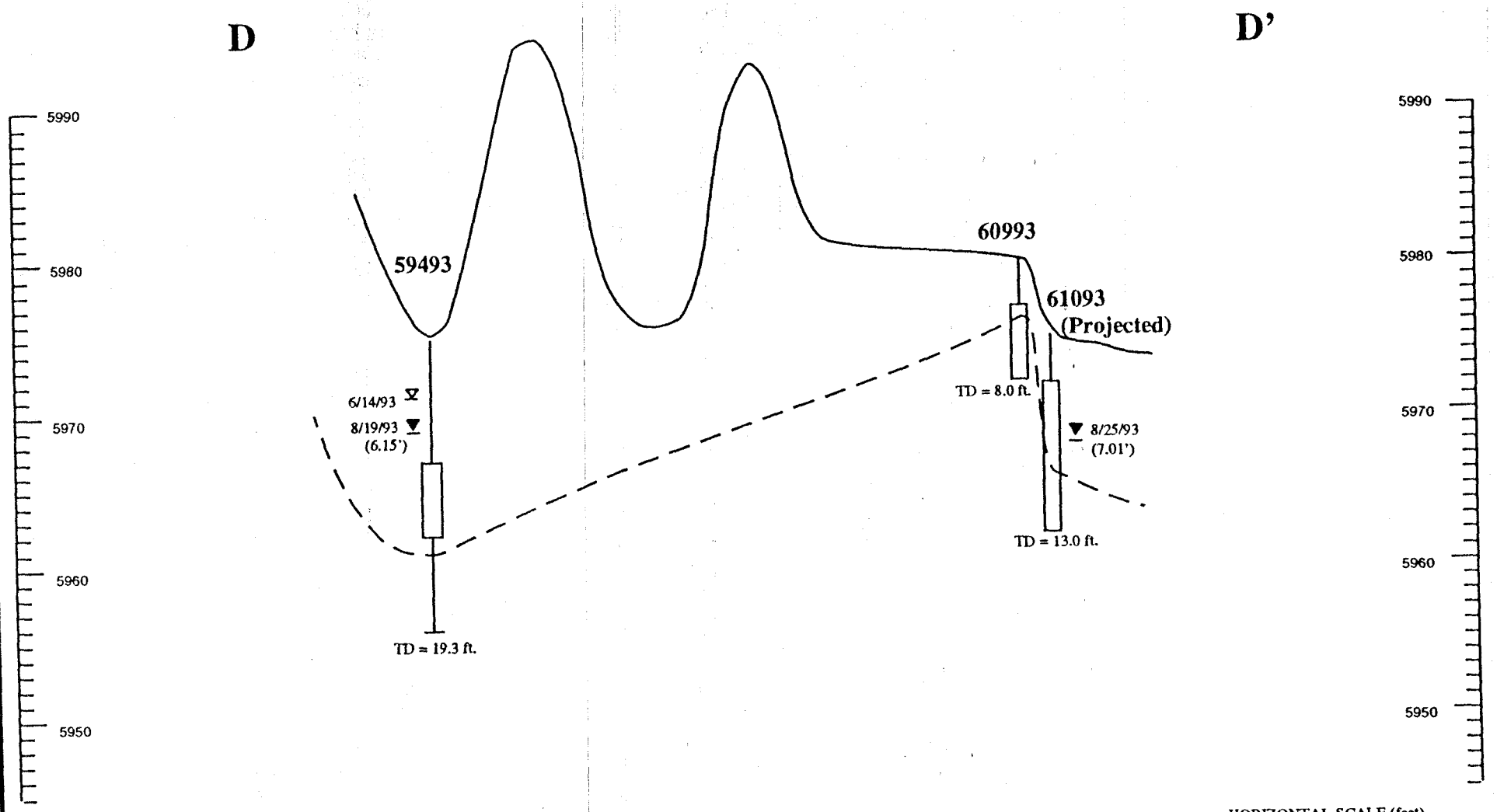
Well	59393	59493	59593	59793	60993	61093	61293	63193
Well Type	Down-gradient	Pond Area	Down-gradient	Down-gradient	Soil Gas	Soil Gas	Down-gradient	Down-gradient
Well Diameter	2" ID	2" ID	2" ID	2" ID	0.5" ID	0.5" ID	2" ID	0.5" ID
Estimated Surface Elevation	5952	5975	5953	5955	5980	5975	5975	5962
Depth to Groundwater	6.11 ft.	6.15 ft.	10.51 ft.	13.36 ft.	Dry	7.01 ft.	8.38 ft.	9.79 ft.
Saturated Thickness	1.39 ft.	8.35 ft.	2.49 ft.	-0.06 ft.	0	0.19 ft.	-1.38 ft.	5.71 ft.
Depth to Bedrock	7.5 ft.	14.5 ft.	13.0 ft.	13.3 ft.	3.8 ft.	7.2 ft.	7.0 ft.	15.5 ft.
Total Depth	12.4 ft.	19.3 ft.	17.9 ft.	18.3 ft.	8.0 ft.	13.0 ft.	12.0 ft.	21.1 ft.
Field Instrument Readings								
OVM (ppm)	0	0	0	0	0	0	0	0
Alpha Meter (cpm)	<250	<250	<250	<250	<250	<250	<250	<250
Beta/Gamma Meter (cpm)	<250	<250	<250	<250	<250	<250	<250	<250

CROSS SECTION A - A'



Generalized Cross Section
IHSS 115 Wells

CROSS SECTION D - D'



Generalized Cross Section
IHSS 115 Wells

Attachment 7

SOIL SAMPLING
IHSS 133

OVERVIEW

- Eighteen composite surface soil samples were collected.
- Two vertical profile samples were collected.
- Two duplicate samples were collected for quality control purposes.
- Sampling began on May 11, 1993 and was completed on June 25, 1993.

SOIL SAMPLING
IHSS 133

ANALYTES

- Composite and duplicate samples were analyzed for: TAL Metals, Polynuclear Aromatic Hydrocarbons, TOC, Gross Alpha, Gross, Beta, Uranium$^{233/234}$, Uranium^{235}, Uranium^{238}, Plutonium$^{239/240}$, and Americium^{241}.

- Vertical profile samples were analyzed for: Gross Alpha, Gross, Beta, Uranium$^{233/234}$, Uranium^{235}, Uranium^{238}, Plutonium$^{239/240}$, and Americium^{241}.

SOIL SAMPLING
IHSS 133

SUMMARY OF SAMPLING METHODS

- Seven of the composite sample locations were biased by placing them in the prevailing downwind direction from the ashpits. The remaining eleven samples were randomly located throughout the IHSS. Each of the composite samples was composed of 5 subsamples collected by the Rocky Flats method with a stainless steel scoop and template over a one square meter area. Duplicate samples were collected in the same manner as the composite samples.

- The two vertical profile samples were collected at the request of Ron Rieman as a means of evaluating the effective depth of the HPGe survey. At each of the vertical profile sampling locations, four subsamples spaced one meter apart were composited to represent three depth intervals ranging from 0-2", 2-4" and 4-6".

  Vertical profile samples were collected at HPGe survey station F10 which exhibited anomalous Uranium^{238} activity of 21.7 pCi/gm and at HPGe survey station B17 which did not exhibit anomalous

SOIL SAMPLING
IHSS 133

SUMMARY OF SAMPLING METHODS (continued)

activity for any of the radionuclides counted. As was the case with all soil sampling locations, survey station F10 was FIDLER surveyed prior to sampling. Activity at station F10 was fairly evenly distributed (non-point source). A few areas exhibited marginally increased activity and one of these was selected for sampling.

SURFACE SOIL SAMPLE NUMBERS, LOCATION NUMBERS SAMPLE COLLECTION DATE AND STATE PLANE COORDINATES

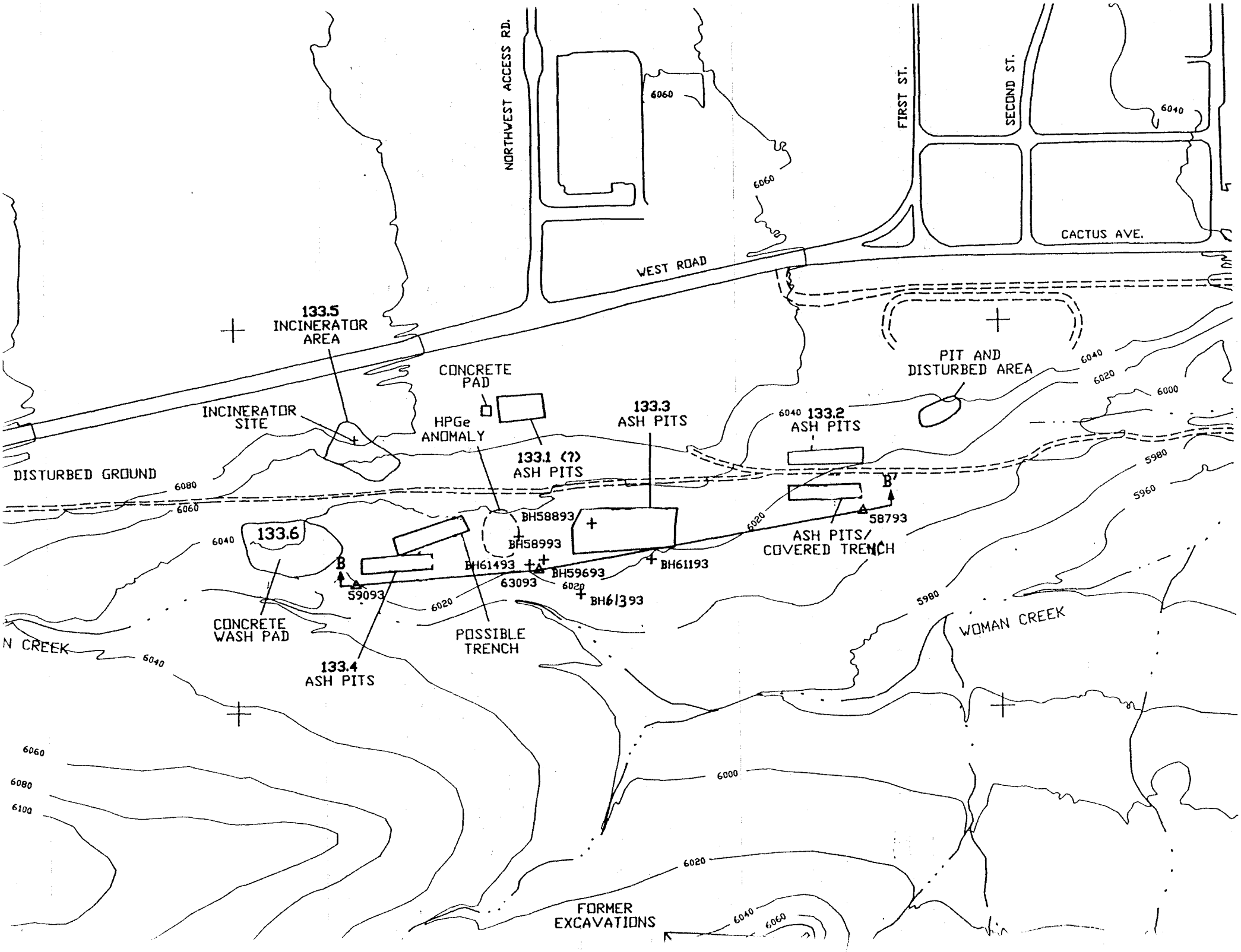
Sample No.	Sample Location No.	Date Collected	North Coordinate	East Coordinate
SS50096AS	SS513493	5/11/93	747715	2079095
SS50097AS	SS513593	5/11/93	747265	2079245
SS50098AS	SS513693	5/11/93	747331	2079266
SS50099AS	SS513793	5/11/93	747594	2079454
SS50100AS	SS513893	5/11/93	747565	2079545
SS50101AS	SS513993	5/11/93	747265	2079545
SS50102AS	SS514093	5/11/93	747351	2079569
SS50103AS	SS514193	5/12/93	747865	2079695
SS50104AS	SS514293	5/12/93	747725	2079695
SS50106AS	SS514393	5/12/93	747562	2079695
SS50118AS*	SS514393	5/12/93	747565	2079845
SS50121AS**	SS515493 (F10)	6/25/93	747415	2079695
SS50122AS**	SS515493 (F10)	6/25/93	747415	2079695
SS50123AS**	SS515493 (F10)	6/25/93	747415	2079695
SS50107AS	SS514493	5/12/93	747565	2079845
SS50108AS	SS514593	5/12/93	747743	2079864
SS50109AS	SS514693	5/12/93	747565	2080145
SS50110AS	SS514793	5/12/93	747391	2080201
SS50111AS*	SS514893	5/20/93	747865	2080595
SS50116AS	SS514893	5/20/93	747865	2080595
SS50112AS	SS514993	5/19/93	747415	2080595
SS50113AS	SS515093	5/19/93	747620	2080684
SS50114AS	SS515193	5/19/93	747515	2080690
SS50124AS**	SS515293 (B17)	6/25/93	748015	2080745
SS50125AS**	SS515293 (B17)	6/25/93	748015	2080745
SS50126AS**	SS515293 (B17)	6/25/93	748015	2080745

* - Duplicate sample

** - Profile soil sample for corroboration of HPGe survey results with HPGe survey station number shown next to the sample location number.

Attachment 8

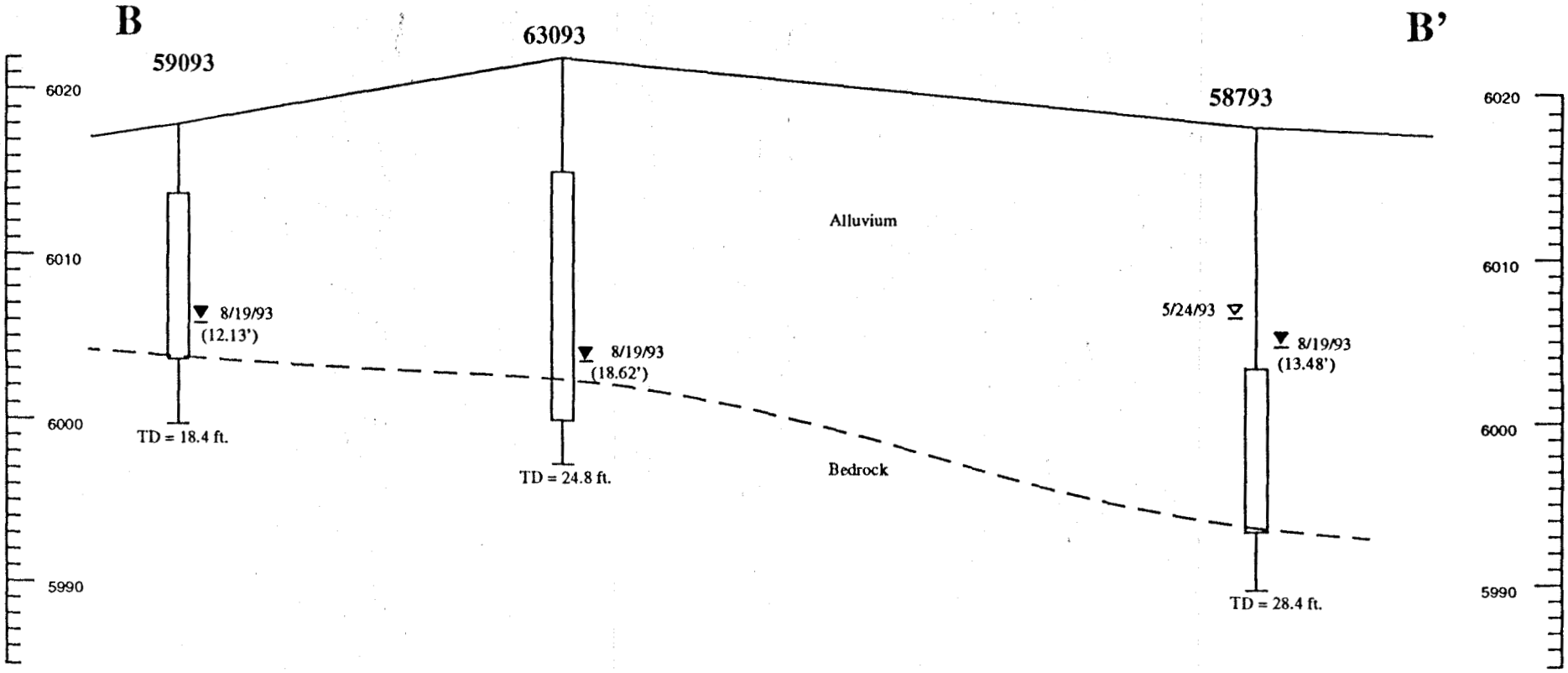
Attachment 9


NORTHWEST ACCESS RD.
FIRST ST.
SECOND ST.
CACTUS AVE.
WEST ROAD
133.5
INCINERATOR
AREA
INCINERATOR
SITE
CONCRETE
PAD
HPGe
ANOMALY
133.1 (?)
ASH PITS
133.3
ASH PITS
133.2
ASH PITS
PIT AND
DISTURBED AREA
DISTURBED GROUND
133.6
CONCRETE
WASH PAD
133.4
ASH PITS
POSSIBLE
TRENCH
ASH PITS/
COVERED TRENCH
BH58893
BH58993
BH61493
BH59693
BH61193
63093
BH61393
59093
58793
B
B'
WOMAN CREEK
N CREEK
FORMER
EXCAVATIONS
6060
6080
6100
6040
6020
6000
5980
5960

Summary of Wells Installed
in IHSS 133

Well	58793	59093	63093
Well Diameter	2" ID	2" ID	2" ID
Estimated Surface Elevation	6018	6018	6022
Depth to Groundwater	13.48 ft.	12.13 ft.	18.62 ft.
Saturated Thickness	11.12 ft.	2.17 ft.	0.98 ft.
Depth to Bedrock	24.6 ft.	14.3 ft.	19.6 ft.
Total Depth	28.4 ft.	18.4 ft.	24.8 ft.
Field Instrument Readings			
OVM (ppm)	0	0	0
Alpha Meter (cpm)	<250	<250	<250
Beta/Gamma Meter (cpm)	<250	<250	<250

CROSS SECTION B - B'



5/24/93 Water level taken after boring remained oped for 2.5 days.

8/19/93 Recent water levels
(12.13')

HORIZONTAL SCALE (feet)
0 200

EXAGERATION = 20:1

Generalized Cross Section
IHSS 133 Wells

Attachment 10

Meeting Minutes, August 30, 1993

Subject: OU5 RFI/RI, Surface Water/Sediment Sampling for IHSSs 142 and 209

From: Tyler Smart

1. Discussed the layout of the sampling site locations using handouts and overheads (Figure 8, and Table 2).

   Surface water:
   2 sites on the SID
   1 site on Antelope Spring Creek
   11 sites on Woman Creek
   1 site in Pond C1 (HydroLab, only)
   15 Total

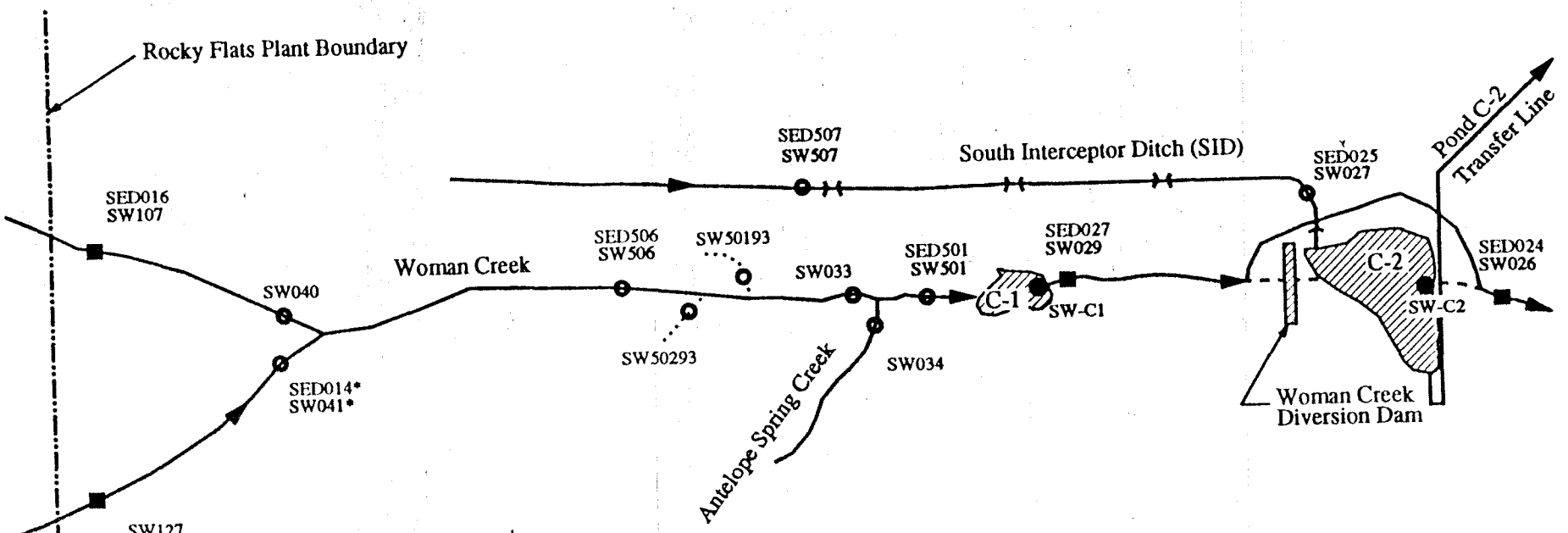
   Sediment:
   2 sites on the SID
   6 sites on Woman Creek
   3 sites in Pond C1
   3 sites in Pond C2
   14 Total

2. All the required surface water and sediment samples were collected for base flow events during October 1992 and March 1993. These samples were submitted to various labs for analysis for metals, radionuclides, VOCs and water quality parameters as indicated on Table 10 (handout). Approximately 80 per cent of the results are available from RFEDS while only about 10 per cent of the results are validated.

3. The high-flow events have not been synopticly sampled during the summer months due to a lack of automatic sampling equipment in place, equipment failure, and a sparcity of adequate rainfall/runoff events in the Woman Creek basin. Only the SID, sampling locations SW027 and SW507 have been sampled during high flow on May 17,1993. A meeting will be held with EG&G and EPA to resolve the data gaps.

4. Greg Wetherbee, EG&G, has collected some surface water samples with associated flow data at several gaging stations throughout the OU5 area (Figure 3 and Table ?). These data may be useful in supplementing the missing data from the OU5 sampling program.

5. The surface water samples were collected at IHSS 209 on March 18 and May 24, 1993. No sediment samples were collected. Instead, surficial soil samples were collected since the depression had dried-up at the time of "sediment" sampling.



LEGEND

SW500 ■	Permanent Surface-Water/Sediment Sampling Site
SW026 ○	Temporary Surface-Water/Sediment Sampling Site
SW-C2 ●	Pond Sampling Site
→	Direction of Flow
⌒	Culvert
SED014*	Discontinued Site Reactivated for OU5

POND BOTTOM SEDIMENT SAMPLING SITES
(FROM WEST TO EAST)

POND C-1	SED508	(Inflow)
	SED509	(Mid-Point)
	SED510	(Deepest)
POND C-2	SED511	(Inflow)
	SED512	(Mid-Point)
	SED513	(Deepest)

NOT TO SCALE

FSP-Related Surface-Water Monitoring Sites
Woman Creek Drainage Basin

ROCKY FLATS PLANT OU 5 RFI/RI
WOMAN CREEK PRIORITY DRAINAGE

ASI Project No. 9208.15
FIGURE 8
STATUS: 04/08/93

ADVANCED SCIENCES, INC.

FILE: FG8-REV1.DRW

Table 2

OU5 Field Sampling Plan (FSP)
Woman Creek Drainage Surface-Water and Sediment Monitoring-Site Descriptions

Surface Water Site[1]	Sediment Site[1]	Programmatic Driver(s)[2]	Site Monitors Runoff from These OU5 IHSSs
SW107	SED016	B,C,D	Upstream from OU5
SW040	--	B,C	133.1, 133.4, 133.5, 133.6
SW127	--	B,C,D	Upstream from OU5
SW041	SED014	B,C	Surface Disturbance South of Ash Pits
SW506	SED506	B,C	133.1, 133.3, 133.4, 133.5, 133.6, Surface Disturbance South of Ash Pits
SW50193	--	B	115
SW50293	--	B	Surface Disturbance South of Ash Pits
SW033	--	B,C	115, 133.1, 133.2, 133.3, 133.4, 133.5, 133.6, 196, Surface Disturbance South of Ash Pits
SW034	--	B,C	None
SW501	SED501	B,C	Same as SW-33
SW-C1	SED508[3] SED509[4] SED510[5]	B,E	115, 133.1, 133.2, 133.3, 133.4, 133.5, 133.6, 142.10, 196, SE-1601.2, Surface Disturbance South of Ash Pits, Surface Disturbance West of IHSS 209
SW029	SED027	B,C	Same as SW-C2
SW507	SED507	B,C	Same as SW-C2 plus 209
SW027	SED025	A,B	115, SE-1600, SE-1601.1, Surface Disturbance East of Landfill
SW-C2	SED511[3] SED512[4] SED513[5]	B,E,F	142.11 (except during 100-yr flood or larger when all IHSSs contribute)
SW026	SED024	B,C	All IHSSs in OU5 (except 142.11 unless Pond C-2 is discharging)

1) Locations are shown on Figure 8.
2) A=Critical station for support of NPDES-related activities; B=Operable unit RI/FS and RI/CMS; C=General site characterization under DOE Order 5400.1; D=Storm-event monitoring under DOE Order 5400.1; E=Federal Facility Compliance Agreement (FFCA); F=Agreement in Principle (AIP).
3) 5-ft from inlet to pond
4) Mid-point of pond
5) Deepest Point of pond

Adapted from: EG&G (1991d, Table 4).

Table 10
Field Sample Analyses Schedule
OU5-Field Sampling Plan For Surface Water and Sediments
(As Modified by TM1, October 13, 1992 and March 24, 1993 site visit)

#9208.15.04.03

SURFACE WATER	Filtered and Unfiltered					Unfiltered						Filtered					
	U 233/234	U 235	U 238	Pu 239/240	Am 241	Gross Alpha	Gross Beta	TAL Metals	TCL [1] Vols	TCL [1] Semi-Vols	TCL [1] Pest.	Sr 89/90	Cs 137	Pb	Cr (Total)	Anions & TDS	Micro/Acute Toxicity
IN-STREAM																	
SW107	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SW040	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
SW127	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SW041	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SW506	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SW50193	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SW50293	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
SW033	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
SW034	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
SW501	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SW029	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SW507	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
SW027	x	x	x	x	x	x	x	x									
SW026	x	x	x	x	x	x	x	x									

POND C-1
SW510 Hydrol ab only (temperature, pH, SC, and DO)

1) These organic analyses are only for the two base-flow sampling events.

SEDIMENT	Tritium	Nitrate	Gross Alpha	Gross Beta	U 233/234	U 235	U 238	Pu 239/240	Am 241	TOC	TAL Metals	TCL Vols	TCL Semi-Vols	Sr 89/90	Cs 137	Be	Cr	Micro/Acute Toxicity
IN-STREAM																		
SED016		x	x	x	x	x	x	x	x	x	x							x
SED505		x	x	x	x	x	x	x	x	x	x							x
SED014		x	x	x	x	x	x	x	x	x	x							
SED506		x	x	x	x	x	x	x	x	x	x							
SED501		x	x	x	x	x	x	x	x	x	x							
SED027	x	x	x	x	x	x	x	x	x	x	x							
SED507		x	x	x	x	x	x	x	x	x	x							
SED025		x	x	x	x	x	x	x	x	x	x							
SED024	x	x	x	x	x	x	x	x	x	x	x							
POND C-1																		
SED508	x [2]	x [2]	x	x	x	x	x	x	x		x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	x
SED509	x [2]	x [2]	x	x	x	x	x	x	x		x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	
SED510	x [2]	x [2]	x	x	x	x	x	x	x		x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	
POND C-2																		
SED511	x [2]	x [2]	x	x	x	x	x	x	x		x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	x
SED512	x [2]	x [2]	x	x	x	x	x	x	x		x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	
SED513	x [2]	x [2]	x	x	x	x	x	x	x		x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	x [2]	

2) These analyses apply only to the top 6 inches of the sediment core. Core samples with lengths greater than 6 inches will be divided into 6-inch segments and each segment will be analyzed for only the radionuclides.

Status Date 21 May 93

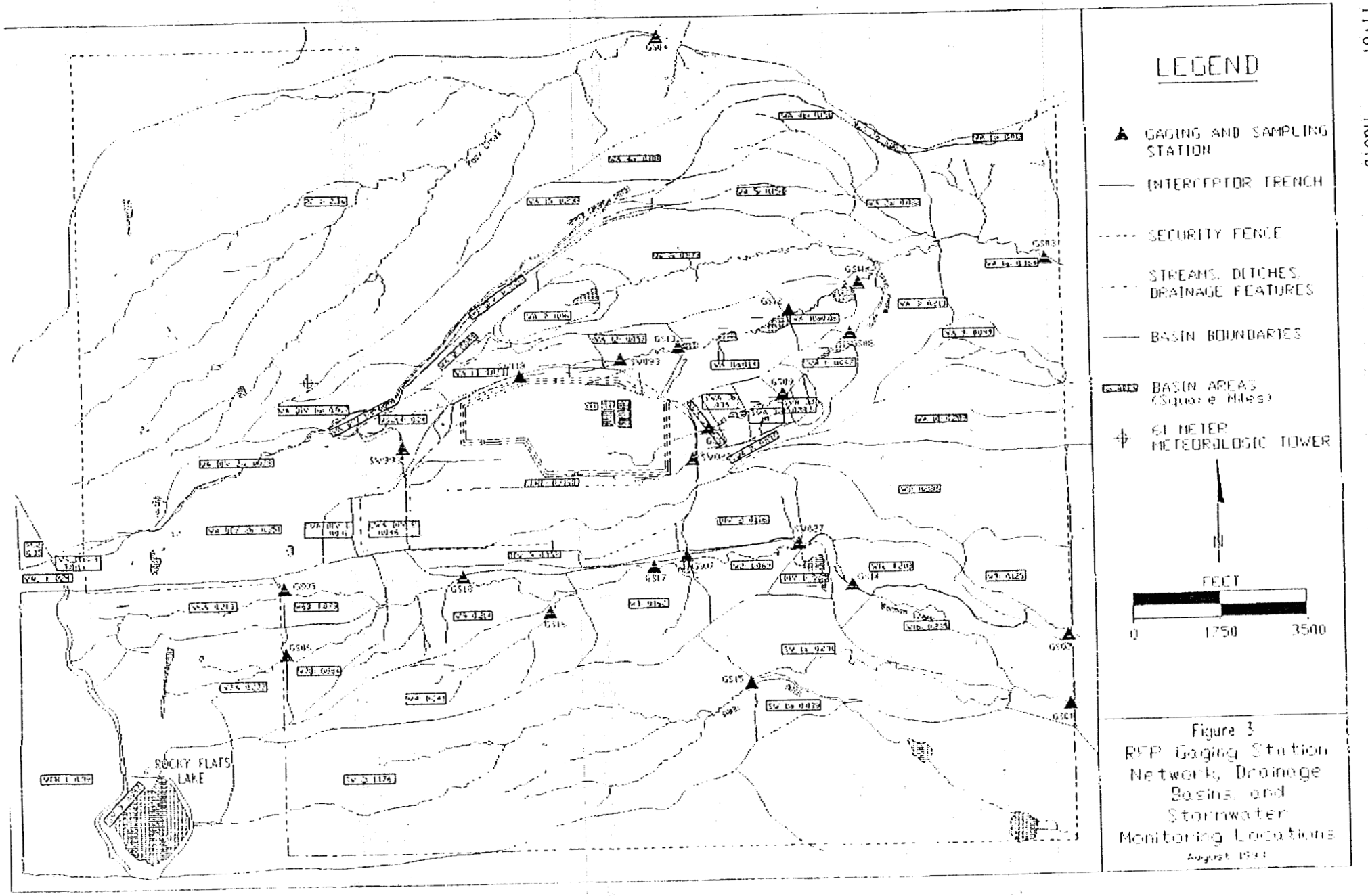


Figure 3
RFP Gaging Station Network, Drainage Basins, and Stormwater Monitoring Locations
August 1993

Woman Creek Stormwater Samples for Water Year 1993 As of 8/27/93

Location	Date	Time	Sample No.	Sus.Sed.	Tot. Pu,U,Am	Tot. Metals	Diss. Metals	Anions	Parameters	Pu,U,Am on Sus. Solids	Tritium	Gross a/B	Tot. P	Laboratory
GS05	921005	2207	SW01370ST		X	X		X	X				X	Off-Site
		To	SW01373ST											
GS05	921025	2011	SW01353ST		X	X		X	X				X	Off-Site
		To	SW01398ST											
GS07	921025	2100	SW01401ST		X	X		X	X				X	Off-Site
		To	SW01404ST											
GS15	921026	1142	SW01413ST		X	X		X	X				X	Off-Site
		To	SW01416ST											
GS05	930413	1200	SW5C030JE	X						X				RFP-881
GS01	930413	2000	SW5C024JE		X	X	X	X	X		X			RFP-881
GS02	930413	1800	SW5C025JE		X	X	X	X	X		X			RFP-881
GS07	930413	2231	SW5C027JE		X	X	X	X	X		X			RFP-881
GS05	930424	1446	SW70014JE		X	X	X	X	X					RFP-881
GS16	930424	1245	SW70015JE		X	X	X	X	X					RFP-881
GS17	930424	1346	SW70016JE		X	X	X	X	X					RFP-881
GS05	930507	1908	SW70026JE		X	X	X	X	X					RFP-881
GS05	930515	2042	SW70032JE		X	X	X	X	X					RFP-881
GS05	930517	1210	SW70033JE		X	X	X	X	X					RFP-881
GS06	930517	1353	SW70034JE		X	X	X	X	X					RFP-881
GS16	930517	1345	SW70038JE		X	X	X	X	X					RFP-881
GS18	930517	1454	SW70039JE		X	X	X	X	X					RFP-881
GS16	930617	800	SW70053JE		X	X	X	X	X					RFP-881
GS16	930617	2000	SW70059JE		X	X	X	X	X					RFP-881
GS17	930617	1705	SW70056JE		X	X	X	X	X					RFP-881
GS18	930617	1800	SW70058JE		X	X	X	X	X					RFP-881
GS14	930618	400	SW70060JE		X	X	X	X	X			X		RFP-881
GS17	930618	1745	SW70063JE		X	X	X	X	X			X		RFP-881
GS06	930618	1556	SW70065JE		X	X	X	X	X			X		RFP-881
GS02	930618	1256	SW70066JE		X	X	X	X	X			X		RFP-881
GS05	930714	32	SW70084JE		X		X					X		RFP-881

NOTES: Anions = F,Cl,SO4, NO2/NO3 Parameters = TSS,TDS,CONDUCTIVITY,pH, ALKALINITY

Attachment 11

MEETING NOTES FOR
WELL-POINT MONITORING
9208.15.04.01

Tyler Smart introduced Jim Kunkel.

As background and introduction, Dr. Kunkel stated that the purpose of the well-points along Woman Creek was to quantify ground-water/surface-water interactions and to confirm gain/loss measurements being made monthly in Woman Creek by EG&G. Thirty-six well points are located as shown in TM No. 1, as amended (Figure 1 of handouts). An information packet, comprised of the attached handouts, were presented to those present.

Figures 2 and 3 show the relationship of alluvial ground-water elevations related to ground surface, well screened interval, bedrock, and total well depth elevations for Wells 7086 and 5686. These existing alluvial wells in OU5 are representative of two types of ground-water/surface-water interaction conditions. Well 7086 represented a case where Woman Creek is gaining water year round from alluvial ground water. The watertable elevation in the alluvium adjacent to Woman Creek is higher than the water-surface elevation (or channel bottom elevation) over a period of seven years of data (Figure 2 of handouts). Well 5686 (Figure 3 of handouts) has watertable elevations generally less than the channel bottom elevation of Woman Creek and; therefore, this area of Woman Creek is generally a losing stream (losing water from the stream to the alluvial ground water).

On-going gain/loss measurement data collected by EG&G monthly in Woman Creek coincidental with ASI's well-point water level measurements, confirms the relationship between gaining and losing reaches of Woman Creek and the adjacent alluvial ground-water levels. Only a few instances of exceptions have been noted in the data collected to date, that is measurements for the period March through July 1992 which are attached as Table H-2 (5 Sheets) and Figures H-1 through H-6.

Our preliminary conclusions are that there is a definite interrelationship between surface water and ground water in OU5 and this interrelationship is driven by the fluctuations in water surface elevations between Woman Creek and the adjacent alluvial ground water. These relationships are important for both surface-water and ground-water modeling of OU5 which will be conducted as part of the Phase I RFI/RI analysis.

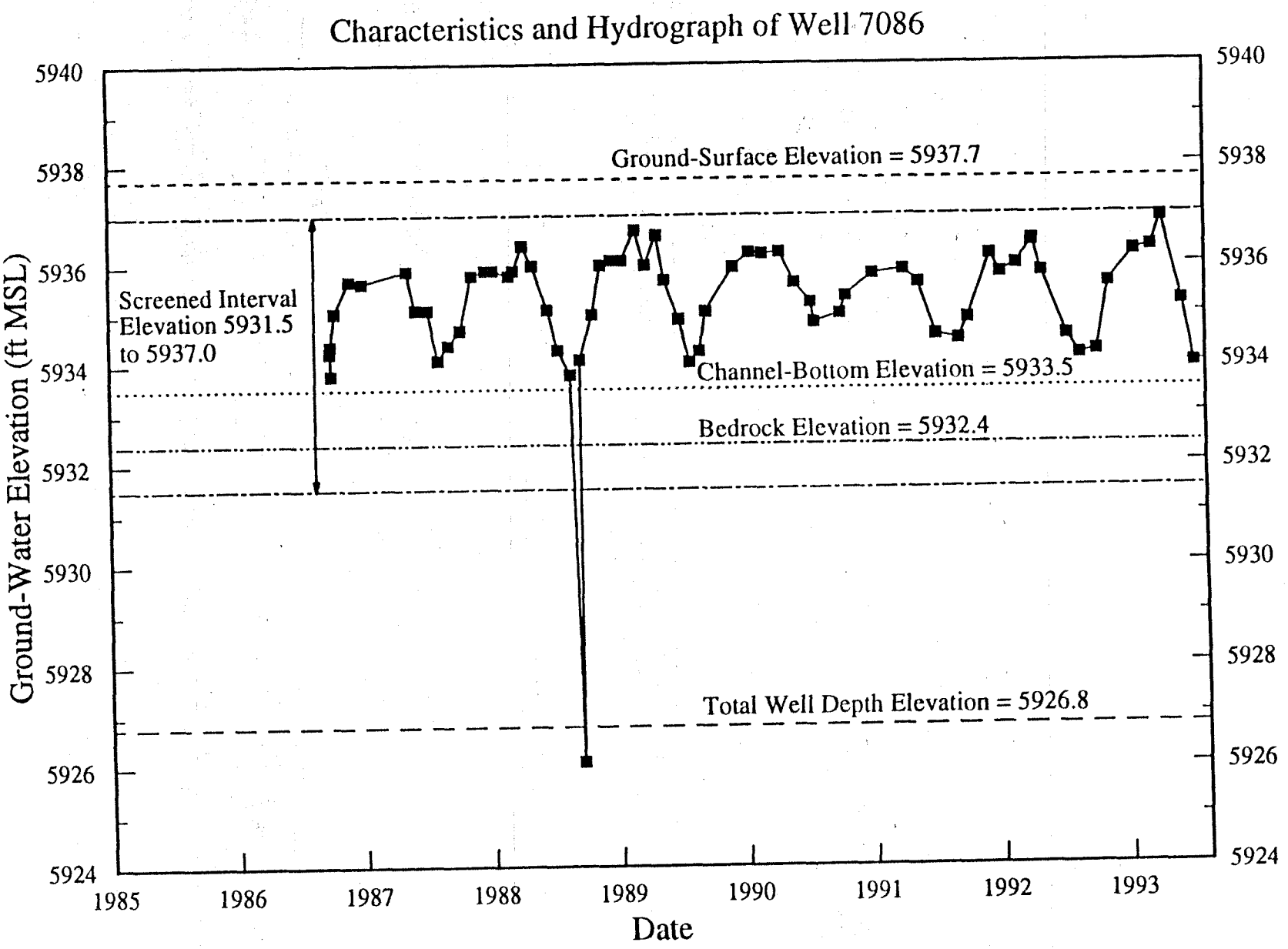

Characteristics and Hydrograph of Well 7086
Ground-Water Elevation (ft MSL)
5940
5938
5936
5934
5932
5930
5928
5926
5924
Ground-Surface Elevation = 5937.7
Screened Interval
Elevation 5931.5
to 5937.0
Channel-Bottom Elevation = 5933.5
Bedrock Elevation = 5932.4
Total Well Depth Elevation = 5926.8
1985
1986
1987
1988
1989
1990
1991
1992
1993
Date

Fig 2

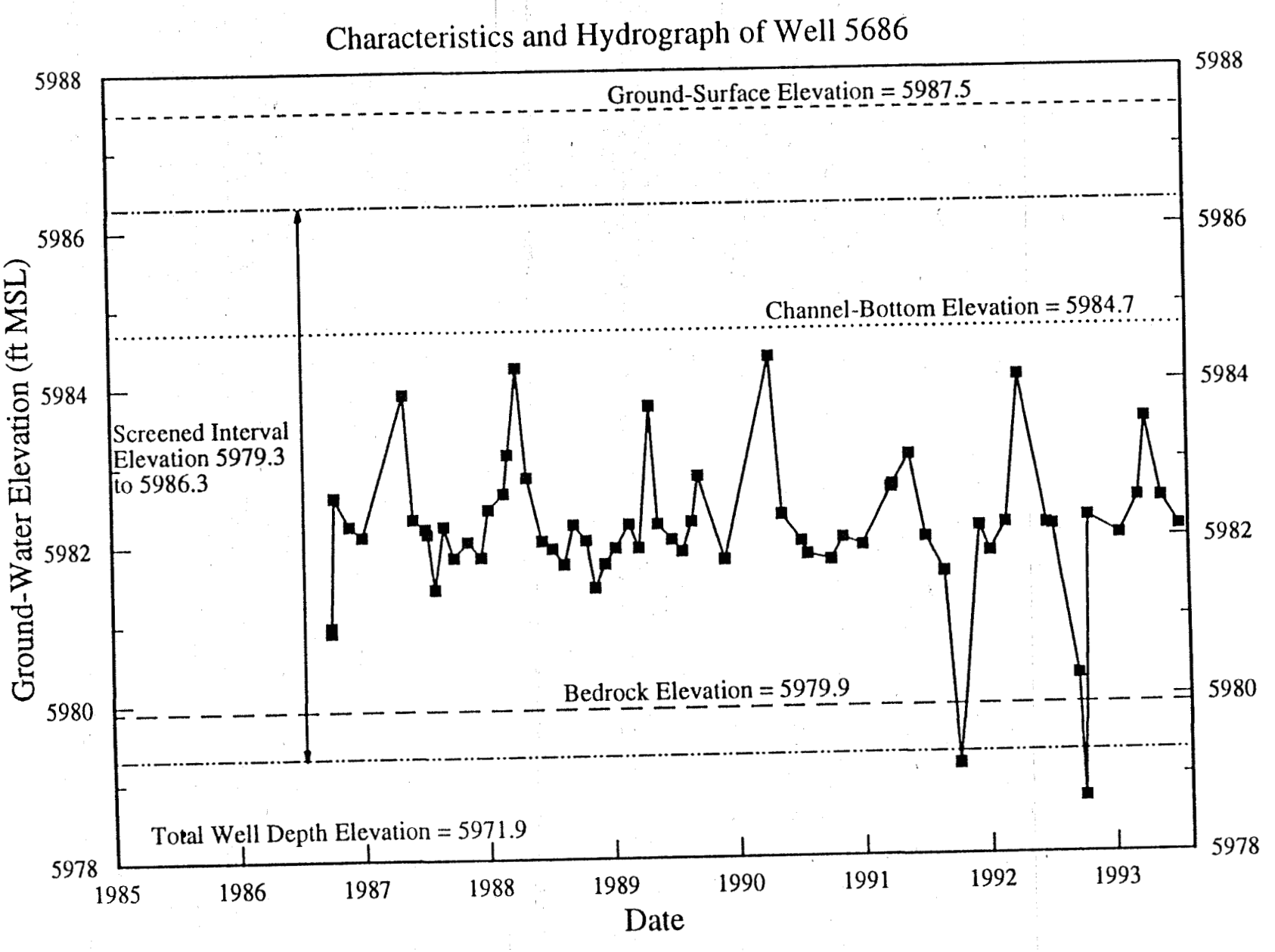

Characteristics and Hydrograph of Well 5686
Ground-Surface Elevation = 5987.5
Channel-Bottom Elevation = 5984.7
Screened Interval
Elevation 5979.3
to 5986.3
Bedrock Elevation = 5979.9
Total Well Depth Elevation = 5971.9
Ground-Water Elevation (ft MSL)
Date
5988
5986
5984
5982
5980
5978
1985
1986
1987
1988
1989
1990
1991
1992
1993

Fig 3

Table H-2

Draft Well Point Data - OU5 - March 2-3, 1993

RFEDS Well Pt. Number	ASI Well Pt. Number	Coordinates State Northing (ft N)	Coordinates State Easting (ft E)	Surveyed Measuring Point (ft MSL)	Well Pt. Total Depth (ft)	Average Depth to Water (ft)[1]	Saturated Thickness (ft)	Ground Water Surface Elevation (ft MSL)	Rod Reading to Stream Bottom (ft)	Height of Hand Level (ft)	Depth of Stream (ft)	Elevation of Stream Bottom (ft MSL)	Stream Water Surface Elevation (ft MSL)	G/W Surface Elevation minus S/W Surface Elevation (ft)[3]
51293	1	747246.8	2078314.7	6043.7	7.00	1.52	5.48	6042.2	7.56	5.00	0.03	6041.1	6041.2	1.0
51393	2	747313.6	2079057.4	6023.9	7.00	3.01	3.99	6020.9	8.82	5.00	0.42	6020.1	6020.5	0.4
51493	3	747282.6	2079716.8	6002.1	2.00	1.40	0.60	6000.7	6.41	5.00	0.25	6000.7	6000.9	-0.2
51593	4a	747060.0	2080102.2	5990.1	4.50	4.31	0.19	5985.8	9.42	5.00	0.46	5985.7	5986.1	-0.3
51693	4b1	747147.2	2080102.4	5997.3	18.00	14.04	3.96	5983.3	[2]					
51793	4c	747166.2	2080103.9	5999.4	11.00									
51893	4d	747185.4	2080105.2	6001.0	11.00									
51993	4e	747205.2	2080103.2	6003.5	12.00									
52093	4f	747225.3	2080103.2	6004.9	12.00									
52193	4g	747244.7	2080102.1	6006.5	11.20	8.38	2.82	5998.1						
52293	5a	746945.9	2080087.0	5990.4	4.00	1.73	2.27	5988.7						
52393	6	746489.7	2079702.2	6016.0	12.00	2.06	9.94	6014.0	8.56	5.00	0.22	6012.4	6012.7	1.3
52493	7	746212.7	2078977.4	6045.1	1.70				9.25	3.00	0.36	6038.9	6039.2	
52593	8a	747035.9	2080671.2	5972.7	4.00	1.67	2.33	5971.1	7.28	5.00	0.65	5970.4	5971.1	-0.0
52693	8b	747543.8	2081505.1	5952.0	6.00	5.55	0.45	5946.5						
52793	9a	747441.6	2082003.2	5937.9	4.00	2.61	1.39	5935.3	9.20	5.00	0.48	5933.7	5934.2	1.1
52893	9b	747518.2	2082002.1	5938.5	4.00	1.95	2.05	5936.6						
52993	9c	747562.6	2082001.7	5940.0	9.00	2.73	6.27	5937.3						
53093	9d	747594.1	2082005.4	5950.7	15.00	12.91	2.09	5937.8						
53193	9e	747612.8	2082003.4	5953.5	15.00									
53293	9f	747657.1	2082003.9	5966.8	24.00	11.32	12.68	5955.5						
53393	10	747499.8	2082736.0	5917.7	3.00	1.39	1.61	5916.3	7.00	5.00	1.05	5915.7	5916.8	-0.4
53493	11	747195.6	2083173.9	5905.4	10.00	5.52	4.48	5899.9	10.20	2.00	0.56	5897.2	5897.8	2.1
53593	12	747223.2	2083949.8	5877.4	3.00	1.81	1.19	5875.6	6.90	5.00	0.59	5875.5	5876.1	-0.5
53693	13	747120.3	2083987.0	5884.1	6.00		6.00	5884.1	9.87	5.00	0.34	5879.2	5879.6	4.5
53793	14	746270.6	2082800.7	5949.7	5.00	1.66	3.34	5948.1	4.68	2.00	0.38	5947.0	5947.4	0.7
53893	15	747386.6	2084558.9	5867.5	3.00				10.20	2.00	0.36	5859.3	5859.7	
53993	16a	747614.0	2085058.3	5852.6	8.00	3.97	4.03	5848.6	9.30	5.00	0.30	5848.3	5848.6	0.0
54093	16b	747641.9	2085052.2	5852.8	8.00	3.81	4.19	5849.0						
54193	16c	747669.0	2085045.9	5859.0	2.18	2.11	0.07	5856.9						
54293	16d	747688.9	2085039.9	5866.3	10.00									
54393	16e	747709.1	2085034.0	5873.0	14.00									
54493	16f	747742.3	2085024.7	5881.9	19.00									
54593	C1			5000.0	7.00	6.01	0.99	4994.0	7.72	2.00	0.39	4994.3	4994.7	-0.7
54693	18	747937.2	2087123.4	5797.9	8.00	5.05	2.95	5792.9	8.08	2.00	0.54	5791.8	5792.4	0.5
54793	20	747843.9	2087876.1	5774.9	4.00	1.66	2.34	5773.3	6.90	5.00	0.44	5773.0	5773.4	-0.2

1) Based upon three measurements having a variation of no more than 0.02 feet.
2) Blank space means no data available.
3) Positive value indicates a gaining stream and negative value indicates a losing stream.

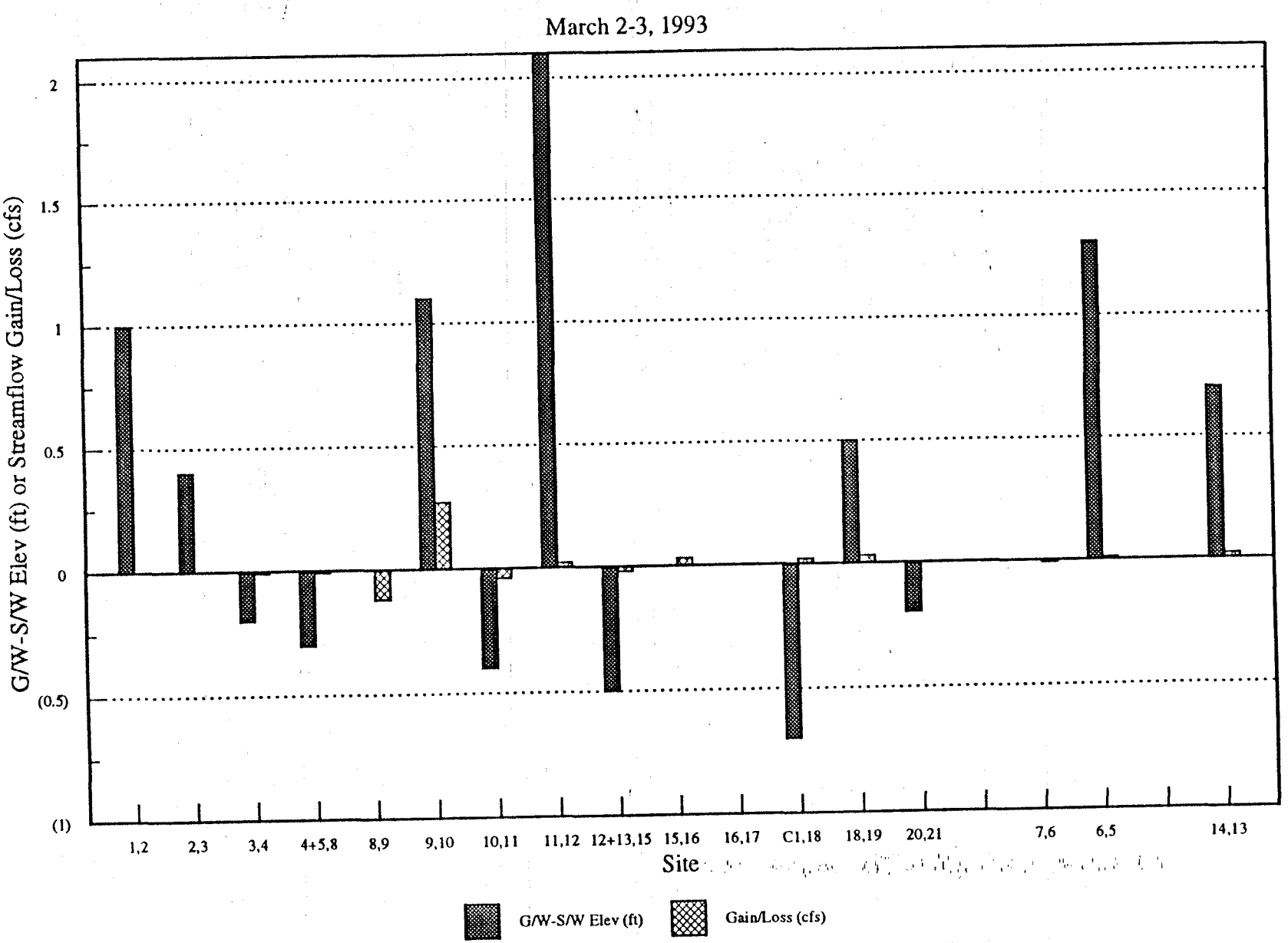

March 2-3, 1993
G/W-S/W Elev (ft) or Streamflow Gain/Loss (cfs)
2
1.5
1
0.5
0
(0.5)
(1)
1,2
2,3
3,4
4+5,8
8,9
9,10
10,11
11,12
12+13,15
15,16
16,17
C1,18
18,19
20,21
7,6
6,5
14,13
Site
G/W-S/W Elev (ft)
Gain/Loss (cfs)

Fig H-1

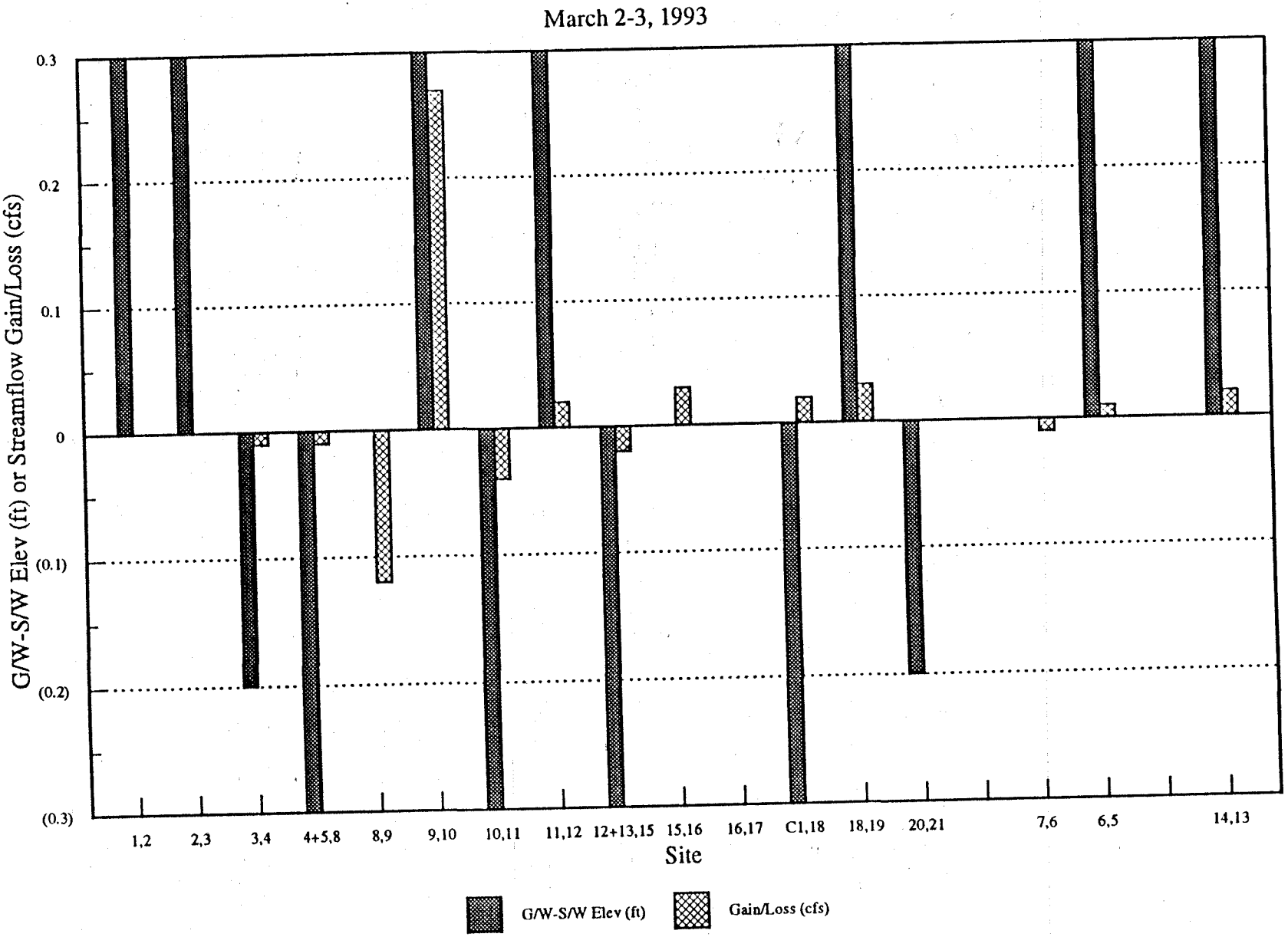

March 2-3, 1993
G/W-S/W Elev (ft) or Streamflow Gain/Loss (cfs)
0.3
0.2
0.1
0
(0.1)
(0.2)
(0.3)
1,2
2,3
3,4
4+5,8
8,9
9,10
10,11
11,12
12+13,15
15,16
16,17
C1,18
18,19
20,21
7,6
6,5
14,13
Site
G/W-S/W Elev (ft)
Gain/Loss (cfs)

Fig H-2

Table H-2

Draft Well Point Data - OU5 - April 6-7, 1993

RFEDS Well Pt. Number	ASI Well Pt. Number	Coordinates State Northing (ft N)	Coordinates State Easting (ft E)	Surveyed Measuring Point (ft MSL)	Well Pt. Total Depth (ft)	Average Depth to Water (ft)[1]	Saturated Thickness (ft)	Ground Water Surface Elevation (ft MSL)	Rod Reading to Stream Bottom (ft)	Height of Hand Level (ft)	Depth of Stream (ft)	Elevation of Stream Bottom (ft MSL)	Stream Water Surface Elevation (ft MSL)	G/W Surface Elevation minus S/W Surface Elevation (ft)[3]
51293	1	747246.8	2078314.7	6043.7	7.00	0.39	6.61	6043.3	7.85	5.00	0.20	6040.9	6041.1	2.3
51393	2	747313.6	2079057.4	6023.9	7.00	2.62	4.38	6021.3	8.79	5.00	0.80	6020.1	6020.9	0.4
51493	3	747282.6	2079716.8	6002.1	2.00	1.28	0.72	6000.9	6.65	5.00	0.42	6000.5	6000.9	0.0
51593	4a	747060.0	2080102.2	5990.1	4.50	4.17	0.33	5986.0	9.62	5.00	0.64	5985.5	5986.1	-0.1
51693	4b1	747147.2	2080102.4	5997.3	18.00	6.32	11.68	5991.0	[2]					
51793	4c	747166.2	2080103.9	5999.4	11.00	9.36	1.64	5990.0						
51893	4d	747185.4	2080105.2	6001.0	11.00	1.46	9.54	5999.6						
51993	4e	747205.2	2080103.2	6003.5	12.00	1.15	10.85	6002.4						
52093	4f	747225.3	2080103.2	6004.9	12.00	1.17	10.83	6003.7						
52193	4g	747244.7	2080102.1	6006.5	11.20	0.80	10.40	6005.7						
52293	5a	746945.9	2080087.0	5990.4	4.00	1.53	2.47	5988.9	5.92	5.00	0.11	5989.5	5989.6	-0.7
52393	6	746489.7	2079702.2	6016.0	12.00	1.69	10.31	6014.4	8.55	5.00	0.38	6012.5	6012.8	1.5
52493	7	746212.7	2078977.4	6045.1	1.76	Dry		~~6045.1~~	9.15	3.00	0.36	6039.0	6039.3	~~5.8~~
52593	8a	747035.9	2080671.2	5972.7	4.00	1.36	2.64	5971.4	6.92	5.00	0.30	5970.8	5971.1	0.3
52693	8b	747543.8	2081505.1	5952.0	6.00	5.35	0.65	5946.7	8.21	5.00	Dry	5948.8		
52793	9a	747441.6	2082003.2	5937.9	4.00	2.46	1.54	5935.5	9.40	5.00	0.46	5933.5	5934.0	1.5
52893	9b	747518.2	2082002.1	5938.5	4.00	1.34	2.66	5937.2						
52993	9c	747562.6	2082001.7	5940.0	9.00	2.38	6.62	5937.7						
53093	9d	747594.1	2082005.4	5950.7	15.00	12.69	2.31	5938.0						
53193	9e	747612.8	2082003.4	5953.5	12.57	Dry								
53293	9f	747657.1	2082003.9	5966.8	24.00	10.62	13.38	5956.2	6.80	5.00	0.30	5965.0	5965.3	-9.1
53393	10	747499.8	2082736.0	5917.7	3.00	0.95	2.05	5916.8	6.90	5.00	1.20	5915.8	5917.0	-0.2
53493	11	747195.6	2083173.9	5905.4	10.00	4.83	5.17	5900.6	10.60	2.00	0.85	5896.8	5897.7	2.9
53593	12	747223.2	2083949.8	5877.4	3.00	1.75	1.25	5875.7	7.11	5.00	0.43	5875.3	5875.7	-0.1
53693	13	747120.3	2083987.0	5884.1	6.00	4.24	1.76	5879.9	9.90	5.00	0.38	5879.2	5879.6	0.3
53793	14	746270.6	2082800.7	5949.7	5.00	2.01	2.99	5947.7	7.65	5.00	0.35	5947.1	5947.4	0.3
53893	15	747386.6	2084558.9	5867.5	3.12	Dry		~~5867.5~~	10.15	2.00	0.85	5859.4	5860.2	~~7.5~~
53993	16a	747614.0	2085058.3	5852.6	8.00	3.63	4.37	5849.0	9.42	5.00	0.29	5848.2	5848.5	0.5
54093	16b	747641.9	2085052.2	5852.8	8.00	3.22	4.78	5849.6						
54193	16c	747669.0	2085045.9	5859.0	2.18	1.54	0.64	5857.5						
54293	16d	747688.9	2085039.9	5866.3	10.00	Plugged								
54393	16e	747709.1	2085034.0	5873.0	14.39	Dry								
54493	16f	747742.3	2085024.7	5881.9	18.77	Dry			9.30	1.00	0.20	5873.6	5873.8	
54593	C1			5000.0	7.00	5.43	1.57	4994.6	7.95	2.00	0.46	4994.1	4994.5	0.1
54693	18	747937.2	2087123.4	5797.9	8.00	4.64	3.36	5793.3	8.15	2.00	0.72	5791.8	5792.5	0.8
54793	20	747843.9	2087876.1	5774.9	4.00	1.40	2.60	5773.5	6.95	5.00	0.74	5773.0	5773.7	-0.1

1) Based upon three measurements having a variation of no more than 0.02 feet.

2) Blank space means no data available.

3) Positive value indicates a gaining stream and negative value indicates a losing stream.

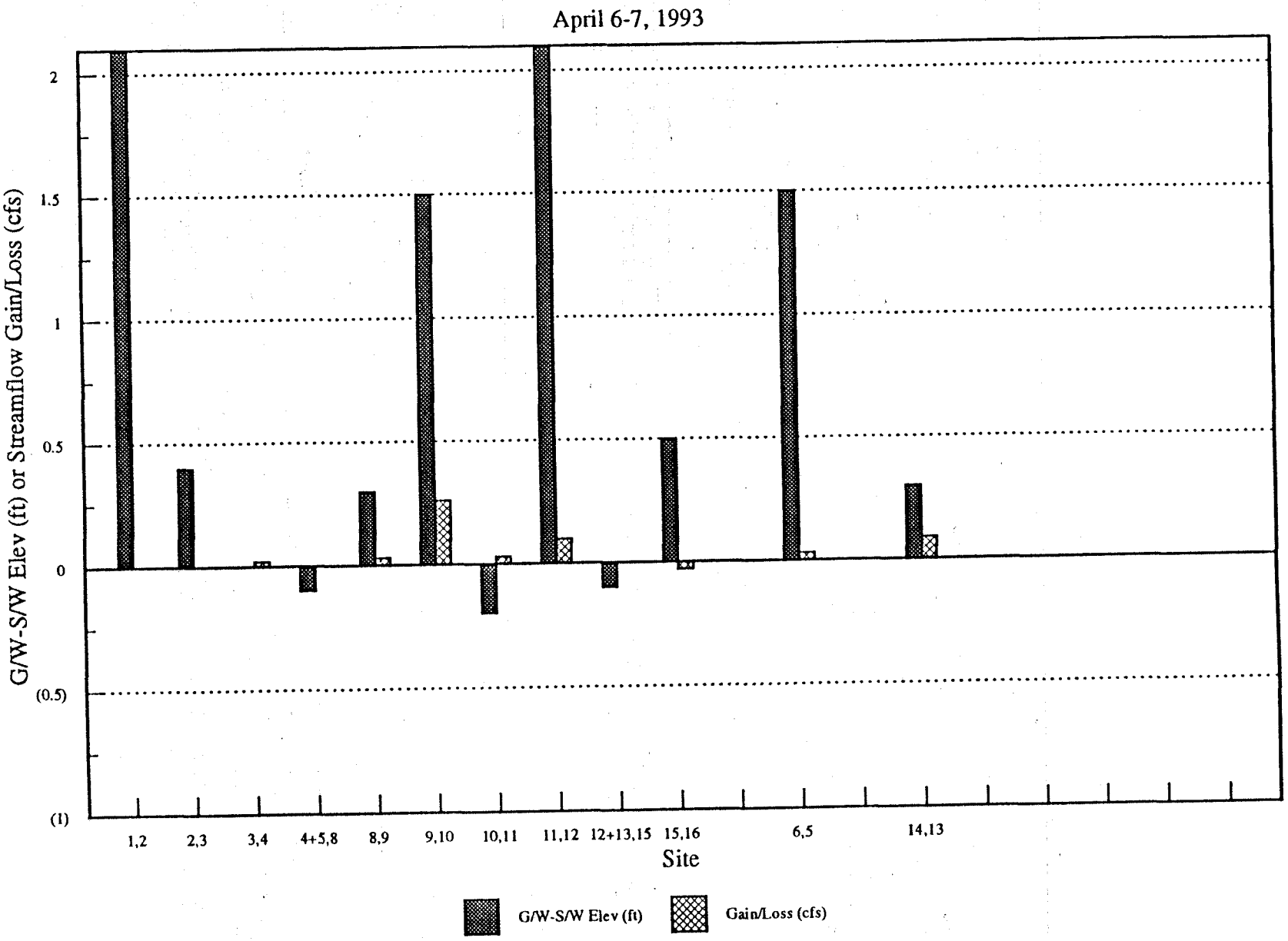

April 6-7, 1993
G/W-S/W Elev (ft) or Streamflow Gain/Loss (cfs)
2
1.5
1
0.5
0
(0.5)
(1)
1,2
2,3
3,4
4+5,8
8,9
9,10
10,11
11,12
12+13,15
15,16
6,5
14,13
Site
G/W-S/W Elev (ft)
Gain/Loss (cfs)

Fig H-3

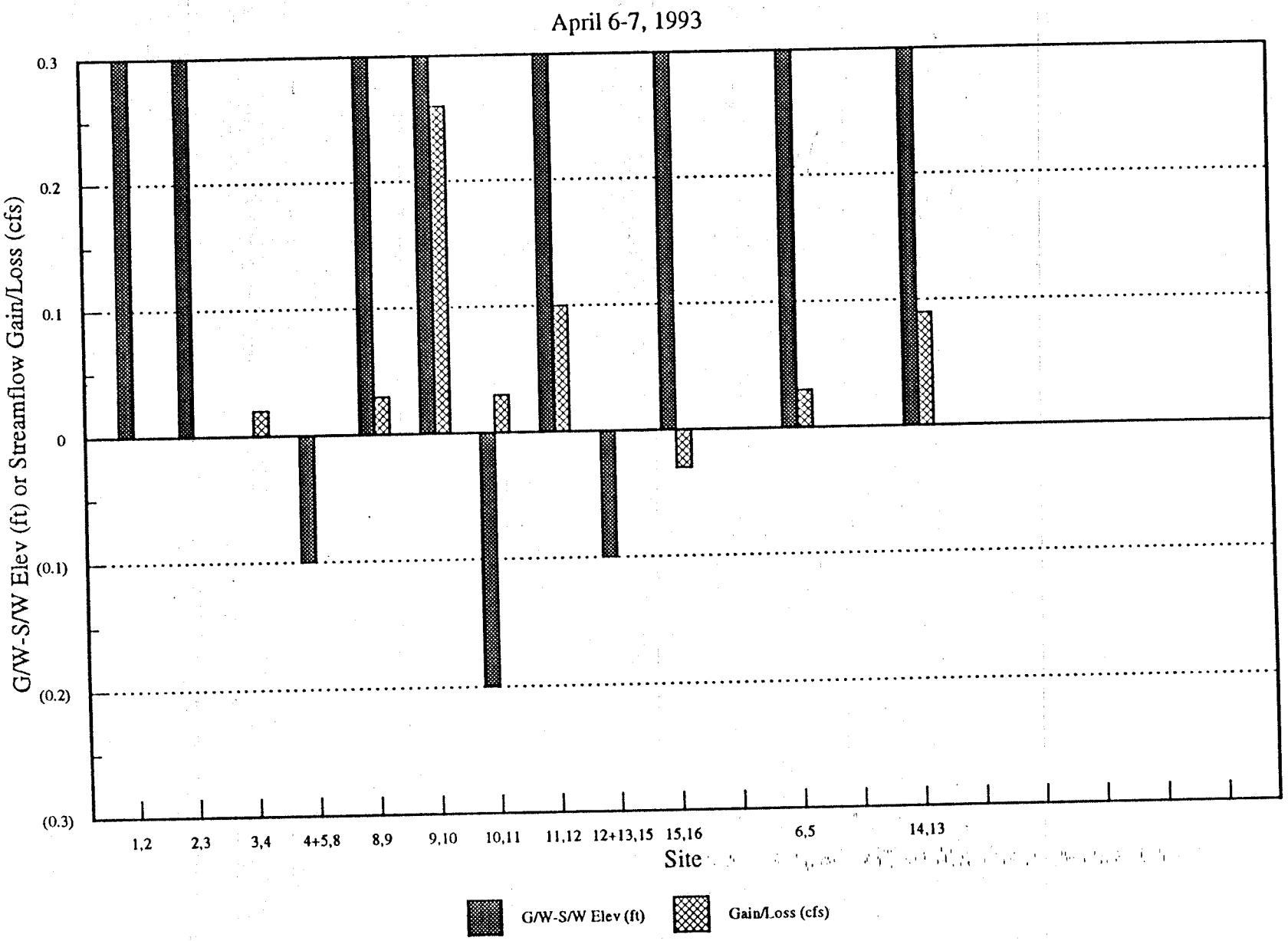

April 6-7, 1993
G/W-S/W Elev (ft) or Streamflow Gain/Loss (cfs)
0.3
0.2
0.1
0
(0.1)
(0.2)
(0.3)
1,2
2,3
3,4
4+5,8
8,9
9,10
10,11
11,12
12+13,15
15,16
6,5
14,13
Site
G/W-S/W Elev (ft)
Gain/Loss (cfs)

Fig H-4

Table H-2

Draft Well Point Data - OU5 - May 6-7, 1993

RFEDS Well Pt. Number	ASI Well Pt. Number	Coordinates State Northing (ft N)	Coordinates State Easting (ft E)	Surveyed Measuring Point (ft MSL)	Well Pt. Total Depth (ft)	Average Depth to Water (ft)[1]	Saturated Thickness (ft)	Ground Water Surface Elevation (ft MSL)	Rod Reading to Stream Bottom (ft)	Height of Hand Level (ft)	Depth of Stream (ft)	Elevation of Stream Bottom (ft MSL)	Stream Water Surface Elevation (ft MSL)	G/W Surface Elevation minus S/W Surface Elevation (ft)[3]
51293	1	747246.8	2078314.7	6043.7	7.00	0.65	6.35	6043.1	7.95	5.00	0.02	6040.8	6040.8	2.3
51393	2	747313.6	2079057.4	6023.9	7.00	2.93	4.07	6021.0	8.90	5.00	0.26	6020.0	6020.3	0.7
51493	3	747282.6	2079716.8	6002.1	2.00	1.42	0.58	6000.7	6.36	5.00	0.22	6000.7	6001.0	-0.3
51593	4a	747060.0	2080102.2	5990.1	4.50	4.66	-0.16	5985.4	10.24	5.00	0.20	5984.9	5985.1	0.4
51693	4b1	747147.2	2080102.4	5997.3	18.00	7.44	10.56	5989.9	[2]					
51793	4c	747166.2	2080103.9	5999.4	11.00	7.48	3.52	5991.9						
51893	4d	747185.4	2080105.2	6001.0	11.00	3.86	7.14	5997.1						
51993	4e	747205.2	2080103.2	6003.5	12.00	5.95	6.05	5997.6						
52093	4f	747225.3	2080103.2	6004.9	12.00	4.98	7.02	5999.9						
52193	4g	747244.7	2080102.1	6006.5	11.20	6.74	4.46	5999.8	6.74	5.00	0.12	5988.7	5988.8	-0.4
52293	5a	746945.9	2080087.0	5990.4	4.00	2.05	1.95	5988.4	8.70	5.00	0.18	6012.3	6012.5	1.3
52393	6	746489.7	2079702.2	6016.0	12.00	2.19	9.81	6013.8	8.20	2.00	0.32	6038.9	6039.2	
52493	7	746212.7	2078977.4	6045.1	1.76	Dry			7.18	5.00	0.48	5970.5	5971.0	-0.1
52593	8a	747035.9	2080671.2	5972.7	4.00	1.76	2.24	5970.9						
52693	8b	747543.8	2081505.1	5952.0	6.00	5.60	0.40	5946.4	10.00	5.00	0.34	5932.9	5933.2	2.0
52793	9a	747441.6	2082003.2	5937.9	4.00	2.63	1.37	5935.3						
52893	9b	747518.2	2082002.1	5938.5	4.00	2.33	1.67	5936.2						
52993	9c	747562.6	2082001.7	5940.0	9.00	2.97	6.03	5937.0						
53093	9d	747594.1	2082005.4	5950.7	15.00	12.85	2.15	5937.9						
53193	9e	747612.8	2082003.4	5953.5	15.95	Dry								
53293	9f	747657.1	2082003.9	5966.8	24.00	8.50	15.50	5958.3	6.60	5.00	0.60	5916.1	5916.7	-0.5
53393	10	747499.8	2082736.0	5917.7	3.00	1.53	1.47	5916.2	11.00	3.00	0.24	5897.4	5897.6	2.3
53493	11	747195.6	2083173.9	5905.4	10.00	5.47	4.53	5899.9	3.80	2.00	0.10	5875.6	5875.7	-0.2
53593	12	747223.2	2083949.8	5877.4	3.00	1.93	1.07	5875.5	7.78	3.00	0.14	5879.3	5879.5	-0.3
53693	13	747120.3	2083987.0	5884.1	6.00	4.95	1.05	5879.2	5.82	3.00	0.20	5946.9	5947.1	-0.5
53793	14	746270.6	2082800.7	5949.7	5.00	3.16	1.84	5946.5	11.00	3.00	0.50	5859.5	5860.0	
53893	15	747386.6	2084558.9	5867.5	3.12	Dry			7.74	3.00	0.20	5847.9	5848.1	0.6
53993	16a	747614.0	2085058.3	5852.6	8.00	3.95	4.05	5848.7						
54093	16b	747641.9	2085052.2	5852.8	8.00	3.75	4.25	5849.1						
54193	16c	747669.0	2085045.9	5859.0	2.18	1.64	0.54	5857.4						
54293	16d	747688.9	2085039.9	5866.3	3.38	Dry								
54393	16e	747709.1	2085034.0	5873.0	14.50	Dry								
54493	16f	747742.3	2085024.7	5881.9	18.87	Dry								
54593	C1			5000.0	7.00	5.78	1.22	4994.2	8.62	3.00	0.26	4994.4	4994.6	-0.4
54693	18	747937.2	2087123.4	5797.9	8.00	5.04	2.96	5792.9	9.20	3.00	0.40	5791.7	5792.1	0.8
54793	20	747843.9	2087876.1	5774.9	4.00	1.77	2.23	5773.1	4.92	3.00	0.36	5773.0	5773.3	-0.2

1) Based upon three measurements having a variation of no more than 0.02 feet.
2) Blank space means no data available.
3) Positive value indicates a gaining stream and negative value indicates a losing stream.

File: WELLPT.WK3

Status: 16-Aug-93

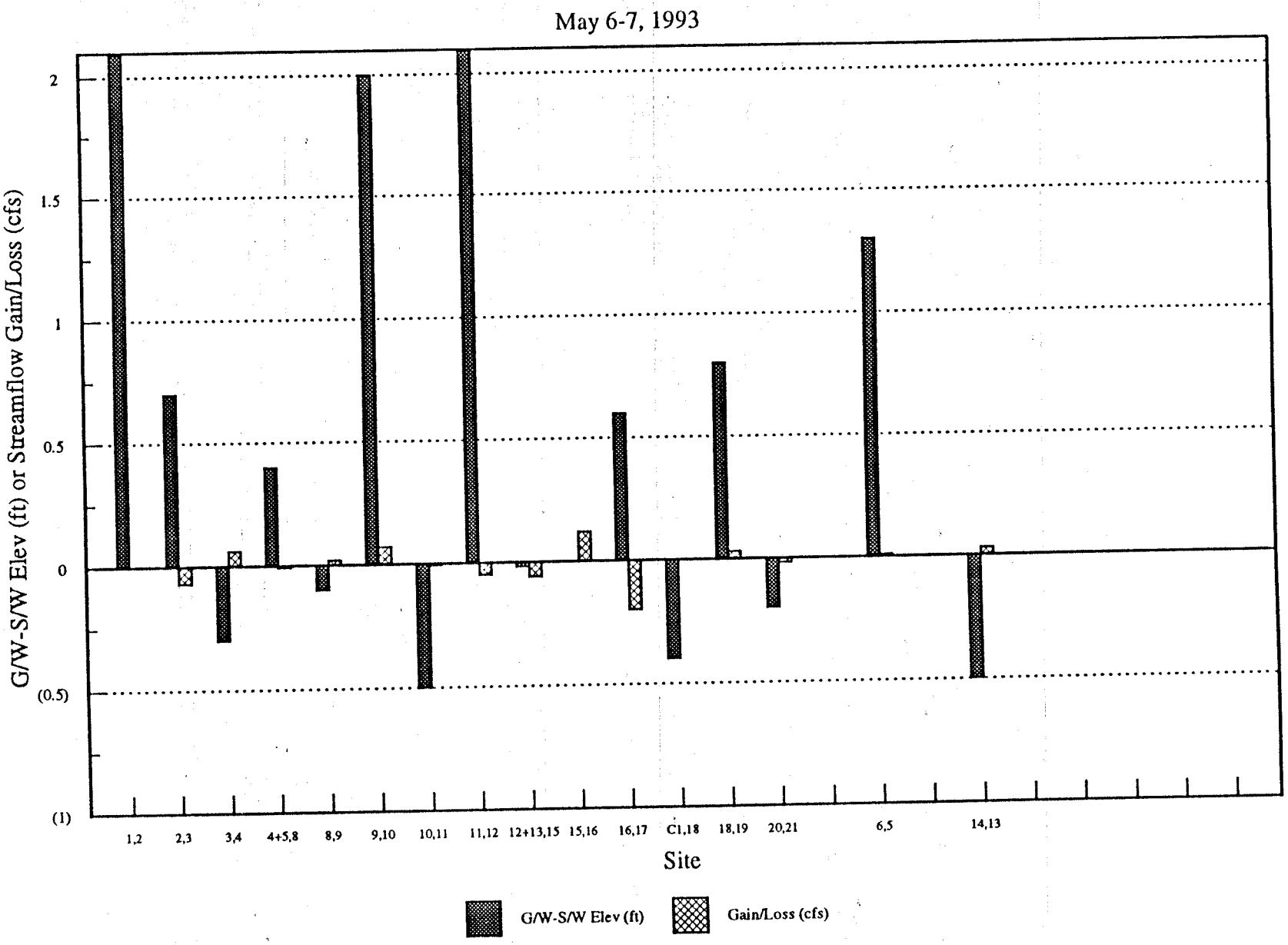
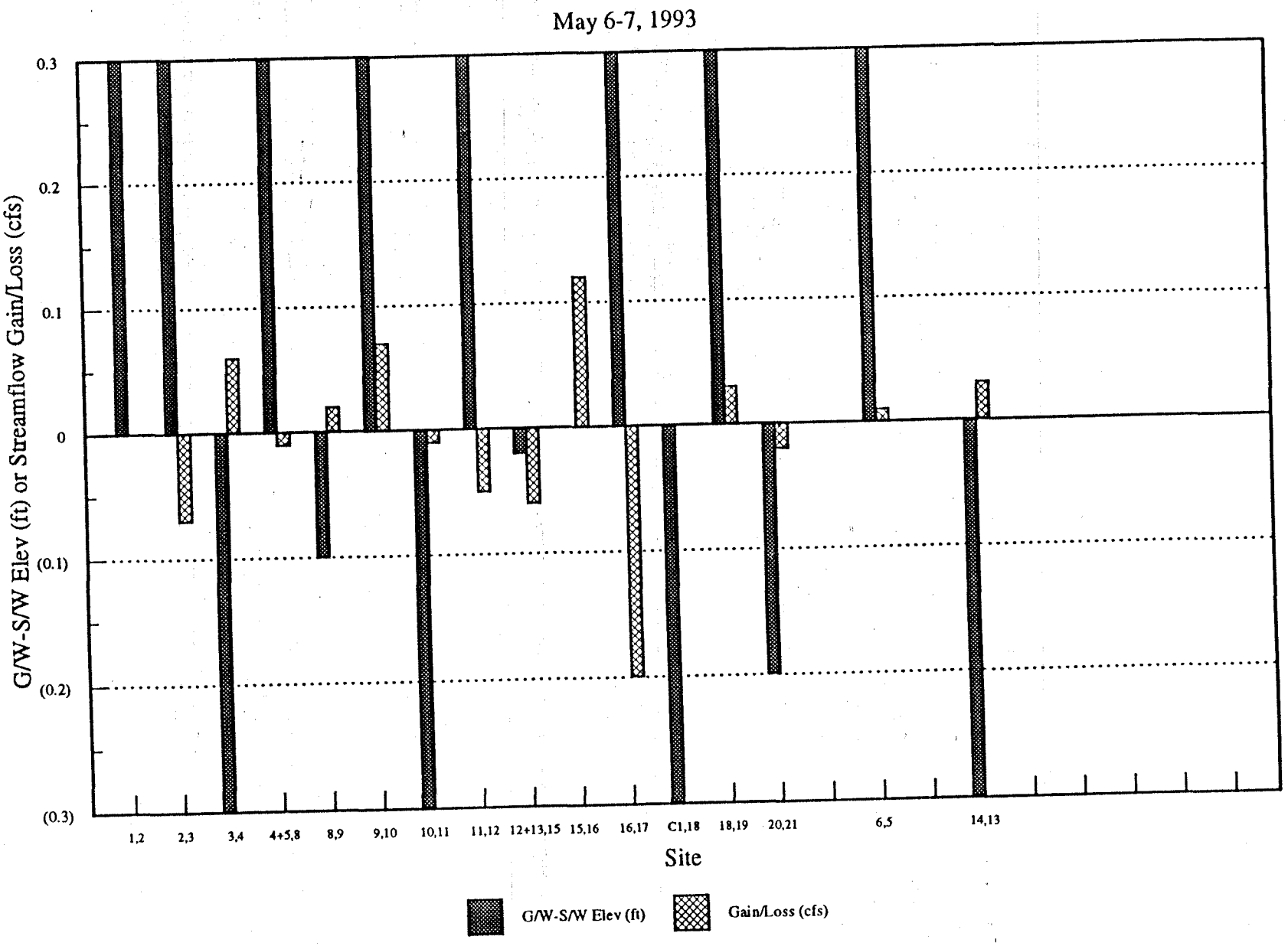

May 6-7, 1993
G/W-S/W Elev (ft) or Streamflow Gain/Loss (cfs)
2
1.5
1
0.5
0
(0.5)
(1)
1,2
2,3
3,4
4+5,8
8,9
9,10
10,11
11,12
12+13,15
15,16
16,17
C1,18
18,19
20,21
6,5
14,13
Site
G/W-S/W Elev (ft)
Gain/Loss (cfs)

Fig H-5


May 6-7, 1993
G/W-S/W Elev (ft) or Streamflow Gain/Loss (cfs)
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0.2
0.1
0
(0.1)
(0.2)
(0.3)
1,2
2,3
3,4
4+5,8
8,9
9,10
10,11
11,12
12+13,15
15,16
16,17
C1,18
18,19
20,21
6,5
14,13
Site
G/W-S/W Elev (ft)
Gain/Loss (cfs)

Fig H-6

Table II-2

Draft Well Point Data - OU5 - June 17-18, 1993

RFEDS Well Pt. Number	ASI Well Pt. Number	Coordinates State Northing (ft N)	Coordinates State Easting (ft E)	Surveyed Measuring Point (ft MSL)	Well Pt. Total Depth (ft)	Average Depth to Water (ft)[1]	Saturated Thickness (ft)	Ground Water Surface Elevation (ft MSL)	Rod Reading to Stream Bottom (ft)	Height of Hand Level (ft)	Depth of Stream (ft)	Elevation of Stream Bottom (ft MSL)	Stream Water Surface Elevation (ft MSL)	G/W Surface Elevation minus S/W Surface Elevation (ft)[3]
51293	1	747246.8	2078314.7	6043.7	7.00	2.18	4.82	6041.5	7.85	5.00	0.02	6040.9	6040.9	0.6
51393	2	747313.6	2079057.4	6023.9	7.00	3.06	3.94	6020.8	8.80	5.00	0.44	6020.1	6020.5	0.3
51493	3	747282.6	2079716.8	6002.1	2.00	1.59	0.41	6000.5	6.65	5.00	0.12	6000.5	6000.6	-0.1
51593	4a	747060.0	2080102.2	5990.1	4.50	4.66	-0.16	5985.4	10.40	5.00	0.14	5984.7	5984.8	0.6
51693	4b1	747147.2	2080102.4	5997.3	18.00	1.72	16.28	5995.6	[2]					
51793	4c	747166.2	2080103.9	5999.4	11.00	8.78	2.22	5990.6						
51893	4d	747185.4	2080105.2	6001.0	11.00	7.19	3.81	5993.8						
51993	4e	747205.2	2080103.2	6003.5	12.00	8.75	3.25	5994.8						
52093	4f	747225.3	2080103.2	6004.9	12.00	8.83	3.17	5996.1						
52193	4g	747244.7	2080102.1	6006.5	11.20	7.21	3.99	5999.3						
52293	5a	746945.9	2080087.0	5990.4	4.00	3.18	0.82	5987.2	Dry	5.00				
52393	6	746489.7	2079702.2	6016.0	12.00	2.94	9.06	6013.1	8.65	5.00	0.60	6012.4	6013.0	0.1
52493	7	746212.7	2078977.4	6045.1	1.76	Dry			Dry	5.00				
52593	8a	747035.9	2080671.2	5972.7	4.00	2.52	1.48	5970.2	Dry	5.00				
52693	8b	747543.8	2081505.1	5952.0	6.00	6.03	-0.03	5946.0	Dry	5.00				
52793	9a	747441.6	2082003.2	5937.9	4.00	2.80	1.20	5935.1	9.70	5.00	0.23	5933.2	5933.4	1.7
52893	9b	747518.2	2082002.1	5938.5	4.00	3.24	0.76	5935.3						
52993	9c	747562.6	2082001.7	5940.0	9.00	3.66	5.34	5936.3						
53093	9d	747594.1	2082005.4	5950.7	15.00	13.36	1.64	5937.3						
53193	9e	747612.8	2082003.4	5953.5	15.95	Dry								
53293	9f	747657.1	2082003.9	5966.8	24.00	9.00	15.00	5957.8	6.40	5.00	2.60	5965.4	5968.0	
53393	10	747499.8	2082736.0	5917.7	3.00	2.03	0.97	5915.7	6.72	5.00	0.54	5916.0	5916.5	-0.8
53493	11	747195.6	2083173.9	5905.4	10.00	6.25	3.75	5899.2	10.45	2.00	0.50	5897.0	5897.5	1.7
53593	12	747223.2	2083949.8	5877.4	3.00	2.16	0.84	5875.2	6.82	5.00	0.10	5875.6	5875.7	-0.4
53693	13	747120.3	2083987.0	5884.1	6.00	5.88	0.12	5878.2	8.54	4.00	0.20	5879.6	5879.8	-1.5
53793	14	746270.6	2082800.7	5949.7	5.00	4.49	0.51	5945.2	7.50	5.00	0.18	5947.2	5947.4	-2.2
53893	15	747386.6	2084558.9	5867.5	3.12	Dry			10.92	3.00	0.30	5859.6	5859.9	
53993	16a	747614.0	2085058.3	5852.6	8.00	4.54	3.46	5848.1	7.34	3.00	0.10	5848.3	5848.4	-0.3
54093	16b	747641.9	2085052.2	5852.8	8.00	4.34	3.66	5848.5						
54193	16c	747669.0	2085045.9	5859.0	2.18	1.98	0.20	5857.0						
54293	16d	747688.9	2085039.9	5866.3	3.38	Dry								
54393	16e	747709.1	2085034.0	5873.0	14.50	Dry								
54493	16f	747742.3	2085024.7	5881.9	18.87	18.72	0.15		10.13	2.00	0.15	5873.8	5873.9	
54593	C1			5000.0	7.00	5.97	1.03	4994.0	10.45	5.00	0.48	4994.6	4995.0	-1.0
54693	18	747937.2	2087123.4	5797.9	8.00	5.47	2.53	5792.4	10.99	5.00	0.58	5791.9	5792.5	-0.1
54793	20	747843.9	2087876.1	5774.9	4.00	1.38	2.62	5773.5	6.81	5.00	1.00	5773.1	5774.1	-0.6

1) Based upon two measurements having a variation of no more than 0.01 feet.
2) Blank space means no data available.
3) Positive value indicates a gaining stream and negative value indicates a losing stream.

Table II-2

Draft Well Point Data - OU5 - July 13-14, 1993

REEDS Well Pt. Number	ASI Well Pt. Number	Coordinates State Northing (ft N)	Coordinates State Easting (ft E)	Surveyed Measuring Point (ft MSL)	Well Pt. Total Depth (ft)	Average Depth to Water (ft)[1]	Saturated Thickness (ft)	Ground Water Surface Elevation (ft MSL)	Rod Reading to Stream Bottom (ft)	Height of Hand Level (ft)	Depth of Stream (ft)	Elevation of Stream Bottom (ft MSL)	Stream Water Surface Elevation (ft MSL)	G/W Surface Elevation minus S/W Surface Elevation (ft)[3]
51293	1	747246.8	2078314.7	6043.7	7.00	3.11	3.89	6040.6	8.45	5.00	0.10	6040.3	6040.4	0.2
51393	2	747313.6	2079057.4	6023.9	7.00	5.31	1.69	6018.6	8.71	5.00	0.22	6020.2	6020.4	-1.8
51493	3	747282.6	2079716.8	6002.1	2.00	1.48	0.52	6000.6	6.43	5.00	0.17	6000.7	6000.8	-0.2
51593	4a	747060.0	2080102.2	5990.1	4.50	Dry		[2]	8.41	3.00	0.15	5984.7	5984.8	
51693	4b1	747147.2	2080102.4	5997.3	18.00	9.99	8.01	5987.3						
51793	4c	747166.2	2080103.9	5999.4	11.00	8.92	2.08	5990.5						
51893	4d	747185.4	2080105.2	6001.0	11.00	7.90	3.10	5993.1						
51993	4e	747205.2	2080103.2	6003.5	12.00	10.37	1.63	5993.1						
52093	4f	747225.3	2080103.2	6004.9	12.00	9.89	2.11	5995.0						
52193	4g	747244.7	2080102.1	6006.5	11.20	7.91	3.29	5998.6						
52293	5a	746945.9	2080087.0	5990.4	4.00	4.01	-0.01	5986.4	Dry	5.00	0.00			
52393	6	746489.7	2079702.2	6016.0	12.00	3.10	8.90	6012.9	8.73	5.00	0.00	6012.3	6012.3	0.6
52493	7	746212.7	2078977.4	6045.1	1.76	Dry			Dry	5.00	0.00			
52593	8a	747035.9	2080671.2	5972.7	4.00	2.02	1.98	5970.7	7.05	5.00	0.18	5970.7	5970.8	-0.2
52693	8b	747543.8	2081505.1	5952.0	6.00	6.04	-0.04	5946.0	Dry	5.00	0.00			
52793	9a	747441.6	2082003.2	5937.9	4.00	4.35	-0.35	5933.6	9.45	5.00	0.20	5933.5	5933.7	-0.1
52893	9b	747518.2	2082002.1	5938.5	4.00	3.52	0.48	5935.0						
52993	9c	747562.6	2082001.7	5940.0	9.00	4.30	4.70	5935.7						
53093	9d	747594.1	2082005.4	5950.7	15.00	Dry								
53193	9e	747612.8	2082003.4	5953.5	15.95	Dry				5.00				
53293	9f	747657.1	2082003.9	5966.8	24.00	10.20	13.80	5956.6		5.00	0.00			
53393	10	747499.8	2082736.0	5917.7	3.00	2.37	0.63	5915.3	Dry	2.00	0.00			
53493	11	747195.6	2083173.9	5905.4	10.00	7.17	2.83	5898.2	Dry	5.00	0.00			
53593	12	747223.2	2083949.8	5877.4	3.00	2.65	0.35	5874.8	Dry	5.00	0.01	5879.6	5879.6	
53693	13	747120.3	2083987.0	5884.1	6.00	Dry			9.5	5.00	0.19	5947.1	5947.3	-2.3
53793	14	746270.6	2082800.7	5949.7	5.00	4.72	0.28	5945.0	7.61	5.00	0.33	5859.5	5859.8	
53893	15	747386.6	2084558.9	5867.5	3.12	Dry			10.05	2.00	0.12	5848.2	5848.3	-0.4
53993	16a	747614.0	2085058.3	5852.6	8.00	4.67	3.33	5847.9	9.42	5.00				
54093	16b	747641.9	2085052.2	5852.8	8.00	4.37	3.63	5848.4						
54193	16c	747669.0	2085045.9	5859.0	2.18	1.86	0.32	5857.1						
54293	16d	747688.9	2085039.9	5866.3	3.38	Dry								
54393	16e	747709.1	2085034.0	5873.0	14.50	14.42	0.08	5858.6						
54493	16f	747742.3	2085024.7	5881.9	18.87	18.55	0.32	5863.4	10.2	2.00	0.21	5873.7	5873.9	
54593	C1			5000.0	7.00	6.89	0.11	4993.1	Dry	5.00	0.00			
54693	18	747937.2	2087123.4	5797.9	8.00	5.88	2.12	5792.0	Dry	5.00	0.00			
54793	20	747843.9	2087876.1	5774.9	4.00	2.44	1.56	5772.5	Dry	5.00	0.00			

1) Based upon two measurements having a variation of no more than 0.01 feet.
2) Blank space means no data available.
3) Positive value indicates a gaining stream and negative value indicates a losing stream.

Attachment 12

Aquifer Testing in OU5 is still in progress. Much of the field data have been collected, however analyses of those data are not yet available. The objective of aquifer testing is to acquire hydraulic characteristics specific to IHSS 133, IHSS 115 and the C1 Pond Area. This information will aid in the hydrogeological characterization of OU5 and in groundwater modeling.

Existing monitoring wells in each of these areas were selected to serve as pumping wells in the pump test field design.

Of the three monitoring wells installed downgradient of IHSS 133, only one well was considered productive enough for an aquifer test. This is well 58793.....located just south of ash pits....

Of the eight monitoring wells installed downgradient of IHSS 115, the landfill, only two wells were considered suitable for aquifer testing, as three had diameters too small to accomodate testing equipment and three were dry or nearly so. 59493 is located within the landfill in this depression, the site of a former pond. 59593 is located farther south, near Woman Creek.

In the C1 Pond area, only one well had any water, 51193.

Three 0.5" observation wells were installed radially away from each pumping well at 3, 6 and 10 feet, and at 120 degrees. All were developed vigorously by surging and rawhiding. Of the two productive wells at IHSS 115, 59493 was pump tested and 59593 was slug-tested.

IHSS 133

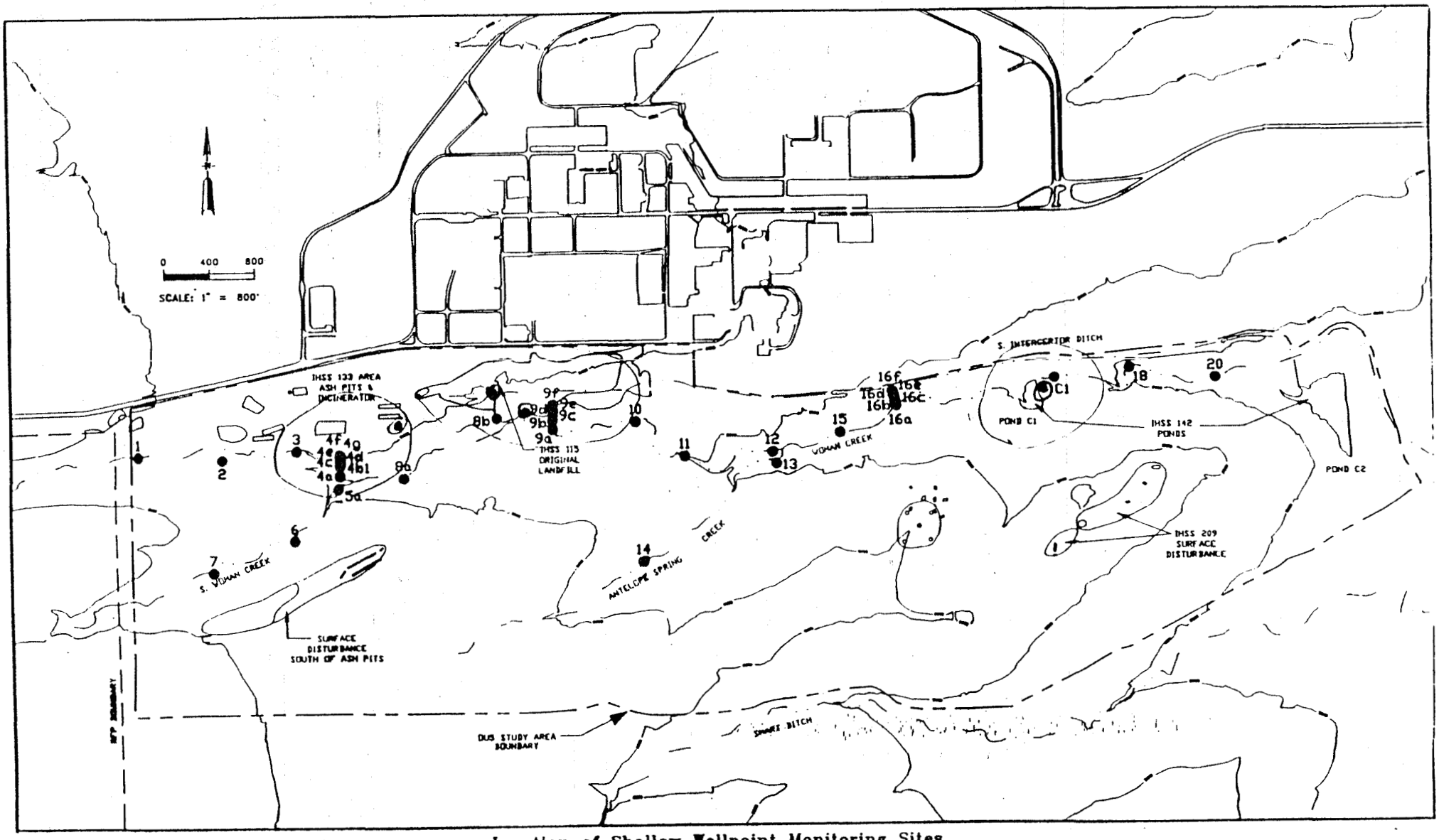
63593:	3.0' from pumping well, bedrock at 25.4.'
63693:	10' from pumping well, bedrock at 21.5.'
63793:	6' from pumping well, bedrock at 26.0.'
59493:	Pumping well, bedrock at 24.6'; step test indicated low transmissivity, Q < .1 gpm, saturated thickness of 9.0, materials are similar in all four holes, sandy clay with thin gravelly zones.

IHSS 115

63893:	6' from pumping well, bedrock at 19.2', drawdown at .26.'
63993:	3' from pumping well, bedrock at 14.8', drawdown at .19.'
64093:	10' from pumping well, bedrock at 14.0', drawdown at .1.'
59493:	Pumping well, bedrock at 14.5', drawdown at .8' which is 13% of total saturated thickness of 6.0 feet, very transmissive; Q at .5gpm, material is sand and gravel.

C1 Pond area

63293:	3' from pumping well, bedrock at 5.3', drawdown at .37.'
63393:	10' from pumping well, bedrock at 4.0', drawdown at 0.0.'
63493:	6' from pumping well, bedrock at 9.5', drawdown at .2.'
51193:	Pumping well, bedrock at 7.1', drawdown at .37', pumping at .18gpm, 23% of saturated thickness of 3.0 feet. All materials similar in about 30% gravel and 55% sand.



Location of Shallow Wellpoint Monitoring Sites
Woman Creek Drainage Basin

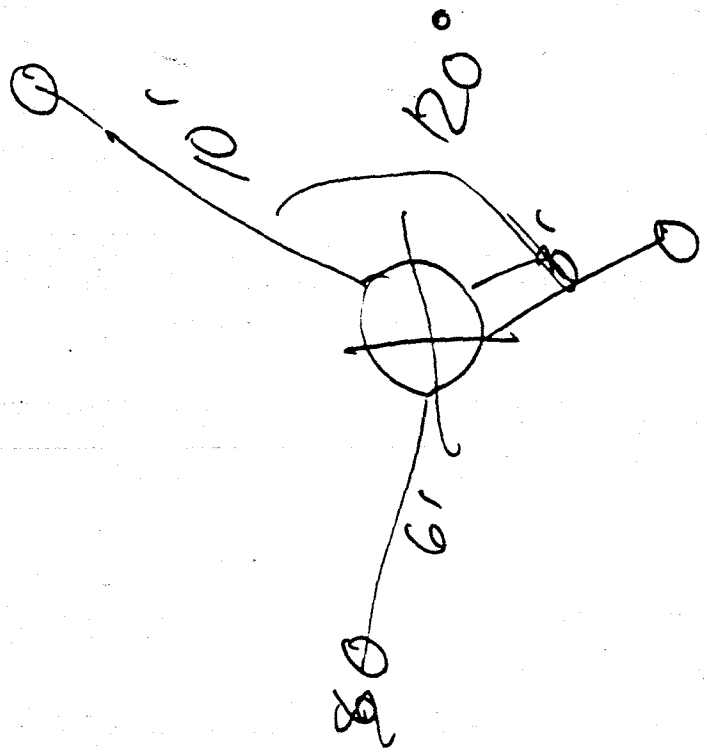
ADVANCED SCIENCES, INC.

ROCKY FLATS PLANT OU 5 RFI/RI
WOMAN CREEK PRIORITY DRAINAGE

ASI Project No. 9208.15

FIGURE

August 5, 1993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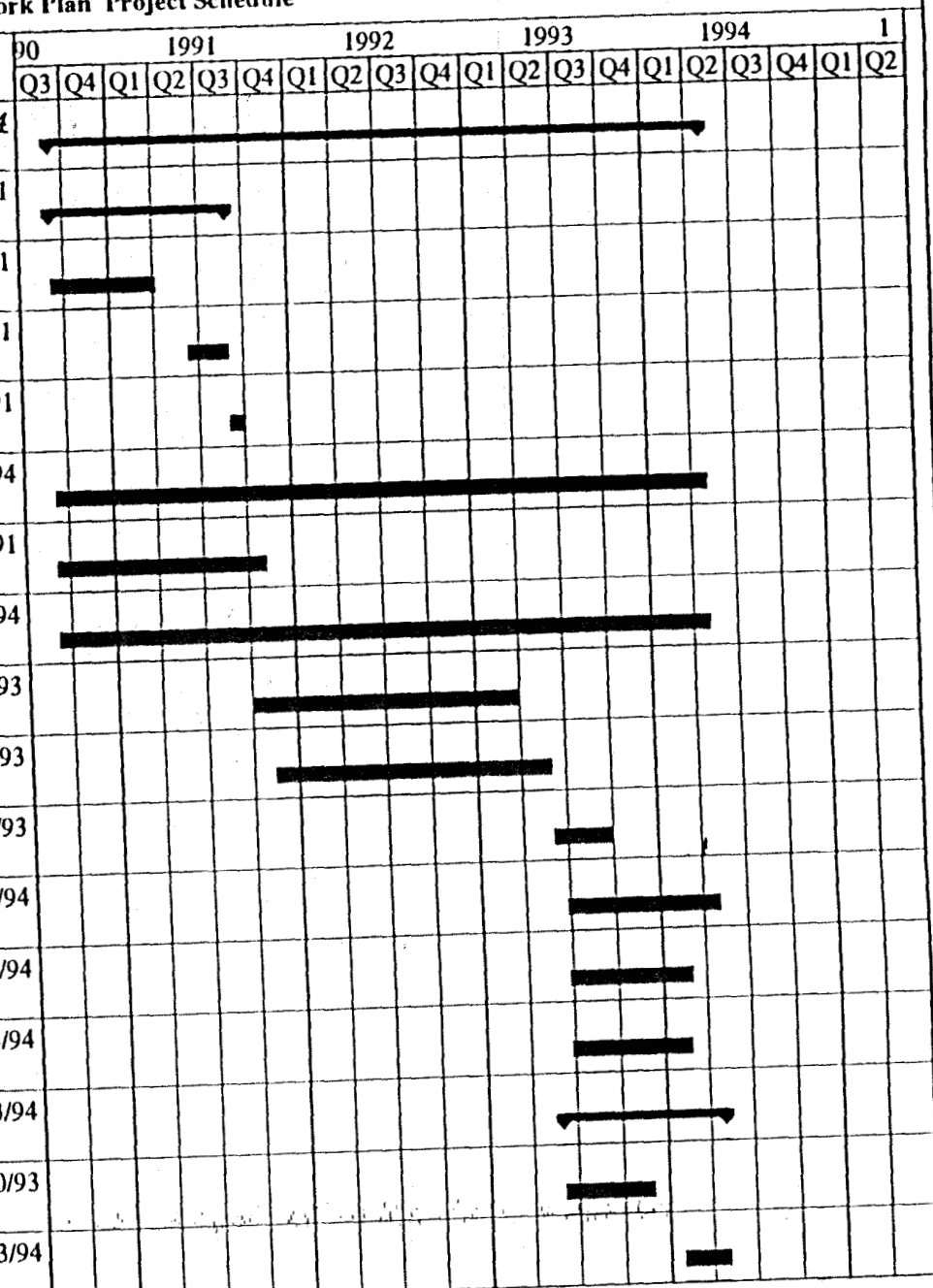
Attachment 13

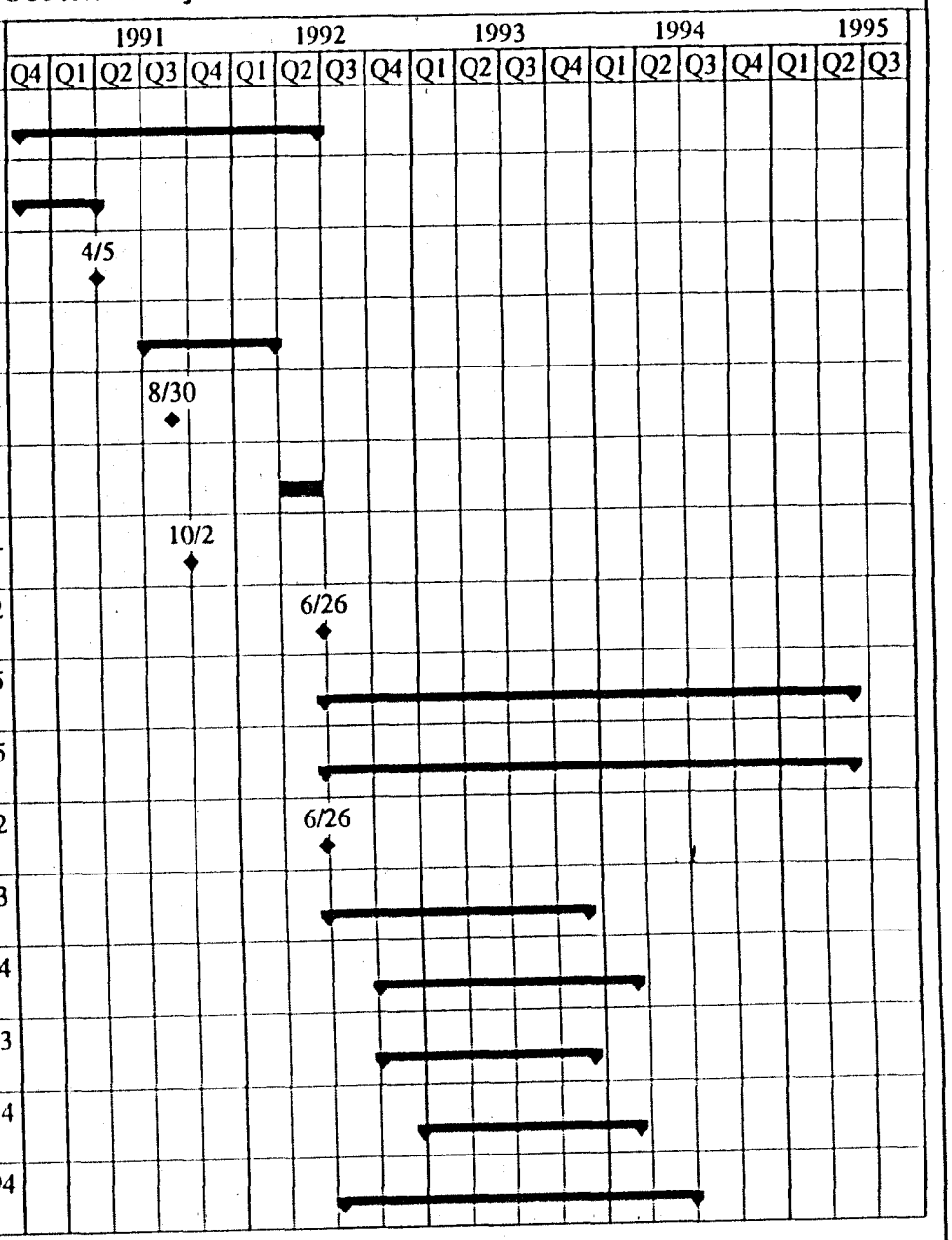
ATTACHMENT 1: OU5 Work Plan Project Schedule

Name	Schd. Start	Schd. Fin.
OU5 RFI/RI WORK PLAN SCHEDULE	*9/4/90*	*5/3/94*
Work Plan Development	9/4/90	8/30/91
Draft Work Plan	9/4/90	4/5/91
Final Work Plan	6/10/91	8/30/91
Procurement Cycle	9/1/91	10/1/91
Project Management	9/4/90	5/3/94
Task 1 - Project Planning	9/4/90	11/6/91
Task 2 - Community Relations	9/4/90	5/3/94
Task 3 - Field Investigation	10/2/91	3/30/93
Task 4 - Sample Analysis and Validation	11/14/91	6/1/93
Task 5 - Data Evaluation	6/4/93	9/29/93
Task 6 - Baseline Risk Assessment	6/25/93	5/3/94
Task 7 - Development & Screening of Alternatives	6/25/93	3/2/94
Task 8 - Treatability Studies	6/25/93	2/24/94
Task 9 - Phase I Remedial Investigation Report	6/4/93	5/3/94
Draft RFI/RI Report (IAG Milestone)	6/4/93	11/30/93
Final RFI/RI Report (IAG Milestone)	1/30/94	5/3/94



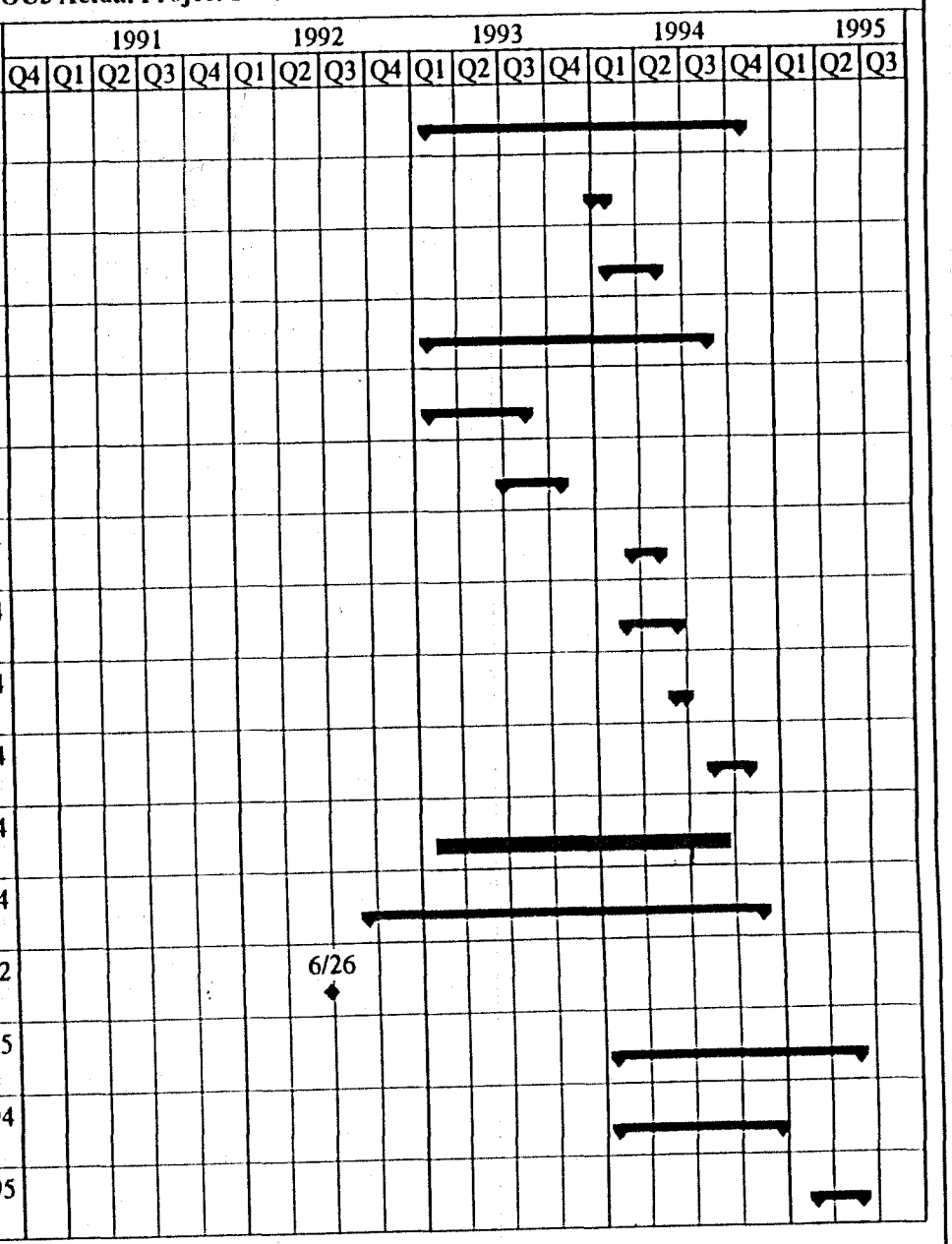
ATTACHMENT 2: Summary of OU5 Actual Project Schedule

Name	Schdld. Start	Schdld. Fin.
Work Plan Development	10/31/90	6/26/92
Draft	10/31/90	4/5/91
Draft Work Plan IAG Milestone 4/5/91	*4/5/91*	*4/5/91*
Final	7/8/91	3/27/92
Final Work Plan IAG Milestone 8/30/91	*8/30/91*	*8/30/91*
Procurement Cycle	4/1/92	6/26/92
Procurement IAG Milestone	*10/2/91*	*10/2/91*
NOTICE TO PROCEED	6/26/92	6/26/92
WHOLE PROJECT	6/26/92	5/30/95
TASK 1 - PROJECT PLANNING	6/26/92	5/29/95
TASK 2 - COMMUNITY RELATIONS	6/26/92	6/26/92
TASK 3 - FIELD INVESTIGATIONS	6/26/92	12/3/93
TASK 4 - SAMP ANALYSES and VALID	10/7/92	3/10/94
SAMPLE ANALYSES - UNVALIDATED	10/7/92	12/9/93
SAMPLE ANALYSES - VALIDATION	12/28/92	3/10/94
TASK 5 - DATA EVALUATION	7/15/92	6/30/94



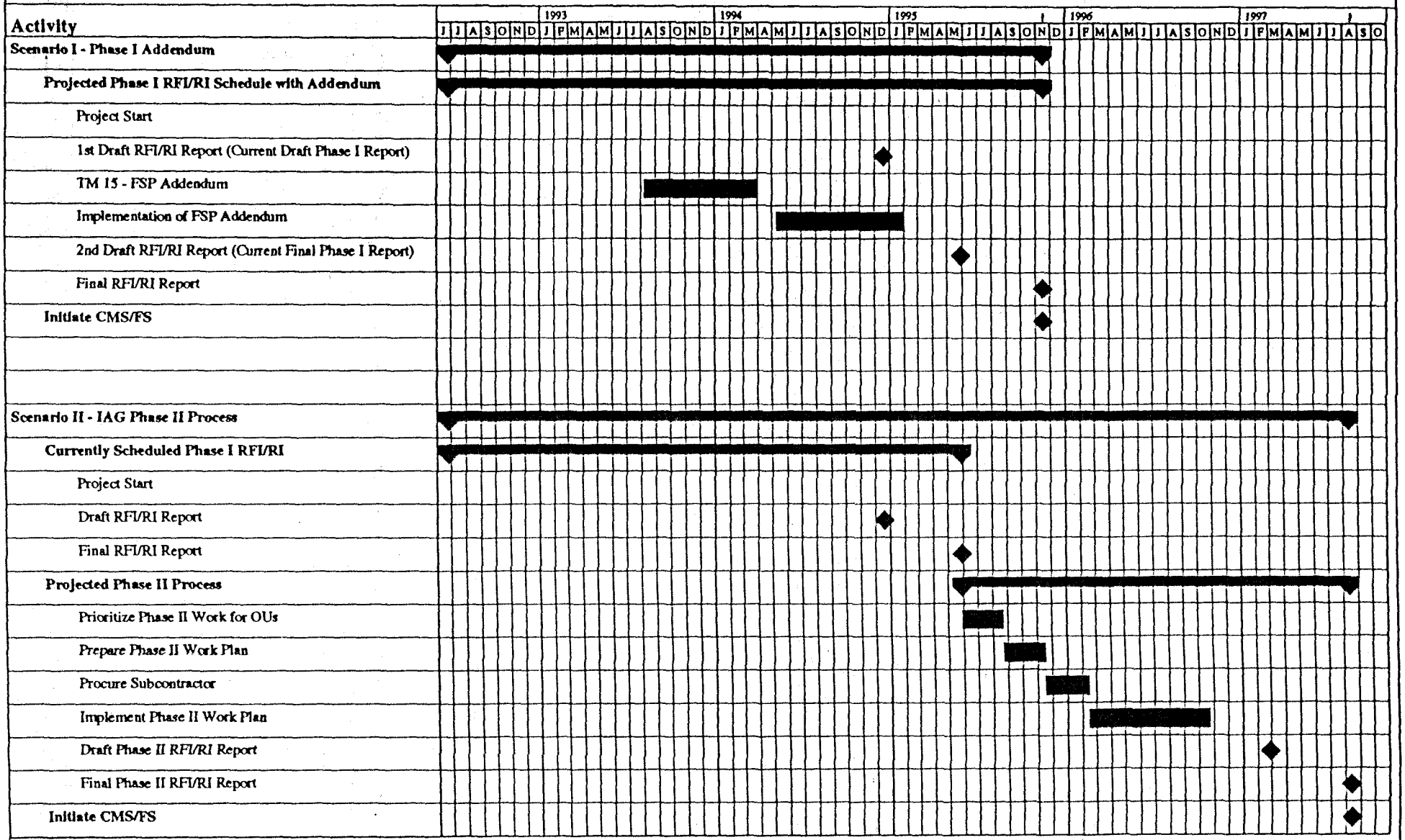
ATTACHMENT 2: Summary of OU5 Actual Project Schedule

Name	Schdld. Start	Schdld. Fin.
TASK 6 - BASELINE RISK ASSESSMENT	2/1/93	11/1/94
Contaminant Identification	1/4/94	1/31/94
Technical Memo 11 -COCs	2/1/94	5/12/94
Exposure Assessment	2/1/93	8/23/94
Technical Memo 12- Exposure Scenarios	2/1/93	8/18/93
Technical Memo 13 - Models	7/1/93	10/26/93
Toxicity Assessment	3/17/94	5/11/94
Technical Memo 14 - Toxicity Assmt.	3/3/94	6/13/94
Risk Characterization	6/9/94	6/29/94
Report Preparation	8/23/94	11/1/94
Meetings	2/1/93	9/20/94
TASK 7 - DEVEL & SCREEN ALTERNATIVES	9/15/92	11/24/94
TASK 8 - TREATABILITY STUDIES	6/26/92	6/26/92
TASK 9 - RFI/RI REPORT	1/26/94	5/30/95
DRAFT (IAG Milestone 11/30/93)	1/26/94	12/20/94
FINAL (IAG Milestone 5/3/94)	2/28/95	5/30/95



Attachment 14

OU5 RFI/RI Scenarios



ATTACHMENT 15

Issue: Justification for Operable Unit (OU) 5 Woman Creek Assessment Extension Request

Action: A presentation was made to EPA and CDH justifying the upcoming request for schedule extension. Attachments 1 through 4 to Attachment 15 present the DOE justification for extension request. These attachments were reviewed with the regulatory agencies and a copy was given to them. A formal letter from DOE will be addressed to both EPA and CDH with the official request for extension. According to the IAG, DOE is required to deliver a timely request for extension and when good cause exists for the requested extension (Part 42, EXTENSIONS, page 82).

DOE requested an extension of 265 work days (December 20, 1993) for the draft RFI/RI Report and 269 work days (May 30, 1993) for the Final RFI/RI Report.

The first milestone that will be missed (draft Phase I RFI/RI Report) is due November 30, 1993, DOE is in the process of starting that extension request (September 1993), approximately three months prior to the deadline.

Issue: Potential Modification to Field Sampling Plan (FSP)

Action: Jen Pepe and Ed Mast presented a proposal to EPA and CDH to modify the current FSP. During the course of the just completed field activities it became more evident that additional field work would be necessary to determine the nature and extent of contamination at IHSS 115, the Original Landfill and the Ash Pits, IHSSs 133.1 through 133.4. The additional field work can not be fully identified until the last of the analytical data is returned from the laboratories, which is expected in late November early December, 1993. DOE proposed to generate a Technical Memorandum (TM) scoping out the additional work that needs to be accomplished. This additional work is not in the OU5 FY94 Work Package because it is premature to develop a scope, schedule or budget except in very broad terms. The regulatory agencies concurrence would also be required prior to implementation of this program. Should funding become available and agreement by all parties, DOE would like to commence field activities in the spring or summer of FY 94.

Impacts to the request for milestone extensions. If indeed this additional work were to be performed as an

addendum to the Phase I FSP, it would impact the schedule as shown on Attachment 14, Scenario I. The milestone delivery date (what is agreed to in the upcoming milestone extension request) for the draft RFI/RI Report will not change, and would not included data from the FY94 field activities. A second draft RFI/RI Report would be produced incorporating EPA/CDH comments on the first draft and also the data from the FY94 field activities. This second draft would more or less coincide with the delivery date of the Final RFI/RI Report (what is agreed to in the upcoming milestone extension request). A final RFI/RI Report incorporating EPA/CDH comments would then be delivery according to a revised schedule.

If this envisioned scenario is agreed to by all parties, DOE, EPA and CDH, it could potentially move up the schedule for initiating the CMS/FS by 20 months, by avoiding a Phase II RFI/RI Investigation.

Both Bonnie Lavelle and Joe Schieffelin were receptive to this scenario. Further discussions will be held on this topic, until all the data from the just completed field program can be evaluated it is premature to develop a scope and schedule for these activities. However it was agreed that this potential work would not at this time be rolled into the justification for schedule extension. But would be included as a separate negotiation.

ATTACHMENT 16

CORRES. CONTROL
OUTGOING LTR NO.

93 RF 10533

DIST.	LTR	ENC
BENEDETTI, R.L.	X	
BENJAMIN, A.		
BERMAN, H.S.		
BRANCH, D.B.		
CARNIVAL, G.J.		
COPP, R.D.		
DAVIS, J.G.		
FERRERA, D.W.		
HANNI, B.J.		
HARMAN, L. K.		
HEALY, T.J.		
HEDAHL, T.		
HILBIG, J.G.		
KIRBY, W.A.		
KUESTER, A.W.		
LEE, E.M.		
MANN, H.P.	X	
MARX, G.E.		
McDONALD, M.M.		
McKENNA, F.G.		
MONTROSE, J.K.		
MORGAN, R.V.		
POTTER, G.L.		
PIZZUTO, V.M.		
RILEY, J.H.		
SANDLIN, N.B.		
SHEPLER, R.L.		
STEWART, D.L.		
SULLIVAN, M.T.		
SWANSON, E.R.		
WILKINSON, R.B.	X	
WILLIAMS, S. (ORC)		
WILSON, J. M.		
ZANE, J. O.		
Hunt EC	X	
Busby WS	X	
Spillowelle L	X	
Denike R	X	
Brooks KC	X	
OU5 File	X	
CORRES CONTROL	X	X
ADMIN RECORD		
TRAFFIC		
Record Ctr (2)	X	X

CLASSIFICATION:

UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE

DOCUMENT CLASSIFICATION REVIEW WAIVER PER CLASSIFICATION OFFICE

IN REPLY TO RFP CC NO: N/A

ACTION ITEM STATUS
☐ OPEN ☒ CLOSED
☐ PARTIAL

LTR APPROVALS: WSB: [illegible] ECH

ORIG & TYPIST INITIALS: ECH/dmt

EG&G ROCKY FLATS

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August 26, 1993 93-RF-10533

J. K. Hartman
Assistant Manager for Transition
and Environmental Restoration
DOE, RFO

Attn: J. Pepe

JUSTIFICATION FOR OPERABLE UNIT (OU) 5 WOMAN CREEK ASSESSMENT EXTENSION REQUEST - NMH-435-93

SUMMARY

A schedule extension is requested for the Interagency Agreement (IAG) Table 6 Milestones for Operable Unit (OU) 5, Woman Creek Priority Drainage.

DOCUMENT	IAG MILESTONE DATE	EXTENSION REQUEST DATE	No. of WORK DAYS
DRAFT RFI/RI REPORT	NOVEMBER 30, 1993	DECEMBER 20, 1994	265
FINAL RFI/RI REPORT	MAY 3, 1994	MAY 30, 1995[1]	269

A number of factors have caused substantial delays to occur in the Remedial Investigation (RI) of OU 5. The schedule from the OU 5 Work Plan, Section 6.0, is included as Attachment 1, the summary schedule of the actual program is Attachment 2, the detailed schedule is Attachment 3, and the delays impacting the schedule are detailed in Attachment 4.

The delays impacting the schedule are summarized below:

	WORK DAYS[2]
1. Delays in getting OU 5 Work Plan approved:	45
2. Delays in the Procurement cycle:	21

[1] This assumes a 60 work day review time for the U. S. Environmental Protection Agency and Colorado Department of Health.

[2] Work Days have been computed as 21 days/month less major holidays (e.g. 4th of July).

3. Delays caused by additional work scope over that specified in Table 5 of the IAG, including:	
A. Generation and approval cycle of Field Sampling Plan (FSP) Technical Memorandums (TMs):	90
B. Implementation of non IAG specified work:	131
4. Delays caused by quarterly collection of groundwater samples[3]:	(126)
5. Delays caused by analytical laboratory turnaround time:	0
6. Delays caused by validation of the data[4]:	0
7. Delays caused by lack of review time for Human Health Risk Assessment (HHRA) Technical Memoranda:	80
8. Flawed Logic for completing RFI/RI Report after completion of HHRA from original schedule:	36
TOTAL WORK DAY DELAYS:	277

If you have questions regarding this extension request, please call E. C. Mast of Remediation Project Management at extension 8589.

N. M. Hutchins
Acting Associate General Manager
Environmental Restoration Management
EG&G Rocky Flats, Inc.

ECM:dmf

Orig. and 1 cc - J. K. Hartman

Attachments:
As Stated (4)

cc:
A. H. Paoule - DOE, RFO
R. J. Schassberger - "

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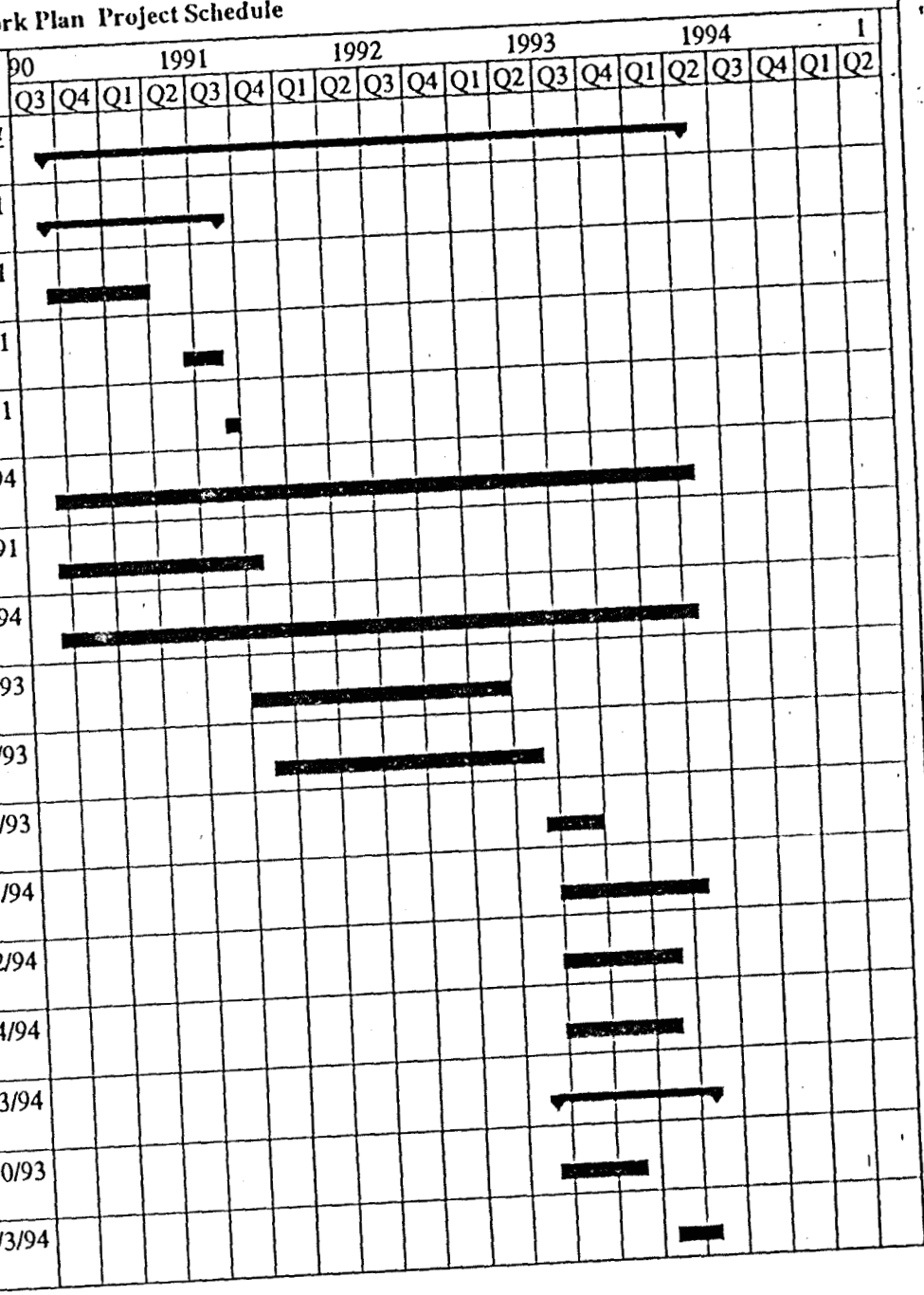
[3] Assumes two quarters of groundwater sampling will be acceptable for the draft RFI/RI Report, a credit of 126 work days is shown which would be the additional time requirement if four quarters of sampling analytical data were required for the draft RFI/RI Report.

[4] Assumes unvalidated data will be acceptable for the draft RFI/RI Report, and assumes validated data will be acceptable for the final report.

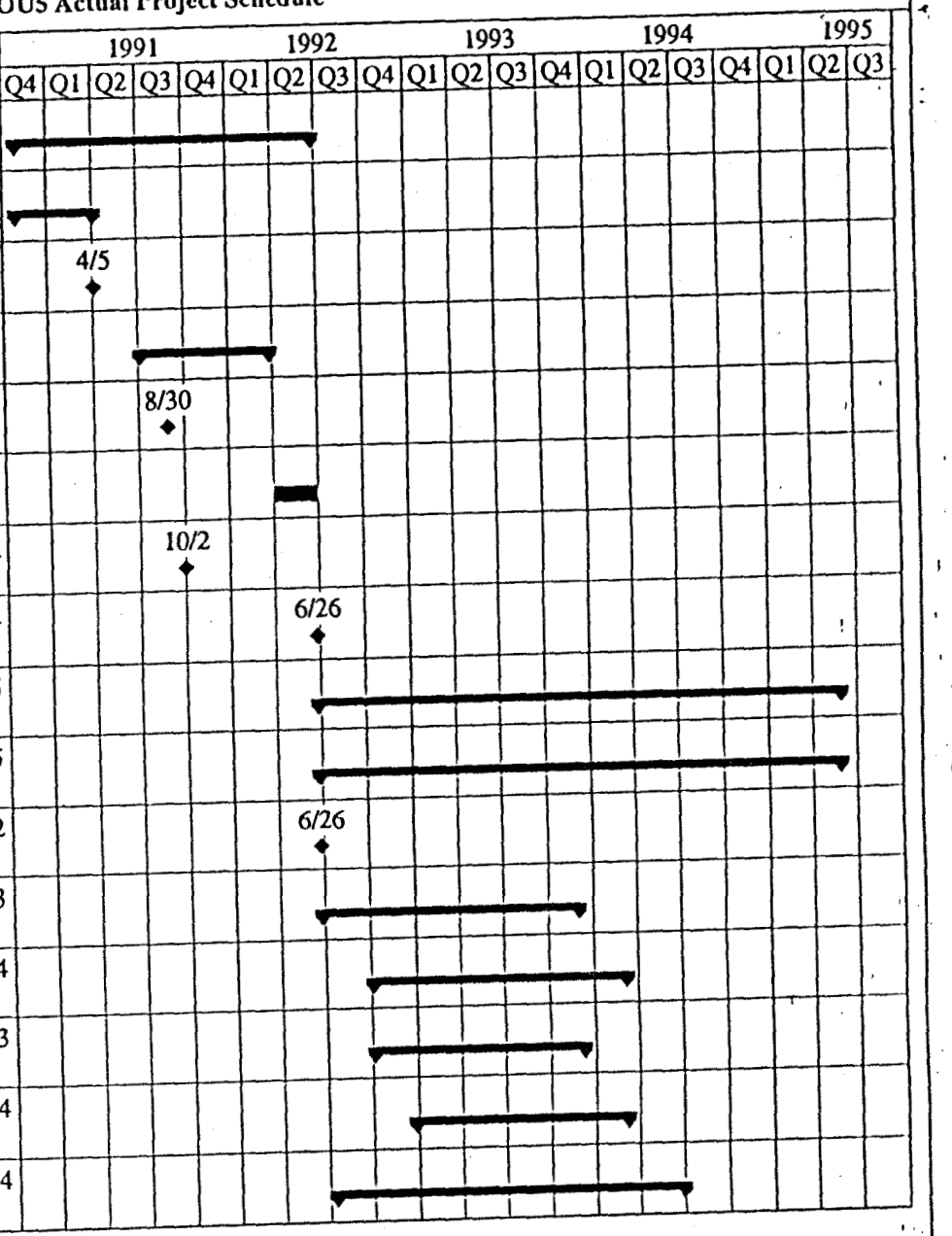
ATTACHMENT 1: OU5 Work Plan Project Schedule

Name	Schd. Start	Schd. Fin.
OU5 RFI/RI WORK PLAN SCHEDULE	*9/4/90*	*5/3/94*
Work Plan Development	9/4/90	8/30/91
Draft Work Plan	9/4/90	4/5/91
Final Work Plan	6/10/91	8/30/91
Procurement Cycle	9/1/91	10/1/91
Project Management	9/4/90	5/3/94
Task 1 - Project Planning	9/4/90	11/6/91
Task 2 - Community Relations	9/4/90	5/3/94
Task 3 - Field Investigation	10/2/91	3/30/93
Task 4 - Sample Analysis and Validation	11/14/91	6/1/93
Task 5 - Data Evaluation	6/4/93	9/29/93
Task 6 - Baseline Risk Assessment	6/25/93	5/3/94
Task 7 - Development & Screening of Alternatives	6/25/93	3/2/94
Task 8 - Treatability Studies	6/25/93	2/24/94
Task 9 - Phase I Remedial Investigation Report	6/4/93	5/3/94
Draft RFI/RI Report (IAG Milestone)	6/4/93	11/30/93
Final RFI/RI Report (IAG Milestone)	1/30/94	5/3/94



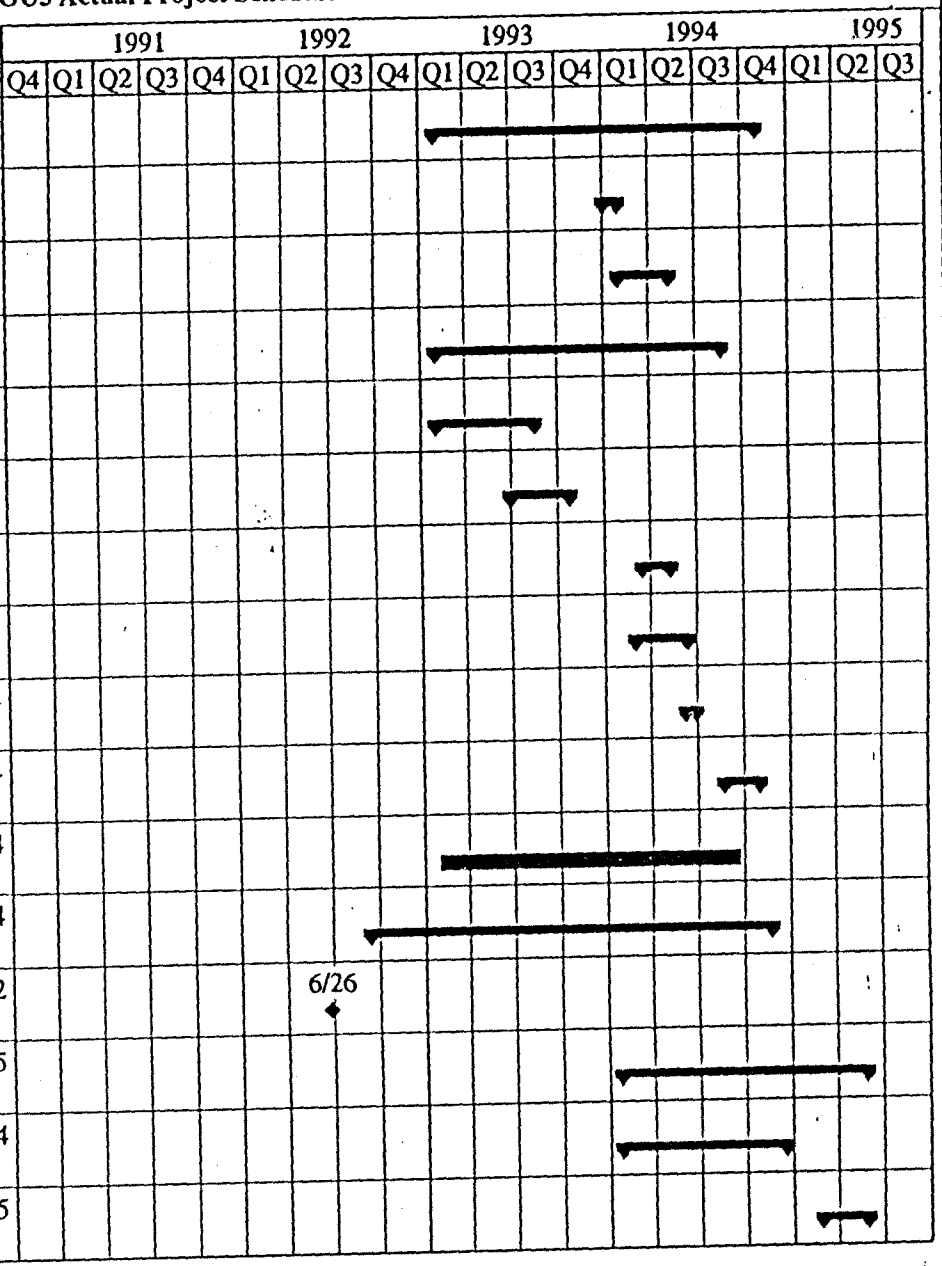
ATTACHMENT 2: Summary of OU5 Actual Project Schedule

Name	Schdld. Start	Schdld. Fin.
Work Plan Development	10/31/90	6/26/92
Draft	10/31/90	4/5/91
Draft Work Plan IAG Milestone 4/5/91	*4/5/91*	*4/5/91*
Final	7/8/91	3/27/92
Final Work Plan IAG Milestone 8/30/91	*8/30/91*	*8/30/91*
Procurement Cycle	4/1/92	6/26/92
Procurement IAG Milestone	*10/2/91*	*10/2/91*
NOTICE TO PROCEED	6/26/92	6/26/92
WHOLE PROJECT	6/26/92	5/30/95
TASK 1 - PROJECT PLANNING	6/26/92	5/29/95
TASK 2 - COMMUNITY RELATIONS	6/26/92	6/26/92
TASK 3 - FIELD INVESTIGATIONS	6/26/92	12/3/93
TASK 4 - SAMP ANALYSES and VALID	10/7/92	3/10/94
SAMPLE ANALYSES - UNVALIDATED	10/7/92	12/9/93
SAMPLE ANALYSES - VALIDATION	12/28/92	3/10/94
TASK 5 - DATA EVALUATION	7/15/92	6/30/94



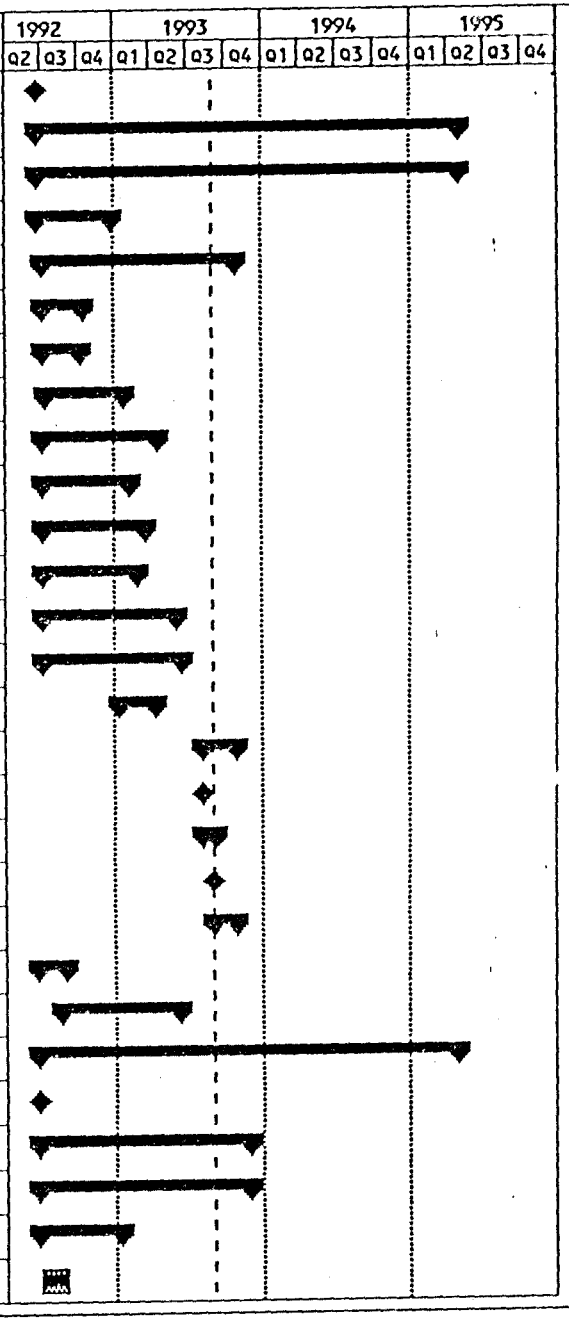
ATTACHMENT 2: Summary of OU5 Actual Project Schedule

Name	Schdld. Start	Schdld. Fin.
TASK 6 - BASELINE RISK ASSESSMENT	2/1/93	11/1/94
Contaminant Identification	1/4/94	1/31/94
Technical Memo 11 -COCs	2/1/94	5/12/94
Exposure Assessment	2/1/93	8/23/94
Technical Memo 12- Exposure Scenarios	2/1/93	8/18/93
Technical Memo 13 - Models	7/1/93	10/26/93
Toxicity Assessment	3/17/94	5/11/94
Technical Memo 14 - Toxicity Assmt.	3/3/94	6/13/94
Risk Characterization	6/9/94	6/29/94
Report Preparation	8/23/94	11/1/94
Meetings	2/1/93	9/20/94
TASK 7 - DEVEL & SCREEN ALTERNATIVES	9/15/92	11/24/94
TASK 8 - TREATABILITY STUDIES	6/26/92	6/26/92
TASK 9 - RFI/RI REPORT	1/26/94	5/30/95
DRAFT (IAG Milestone 11/30/93)	1/26/94	12/20/94
FINAL (IAG Milestone 5/3/94)	2/28/95	5/30/95



ATTACTMENT 3: OU5 RFI/RI Detailed Project Schedule

ID	Name	Pred	Days	Sch Strt	Sch Fnsh	Act Strt	Act Fnsh
1	OU5 Woman Creek Drainage (this update Aug 23, 93)		0d	6/26/92	6/26/92	6/26/92	6/26/92
2	WHOLE PROJECT		742d	6/26/92	5/2/95	6/26/92	NA
3	TASK 1 - PROJECT PLANNING		741d	6/26/92	5/1/95	6/26/92	NA
4	PLANS , SCHEDULE & STAFF		128d	6/26/92	12/23/92	6/26/92	12/23/92
17	TECH MEMOS		343d	7/7/92	10/28/93	7/7/92	NA
18	Surf. Water/Sed. TM TM1		71d	7/7/92	10/13/92	7/7/92	10/13/92
28	EM Tech Memos TM2		69d	7/7/92	10/9/92	7/7/92	10/9/92
34	Surficial Soil Sampling TM Landfill TM3		140d	7/14/92	1/25/93	7/14/92	1/25/93
43	Surficial Soil Sampling TM ASH TM4		206d	7/7/92	4/20/93	7/7/92	4/20/93
50	Soil Gas TM 5		158d	7/7/92	2/11/93	7/7/92	2/11/93
59	Cone Pen TM TM6		184d	7/7/92	3/19/93	7/7/92	3/19/93
69	Soil Boring TM Ash Pits TM7		169d	7/7/92	2/26/93	7/7/92	2/26/93
80	Mon. Well TM Land TM8		239d	7/7/92	6/4/93	7/7/92	6/4/93
84	Mon Well TM Ash TM9		249d	7/7/92	6/18/93	7/7/92	6/18/93
91	Soil Borings Surface Dist. TM10		67d	1/14/93	4/16/93	1/14/93	4/16/93
99	Amended FSP - TM15		59d	8/9/93	10/28/93	8/9/93	NA
100	Authorization to Proceed		1d	8/9/93	8/9/93	8/9/93	8/9/93
101	Draft TM15		21d	8/9/93	9/6/93	8/9/93	NA
106	Meeting with EPA/CDH		0d	8/30/93	8/30/93	NA	NA
107	Final TM 15		44d	8/30/93	10/28/93	NA	NA
113	HEALTH & SAFETY PLANS		47d	6/26/92	9/1/92	6/26/92	9/1/92
119	WORKER TRAINING		211d	8/19/92	6/9/93	8/19/92	6/9/93
129	PROJECT MANAGEMENT		741d	6/26/92	5/1/95	6/26/92	NA
131	TASK 2 - COMMUNITY RELATIONS (Exempt)	1	0d	6/26/92	6/26/92	6/26/92	6/26/92
132	TASK 3 - FIELD INVESTIGATIONS		374d	6/26/92	12/3/93	6/26/92	NA
133	LANDFILL FSP		374d	6/26/92	12/3/93	6/26/92	NA
134	STAGE 1 (IHSS 115 Landfill)		141d	6/26/92	1/11/93	6/26/92	NA
135	Aerial Photo Review (IHSS 115)	1	10d	6/26/92	9/1/92	6/26/92	9/1/92

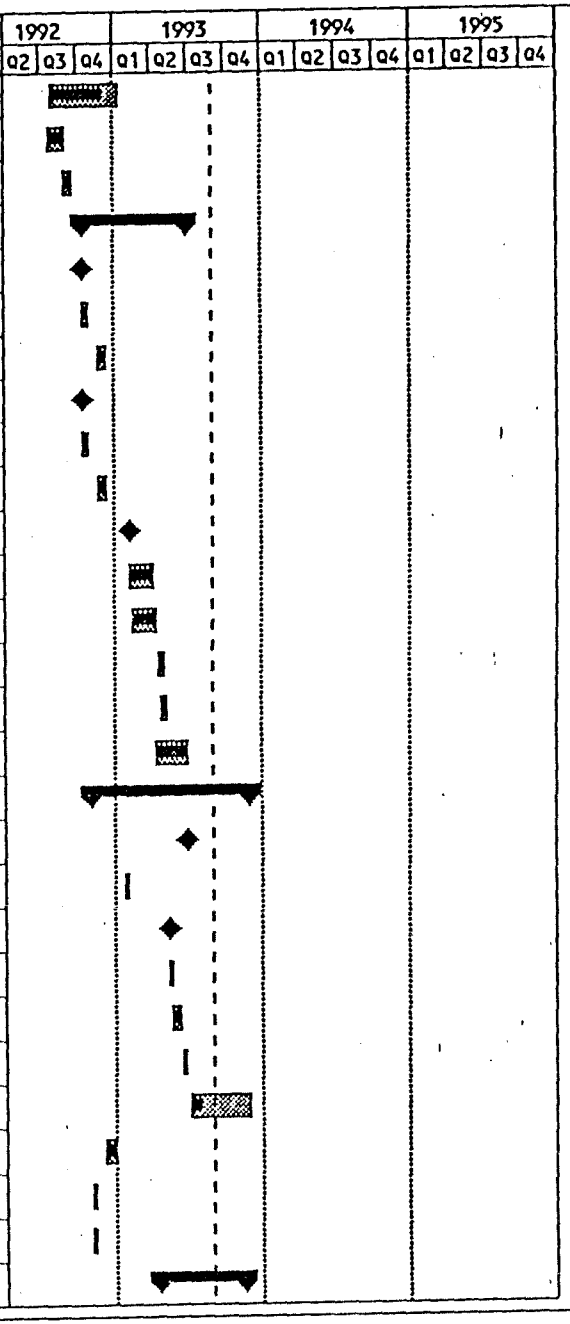


Project: OU5 RFI/R
Date: 8/26/93

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

ATTACTMENT 3: OU5 RFI/RI Detailed Project Schedule

ID	Name	Pred	Days	Sch Strt	Sch Fnsh	Act Strt	Act Fnsh
136	Other OU Data Review (IHSS 115)	1	10d	7/29/92	1/11/93	7/29/92	NA
137	HPGe Survey Review (IHSS 115)	1	31d	7/21/92	9/1/92	7/21/92	9/1/92
138	Hot Spot Land Survey (IHSS 115)	137,118	16d	8/27/92	9/18/92	8/27/92	9/18/92
139	STAGE 2 (IHSS 115 Landfill)		186d	10/13/92	6/29/93	10/13/92	6/29/93
140	Start Mag Survey (IHSS 115)	118,33	1d	10/13/92	10/13/92	10/13/92	10/13/92
141	Mag Survey (landfill, dist. area IHS	118,140	15d	10/13/92	10/31/92	10/13/92	10/31/92
142	Review Mag Survey (IHSS 115)	141	16d	11/18/92	12/11/92	11/18/92	12/11/92
143	Start EM Survey (IHSS 115)	141,33	1d	10/13/92	10/13/92	10/13/92	10/13/92
144	EM Survey (landfill, dist. area IHSS	141,143	14d	10/13/92	10/31/92	10/13/92	10/31/92
145	Review EM Survey (IHSS 115)	144	16d	11/18/92	12/11/92	11/18/92	12/11/92
146	Start Soil Gas Survey (IHSS 115)	144FS+3d	1d	2/8/93	2/8/93	2/8/93	2/8/93
147	Initial Soil Gas (landfill)	144FS+3d,	44d	2/8/93	4/9/93	2/8/93	4/9/93
148	Review Initial Soi l Gas Survey (IHS	146FS+2d,	25d	2/10/93	4/13/93	2/10/93	4/13/93
149	Soil Gas Survey - Anomalies (IHSS 115	148	11d	4/15/93	4/29/93	4/15/93	4/29/93
150	Review Soil Gas Survey - Anomalies (I	149SS+5d	10d	4/21/93	5/4/93	4/21/93	5/4/93
151	FIDLER Survey of HPGe Hotspots (IHSS		56d	4/12/93	6/29/93	4/12/93	6/29/93
152	STAGE 3 (IHSS 115 Landfill)		282d	11/4/92	12/3/93	11/4/92	NA
153	Sur Soil Samp (landfill)	145,39,15	0d	12/29/92	7/1/93	12/29/92	7/1/93
154	Sur Soil Samp (disturbed, IHSS 115)	153	7d	1/25/93	2/2/93	1/25/93	2/2/93
155	Start Soil Boring (soil gas, IHSS 115	150	1d	5/12/93	5/12/93	5/12/93	5/12/93
156	Soil Borings (soil gas, IHSS 115)	155	5d	5/12/93	5/18/93	5/12/93	5/18/93
157	Review Soil Gas Boring (IHSS 115)	155FS+3d	15d	5/18/93	6/8/93	5/18/93	6/8/93
158	Install Wellpoints (soil gas, IHSS 11	167	8d	6/14/93	6/23/93	6/14/93	6/23/93
159	Monitor Wellpoints (soil gas, IHSS 11	158	150ed	7/5/93	12/3/93	7/5/93	NA
160	Soil Borings (character, IHSS 115)	145	18d	12/3/92	12/29/92	12/3/92	12/29/92
161	Sed Samples (SID&land) (exempt) - WCF	1,118	5d	11/4/92	11/10/92	11/4/92	11/10/92
162	Sur Water (SID&land)(exempt) - WCFS	1,118	5d	11/4/92	11/10/92	11/4/92	11/10/92
163	STAGE 4 (IHSS 115 Landfill)		149d	4/20/93	11/15/93	4/20/93	NA

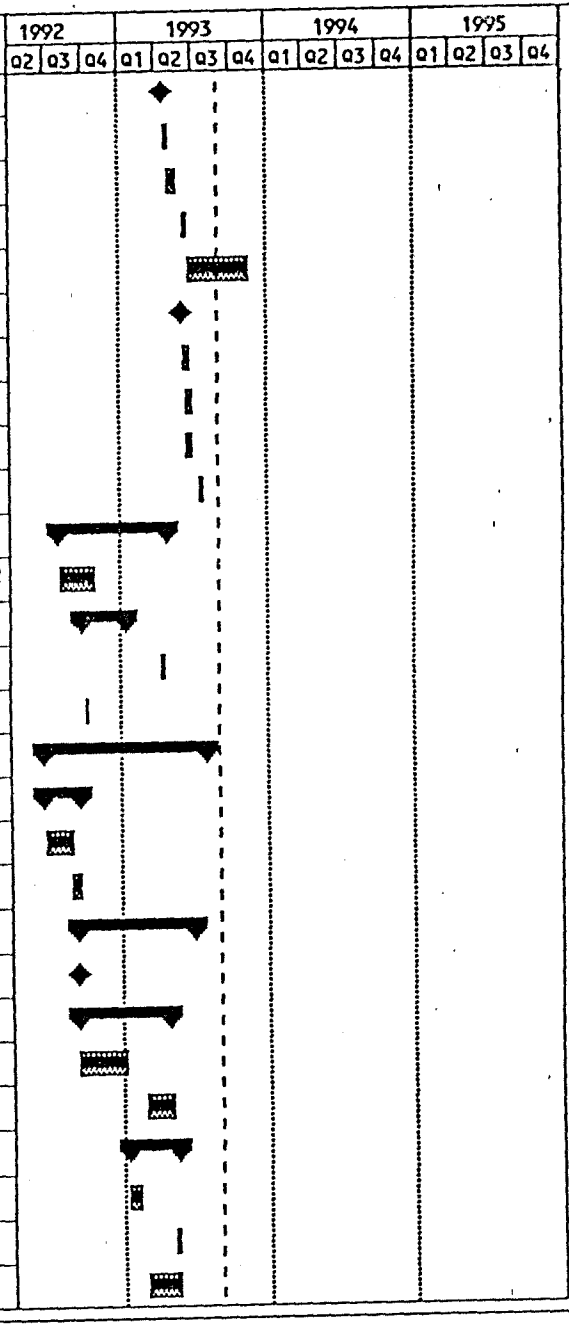


Project: OU5 RFI/R
Date: 8/26/93

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

ATTACTMENT 3: OU5 RFI/RI Detailed Project Schedule

ID	Name	Pred	Days	Sch Strt	Sch Fnsh	Act Strt	Act Fnsh
164	Start Cone and BAT (IHSS 115)		1d	4/20/93	4/20/93	4/20/93	4/20/93
165	Cone Pen (SID&land)	164	8d	4/20/93	4/29/93	4/20/93	4/29/93
166	Review Cone (IHSS 115)	165	17d	4/30/93	5/24/93	4/30/93	5/24/93
167	Well points (SID&land)	166	8d	6/8/93	6/17/93	6/8/93	6/17/93
168	Monitor Well Points (SID & Land)	167	150ed	6/18/93	11/15/93	6/18/93	NA
169	Start Mon Wells (IHSS 115)	83,212	1d	6/4/93	6/4/93	6/4/93	6/4/93
170	Mon Wells (drill&install, IHSS 115)	169	13d	6/4/93	6/22/93	6/4/93	6/22/93
171	Mon Wells (devel, IHSS 115) - WCFS	169SS+5d	10.98d	6/11/93	6/25/93	6/11/93	6/25/93
172	Mon Wells (sample 1st qtr, IHSS 115)	171SS+1d	13d	6/14/93	6/30/93	6/14/93	6/30/93
173	Mon Wells (sample 2nd qtr, IHSS 115)	172FS+10d	6d	7/15/93	7/22/93	NA	NA
174	STAGE 5 (IHSS 115 Landfill)		190d	8/1/92	4/23/93	8/1/92	4/23/93
175	Plans Review (sewer)	1FS+30d	5d	8/1/92	10/26/92	8/1/92	10/26/92
176	Sewer Snake SOP	175	81d	9/25/92	1/15/93	9/25/92	1/15/93
180	Sewer Snake	175,118,1	10d	4/12/93	4/23/93	4/12/93	4/23/93
181	Sewer Outfall Samp		2d	10/5/92	10/6/92	10/5/92	10/6/92
182	ASH PITS FSP		285d	6/26/92	7/30/93	6/26/92	NA
183	STAGE 1 (IHSS 133 Ash Pits)		60d	6/26/92	9/18/92	6/26/92	9/18/92
184	Aerial Photo Review (IHSS 133)	1	10d	6/26/92	9/1/92	6/26/92	9/1/92
185	Ash Pits Land Survey (HSS 133)	184	16d	8/27/92	9/18/92	8/27/92	9/18/92
186	STAGE 2 (IHSS 133 Ash Pits)		210d	9/14/92	7/2/93	9/14/92	NA
187	Start HPGe Survey (IHS 133) - EG&G	185,118	1d	9/14/92	9/14/92	9/14/92	9/14/92
188	HPGe Survey (IHSS 133) - EG&G		163d	9/14/92	4/28/93	9/14/92	4/28/93
189	Large Scale Survey (IHSS 133) - E	185,118	80d	9/14/92	1/8/93	9/14/92	1/8/93
190	Detailed Survey (IHSS 133) - EG&G	189	47d	2/23/93	4/28/93	2/23/93	4/28/93
191	HPGe Survey Review (IHSS 133)		90d	1/11/93	5/14/93	1/11/93	5/14/93
192	Large Scale Survey Review (IHSS 1	189	22d	1/11/93	2/10/93	1/11/93	2/10/93
193	Detailed Survey Review (IHSS 133)	190	10d	5/3/93	5/14/93	5/3/93	5/14/93
194	FIDLER Survey of Hotspots (IHSS 133)	193FF+10d	60d	2/22/93	5/14/93	2/22/93	5/14/93

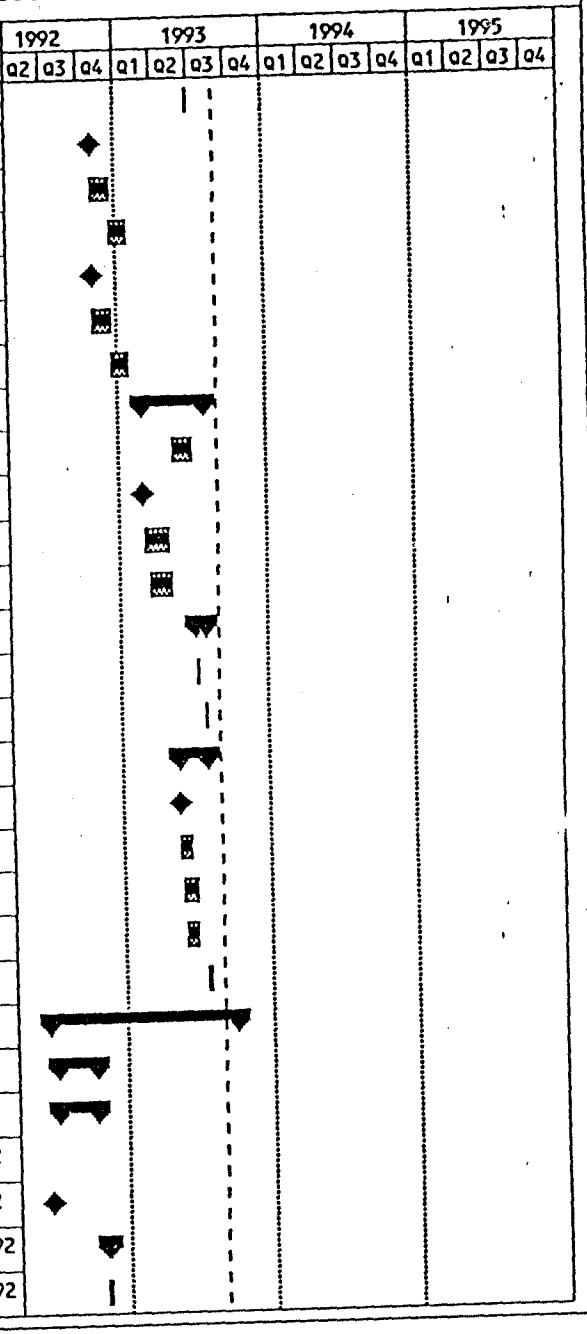


Project: OU5 RFI/R
Date: 8/26/93

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

ATTACTMENT 3: OU5 RFI/RI Detailed Project Schedule

ID	Name	Pred	Days	Sch Strt	Sch Fnsh	Act Strt	Act Fnsh
195	Hot Spot Survey (IHSS 133)	193,118	5d	6/28/93	7/2/93	NA	NA
196	Start Mag Survey (IHSS 133)	195,118,3	1d	11/2/92	11/2/92	11/2/92	11/2/92
197	Mag Survey (IHSS 133)	195,118,1	31d	11/2/92	12/16/92	11/2/92	12/16/92
198	Review Mag Survey (IHSS 133)	197	29d	12/17/92	1/29/93	12/17/92	1/29/93
199	Start EM Survey (IHSS 133)	33	1d	11/2/92	11/2/92	11/2/92	11/2/92
200	EM Survey (IHSS 133)	199	31d	11/2/92	12/16/92	11/2/92	12/16/92
201	Review EM Survey (IHSS 133)	200	29d	12/17/92	1/29/93	12/17/92	1/29/93
202	STAGE 3 (IHSS 133 Ash Pits)		110d	3/1/93	7/30/93	3/1/93	7/30/93
203	Sur Soil Samp (IHSS 133)	49,201,11	34d	5/10/93	6/25/93	5/10/93	6/25/93
204	Start Soil Borings (IHSS 133)	79,118	0d	3/1/93	3/1/93	3/1/93	3/1/93
205	Soil Borings & GW Samples (IHSS 133)	204	42d	3/1/93	4/27/93	3/1/93	4/27/93
206	Review Boring (IHSS 133)	205FS+10d	39d	3/16/93	5/7/93	3/16/93	5/7/93
207	Investigate Magnetic Anomaly (IHSS 13		18d	7/7/93	7/30/93	7/7/93	7/30/93
208	FIDLER Survey - Magnetic Anomaly		1d	7/7/93	7/7/93	7/7/93	7/7/93
209	Drill Boreholes - Magnetic Anomal		1d	7/30/93	7/30/93	7/30/93	7/30/93
210	STAGE 4 (IHSS 133 Ash Pits)		52d	5/20/93	7/30/93	5/20/93	NA
211	Start Mon Wells (IHSS 133)	89,118	1d	5/20/93	5/20/93	5/20/93	5/20/93
212	Mon Wells (Drill, IHSS 133)	211	21d	5/20/93	6/18/93	5/20/93	6/18/93
213	Mon Wells (develop, IHSS 133) - WCFS	212FS+2d	23d	5/25/93	6/25/93	5/25/93	6/25/93
214	Mon Wells (sample 1st qtr, IHSS 133)	213SS+1d	22d	5/30/93	6/30/93	5/30/93	6/30/93
215	Mon Wells (sample 2nd qtr, IHSS 133)	214FS+15d	7d	7/22/93	7/30/93	NA	NA
216	PONDS FSP		330d	6/26/92	10/1/93	6/26/92	NA
217	STAGE 1 (C-Ponds)		65d	7/15/92	10/13/92	7/15/92	NA
218	Review Existing SW Data (IHSS 142)		65d	7/15/92	10/13/92	7/15/92	NA
225	STAGE 2 (C-Ponds)		0d	6/26/92	6/26/92	6/26/92	6/26/92
226	No Activities (IHSS 142)	1	0d	6/26/92	6/26/92	6/26/92	6/26/92
227	STAGE 3 (IC-Ponds)		5d	11/4/92	11/10/92	11/4/92	11/10/92
228	Ponds C-1 &C-2 SW Samp (exempt)	27	5d	11/4/92	11/10/92	11/4/92	11/10/92



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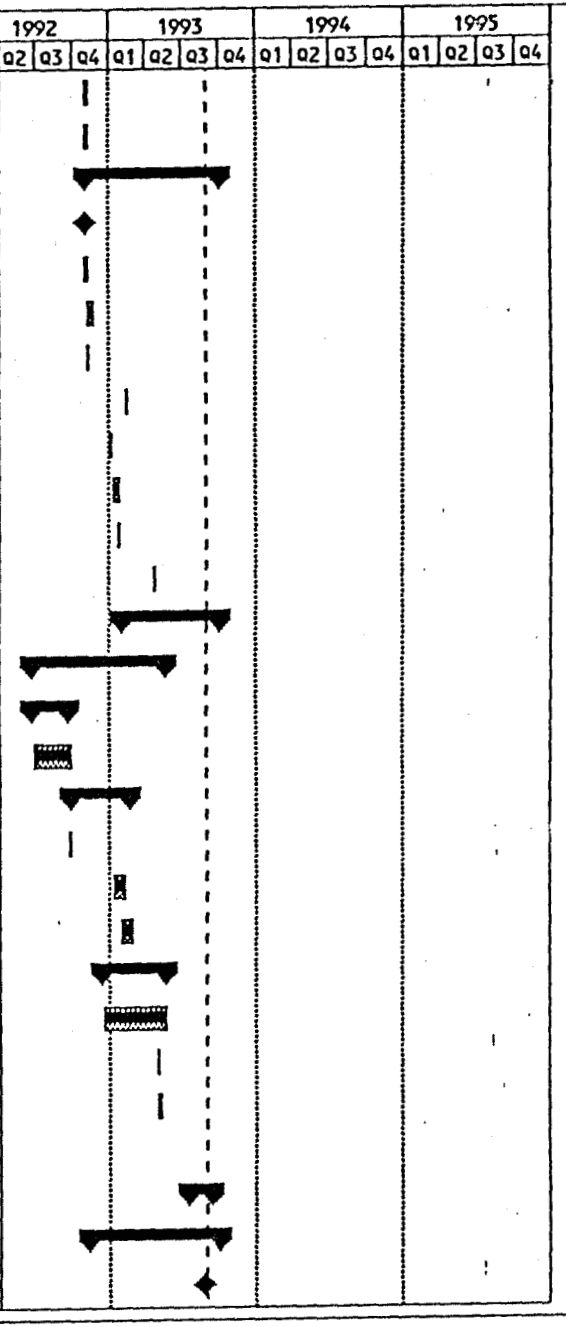
229	Ponds C-1&C-2 Sed Samp (exempt)	27	5d	11/4/92	11/10/92	11/4/92	11/10/92
230	Woman Cr Sed Samp (exempt)	27	5d	11/4/92	11/10/92	11/4/92	11/10/92
231	STAGE 4 (C-Ponds)		240d	11/2/92	10/1/93	11/2/92	NA
232	Start Mon Wells (IHSS 142)	118	1d	11/2/92	11/2/92	11/2/92	11/2/92
233	Mon Wells 50092-50292 (drill&install,	232	6d	11/2/92	11/9/92	11/2/92	11/9/92
234	Mon Wells 50092-50292 (develop, IHSS	232FS+2d	10d	11/5/92	11/18/92	11/5/92	11/18/92
235	Mon Wells 50092-50292(sample 1st qtr.	234FS+1d	3d	11/9/92	11/11/92	11/9/92	11/11/92
236	Mon. Wells 50092-50292 (samples 2nd q	235FS+90e	3d	2/10/93	2/12/93	2/10/93	2/12/93
237	Mon. Well 51193 (Drill & install, IHS		3d	1/5/93	1/7/93	1/5/93	1/7/93
238	Mon. Well 51193 (Devil, IHSS 142) - W	237	10d	1/8/93	1/22/93	1/8/93	1/22/93
239	Mon. Well 51193 (Sample 1st qtr., IHS	238FS+1d	1d	1/25/93	1/25/93	1/25/93	1/25/93
240	Mon. Well 51193 (Sample 2nd qtr., IHS	239FS+90e	1d	4/26/93	4/26/93	4/26/93	4/26/93
241	Install/Monitor Well Points		173d	2/3/93	10/1/93	2/3/93	NA
244	SURFACE DISTURBANCES (IHSS 209)		235d	6/26/92	5/21/93	6/26/92	5/21/93
245	STAGE 1 (Sur Dist. , IHSS 209)		63d	6/26/92	9/23/92	6/26/92	9/23/92
246	Review Aerial Photos (IHSS 209)	1	10d	6/26/92	9/23/92	6/26/92	9/23/92
247	STAGE 2 (Sur Dist., IHSS 209)		110d	9/24/92	2/24/93	9/24/92	2/24/93
248	Visual Inspection (IHSS 209)	1,118	1d	9/24/92	9/24/92	9/24/92	9/24/92
249	FIDLER Survey (IHSS 209)	248	18d	1/13/93	2/8/93	1/13/93	2/8/93
250	FIDLER Survey Review (IHSS 209)	249	18d	1/29/93	2/24/93	1/29/93	2/24/93
251	STAGE 3 (Sur Dist., IHSS 209)		114d	12/15/92	5/21/93	12/15/92	5/21/93
252	Pond Sed Samp & SW Samp (exempt)	27	110d	12/15/92	5/21/93	12/15/92	5/21/93
253	Sur Soil Samples (IHSS 209)	1,250,118	4d	4/28/93	5/3/93	4/28/93	5/3/93
254	Soil Borings (IHSS 209)	1,250,118	6d	4/27/93	5/4/93	4/27/93	5/4/93
255	SAMPLE HANDLING & SHIPPING		0d	11/5/92	11/5/92	NA	NA
257	AQUIFER TESTING		42d	7/20/93	9/15/93	7/20/93	NA
260	LOGGING		233d	11/11/92	10/1/93	11/11/92	NA
261	Core Logging	233SS,170	0d	8/25/93	8/25/93	NA	NA



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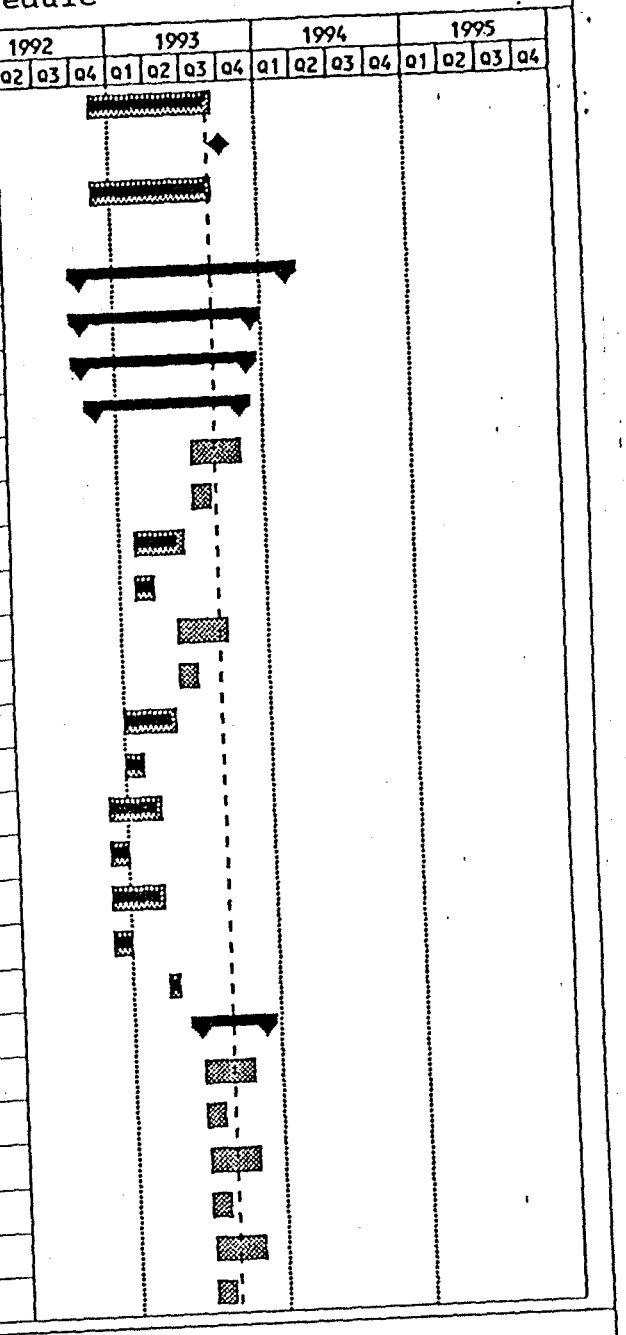
262	Core Photography	261SS	200d	11/11/92	9/8/93	11/11/92	NA
263	Computer Borehole Logs	261FF+20d	0d	10/1/93	10/1/93	NA	NA
264	Core Shelving	261SS	150d	11/11/92	9/6/93	11/11/92	NA
265	FIELD EQUIPMENT		0d	7/23/93	7/23/93	NA	NA
267	TASK 4 - SAMP ANALYSES and VALID (Exempt)		368d	10/7/92	3/6/94	10/7/92	NA
268	SAMPLE ANALYSES - UNVALIDATED		303d	10/7/92	12/3/93	10/7/92	NA
269	Landfill (IHSS 115)		297d	10/7/92	11/25/93	10/7/92	NA
270	Stage 3 (IHSS 115)		258d	11/11/92	11/5/93	11/11/92	NA
271	Rad. Sur Soil Landfill	153	90d	7/5/93	11/5/93	7/5/93	NA
272	Sur Soil Landfill	153	45ed	7/5/93	8/19/93	7/5/93	NA
273	Rad. Sur Soil Dist. (IHSS 115)	154	90d	2/3/93	6/9/93	2/3/93	NA
274	Sur Soil Dist. (IHSS 115)	154	45ed	2/3/93	3/20/93	2/3/93	NA
275	Rad. Soil Borings (soil gas, IHSS	156	90d	5/20/93	9/22/93	5/20/93	NA
276	Soil Borings (soil gas, IHSS 115)	156	45ed	5/20/93	7/4/93	5/20/93	NA
277	Rad. Borings (charac., IHSS 115)	160	90d	12/30/92	5/7/93	12/30/92	NA
278	Soil Borings (charac., IHSS 115)	160	45ed	12/30/92	2/13/93	12/30/92	NA
279	Rad. Sed Samp (IHSS 115)	161	90d	11/11/92	3/24/93	11/11/92	NA
280	Sed Samp (IHSS 115)	161	45ed	11/11/92	12/26/92	11/11/92	NA
281	Rad. SW Samp (IHSS 115)	162	90d	11/11/92	3/24/93	11/11/92	NA
282	SW Samp (IHSS 115)	162	45ed	11/11/92	12/26/92	11/11/92	NA
283	Grain Size Analysis (IHSS 115)	153,154	30ed	3/29/93	4/28/93	3/29/93	NA
284	Stage 4 (IHSS 115)		115d	6/18/93	11/25/93	6/18/93	NA
285	Rad. Wellpoints (IHSS 115)	167	90d	6/18/93	10/21/93	6/18/93	NA
286	Wellpoints (IHSS 115)	167	45ed	6/18/93	8/2/93	6/18/93	NA
287	Rad. Borings (IHSS 115)	170	90d	6/23/93	10/26/93	6/23/93	NA
288	Borings (IHSS 115)	170	45ed	6/23/93	8/7/93	6/23/93	NA
289	Rad. GW (1st Qtr., IHSS 115)	172	90d	7/1/93	11/3/93	7/1/93	NA
290	GW (1st Qtr., IHSS 115)	172	45ed	7/1/93	8/15/93	7/1/93	NA



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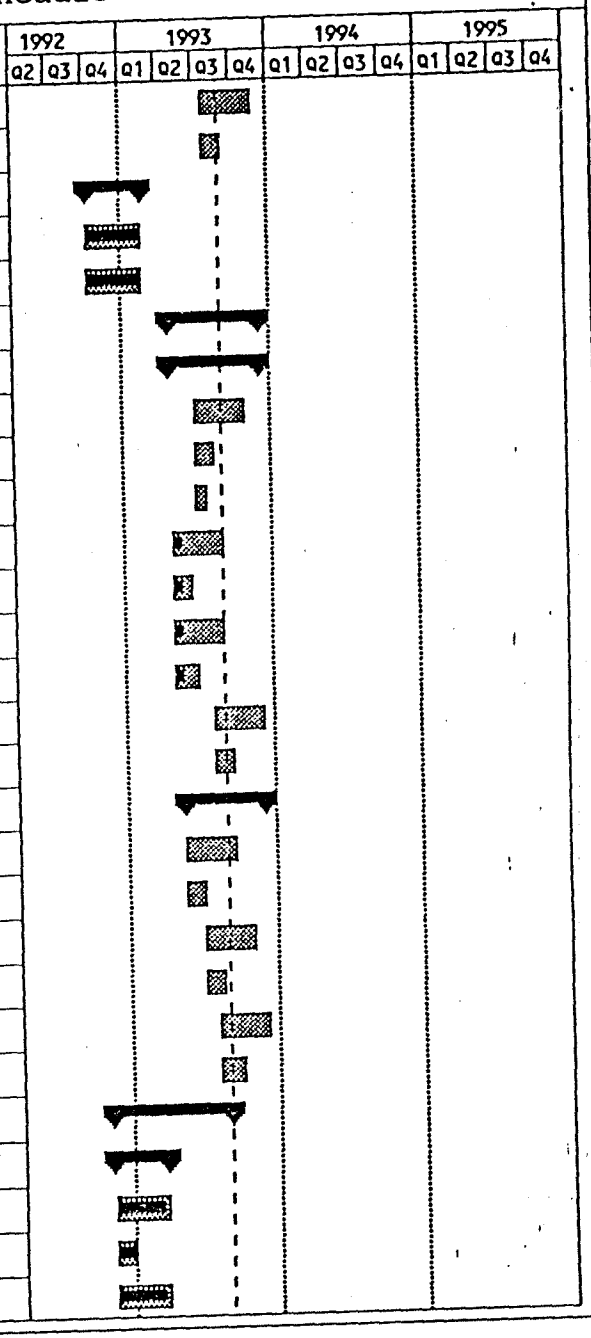
291	Rad. GW (2nd Qtr., IHSS 115)	173	90d	7/23/93	11/25/93	NA	NA
292	GW (2nd Qtr., IHSS 115)	173	45ed	7/23/93	9/6/93	NA	NA
293	Stage 5 (IHSS 115)		99d	10/7/92	2/22/93	10/7/92	2/22/93
294	Rad. Sewer (IHSS 115)	181	92d	10/7/92	2/22/93	10/7/92	2/22/93
295	Sewer (IHSS 115)	181	######	10/7/92	2/22/93	10/7/92	2/22/93
296	Ash Pits (IHSS 133)		158d	4/28/93	12/3/93	4/28/93	NA
297	Stage 3 (IHSS 133)		158d	4/28/93	12/3/93	4/28/93	NA
298	Rad. Surf. Soil (IHSS 133)	203	90d	6/28/93	10/29/93	6/28/93	NA
299	Surf. Soil (IHSS 133)	203	45ed	6/28/93	8/12/93	6/28/93	NA
300	Grain Size Analysis (IHSS 133)	203	30ed	6/28/93	7/28/93	6/28/93	NA
301	Rad. Boring (IHSS 133)	205	90d	4/28/93	8/31/93	4/28/93	NA
302	Boring (IHSS 133)	205	45ed	4/28/93	6/12/93	4/28/93	NA
303	Rad Soil Boring GW (IHSS 133)	205	90d	4/28/93	8/31/93	4/28/93	NA
304	Soil Boring GW (IHSS 133)	205	45d	4/28/93	6/29/93	4/28/93	NA
305	Rad. Boring (Mag. Anomaly W. of I	209	90d	8/2/93	12/3/93	8/2/93	NA
306	Boring (Mag. Anomaly W. of IHSS 1	209	45ed	8/2/93	9/16/93	8/2/93	NA
307	Stage 4 (IHSS 133)		141d	5/21/93	12/3/93	5/21/93	NA
308	Rad. Boring (IHSS 133)	211	90d	5/21/93	9/23/93	5/21/93	NA
309	Boring (IHSS 133)	211	45ed	5/21/93	7/5/93	5/21/93	NA
310	Rad. GW (1st Qtr., IHSS 133)	214	90d	7/1/93	11/3/93	7/1/93	NA
311	GW (1st Qtr., IHSS 133)	214	45ed	7/1/93	8/15/93	7/1/93	NA
312	Rad. GW (2nd Qtr., IHSS 133)	215	90d	8/2/93	12/3/93	NA	NA
313	GW (2nd Qtr., IHSS 133)	215	45d	8/2/93	10/1/93	NA	NA
314	C - Ponds (IHSS 142)		210d	11/10/92	8/30/93	11/10/92	NA
315	Stage 3 (IHSS 142)		96d	11/11/92	3/24/93	11/11/92	NA
316	Rad. Pond SW (IHSS 142)	228	90d	11/11/92	3/24/93	11/11/92	NA
317	Pond SW (IHSS 142)	228	45ed	11/11/92	12/26/92	11/11/92	NA
318	Rad. Pond Sed (IHSS 142)	229	90d	11/11/92	3/24/93	11/11/92	NA



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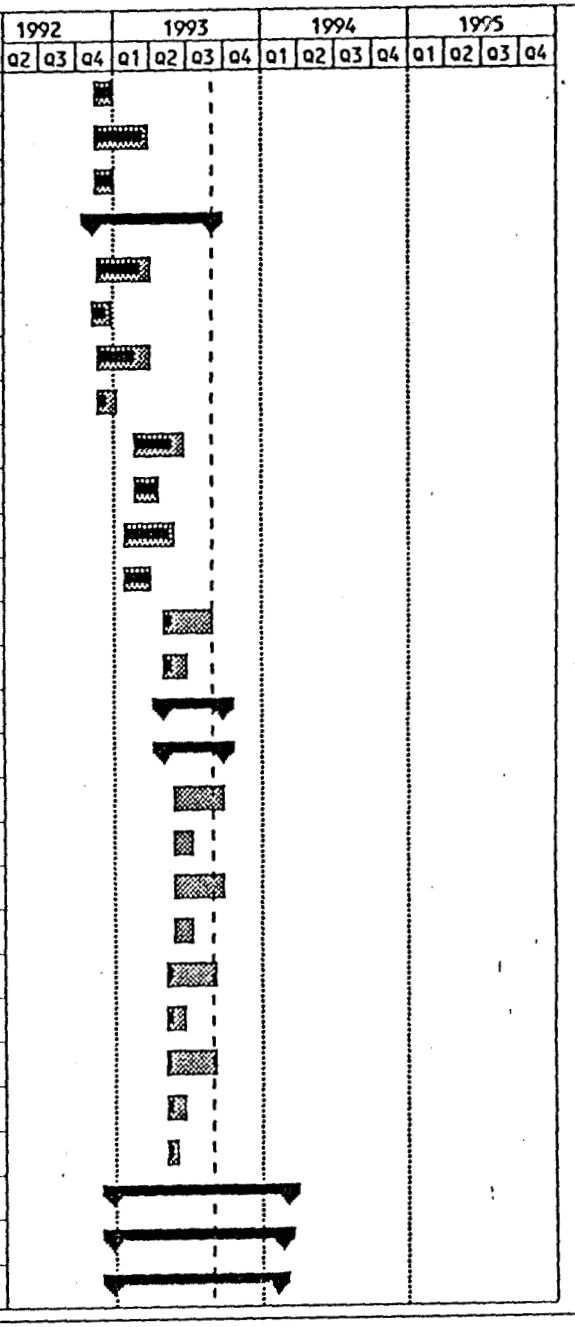
319	Pond Sed (IHSS 142)	229	45ed	11/11/92	12/26/92	11/11/92	NA
320	Rad. Creek Sed (IHSS 142)	230	90d	11/11/92	3/24/93	11/11/92	NA
321	Creek Sed (IHSS 142)	230	45ed	11/11/92	12/26/92	11/11/92	NA
322	Stage 4 (IHSS 142)		210d	11/10/92	8/30/93	11/10/92	NA
323	Rad. Borings (IHSS 142)	233	90d	11/19/92	4/1/93	11/19/92	NA
324	Borings (IHSS 142)	233	45ed	11/10/92	12/25/92	11/10/92	NA
325	Rad. GW (1st Qtr., IHSS 142)	235	90d	11/23/92	4/5/93	11/23/92	NA
326	GW (1st Qtr., IHSS 142)	235	45ed	11/23/92	1/7/93	11/23/92	NA
327	Rad. GW (2nd Qtr., IHSS 142)	236	90d	2/16/93	6/21/93	2/16/93	NA
328	GW (2nd Qtr., IHSS 142)	236	45d	2/16/93	4/19/93	2/16/93	NA
329	Rad. GW (1st Qtr., 51193, IHSS 14	239	90d	1/26/93	6/1/93	1/26/93	NA
330	GW (1st Qtr., 51193, IHSS 142)	239	45d	1/26/93	3/30/93	1/26/93	NA
331	Rad. GW (2nd Qtr., 51193, IHSS 14	240	90d	4/27/93	8/30/93	4/27/93	NA
332	GW (2nd Qtr., 51193, IHSS 142)	240	45d	4/27/93	6/28/93	4/27/93	NA
333	Surface Dist. (IHSS 209)		104d	5/4/93	9/24/93	5/4/93	NA
334	Stage 3 (IHSS 209)		104d	5/4/93	9/24/93	5/4/93	NA
335	Rad. Pond SW (IHSS 209)	252	90d	5/24/93	9/24/93	5/24/93	NA
336	Pond SW (IHSS 209)	252	45ed	5/24/93	7/8/93	5/24/93	NA
337	Rad. Pond Sed (IHSS 209)	252	90d	5/24/93	9/24/93	5/24/93	NA
338	Pond Sed (IHSS 209)	252	45ed	5/24/93	7/8/93	5/24/93	NA
339	Rad. Sur Soil (IHSS 209)	253	90d	5/5/93	9/7/93	5/5/93	NA
340	Sur Soil (IHSS 209)	253	45ed	5/5/93	6/19/93	5/5/93	NA
341	Rad. Soil Boring (IHSS 209)	254	90d	5/6/93	9/8/93	5/6/93	NA
342	Soil Boring (IHSS 209)	254	45ed	5/6/93	6/20/93	5/6/93	NA
343	Grain Size (IHSS 209)	253	30ed	5/4/93	6/3/93	5/4/93	NA
344	SAMPLE ANALYSES - VALIDATION		311d	12/25/92	3/6/94	NA	NA
345	Landfill (IHSS 115)		303d	12/28/92	2/24/94	NA	NA
346	Stage 3 (IHSS 115)		290d	12/28/92	2/6/94	NA	NA



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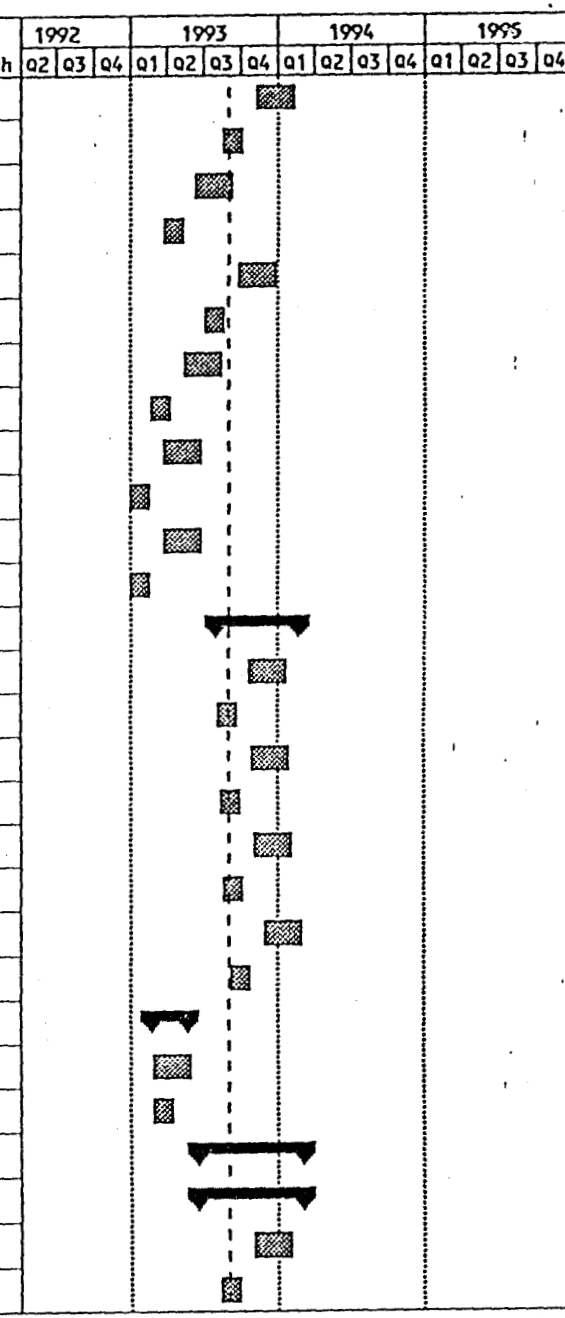
347	Rad. Sur Soil Landfill (validated	271	90ed	11/8/93	2/6/94	NA	NA
348	Sur Soil Landfill (validated)	272	45ed	8/19/93	10/3/93	NA	NA
349	Rad. Sur Soil Dist. (validated) (	273	90ed	6/10/93	9/8/93	NA	NA
350	Sur Soil Dist. (validated) (IHSS	274	45ed	3/22/93	5/6/93	NA	NA
351	Rad. Soil Core/Borings (validated	275	90ed	9/23/93	12/22/93	NA	NA
352	Soil Core/Borings (validated) (so	276	45ed	7/5/93	8/19/93	NA	NA
353	Rad. Borings (validated) (IHSS 11	277	90ed	5/10/93	8/8/93	NA	NA
354	Soil Borings (validated) (IHSS 11	278	45ed	2/15/93	4/1/93	NA	NA
355	Rad. Sed Samp (validated) (IHSS 1	279	90ed	3/25/93	6/23/93	NA	NA
356	Sed Samp (validated) (IHSS 115)	280	45ed	12/28/92	2/11/93	NA	NA
357	Rad. SW Samp (validated) (IHSS 11	281	90ed	3/25/93	6/23/93	NA	NA
358	SW Samp (validated) (IHSS 115)	282	45ed	12/28/92	2/11/93	NA	NA
359	Stage 4 (IHSS 115)		148d	8/2/93	2/24/94	NA	NA
360	Rad. BAT (validated) (IHSS 115)	285	90ed	10/22/93	1/20/94	NA	NA
361	BAT (validated) (IHSS 115)	286	45ed	8/2/93	9/16/93	NA	NA
362	Rad. Borings (validated) (IHSS 11	287	90ed	10/27/93	1/25/94	NA	NA
363	Borings (validated) (IHSS 115)	288	45ed	8/9/93	9/23/93	NA	NA
364	Rad. GW (1st Qtr., validated) (IH	289	90ed	11/4/93	2/2/94	NA	NA
365	GW (1st Qtr., validated) (IHSS 11	290	45ed	8/16/93	9/30/93	NA	NA
366	Rad. GW (2nd Qtr., validated) (IH	291	90ed	11/26/93	2/24/94	NA	NA
367	GW (2nd Qtr., validated) (IHSS 11	292	45ed	9/6/93	10/21/93	NA	NA
368	Stage 5 (IHSS 115)		64d	2/23/93	5/24/93	NA	NA
369	Rad. Sewer (validated) (IHSS 115)	294	90ed	2/23/93	5/24/93	NA	NA
370	Sewer (validated) (IHSS 115)	295	45ed	2/23/93	4/9/93	NA	NA
371	Ash Pits (IHSS 133)		190d	6/14/93	3/6/94	NA	NA
372	Stage 3 (IHSS 133)		190d	6/14/93	3/6/94	NA	NA
373	Rad. Surf. Soil (validated) (IHSS	298	90ed	11/1/93	1/30/94	NA	NA
374	Surf. Soil (validated) (IHSS 133)	299	45ed	8/12/93	9/26/93	NA	NA



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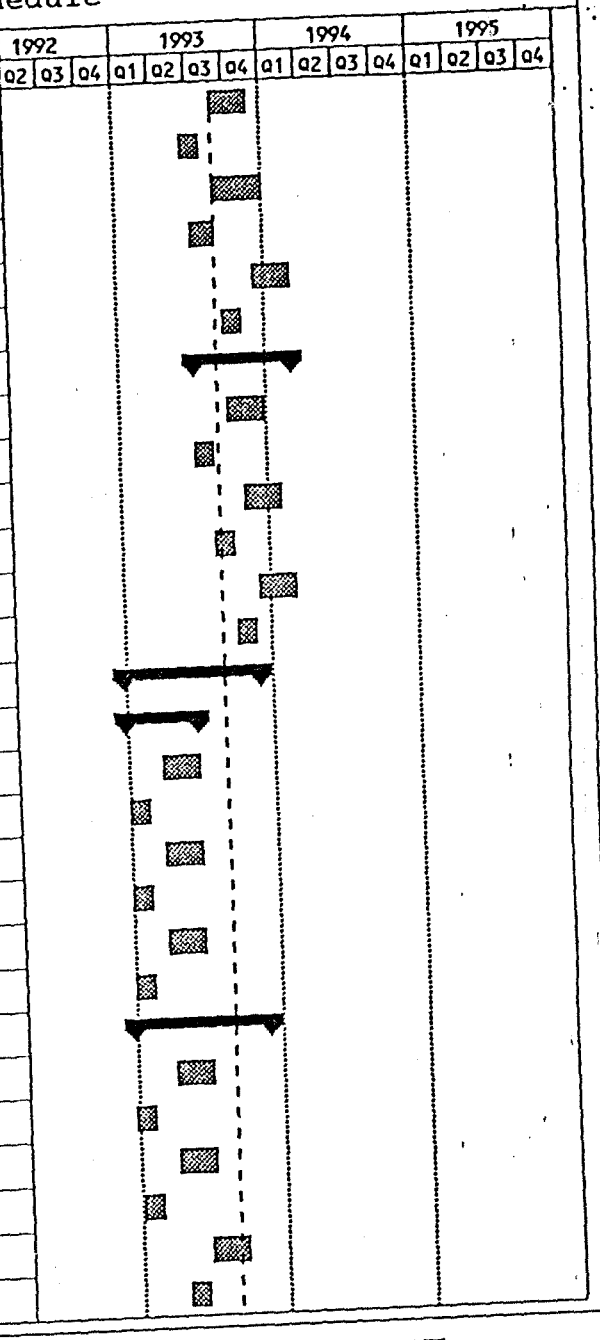
375	Rad. Boring (validated) (IHSS 133	301	90ed	9/1/93	11/30/93	NA	NA
376	Boring (validated) (IHSS 133)	302	45ed	6/14/93	7/29/93	NA	NA
377	Rad Soil Boring GW (IHSS 133)	303	90d	9/1/93	1/4/94	NA	NA
378	Soil Boring GW (IHSS 133)	304	45d	6/30/93	8/31/93	NA	NA
379	Rad. Boring (validated)(Mag. Anom	305	90ed	12/6/93	3/6/94	NA	NA
380	Boring (validated)(Mag. Anomaly W	306	45ed	9/16/93	10/31/93	NA	NA
381	Stage 4 (IHSS 133)		175d	7/5/93	3/6/94	NA	NA
382	Rad. Boring (validated) (IHSS 133	308	90ed	9/24/93	12/23/93	NA	NA
383	Boring (validated) (IHSS 133)	309	45ed	7/5/93	8/19/93	NA	NA
384	Rad. GW (1st Qtr., validated) (IH	310	90ed	11/4/93	2/2/94	NA	NA
385	GW (1st Qtr., validated) (IHSS 13	311	45ed	8/16/93	9/30/93	NA	NA
386	Rad. GW (2nd Qtr., validated) (IH	312	90ed	12/6/93	3/6/94	NA	NA
387	GW (2nd Qtr., validated) (IHSS 13	313	45ed	10/4/93	11/18/93	NA	NA
388	C - Ponds (IHSS 142)		241d	12/25/92	11/29/93	NA	NA
389	Stage 3 (IHSS 142)		127d	12/28/92	6/23/93	NA	NA
390	Rad. Pond SW (validated) (IHSS 14	316	90ed	3/25/93	6/23/93	NA	NA
391	Pond SW (validated) (IHSS 142)	317	45ed	12/28/92	2/11/93	NA	NA
392	Rad. Pond Sed (validated) (IHSS 1	318	90ed	3/25/93	6/23/93	NA	NA
393	Pond Sed (validated) (IHSS 142)	319	45ed	12/28/92	2/11/93	NA	NA
394	Rad. Creek Sed (validated) (IHSS	320	90ed	3/25/93	6/23/93	NA	NA
395	Creek Sed (validated) (IHSS 142)	321	45ed	12/28/92	2/11/93	NA	NA
396	Stage 4 (IHSS 142)		241d	12/25/92	11/29/93	NA	NA
397	Rad. Borings (validated) (IHSS 14	323	90ed	4/2/93	7/1/93	NA	NA
398	Borings (validated) (IHSS 142)	324	45ed	12/25/92	2/8/93	NA	NA
399	Rad. GW (1st Qtr., validated) (IH	325	90ed	4/6/93	7/5/93	NA	NA
400	GW (1st Qtr., validated) (IHSS 14	326	45ed	1/7/93	2/21/93	NA	NA
401	Rad. GW (2nd Qtr., validated) (IH	327	90ed	6/22/93	9/20/93	NA	NA
402	GW (2nd Qtr., validated) (IHSS 14	328	45ed	4/20/93	6/4/93	NA	NA



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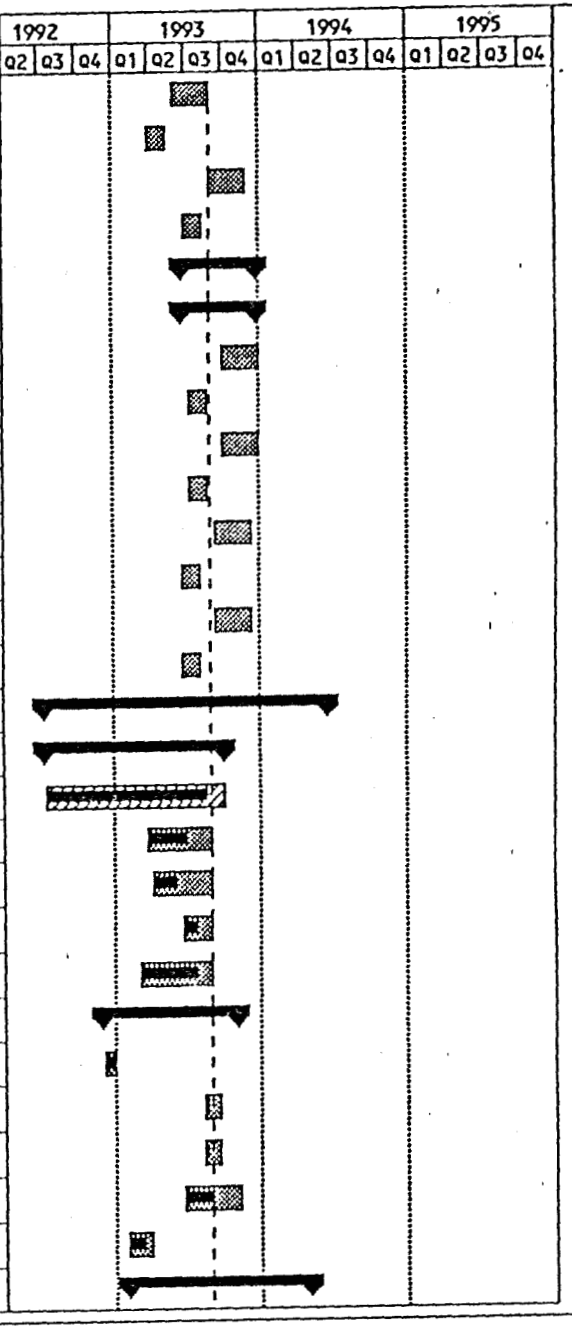
403	Rad. GW (1st Qtr., validated) (5	329	90ed	6/2/93	8/31/93	NA	NA
404	GW (1st Qtr., validated) (51193,	330	45ed	3/31/93	5/15/93	NA	NA
405	Rad. GW (2nd Qtr., validated) (51	331	90ed	8/31/93	11/29/93	NA	NA
406	GW (2nd Qtr., validated) (51193,	332	45ed	6/29/93	8/13/93	NA	NA
407	Surface Dist. (IHSS 209)		135d	6/21/93	12/26/93	NA	NA
408	Stage 3 (IHSS 209)		135d	6/21/93	12/26/93	NA	NA
409	Rad. Pond SW (validated) (IHSS 20	335	90ed	9/27/93	12/26/93	NA	NA
410	Pond SW (validated) (IHSS 209)	336	45ed	7/8/93	8/22/93	NA	NA
411	Rad. Pond Sed (validated) (IHSS 2	337	90ed	9/27/93	12/26/93	NA	NA
412	Pond Sed (validated) (IHSS 209)	338	45ed	7/8/93	8/22/93	NA	NA
413	Rad. Sur Soil (validated) (IHSS	339	90ed	9/8/93	12/7/93	NA	NA
414	Sur Soil (validated) (IHSS 209)	340	45ed	6/21/93	8/5/93	NA	NA
415	Rad. Soil Boring (validated) (IH	341	90ed	9/9/93	12/8/93	NA	NA
416	Soil Boring (validated) (IHSS 209	342	45ed	6/21/93	8/5/93	NA	NA
417	TASK 5 - DATA EVALUATION		500d	7/15/92	6/14/94	7/15/92	NA
418	Geology		318d	7/15/92	10/1/93	7/15/92	NA
419	Historical OU Wide	1FS+40d	307d	7/15/92	10/1/93	7/15/92	NA
420	Landfill (IHSS 115)	156FS+30d	20d	3/19/93	8/30/93	3/19/93	NA
421	Ash Pits (IHSS 133)	206FS+30d	20d	4/1/93	8/30/93	4/1/93	NA
422	Surface Disturbances (IHSS 209)	254FS+30d	30d	6/17/93	8/30/93	6/17/93	NA
423	Ponds C-1 & C-2 (IHSS 142)	233FS+30d	20d	3/1/93	8/30/93	3/1/93	NA
424	Hydrogeology	234	244d	12/1/92	11/5/93	12/1/92	NA
425	Historical OU Wide	1FS+50d	20d	12/1/92	12/28/92	12/1/92	NA
426	Landfill (IHSS 115)	167,171FS	30d	8/10/93	9/20/93	8/10/93	NA
427	Ash Pits (IHSS 133)	205,213FS	30d	8/10/93	9/20/93	8/10/93	NA
428	Surface Disturbances (IHSS 209)	254FS+30d	101d	6/17/93	11/5/93	6/17/93	NA
429	Ponds C-1 & C-2 (IHSS 142)	234FS+30d	20d	2/1/93	4/5/93	2/1/93	NA
430	Numerical GW Modeling		327d	2/1/93	5/3/94	2/1/93	NA



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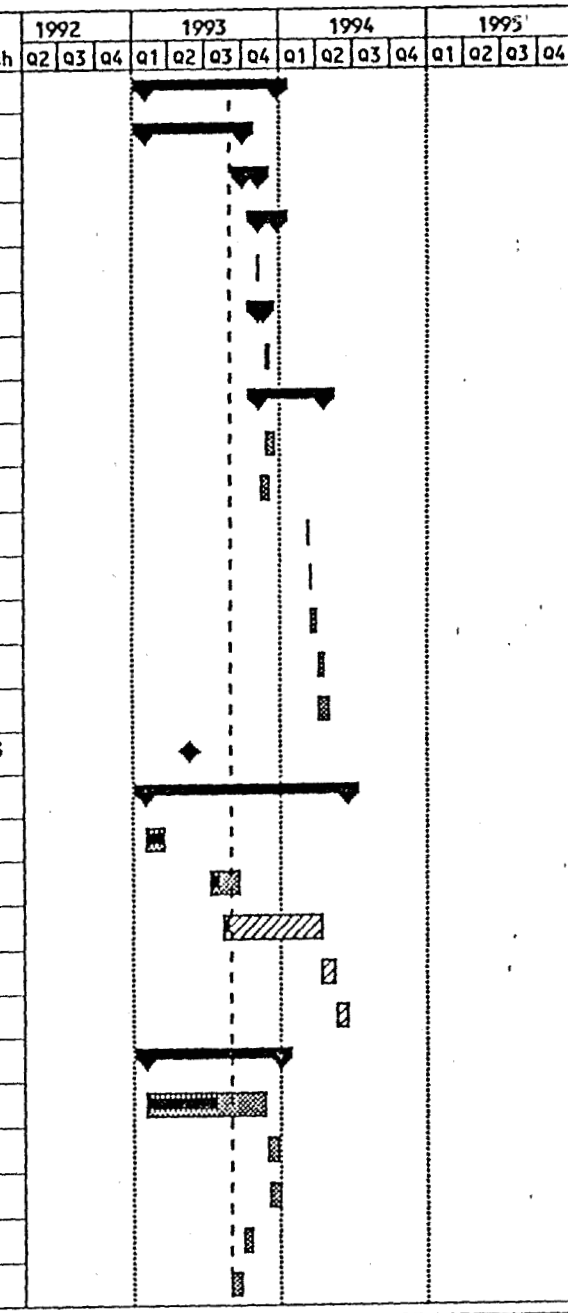
ID	Name	Pred	Days	Sch Strt	Sch Fnsh	Act Strt	Act Fnsh
431	Flow Model		236d	2/1/93	12/27/93	2/1/93	NA
432	Field Independent Activities		174d	2/1/93	9/30/93	2/1/93	NA
435	Preliminary Setup		30d	10/1/93	11/11/93	NA	NA
441	Preliminary Calibration		32d	11/12/93	12/27/93	NA	NA
444	Update Params (Field Data)	424,418	3d	11/8/93	11/10/93	NA	NA
445	Final Calibration		10d	11/11/93	11/24/93	NA	NA
448	Particle Tracking	447	6d	11/25/93	12/2/93	NA	NA
449	Solute Transport		117d	11/11/93	4/22/94	NA	NA
450	Telescope Flow Models	447	15d	11/25/93	12/15/93	NA	NA
451	Source Loading	444	16d	11/11/93	12/2/93	NA	NA
452	Estimate Kds	444,493	5d	3/7/94	3/11/94	NA	NA
453	Est. Target Conc	452	1d	3/14/94	3/14/94	NA	NA
454	Model Adjustment	450,453	14d	3/15/94	4/1/94	NA	NA
455	1-D Modeling	454	15d	4/4/94	4/22/94	NA	NA
456	Uncertainty Analysis	454	22d	4/4/94	5/3/94	NA	NA
457	Hydrology	252	0d	1/27/93	5/21/93	1/27/93	5/21/93
458	Numerical SW Modeling		357d	2/1/93	6/14/94	2/1/93	NA
459	TSS Data Development		35d	2/1/93	3/22/93	2/1/93	NA
460	Boundary Conditions	503	50d	7/7/93	9/14/93	7/7/93	NA
461	Calibrate/verify	460,493FS	60d	8/9/93	4/12/94	8/9/93	NA
462	Uncertainty	461	25d	4/13/94	5/17/94	NA	NA
463	Draft Report	462	20d	5/18/94	6/14/94	NA	NA
464	Source Characterization	295	240d	2/1/93	12/31/93	2/1/93	NA
465	Historical OU Wide	1FS+40d,1	20d	2/1/93	11/22/93	2/1/93	NA
466	Landfill (IHSS 115)	269	20d	11/26/93	12/23/93	NA	NA
467	Ash Pits (IHSS 133)	296	20d	12/6/93	12/31/93	NA	NA
468	Surface Disturbances (IHSS 209)	333	20d	9/27/93	10/22/93	NA	NA
469	Ponds C-1 & C-2 (IHSS 142)	314	20d	8/31/93	9/27/93	NA	NA



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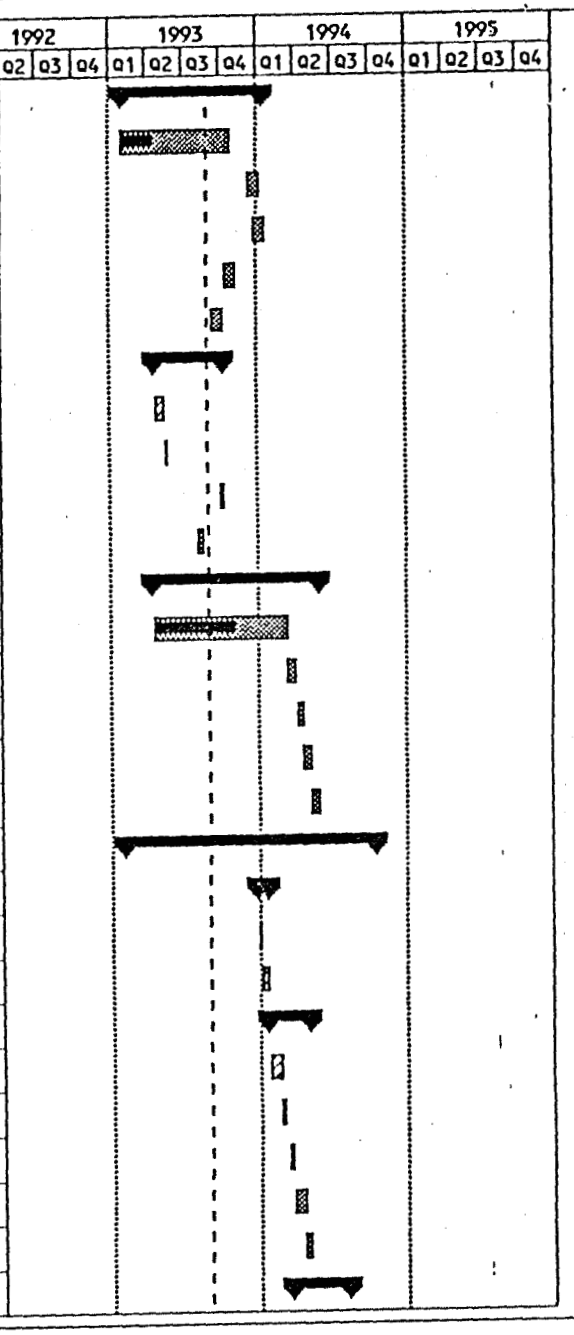
470	Nature & Extent	295	250d	2/1/93	1/14/94	2/1/93	NA
471	Historical OU Wide	1FS+60d,1	20d	2/1/93	11/1/93	2/1/93	NA
472	Landfill (IHSS 115)	269FS+10d	20d	12/10/93	1/6/94	NA	NA
473	Ash Pits (IHSS 133)	296FS+10d	20d	12/20/93	1/14/94	NA	NA
474	Surface Disturbances (IHSS 209)	333FS+10d	20d	10/11/93	11/5/93	NA	NA
475	Ponds C-1 & C-2 (IHSS 142)	314FS+10d	20d	9/14/93	10/11/93	NA	NA
476	Air Quality Data Review	1	124d	4/20/93	10/8/93	4/20/93	NA
477	Met Data Review		19d	4/20/93	5/14/93	4/20/93	NA
478	Site/Receptor Characteristics	477	5d	5/17/93	5/21/93	NA	NA
479	Source Data Review	333	10d	9/27/93	10/8/93	NA	NA
480	Model Selection	504	10d	8/5/93	8/18/93	NA	NA
481	Air Dispersion Modeling		291d	4/15/93	5/26/94	4/15/93	NA
482	Source, Site, Receptor Data	493	10d	4/15/93	3/10/94	4/15/93	NA
483	Model Runs	482	15d	3/11/94	3/31/94	NA	NA
484	Comparison w/Actual Data	483	10d	4/1/94	4/14/94	NA	NA
485	Back-Calc Model Runs	484	15d	4/15/94	5/5/94	NA	NA
486	Report	485	15d	5/6/94	5/26/94	NA	NA
487	TASK 6 - BASELINE RISK ASSESSMENT		447d	2/1/93	10/18/94	2/1/93	NA
488	Contaminant Identification		19d	12/27/93	1/20/94	NA	NA
489	Contaminant Identification Data Managemen	268FS+15d	5d	12/27/93	12/31/93	NA	NA
490	Contaminant Identification Data Evaluatio	489	14d	1/3/94	1/20/94	NA	NA
491	Technical Memo 11 -COCs		72d	1/21/94	5/2/94	NA	NA
492	Draft TM11 COC	490	21d	1/21/94	2/18/94	NA	NA
493	Draft Comments TM11 COC EG&G	492	10d	2/21/94	3/4/94	NA	NA
494	Draft Final TM11 COC	493	10d	3/7/94	3/18/94	NA	NA
495	Draft Final Comments TM11 COC CDH/EPA	494	21d	3/21/94	4/18/94	NA	NA
496	Final TM11 COC	495	10d	4/19/94	5/2/94	NA	NA
497	Exposure Assessment		101d	3/22/94	8/9/94	NA	NA



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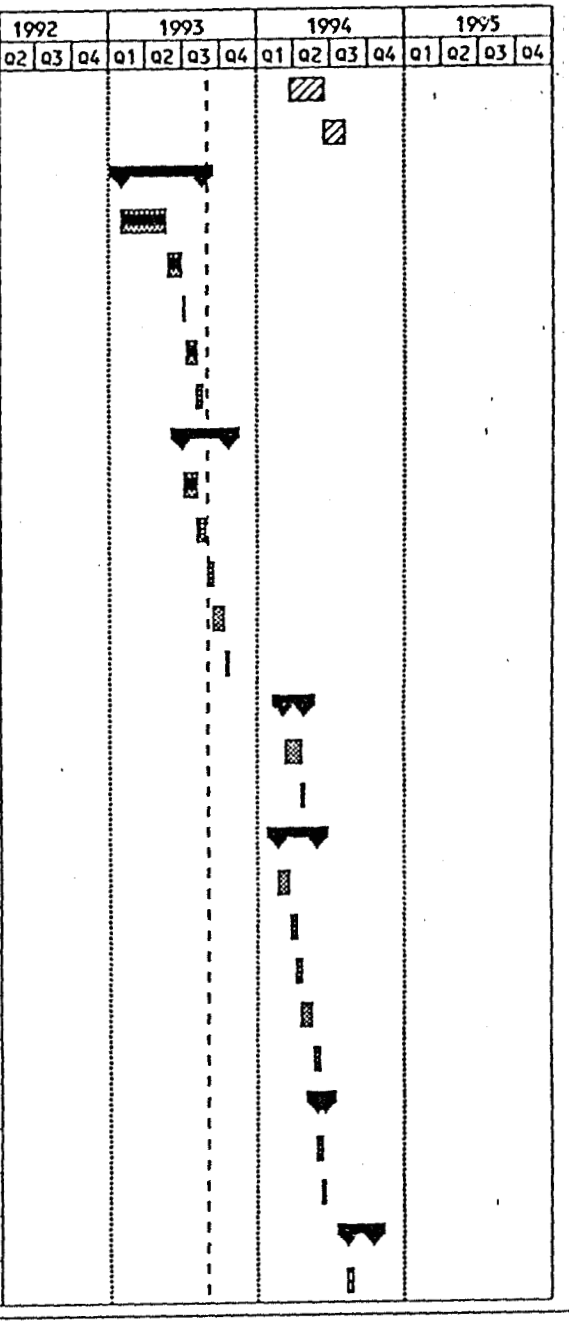
ID	Name	Pred	Days	Sch Strt	Sch Fnsh	Act Strt	Act Fnsh
498	Model Oversite	481FF,430	61d	3/22/94	6/14/94	NA	NA
499	Exposure Assessment	498	40d	6/15/94	8/9/94	NA	NA
500	Technical Memo 12- Exposure Scenarios		143d	2/1/93	8/18/93	2/1/93	NA
501	Draft TM12 to EG&G/DOE		80d	2/1/93	5/24/93	2/1/93	5/24/93
502	Draft Comments TM12 Expo	501	25d	5/26/93	6/30/93	5/26/93	6/30/93
503	Draft Final TM12 to EPA/CDH Expo	502	3d	7/1/93	7/6/93	7/1/93	7/6/93
504	Draft Final Comments TM12 Expo	503	21d	7/7/93	8/4/93	7/7/93	NA
505	Final TM12 Expo	504	10d	8/5/93	8/18/93	NA	NA
506	Technical Memo 13 - Models		82d	7/1/93	10/22/93	7/1/93	NA
507	Draft TM13 to EG&G/DOE Models	502	25d	7/1/93	8/5/93	7/1/93	8/5/93
508	Draft Comments TM13 Models	507	15d	8/6/93	8/26/93	8/6/93	NA
509	Draft Final TM13 to EPA/CDH Models	508	10d	8/27/93	9/9/93	NA	NA
510	Draft Final Comments TM13 Models	509	21d	9/10/93	10/8/93	NA	NA
511	Final TM13 Models	510	10d	10/11/93	10/22/93	NA	NA
512	Toxicity Assessment		40d	3/7/94	4/29/94	NA	NA
513	Toxicity Assessment	493	30d	3/7/94	4/15/94	NA	NA
514	Develop Toxicity Constraints	513	10d	4/18/94	4/29/94	NA	NA
515	Technical Memo 14 - Toxicity Assmt.		72d	2/21/94	5/31/94	NA	NA
516	Draft TM14 Tox	492	21d	2/21/94	3/21/94	NA	NA
517	Draft Comments TM14 Tox	516	10d	3/22/94	4/4/94	NA	NA
518	Draft Final TM14 Tox	517	10d	4/5/94	4/18/94	NA	NA
519	Draft Final Comments TM14 Tox	518	21d	4/19/94	5/17/94	NA	NA
520	Final TM14 Tox	519	10d	5/18/94	5/31/94	NA	NA
521	Risk Characterization		15d	5/27/94	6/16/94	NA	NA
522	Risk & HI Calculation	493,481	10d	5/27/94	6/9/94	NA	NA
523	Radiation Dose Calculation	522	5d	6/10/94	6/16/94	NA	NA
524	Report Preparation		50d	8/10/94	10/18/94	NA	NA
525	Draft	497,521,5	10d	8/10/94	8/23/94	NA	NA



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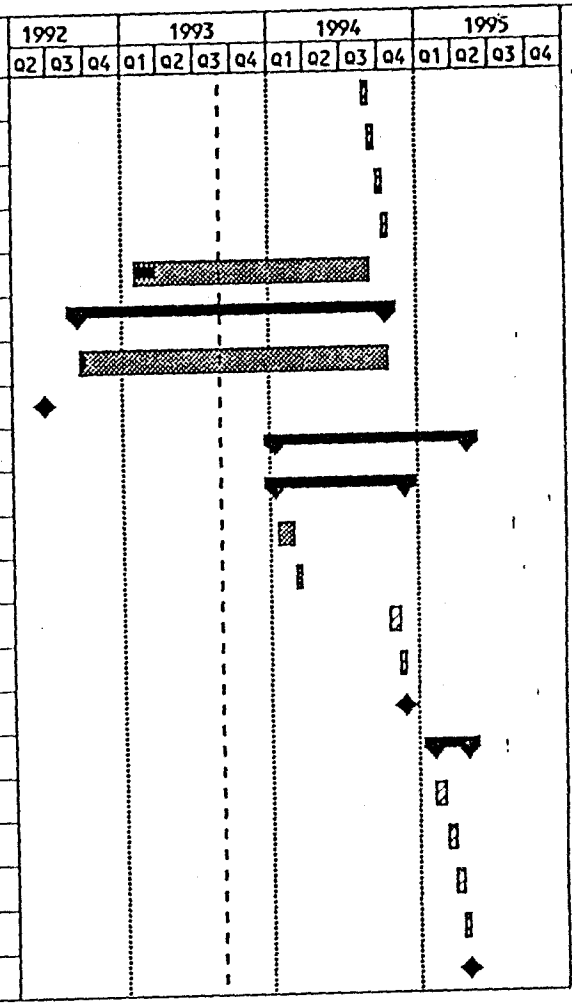
526	Draft Comments	525	10d	8/24/94	9/6/94	NA	NA
527	Draft Final	526	10d	9/7/94	9/20/94	NA	NA
528	Draft Final Comments	527	10d	9/21/94	10/4/94	NA	NA
529	Final	528	10d	10/5/94	10/18/94	NA	NA
530	Meetings	501SS,526	200d	2/1/93	9/6/94	2/1/93	NA
531	TASK 7 - DEVEL & SCREEN ALTERNATIVES		546d	9/15/92	10/18/94	9/15/92	NA
532	Devil Alts	538FF-20d	520d	9/15/92	10/18/94	9/15/92	NA
533	TASK 8 - TREATABILITY STUDIES (Exempt)	1	0d	6/26/92	6/26/92	6/26/92	6/26/92
534	TASK 9 - RFI/RI REPORT		337d	1/17/94	5/2/95	NA	NA
535	DRAFT		227d	1/17/94	11/29/94	NA	NA
536	Interim Draft I	470	30d	1/17/94	2/25/94	NA	NA
537	Interim Draft I Comments EG&G/DOE	536	15d	2/28/94	3/18/94	NA	NA
538	Interim Draft II	487	20d	10/19/94	11/15/94	NA	NA
539	Interim Draft II Comments EG&G/DOE	538	10d	11/16/94	11/29/94	NA	NA
540	Draft (IAG Milestone 11/30/93)	539	0d	11/29/94	11/29/94	NA	NA
541	FINAL		60d	2/8/95	5/2/95	NA	NA
542	Draft Final I	540FS+50d	20d	2/8/95	3/7/95	NA	NA
543	Draft Final I Comments EG&G/.DOE	542	15d	3/8/95	3/28/95	NA	NA
544	Draft Final II	543	15d	3/29/95	4/18/95	NA	NA
545	Draft Final II Comments EG&G/DOE	544	10d	4/19/95	5/2/95	NA	NA
546	Final (5/2/94 Milestone to Agencies)	545	0d	5/2/95	5/2/95	NA	NA



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ATTACHMENT 4

1. Time lost due to delay of the Final approval of the OU5 Work Plan.

The Final OU5 Work Plan was submitted to the regulatory agencies on August 30, 1991 and final approval for the OU5 Work Plan was granted on March 27, 1992 in a letter from the Colorado Department of Health (CDH) to the EPA. In accordance with the OU5 RFI/RI Work Plan, Section 6.0 Schedule, field investigations were to begin on October 2, 1991. Delays caused by late approval of RFI/RI Work Plan: 145 Work Days

2. Time required for the Procurement Cycle.

The IAG and the Work Plan did not allow adequate time for the procurement of a subcontract following approval of the Work Plan. This is based on language within the IAG Scope of Work and IAG Schedule assumptions dated August 14, 1990 which assumed all procurement work would be done in parallel with regulatory approval of the documents. The IAG OU5 milestone schedule allowed 21 work days from the date the Final RFI/RI Work Plan was submitted (IAG deliverable date August 30, 1991) for implementation of field investigations. The Federal Acquisition Regulations (FAR) and DOE Acquisition Regulations (DEAR) require a definition of scope prior to contract award. The DOE position is that complete parallel scheduling for procurement is unrealistic and cannot be achieved under any circumstances.

The procurement cycle would include writing the Statement of Work (SOW), submitting the request for proposal to the bidder, preparation of a proposal by the bidder, technical and cost evaluation of the subcontractor's proposal, contract negotiations and award of the contract. This process began on April 1,1992 and a contract was issued to the subcontractor on June 26, 1993. The procurement cycle for this contract took 64 work days. Please note that the average procurement cycle for a Basic Ordering Agreement (BOA) contract of this size (greater than $1,000,000) is 77 days (Acquisition Summary for Subcontracted Environmental Services, September 17, 1992).

The time difference from the actual time required to procure a subcontract (64 days) to time scheduled in the Work Plan (21 days), is 64 - 21 = 43 work days.

3. Delays caused by additional work scope over that specified in Table 5 of the IAG.

There are two grouping of activities that added to the scope of work over and above that specified in the IAG. They are generation and approval cycle of Technical Memorandums and work not required in the IAG (e.g. geophysical surveys).

A. Generation and approval cycle of Field Sampling Plan (FSP) Technical Memorandums (TMs)

The OU5 Work Plan utilized the "Observational Approach" which involves continuous reassessment of the site conditions as data are obtained. The Field Sampling Plan (FSP) incorporated the extensive use of Technical Memorandums (TM) to guide the work performed in the Field. The FSP was a phased approached to investigation with subsequent activities based on the results of completed or in progress activities. Most activities required a TM be generated prior to their implementation. Delays have only been requested for four of the nine TMs.

The life cycle for the nine FSP TMs from generation to acceptance by the regulatory agencies on OU5 follows:

ACTIVITY	DURATION (WORK DAYS) MIN	MAX	AVE
• Generate Draft TM, concurrent DOE/EG&G Peer review, deliver to EPA/CDH	19	61	35
• EPA/CDH Review Time for Draft TM	15	55	27
• Respond to EPA/CDH comments and deliver Final TM to EPA/CDH	9	14	11
• EPA/CDH Review Time for Final Approval[1]	5	21	12
Totals	48	151	85

A total of nine TMs were generated, 1 through 7 and 9 and 10. Four of the TM's were/are on the critical path, they are:

- TM2, Surface Geophysical Surveys. This TM planned the magnetic and EM surveys conducted at IHSS 133.1 through 133.6 and IHSS 115. Total life cycle, 74 work days, actual delay = 15 work days.

[1] The draft TM 3 received unconditional approval by the regulatory agencies.

- TM3, Surface Soil Sampling Plan - IHSS 115, Original Landfill. Total life cycle, 105 work days, actual delay = **35 work days.**

- TM5, Revised Soil Gas Sampling Plan -- Original Landfill. This TM designed the soil gas sampling plan at IHSS 115. Total life cycle, 82 work days, actual delays = **20 work days.**

- TM6, Cone Penetrometer Testing (CPT) and Groundwater Sampling Plan -- Original Landfill. This TM designed the CPT and wellpoint sampling plan at IHSS 115. Total life cycle, 73 work days, actual delays = **20 work days.**

The total critical path time for the generation and approval of the above TMs was **90 work days**.

The remaining TM's (which were not on the critical path and did not create delays) are:

- TM1, Revised Network Design -- Field Sampling Plan. This TM was generated to clarify the surface water and sediment sampling program for Woman Creek, the South Interceptor Ditch (SID) and C-1 and C-2 Ponds. Total life cycle: 75 work days.

- TM4, Surface Soil Sampling Plan - Ash Pits, Incinerator and Concrete Wash Pad - IHSS 133.1 through 133.6. Total life cycle: 71 work days.

- TM7, Soil Boring Sampling Plan -- Ash Pits 1-4, Incinerator and Concrete Wash Pad -- IHSS 133.1 through 133.6. Total life cycle: 111 work days.

- CANCELED TM8, This TM was to be Monitoring Well Installation Plan, Original Landfill, IHSS 115. The TM was not produced, but was replaced by a letter justifying the location of and number of wells to be installed. Total life cycle: N/A

- TM9, Monitoring Well Installation Plan, Ash Pits 1-4, Incinerator and Concrete Wash Pad -- IHSS 133.1 through 133.6. Total life cycle: 67 work days.

- TM10, Soil Sampling Plan -- Surface Disturbance Areas. Total life cycle: 52 work days.

B. Implementation of non IAG specified work

Additional Scope

The Final Work Plan incorporated additional tasks that were not listed in Table 5 of the IAG. The tasks and duration of these activities follows and includes:

- IHSS 115 - Original Landfill

  - Aerial Photograph review, duration: 2 work days;

  - Geophysical Surveys [magnetic and electromagnetic (EM)] on 25 foot grids, duration: 25 work days;

  - Collect random soil samples, a total of 67 soil were collected, duration: 20 work days;

  - The soil gas sample spacing was reduced to 40 foot spacing at the downgradient perimeter of the old landfill, 50 foot spacing over suspected buried metallic material and 20 foot spacing over areas where VOC's were found. This added 212 soil gas sampling points, field crews averaged 10 sites/day, duration: 20 work days; and,

  - Cone Penetrometer Testing (CPT), one line of 22 sampling locations[2], duration: 15 work days.

- IHSS 133.1 - 133.6 - Ash Pits, Incinerator, and Concrete Wash Pad

  - High Purity Germanium (HPGe) Survey, the IAG did call for a radiation survey using a G-M detector. A HPGe survey replaced the "G-M detector" survey, but a Field Instrument Detection Low Energy Radiation (FIDLER) survey was also conducted on a four foot grid over the "hot spots" identified by the HPGe survey.

  - Geophysical Surveys (magnetic and EM) on 25 foot grids, duration: 26 work days; and,

  - Surficial soil sampling, a total of 20 samples were collected, duration: 6 work days.

- IHSS 209, Surface Disturbance(s)

  - investigated the surface disturbance west of IHSS 209 and the surface area south of IHSS 133 along with IHSS 209,

  - review aerial photographs, duration: 2 work days;

  - a FIDLER survey on 20 foot grid, duration: 5 work days;

  - collected 19 surface soil samples, duration: 6 work days;

  - collected surface water samples at pond like depressions in IHSS 209, duration 1 work day; and

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[2] The original Work Plan called for two CPT lines, this was modified to one line in the TM.

- four boreholes were drilled, duration 3 work days.

The work days associated with these activities include the actual time in the field as well as the time required for data reduction and interpretation.

Total delays involved in the implementation of the above work was 131 work days.

4. Delays caused by quarterly collection of groundwater samples.

Having two quarters of unvalidated groundwater data at IHSS 115 is on the critical path for having a complete unvalidated data package. The "Observational Approach" methodology used for the FSP at OU5 was the reason the groundwater monitoring wells were one of the last activities to be performed at OU5. The last well was installed and the first quarter of sampling took place in June 1993 and the second quarter of sampling in August 1993. The monitoring wells could not be located until the results of the Soil Gas Survey and the Cone Penetrometer Testing (CPT) could be reviewed. The CPT in turn could not be completed until the HPGe and Geophysical survey data had been reviewed.

If two quarter of groundwater monitoring data are acceptable for the wells drilled in and around IHSS 115 and the 133 group of IHSS's, then six months can be saved on the OU5 schedule. The schedule presented in Attachment 2 and 3 is with two quarters of collected data for preparation of the draft RFI/RI Report. The Final RFI/RI Report will have four quarters of data available.

5. Delays caused by analytical laboratory turnaround time.

Turnaround time at the analytical laboratories has been longer than the IAG scheduled time of 63 work days. The critical path for the completion of the unvalidated data base is the groundwater radiochemistry samples from IHSS 115 and the 133 series of IHSS's. Many samples (the majority of them being radiochemical samples) required over 100 days for analysis. Considerable improvement in the turnaround time on analytical data has occurred. If unvalidated data are acceptable for the draft RFI/RI Report, then there will be no delays associated with this activity.

6. Delays caused by validation of the data.

Turnaround time for validated data packages has in some cases been approaching 63 days. The IAG schedule assumed a turnaround time of 21 work days. Considerable improvement has occurred in this area over the last year but turnaround time is still considerable. At this time the delays for validation, are not expected to add to the extension time requested, provided the draft RFI/RI Report will be acceptable with unvalidated data. All available validated data will be used in the final report.

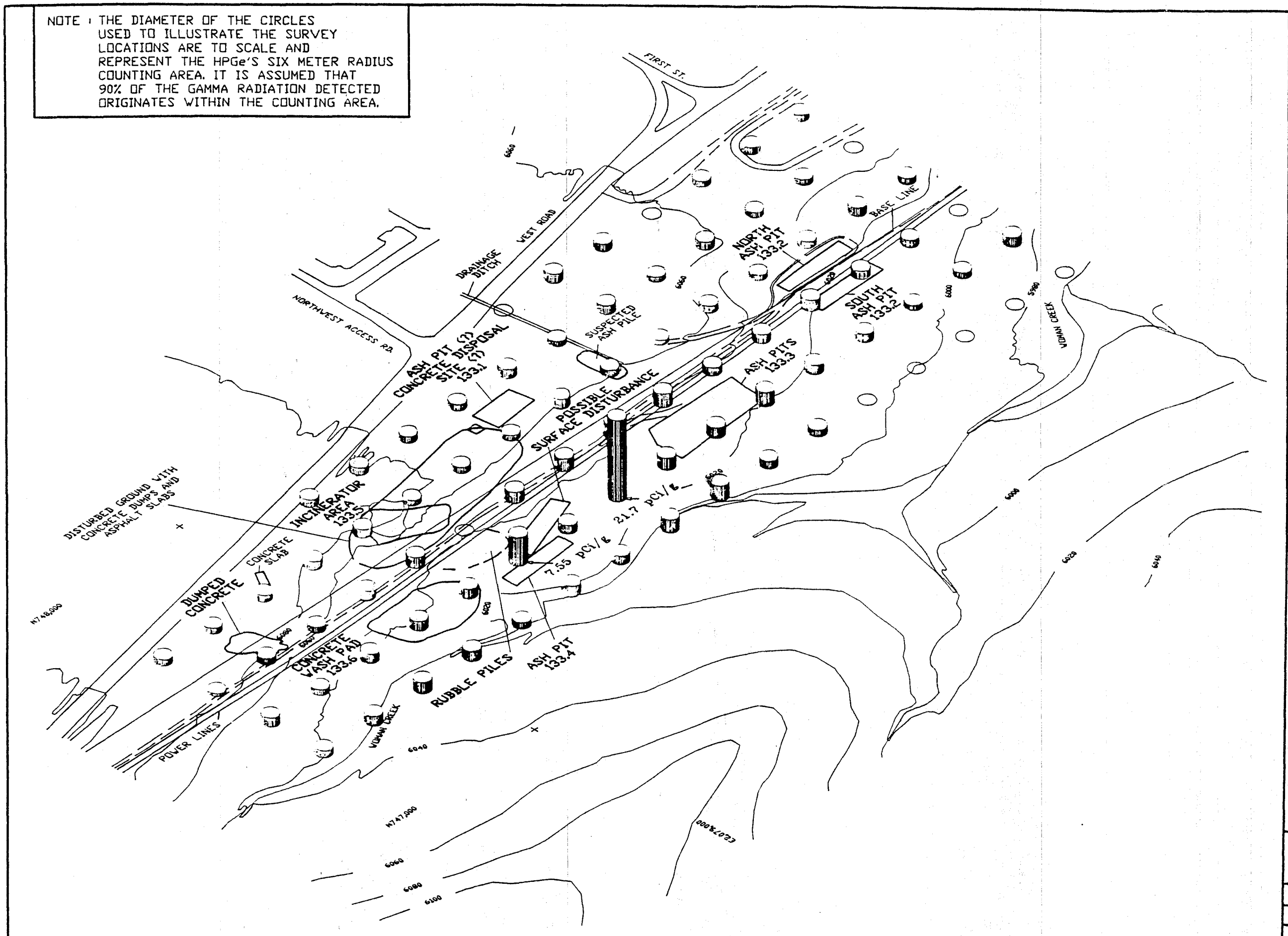
7. Lack of review time for Human Health Risk Assessment (HHRA) Technical Memorandums (TMs).

There is no scheduled review time for the HHRA TMs in the IAG schedule. The addition of 20 work days of review time for each of the four TMs to be produced as part of the HHRA will add a total of 80 days to the schedule.

8. Flawed logic for completion of the RFI/RI Report after completion of the HHRA.

The logic for completing the OU5 RFI/RI Report as shown in the OU5 Work Plan is flawed. The Work Plan Schedule shows the HHRA and draft RFI/RI Report being completed simultaneously. The results of the HHRA must be available prior to completion of the draft RFI/RI Report so that these results can be incorporated into the draft. Based on the assumption that only unvalidated data will be used for completion of the HHRA as reported in the draft RFI/RI Report, an additional 36 working days will be required. At this time, it is not anticipated that the availability of validated data prior to issuance of the final report will cause any delays in the schedule for producing the final report. If, however, the validation process results in a change in the identified Contaminants of Concern (COCs) additional efforts will be required to revise the HHRA which could result in the delay in the issuance of the final RFI/RI Report.

NOTE : THE DIAMETER OF THE CIRCLES USED TO ILLUSTRATE THE SURVEY LOCATIONS ARE TO SCALE AND REPRESENT THE HPGe'S SIX METER RADIUS COUNTING AREA. IT IS ASSUMED THAT 90% OF THE GAMMA RADIATION DETECTED ORIGINATES WITHIN THE COUNTING AREA.



MAP LEGEND

- E2,079,000 N747,000 — STATE PLANE COORDINATES
- INTERMITTENT STREAMS DRAINAGE FEATURES
- PAVED ROADS
- DIRT ROADS
- 133.1 — INDIVIDUAL HAZARDOUS SUBSTANCE SITES AS CORRECTED FROM AERIAL PHOTOGRAPHS
- OU5 BOUNDARY
- ACCESS ROADS TO ASH PITS (ESTIMATED LOCATIONS)
- 0 - 1 pCi/g U238
- 1 - 5 pCi/g U238
- > 5 pCi/g U238

0 100 200

FEET
CONTOUR INTERVAL 20'

HPGe GAMMA RADIATION SURVEY - U^{238}

TM4 - IHSS 133.3 AREA

OU5 PHASE I RFI/RI IMPLEMENTATION

9208.15.01.14 | FIGURE 2

35TM4-2.DVG

NOTE : SAMPLE LOCATION NUMBERS CORRESPONDS TO SAMPLE LOCATION NOMENCLATURE SHOWN IN TABLE 3 AS FOLLOWS 1 = SS500193.

DISTURBED GROUND WITH CONCRETE DUMPS AND ASPHALT SLABS

NORTHWEST ACCESS RD.

FIRST ST.

DRAINAGE DITCH

WEST ROAD

N748,000

ASH PIT (?) CONCRETE DISPOSAL SITE (?) 133.1

INCINERATOR AREA 133.5

CONCRETE SLAB

DUMPED CONCRETE

SUSPECTED ASH PILE

B17

VX10A5

NORTH ASH PIT 133.2

BASE LINE

POWER LINES

CONCRETE WASH PAD 133.6

POSSIBLE SURFACE DISTURBANCE

F10

ASH PITS 133.3

VG17A5

SOUTH ASH PIT 133.2

ASH PIT 133.4

VG24A5

VG01A5

WOMAN CREEK

RUBBLE PILES

VG03A5

N747,000

E2,079,000

6060 6080 6100 6040 6020 6000 5980

1 2 3 4 5 6 7 9 10 11 12 13 14 15 16 17 18 19 20

MAP LEGEND

- E2,079,000 N747,000 — STATE PLANE COORDINATES
- INTERMITTENT STREAMS DRAINAGE FEATURES
- PAVED ROADS
- DIRT ROADS
- SURFACE WATER IMPOUNDMENTS
- 133.1 — INDIVIDUAL HAZARDOUS SUBSTANCE SITES AS CORRECTED FROM AERIAL PHOTOGRAPHS
- OU5 BOUNDARY
- ACCESS ROADS TO ASH PITS (ESTIMATED LOCATIONS)
- •1 — PROPOSED SURFACE SOIL SAMPLE LOCATION
- VG24A5 — SOIL SAMPLES COLLECTED FOR OTHER ENVIRONMENTAL STUDIES

N

0 100 200

FEET
CONTOUR INTERVAL 20'

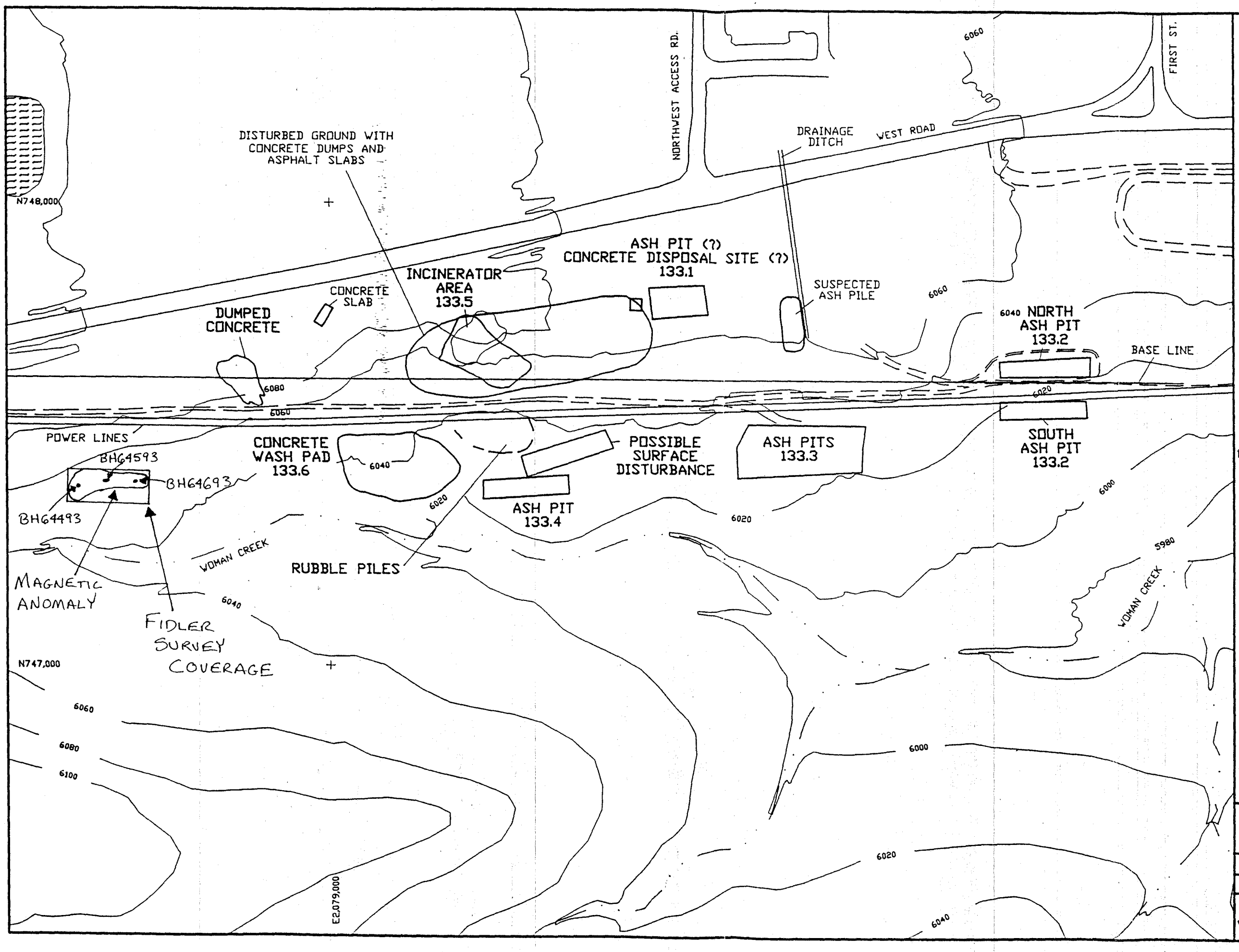
SURFACE SOIL SAMPLE LOCATION MAP

TM4 - IHSS 133.3 AREA

OU5 PHASE I RFI/RI IMPLEMENTATION

9208.15.01.14 | FIGURE 6

05TM4-6.DVG



MAP LEGEND

- E2,079,000 N747,000 — STATE PLANE COORDINATES
- INTERMITTENT STREAMS DRAINAGE FEATURES
- PAVED ROADS
- DIRT ROADS
- SURFACE WATER IMPOUNDMENTS
- 133.1 — INDIVIDUAL HAZARDOUS SUBSTANCE SITES AS CORRECTED FROM AERIAL PHOTOGRAPHS
- ACCESS ROADS TO ASH PITS (ESTIMATED LOCATIONS)
- BH64493 — BOREHOLE LOCATION

N

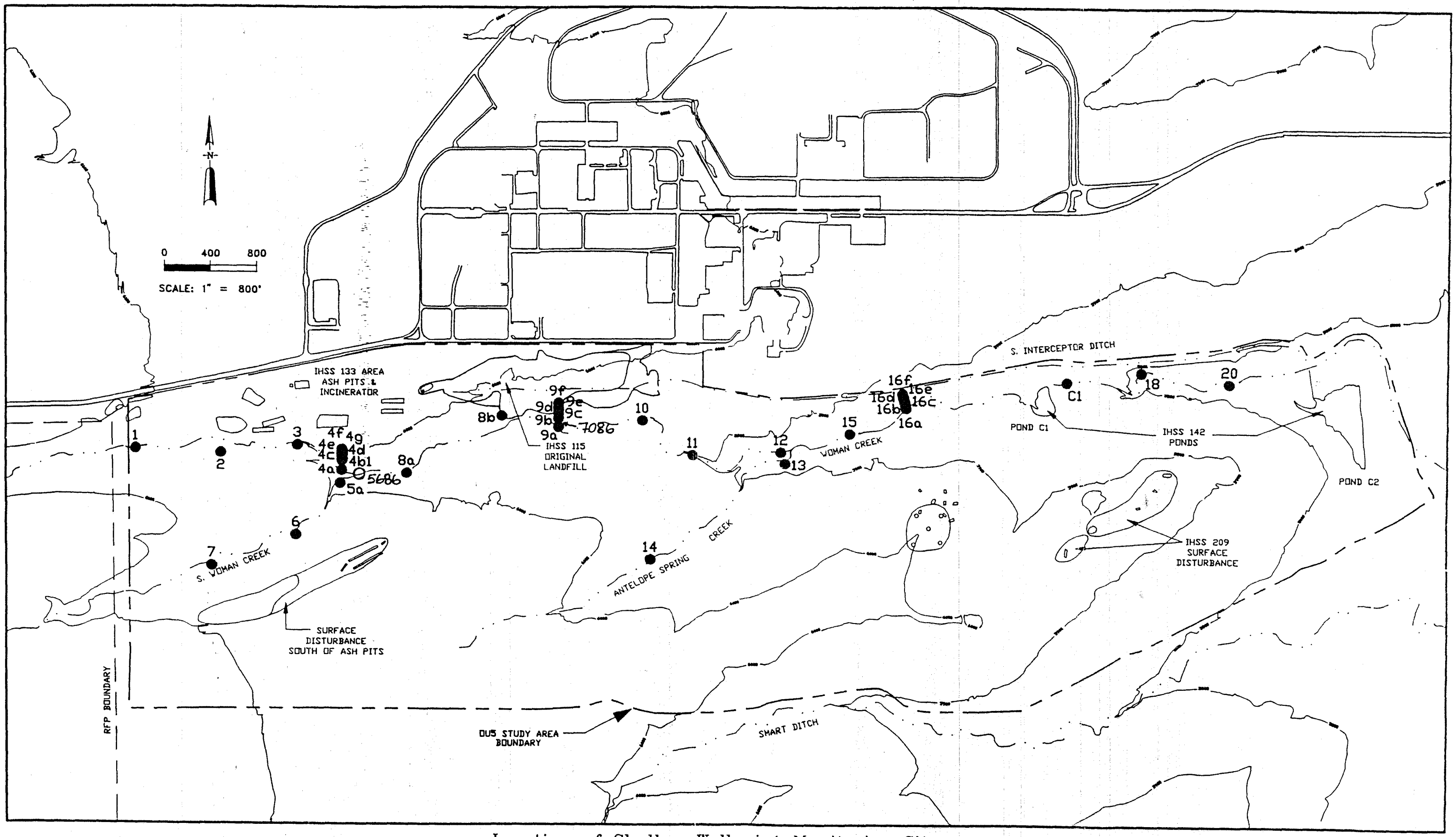
0 100 200

FEET
CONTOUR INTERVAL 20'

SITE LOCATION MAP IHSS 133 AREA

OU5 PHASE I RFI/RI IMPLEMENTATION

DSTM4-1DWG



Location of Shallow Wellpoint Monitoring Sites
Woman Creek Drainage Basin

ADVANCED SCIENCES, INC.

ROCKY FLATS PLANT OU 5 RFI/RI
WOMAN CREEK PRIORITY DRAINAGE

ASI Project No. 9208.15

FIGURE 1

FILE: FF15SWP.DWG

August 5, 1993