

AGENDA  
TECHNICAL REVIEW COMMITTEE (TRC) MEETING  
FOR  
THE INSTALLATION RESTORATION (IR) PROGRAM  
MCALF BOGUE, NORTH CAROLINA  
IN THE  
FACILITIES ENGINEERING DEPARTMENT CONFERENCE ROOM  
MCAS CHERRY POINT, NORTH CAROLINA  
BUILDING 163  
31 JULY 1991  
0900-1215

0900-0915 WELCOME

Mr. Doug Nelson  
Natural Resources &  
Environmental Affairs  
(NREA) Officer  
MCAS Cherry Point

0915-0930 Introduction/Overview  
MCALF Bogue IR Program

Mr. George Radford  
Environmental Engineer  
NREA Department  
MCAS Cherry Point

0930-1030 Review of Remedial  
Investigation (RI) Planning  
Documents for former Crash  
Crew Burn Pit

Ms. Vicki Bomberger  
Mr. Matt Cochran  
NUS Corporation

1030-1100 Travel to MCALF Bogue

1100-1130 Site Tour

Mr. George Radford  
Environmental Engineer  
NREA Department  
MCAS Cherry Point

1130-1200 Return to MCAS Cherry Point

1200-1215 Final Questions, Adjournment

Overview of Matt's presentation  
for Bogue TRC.

*JWR*

Remedial Investigation Planning Documents  
Site 29 - Crash Crew Burn Pit  
Bogue Field

Technical Review Committee Presentation  
July 31, 1991

Department of the Navy  
Contract No. N62470-90-D-7630

Meeting Objectives

To Provide a Summary of Existing Data known about the Crash Crew Burn Pit

To present the initial evaluation and development of the Remedial Investigation

To present the proposed Remedial Investigation field work task plan

## Crash Crew Burn Pit

### DESCRIPTION (see figure 1-3)

Site included a liquid - filled 50 foot diameter pit with an aircraft engine in the center. Tankers located near the pit were used to store flammable liquids that were pumped to the pit and set on fire.

Site use discontinued in 1984 or 1985 and pit area regraded and vegetated.

### SUMMARY OF FIELD ACTIVITIES

Site Inspection (SI) (see figure 1-4)

conducted in 1988

Four shallow monitoring wells

one groundwater sample collected from each well (TCL VOC's, TPH, dissolved and total lead, and PCB)

Eight soil samples (Five surface samples, three subsurface samples - TCL VOC's, TPH, lead and PCB)

Two surface water / sediment samples (TCL VOC's, TPH, dissolved lead, and PCB)

One product sample (lead, PCB, GC fingerprinting, BTU content, flashpoint)

Limited Field Investigation

conducted in 1990

forty soil gas borings

one round of water level and product thickness measurements

Synoptic water levels in Goose Creek tributary and 29GW04

surveying

### SUMMARY OF MEDIA CONTAMINATION (see table 1-1)

Groundwater - BTEX, TPH, and lead, no detections for PCB. Highest levels of BTEX contamination in 29GW02. Only one detection of TPH in 29GW02. Highest levels of lead contamination in 29GW04.

Surface Soil - Lead and TPH, no detections for TCL VOC's and

PCB. Highest level of lead in 29S005. Highest level of TPH in 29S002.

Subsurface Soil - TEX, TPH, and lead: no detections for PCB. Only one detection of TEX and TPH in 29S002A. Highest level of lead in 29S002A.

Surface water / Sediment - Low detections for benzene and TPH, no detections for other VOC's, PCB, and lead.

SUMMARY OF PHYSICAL DATA

Soil Gas (see figure 1-5) - Two anomalous areas detected which are associated with the burn pit and tanker area.

Water level measurements (see figure 1-6) - Groundwater flows in a radial direction to the west, north, and east, away from the pit.

Groundwater discharges into the drainage ditch to the west, and Goose Creek with tributaries to the north and east.

Tidal fluctuations in tributary (1 foot), do not cause groundwater level in GW2904 to fluctuate

SUMMARY OF PRELIMINARY RISK ASSESSMENT

Contaminant migration routes (see figure 2-1)

A - Dust generation

B - Soils leaching

C - Surface water runoff

D - Groundwater discharge to surface water

E - Plant uptake

F - Volatization of surface water contaminants

Risk characterization

1. Surface Soils - Potential exists for human exposure via dermal absorption and incidental ingestion.

An unlikely scenario of soil ingestion (29S005) results in a lead dose of  $1.1 \times 10^{-6}$ , which is less than the former reference dose of  $1.4 \times 10^{-3}$ . Therefore, noncarcinogenic health effects are not expected.

*So carcinogenic health effects are expected?*

Dermal absorption not addressed since metals are not assumed to be dermally adsorbed.

2. Subsurface soils - Potential exists for leaching of contaminants to the groundwater. Data insufficient to evaluate health risks.

3. Groundwater (see table 2-1 and 2-2) - Benzene (29GW01, 29GW02, and 29GW04) and lead (29GW04) exceed MCLs. Benzene, ethyl benzene, and lead exceed North Carolina standards. Benzene and lead exceed AWQC's.

Worst case scenario of ingestion of maximum concentrations of groundwater would result in non carcinogenic health effects of  $2.0 \times 10^{-0}$ , which exceed 1.0. Carcinogenic risks for benzene of  $9.1 \times 10^{-5}$  exceed EPA goal of  $10^{-6}$ .

4. Surface water / Sediments - Potential exists for surface water runoff and groundwater discharge to surface water. Available data are insufficient to evaluate health risks.

4 Air - Potential exists for the generation of dust and volatilization. Data is insufficient to evaluate these pathways for health risks.

Data Gaps

Surface Soils - No samples collected from tanker area. Vaporization of volatile compounds expected in surface soils, however, TPH, TCL metals, and TCL semi-volatiles may be present in both the pit and tanker area.

Subsurface Soils - Nature and extent of contamination needed. TCL volatile, TCL semi volatile, TPH, and TCL metals may be present beneath the tanker area. BTEX, TCL semivolatile, TPH, and TCL metals may be present at the pit.

Groundwater - BTEX, TCL semivolatile, TPH, and total and dissolved TCL metals may be present at the pit. TCL volatiles, TCL semivolatiles, TPH, and total and dissolved TCL metals may be present at the tanker area.

Surface water / sediments - It is not possible to determine if the surface water / sediment contamination detected is derived from the site. The drainage ditch located west of the site has not been sampled to date. TCL volatiles, TCL semivolatiles, TPH, and TCL total metals may be present in the ditch.

Air - Data collected from surface soil and surface water samples detailed above will be required to evaluate contamination migration through the air.

REMEDIAL INVESTIGATION OBJECTIVES FOR FIELD INVESTIGATION

See tables 2-3 and 2-4

RECOMENDATIONS FOR FUTURE WORK (see figure 2-2 and table 3-1)

Eight soil borings - (29SB01, 29SB02, 29GW05 thru 29GW10)

Six borings converted into five shallow and one deep well (29GW05 thru 29GW10)

~~II~~ *depth to confining unit & thickness*

Surface Soils - 3 surface soil samples (pit 29SB01), (tanker area 29GW06), and (upgradient 29GW05)

Subsurface Soils - 10 subsurface soil samples (2 per boring - 29SB01, 29SB02, 29GW05, 29GW06, 29GW07)

Groundwater - One round of samples from all of the wells.

Surface water / sediment - 3 samples (29SW/SD03, 04, 05)

Floating product sampling in 29GW02

Water level and product thickness measurements

Slug testing

Topographic surveying

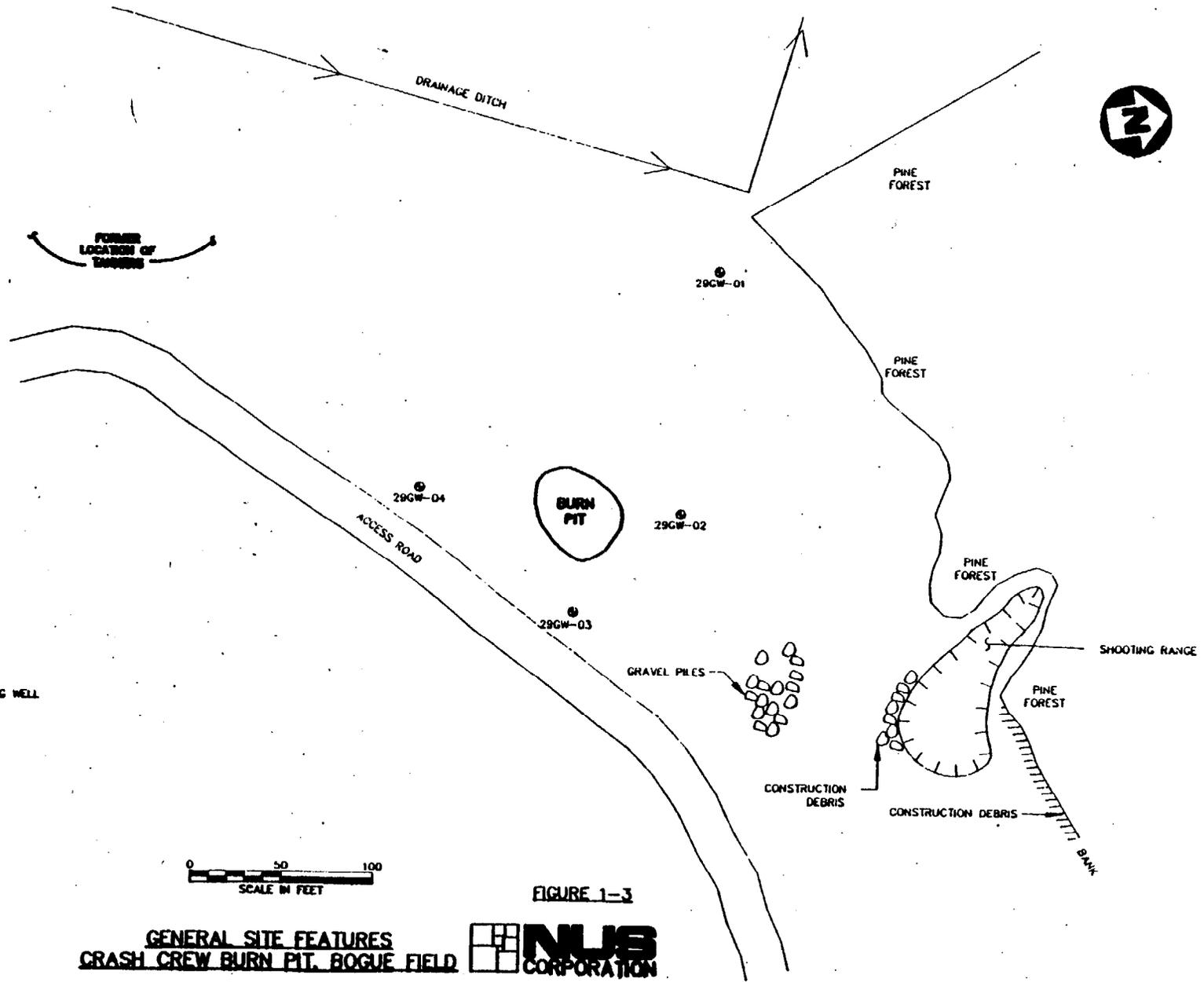


FIGURE 1-3  
GENERAL SITE FEATURES  
CRASH CREW BURN PIT, BOGUE FIELD  
**NUS**  
CORPORATION

CP-00144- 9.03 - 7/31/91

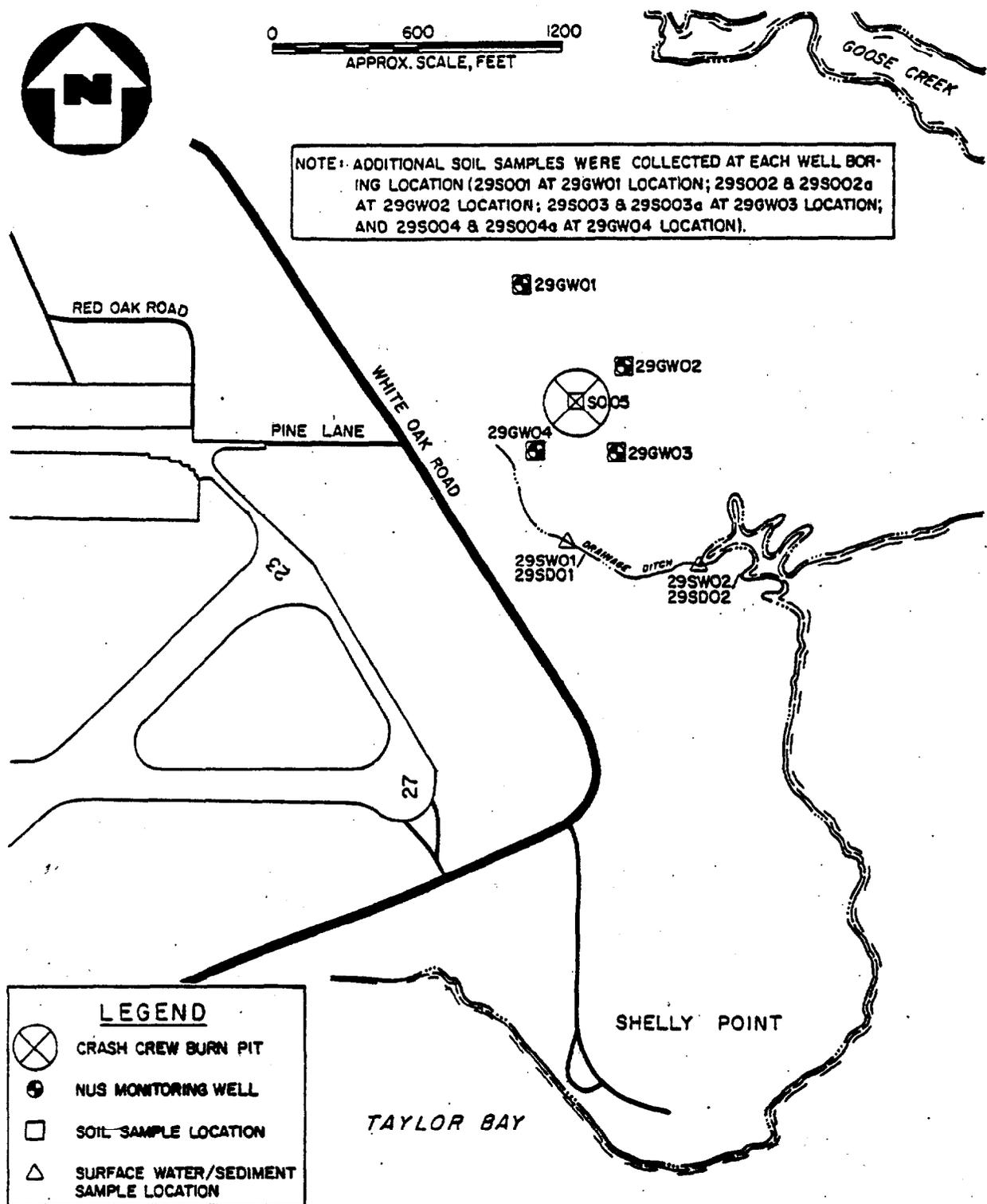


FIGURE I-4

**SI SAMPLE LOCATIONS**  
**MCALF, BOGUE, CHERRY POINT, NC**



TABLE 1-1  
SI CHEMICAL ANALYTICAL DATA  
SITE 29 - CRASH CREW BURN PIT  
MCALF, BOGUE FIELD, NORTH CAROLINA

Sample Type:	Groundwater				Product	Soil								Surface Water		Sediment	
Sample Number:	29GW01	29GW02	29GW03	29GW04	29GW02P	29S001	29S002	29S002A	29S003	29S003A	29S004	29S004A	29S005	29SW01	29SW02	29SD01	29SD02

TCL VOLATILES	µg/L					µg/kg								µg/L		µg/kg	
Benzene	7	110	2 (J)	15	NA												3 (I)
Toluene		13			NA			160 (B)									
Total Xylenes	1 (B)	220			NA		1 (B)	3800									
Ethylbenzene	0.6 (J)	68		8	NA			890									
Methylene Chloride	0.9 (B)	9 (B)	0.8 (B)	0.7 (B)	NA	1 (B)	2 (B)	510 (B)	6 (B)	2 (B)	2 (B)	2 (B)	1 (B)		2 (B)	8 (B)	2 (B)
Acetone	6 (B)	25 (B)	6 (B)	5 (B)	NA	5 (B)	27 (B)	1600 (B)	24 (B)	25 (B)	25 (B)	8 (B)	14 (B)	4 (B)	28 (B)	120 (B)	92 (B)

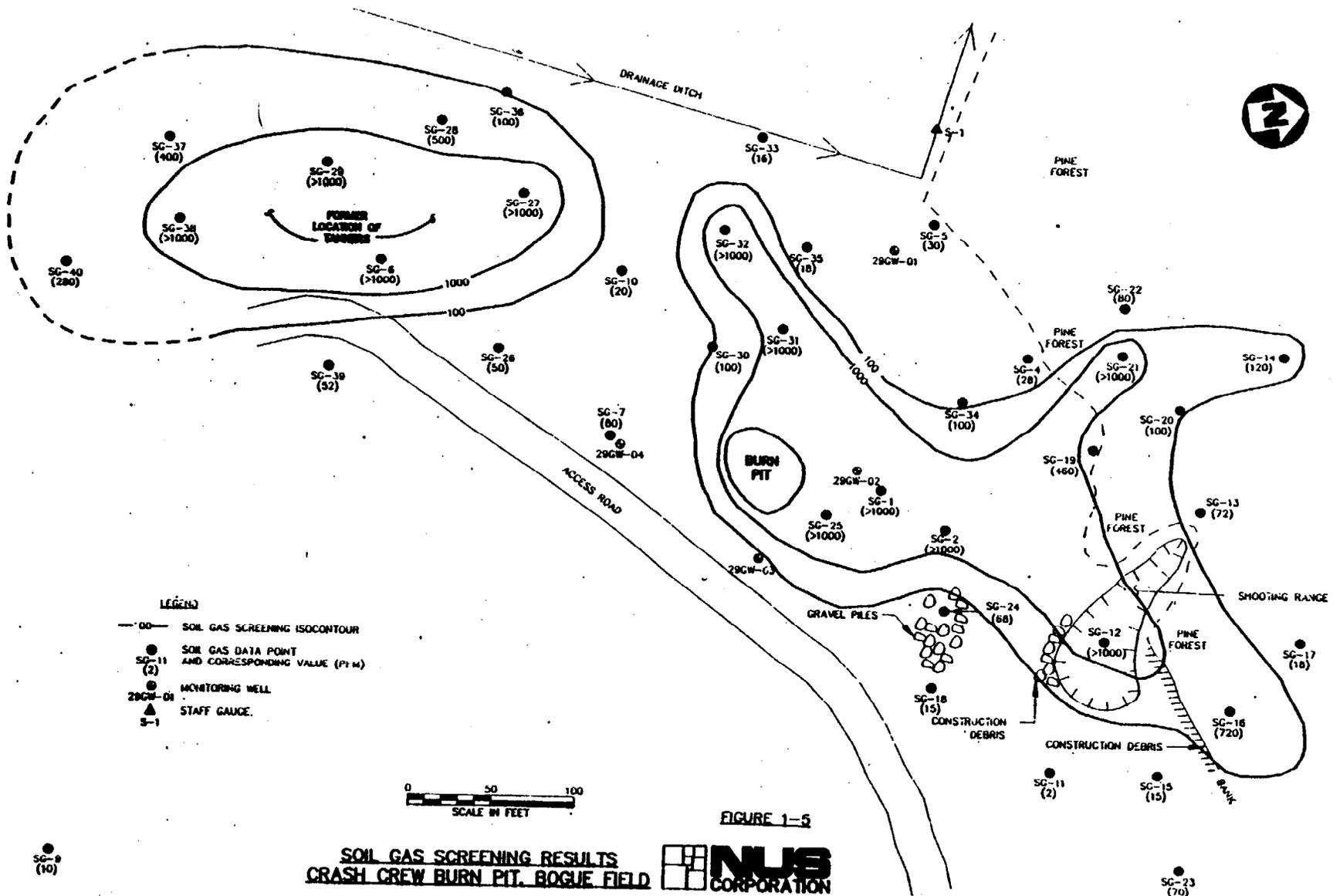
	mg/L					mg/kg								mg/L		mg/kg	
Total Petroleum Hydrocarbons		650			NA		180	1100					110	0.002	0.003	10	12

	µg/L					µg/kg								µg/L		µg/kg	
PCBs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

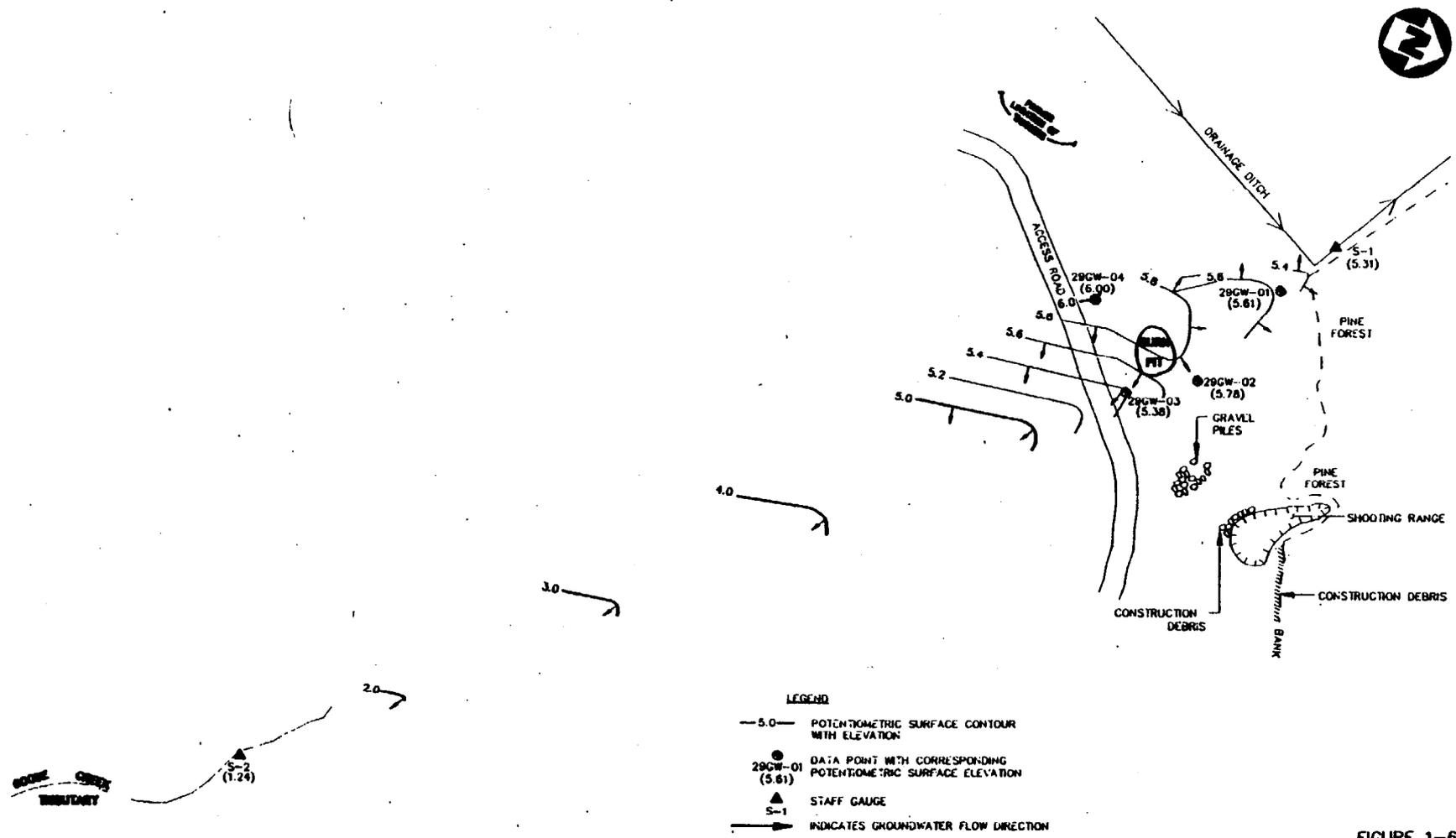
	mg/L					mg/kg								mg/L		mg/kg	
Lead	0.028 (a)	0.040 (a)	0.028 (a)	0.095 (a)	0.70	4.5	14	3.0	11	2.4	10	2.3	230				

(B) Not detected substantially above the level reported in the laboratory or field blanks.  
 (J) Value should be considered estimated below Contract Required Detection Limit (CRDL).  
 (a) Data is for unfiltered samples. Lead was not detected in filtered samples.  
 \* Surface soil sample, all other soil samples were collected from the subsurface.

PCBs Polychlorinated Biphenyls.  
 TCL Target Compound List.  
 NA Not analyzed.  
 ND Not detected.



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**POTENTIOMETRIC SURFACE CONTOURS AS OF 10/24/90  
CRASH CREW BURN PIT, BOGUE FIELD**

- LEGEND**
- 5.0 — POTENTIOMETRIC SURFACE CONTOUR WITH ELEVATION
  - 29GW-01 (5.61) DATA POINT WITH CORRESPONDING POTENTIOMETRIC SURFACE ELEVATION
  - ▲ S-1 STAFF GAUGE
  - INDICATES GROUNDWATER FLOW DIRECTION

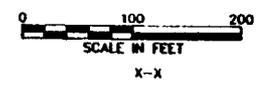
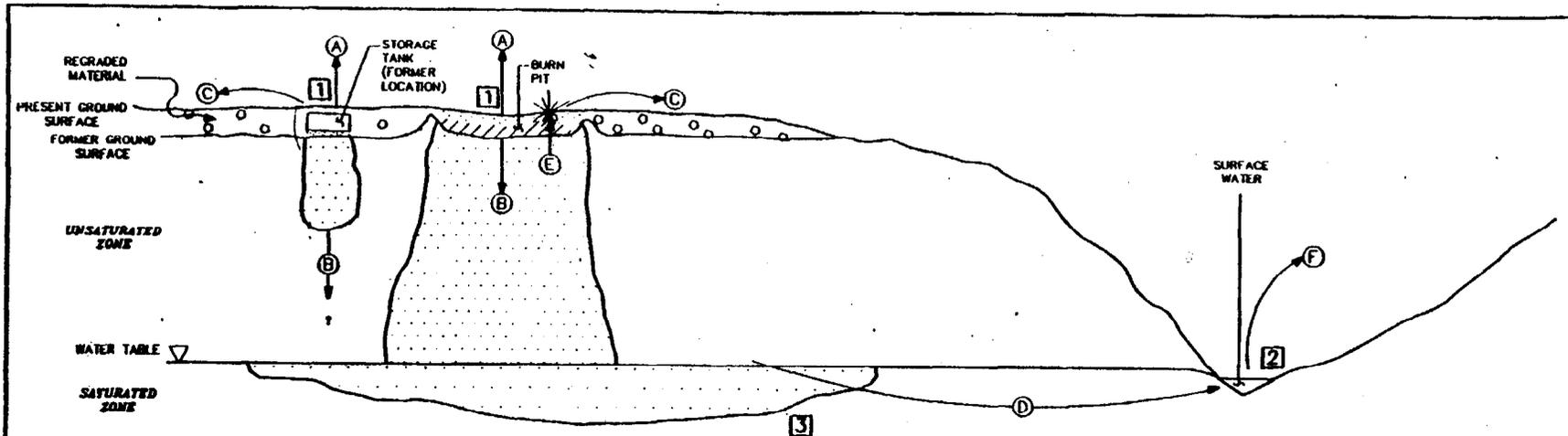


FIGURE 1-6





EXPOSURE ROUTE		PRESENT RISK	FUTURE POTENTIAL RISK	RELATED CONTAMINANT MIGRATION ROUTES
1 SOILS	Dermal and Ingestion, Humans	Not determined - Dermal absorption and ingestion of contaminants in surface soils will be evaluated. Lead detected at significant levels in surface soils during SI.	Disturbance of surface soil opening contaminants could increase risk.	A Dust Generation B Soils leaching to groundwater E Plant uptake
	Plant Uptake	Minimal - Concentrations reported in SI at levels believed to not affect plant life.	Minimal - Concentrations reported in SI at levels believed to not affect plant life.	
2 SURFACE WATER--GOOSE CREEK AND DRAINAGE DITCH	Dermal, humans	Minimal - Not a major recreational or training facility. SI data indicates low levels of contaminants in Goose Creek.	Minimal - Not a major recreational or training facility. SI data indicates low levels of contaminants in Goose Creek.	C Surface water runoff to drainage ditch and low areas D Groundwater discharge to surface water
	Ingestion, humans	Minimal - Not a major recreational or training facility. Surface water not suitable for drinking.	Minimal - Not a major recreational or training facility. Surface water not suitable for drinking.	
	Biota Uptake	Not determined - Effects on biota will be evaluated.	Not determined - Effects on biota will be determined.	
3 GROUNDWATER	Dermal, humans	Minimal - No wells present to demonstrate downgradient mobility of site.	Unrestricted access to groundwater could result in exposure.	B Soils leaching to groundwater D Groundwater discharge to surface water
	Ingestion, humans	Minimal - No wells present to demonstrate downgradient mobility of site.	Unrestricted access to groundwater could result in exposure.	
4 SEDIMENTS	Dermal, humans	Minimal - Not a major recreational or training facility. SI data indicates low levels of contaminants in Goose Creek.	Minimal - Not a major recreational or training facility. SI data indicates low levels of contaminants in Goose Creek.	C Surface water runoff D Groundwater discharge to surface water
5 AIR	Inhalation, Humans	Not determined - Exposure to air borne particulates and volatilization will be evaluated.	Not determined - Exposure to air borne particulates and volatilization will be evaluated.	A Dust generation F Volatilization of surface water contaminants

DESIGN	M. Bates	12/17/90
CHECKED		
DESIGN ENGINEER		
PROCESS ENGINEER		
PROJECT MANAGER		
DIRECTING MANAGER	P. C. Falvey	
CLIENT APPROVAL		

**LEGEND**

CONTAMINATED MEDIA

MIGRATION ROUTE

**NUS CORPORATION**

PAVE WEST TWO  
CLIFF SIDE ROAD  
PITTSBURGH, PA 15275

**CONCEPTUAL SITE MODEL  
BOGUE FIELD  
CRASH CREW BURN PIT**

CLIENT	DEPARTMENT OF NAVY	CONTRACT	IRP
SCALE	NONE	DATE	NOV. 7, 1990
DRAWING NO.	FIGURE 2-1	SHEET	1 of 1
		ACFILE NAME	2F35\SMODEL.DWG
		REV.	0

2P-00144-9.05-751191

**TABLE 2-1  
COMPARISON OF CONTAMINANT CONCENTRATIONS IN GROUNDWATER WITH APPLICABLE WATER STANDARDS AND CRITERIA  
SITE 29 - CRASH CREW BURN PIT  
MCALF, BOGUE FIELD, NORTH CAROLINA**

Compound	Concentration Range Groundwater Samples (Number of Positive Detections/ Number of Samples)	Standards and Criteria							
		North Carolina (1)(2) Water Quality Standards (µg/L)		MCLs(3) (µg/L)	MCLGs(3) (µg/L)	Health Advisories(3) (µg/L)	AWQC(4) (µg/L)	RID(5) (mg/kg/day)	CSF(5) (mg/kg/day) 1
		Groundwater(a)	Surface Water(b)						
Benzene	2-110 µg/L (4/4)	1		5	0	1-day (child): 200 10-day (child): 200	0.67(e)	NA	2.9 x 10 <sup>-2</sup>
Toluene	13 µg/L (1/4)	1,000		2,000(c)	2,000(c)	1-day (child): 20,000 10-day (child): 3,000 Longer term (child): 3,000 Longer term (adult): 10,000 Lifetime (adult): 2,000	15,000	3.0 x 10 <sup>-1</sup>	NA
Ethylbenzene	6-68 µg/L (3/4)	29		700(c)	700(c)	1-day (child): 30,000 10-day (child): 3,000 Longer term (child): 1,000 Longer term (adult): 3,000 Lifetime (adult): 700	2,400	1 x 10 <sup>-1</sup>	NA
Xylenes	220 µg/L (1/4)	400		10,000(c)	10,000(c)	1-day (child): 40,000 10-day (child): 40,000 Longer term (child): 40,000 Longer term (adult): 100,000 Lifetime (adult): 10,000		2.0 x 10 <sup>0</sup>	NA
Lead	28-95 µg/L (4/4)	50	25	5(c) 50(d)	0(c)		50	1.4 x 10 <sup>-3(f)</sup>	NA

- (a) Applies to Class GA waters which are intended for those groundwaters in which chloride concentrations are equal to or less than 250 mg/L, and which are considered suitable for drinking in their natural state.
- (b) Applies to Class SC surface waters (i.e., all tidal salt waters).
- (c) Proposed.
- (d) National Interim Primary Drinking Water Regulation.
- (e) Value corresponds to a 10<sup>-4</sup> cancer risk.
- (f) Reference dose has been revoked.
- (1) State of North Carolina Department of Environment, Health, and Natural Resources, December 1, 1989.
- (2) State of North Carolina Department of Environment, Health, and Natural Resources, August 1, 1990.
- (3) U.S. EPA, April 1990.
- (4) U.S. EPA, October 1986.
- (5) U.S. EPA, July 1990.
- NA Not available.

TABLE 2-2

**WORST-CASE ESTIMATED HEALTH EFFECTS  
INGESTION OF GROUNDWATER  
SITE 29 - CRASH CREW BURN PIT  
MCALF, BOGUE FIELD, NORTH CAROLINA**

Chemical	Concentration ( $\mu\text{g/L}$ )	Adult Daily Dose ( $\text{mg/kg/day}$ )	Hazard Quotient	Estimated Incremental Cancer Risk
Benzene	110	$3.1 \times 10^{-3}$	(1)	$9.1 \times 10^{-5}$
Toluene	13	$3.7 \times 10^{-4}$	$1.2 \times 10^{-3}$	(2)
Ethylbenzene	68	$1.9 \times 10^{-3}$	$1.9 \times 10^{-2}$	(2)
Xylenes	220	$6.3 \times 10^{-3}$	$3.1 \times 10^{-3}$	(2)
Lead	95	$2.7 \times 10^{-3}$	$1.9 \times 10^0$	(2)
<b>HAZARD INDEX</b>	----	----	<b><math>2.0 \times 10^0</math></b>	----

- (1) Reference dose not available.  
(2) No carcinogenic effects for this chemical.

Note: Refer to Appendix B for calculations

TABLE 2-3  
REMEDIAL INVESTIGATION SCOPING MATRIX  
SITE 29 - CRASH CREW BURN PIT  
MCALF, BOGUE FIELD

Potential Source/Media	Contaminant Type Detected	Preliminary Risk Assessment	ARARs	Potential Remedial Objectives	Cleanup Criteria	Potential Remedial Actions	Data Requirements (Risk)	Data Requirements (Engineering)
<b>BACKGROUND</b>								
Soil, groundwater, surface water, sediment	NA	NA	NA	NA	NA	<ul style="list-style-type: none"> <li>• NA</li> </ul>	<ul style="list-style-type: none"> <li>• TCL volatiles and semivolatiles</li> <li>• TPH, and TCL metals</li> </ul>	<ul style="list-style-type: none"> <li>• Geochemical and geotechnical parameters</li> </ul>
<b>BURN PIT AREA</b>								
Wastes including unsaturated zone soils	Lead and TPH in surface soil. Volatiles, lead, and TPH in subsurface soils.	Dermal, ingestion	RCRA (if waste is hazardous) Risk	Eliminate/ minimize air migration, leaching, and runoff	RCRA (if waste is hazardous) Risk	<ul style="list-style-type: none"> <li>• Capping</li> <li>• Excavation/ Removal</li> <li>• In-Situ Treatment</li> </ul>	<ul style="list-style-type: none"> <li>• BTEX (subsurface soils only), semivolatiles, and TPH</li> <li>• TCL metals</li> </ul>	<ul style="list-style-type: none"> <li>• TCLP, flash point, corrosivity, reactivity, BTU, TOC (waste soil only)</li> <li>• Geochemical and geotechnical parameters.</li> </ul>
Floating Product	Lead detected, BTU and flash point known	Not conducted	Risk MCLs	Reduce contaminant levels	Risk MCLs	<ul style="list-style-type: none"> <li>• Pump-and-Treat</li> <li>• In-Situ Treatment</li> </ul>		<ul style="list-style-type: none"> <li>• TOX</li> </ul>
<b>TANKER AREA</b>								
Unsaturated zone soils	Not known if contaminated	Not conducted	RCRA (if hazardous) Risk	Eliminate/minimize air migration, leaching, and runoff	RCRA (if hazardous) risk	<ul style="list-style-type: none"> <li>• Capping</li> <li>• Excavation/ Removal</li> <li>• In-Situ Treatment</li> </ul>	<ul style="list-style-type: none"> <li>• TCL volatile (subsurface soils only), semivolatiles, and TPH</li> <li>• TCL metals</li> </ul>	

**TABLE 2-3  
REMEDIAL INVESTIGATION SCOPING MATRIX  
SITE 29 - CRASH CREW BURN PIT  
MCALF, BOGUE FIELD  
PAGE TWO**

Potential Source/Media	Contaminant Type Detected	Preliminary Risk Assessment	ARARs	Potential Remedial Objectives	Cleanup Criteria	Potential Remedial Actions	Data Requirements (Risk)	Data Requirements (Engineering)
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**SURFACE WATER/SEDIMENT**

Goose Creek Tributary	SI indicates benzene and TPH at low levels	Not determined at this time	NA at this time	NA at this time	NA at this time	• NA at this time	NA at this time	NA at this time
Drainage Ditch West of Burn Pit	Unknown	Not determined	North Carolina Standards	Reduce contaminant levels (if present)	North Carolina standards	<ul style="list-style-type: none"> <li>• Groundwater Contamination Reduction Actions</li> <li>• Sediment Dredging</li> </ul>	<ul style="list-style-type: none"> <li>• TCL volatiles and semivolatiles, TPH</li> <li>• TCL metals</li> </ul>	

**GROUNDWATER**

	BTEX, lead, TPH in SI data from burn pit; Tanker area not investigated	Ingestion	MCLs, North Carolina Standards	Reduce contaminant levels	Risk MCLs NC standards	<ul style="list-style-type: none"> <li>• Pump-and-Treat</li> <li>• In-Situ Treatment</li> </ul>	<ul style="list-style-type: none"> <li>• TCL volatiles and semivolatiles (BTEX only in Burn Pit area), TPH, TCL metals</li> </ul>	<ul style="list-style-type: none"> <li>• TOC, BOD, COD, hardness, alkalinity, TDS, DO, chloride</li> </ul>
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NA Not applicable.

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TABLE 2-4

REMEDIAL INVESTIGATION OBJECTIVES  
SITE 29 - CRASH CREW BURN PIT  
MCALF, BOGUE FIELD, NORTH CAROLINA

Investigation Area	Objectives
Soils	<ol style="list-style-type: none"> <li>1. Determine the chemical characteristics of background soils.</li> <li>2. Determine the distribution of soil contamination resulting from historic site activities.</li> <li>3. Assess the leachability of contaminated unsaturated zone waste soils.</li> <li>4. Determine the characteristics of contaminated unsaturated zone waste soils for RCRA classification and disposal purposes.</li> <li>5. Determine the geotechnical characteristics of the site soils.</li> <li>6. Determine the presence of soil contamination resulting from the tanker area.</li> <li>7. Define the site lithology.</li> </ol>
Surface Water/ Sediment	<ol style="list-style-type: none"> <li>8. Determine the presence of surface water and sediment contamination in the drainage ditch west of the site.</li> </ol>
Groundwater	<ol style="list-style-type: none"> <li>9. Determine the chemical and geochemical characteristics of background groundwater.</li> <li>10. Determine the downgradient extent of groundwater contamination resulting from the burn pit.</li> <li>11. Determine the vertical extent of groundwater contamination resulting from the burn pit.</li> <li>12. Determine the geochemical characteristics of contaminated groundwater.</li> <li>13. Determine the presence of groundwater contamination resulting from the tanker area.</li> <li>14. Assess the feasibility of product recovery and disposal.</li> <li>15. Determine aquifer characteristics.</li> </ol>

TABLE 3-1

REMEDIAL INVESTIGATION SAMPLE SUMMARY  
SITE 29 - CRASH CREW BURN PIT  
MCALF, BOGUE FIELD, NORTH CAROLINA

Source Area/Media	Investigation Method	Location	Number of Samples	Analyses
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SOIL

Burn Pit and Adjacent Areas	Soil borings and surface soil samples	29 SB-01 29 SB-02 29 GW-07	Three (1 surface, 1 waste soil, 1 above water table) Two (1 below surface, 1 above water table) Two (1 below surface, 1 above water table)	<ul style="list-style-type: none"> <li>TPH, TCL semivolatiles, and TCL metals only in surface sample.</li> <li>BTEX, TCL semivolatiles, TPH, and TCL metals, in all subsurface samples.</li> <li>Waste soil--modified and standard TCLP, ignitability, corrosivity, reactivity, BTU, TOC.</li> <li>One (1) selected subsurface location for grain size, permeability, Atterberg limits, bulk density, moisture content, and specific gravity (if possible).</li> </ul>
Tanker Area	Soil boring and surface soil sample	29 GW-06	Three (1 surface, 1 below surface, 1 above water table)	<ul style="list-style-type: none"> <li>TPH, TCL semivolatiles, and TCL inorganics only in surface sample.</li> <li>TCL volatile, semivolatile, TPH, and TCL inorganics, in all subsurface samples.</li> </ul>
Upgradient	Soil boring and surface soil sample	29 GW-05	Three (1 surface, 1 below surface, 1 above water table)	<ul style="list-style-type: none"> <li>TPH, TCL semivolatiles, and TCL metals only in surface sample</li> <li>TPH, TCL volatile, TCL semivolatile, and TCL metals, in all subsurface samples.</li> <li>One (1) selected subsurface location for TOC.</li> </ul>

SURFACE WATER/SEDIMENT

	Dip method and trowel	29 SW-03/29SD-03 29 SW-04/29SD-04 29 SW-05/29SD-05	Three (3) total	<ul style="list-style-type: none"> <li>TCL volatile, TCL semivolatile, TCL metals, and TPH.</li> </ul>
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GROUNDWATER

	Monitoring wells	29 GW-01 through 29 GW-10	One (1) sample from each well and existing wells (10 total)	<ul style="list-style-type: none"> <li>TCL volatiles, TCL semivolatiles, TCL metals, and TPH in 29 GW-05 and 29 GW-06.</li> <li>BTEX, TCL semivolatile, TCL metals, and TPH in all others.</li> <li>BOD, TOC, COD, hardness, alkalinity, TDS, and chloride in 29 GW-05 and 29 GW-02.</li> <li>TOX in product sample from 29 GW-02.</li> </ul>
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