PROJECT INFORMATION, CLIMATE AND SOIL DATA
NORFORK LAKE COMPOUND

Project Information: Norfork Lake Compound is located off State Highway 101, approximately 6 miles northeast of Mountain Home, Arkansas. Its primary purpose is to serve as a storage area for materials utilized in the operation and maintenance of parks and recreational facilities.

Climate: Norfork Lake Compound is located in Baxter County, Arkansas. Temperatures are hot in summer and moderately cool in winter. Winter has an average temperature of 37 degrees F, and the average daily minimum temperature is 25 degrees. In summer the average temperature is 77 degrees and the average daily maximum temperature is 89 degrees. Prevailing wind is from the south. Average windspeed is highest, 12 miles per hour, in spring.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 2.30 inches	Jul - 3.20 inches
Feb - 2.74 inches	Aug - 2.93 inches
Mar - 3.80 inches	Sep - 4.17 inches
Apr - 4.47 inches	Oct - 3.12 inches
May - 5.07 inches	Nov - 3.73 inches
Jun - 4.26 inches	Dec - 3.31 inches

Rainfall is fairly heavy and well distributed throughout the year. Snow falls nearly every winter, but snow cover lasts but a few days. The total annual precipitation is 43 inches. Of this, 24 inches (or 55 %) usually falls in April through September. Average snowfall is 9 inches. On an average of 4 days, at least 1 inch of snow is on the ground.

Soils: Soils in this area are a mixture of Arkana-Moko complex, 20 - 40 percent slopes; Nixa-Doniphan complex, 3 to 8 percent slopes; and Tonti cherty silt loam, 3 to 8 percent slopes.

Arkana-Moko complex, 20 - 40 percent slopes, consists of Arkana and Moko soils on steep hillsides. The slopes are uneven and convex, in many places having a stepped appearance caused by outcrops of horizontally bedded dolomite bedrock.

Arkana soils make up about 45 percent of each mapped area. Typically, the surface layer of Arkana soils is very dark grayish brown very cherty silt loam about 4 inches thick. The next layer is dark brown very cherty silt loam to a depth of about 7 inches. The subsurface layer is brown very cherty silt loam to a depth of 11 inches. The subsoil is yellowish red very cherty silty clay to a depth of about 15 inches; yellowish red, mottled cherty clay

to a depth of about 21 inches; and dark yellowish brown clay to a depth of about 27 inches. Below the subsoil, there is hard, level-bedded dolomite bedrock. Permeability is very slow.

Moko soils make up about 35 percent of each mapped area. Typically, the soil is very dark brown and very dark grayish brown very stony silt loam about 9 inches thick overlying hard, level-bedded dolomite bedrock. Permeability is moderate.

Nixa-Doniphan complex. This complex consists of Nixa and Doniphan soils on uplands and low ridges. The slopes are smooth and convex.

Nixa soils make up about 45 percent of each mapped area. Typically, the surface layer is very dark grayish brown very cherty silt loam about 2 inches thick. The subsurface layer is brown very cherty silt loam to a depth of about 11 inches. The subsoil in the upper part is light yellowish brown very cherty silt loam to a depth of about 22 inches. The middle part is a fragipan of yellowish brown, mottled very cherty silt loam to a depth of about 44 inches. The lower part is mottled yellowish red, strong brown, and light brownish gray very cherty silty clay loam to a depth of 72 inches or more. Permeability is very slow. The fragipan restricts root penetration and slows the movement of water through the soil.

Doniphan soils make up about 40 percent of each mapped area. Typically, the surface layer is dark brown very cherty silt loam about 1 inch thick. The subsurface layer is light yellowish brown very cherty silt loam to a depth of about 9 inches. The subsoil is strong brown very cherty silt loam to a depth of about 17 inches; yellowish red, mottled cherty silty clay to a depth of about 29 inches; dark red, mottled clay to a depth of about 56 inches; and mottled, dark red, strong brown, and light gray clay to a depth of 78 inches or more. Permeability is moderate.

The remaining 15 percent of this complex consists of small areas of Tonti, Captina, and Arkana soils.

Tonti cherty silt loam. This is a deep, moderately well drained, gently sloping soil on broad uplands. Slopes are smooth and convex. Typically, the surface layer is brown cherty silt loam about 7 inches thick. The subsoil in the upper part is strong brown cherty silt loam to a depth of about 19 inches. The middle part is a compact and brittle fragipan of strong brown, mottled very cherty silt loam to a depth of about 32 inches. The lower part is red, mottled clay to a depth of 72 inches or more. Permeability is slow.

<u>Groundwater:</u> Arkana-Moko complex and Nixa-Doniphan complex - depth to seasonal high water table is greater than 6 feet. Tonti cherty silt loam - depth to seasonal high water table is between 1.5 - 2.5 feet.

Source: Soil Survey of Baxter and Marion Counties, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1983.

SWLR 200-1-1
25 Sep 97

SPILL HISTORY - NORFORK LAKE COMPOUND

CESWL-CO-MH KUETER/425-2700/2 Nov 95

MEMORANDUM FOR Chief, Con-Ops Div

SUBJECT: Spill History

1. Please refer to memo CESWL-CO-E dated 16 October 1995, subject as above.

2. A negative spill history is furnished for Mountain Home Project Office and its activities.

JACK RINTOUL
Resident Engineer

RECEIVED
CON-OPS DIVISION

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
MOUNTAIN HOME

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Norfork Powerhouse Norfork, AR	Diesel Aboveground Storage Tank	300 Gal	Dam, Tower Generator Room, Elevation 580.0	Off	Drains to where diesel can be recovered.
	Insulation Oil Transformers - 7 each at 5820 Gals	40740 Gal	Switchyard, Eevation 418.5	Off	Drains to an oil/water separator where oil can be recovered.
	Insulation Oil, for Transformers, Aboveground Storage Tanks - 2 each at 6200 Gals - 1 each at 6700 Gals - 1 each at 7100 Gals	26200 Gal	Oil Storage Room, Elevation 372.0	Off	Drains to sump where oil can be recovered.
	Lube Oil - 22 Hydraulic Cylinders at 150 Gals each	3300 Gal	Dam, Operating Gallery, Elevation 404.7	Off	System Inspected. Drains to sump where oil can be recovered.

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
MOUNTAIN HOME

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Norfork Powerhouse Norfork, AR (Continued)	Lube Oil - 2 each Aboveground Storage Tanks at 1500 Gals	3000 Gal	Oil Purification Room, Elevation 372.0	Off	Drains to sump where oil can be recovered.
	Lube Oil, for Sluice Gates, Aboveground Storage Tank	750 Gal	Dam, Operating Gallery, Elevation 404.7	Off	System Inspected. Drains to sump where oil can be recovered.
	Lube Oil	360 Gal	Oil Storage Room, Elevation 372.0	Off	Drains to sump where oil can be recovered.
	Paint	5 Gal	Paint Room, Elevation 372.0	Off	Inspection and sorbents.
	Solvent (Varsol)	70 Gal	Storage Tunnel, Elevation 396.0	Off	Inspection and sorbents.
	Alcohol	5 Gal	Oil Storage Room, Elevation 372.0	Off	Inspection and sorbents.

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
MOUNTAIN HOME

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Norfork Powerhouse Norfork, AR (Continued)	Solvent, Safety for Cleaning Electric Motors	25 Gal	Oil Storage Room, Elevation 372.0	Off	Inspection and sorbents.

SITE DESCRIPTION AND MAPS
NORFORK POWERHOUSE

CESWL-CO-MH KUETER/lk/425-2700/28 Jun 95

MEMORANDUM FOR Chief, Con Ops Div

SUBJECT: Description of Potential Spill Sites and Site Maps

1. Please refer to memo CESWL-CO-E dated 3 May 1995, subject as above.

2. Norfork and Bull Shoals Recreation Resource Management Branches each have a mobile service truck that has a gasoline and a diesel transfer tank. Each tank has an approximate capacity of 130 gallons. These vehicles are based at the Mountain Home Project Office and are taken to various job sites where construction activities are occurring. Absorbent pads will be purchased to be carried in the vehicles as a countermeasure in the event of a spill.

3. Enclosed are color coded prints showing storage areas in both powerhouses where lube oil, insulating oil, paint, and solvents are kept. The areas where the paint and solvent are stored have CO_2 fire protection. The floor drains in the powerhouses all run into the powerhouse unwatering sumps. At Bull Shoals, the transformer deck drains also drain into the powerhouse sumps. The powerhouse sumps are equipped with oil detectors and oil skimmers to remove the oil from the sumps. Total capacity for one sump at Bull Shoals is approximately 15,000 gallons. At Norfork, the transformers have an oil containment system that was installed in 1994.

Encls
as

JACK RINTOUL
Project Manager

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JUN 30 1995
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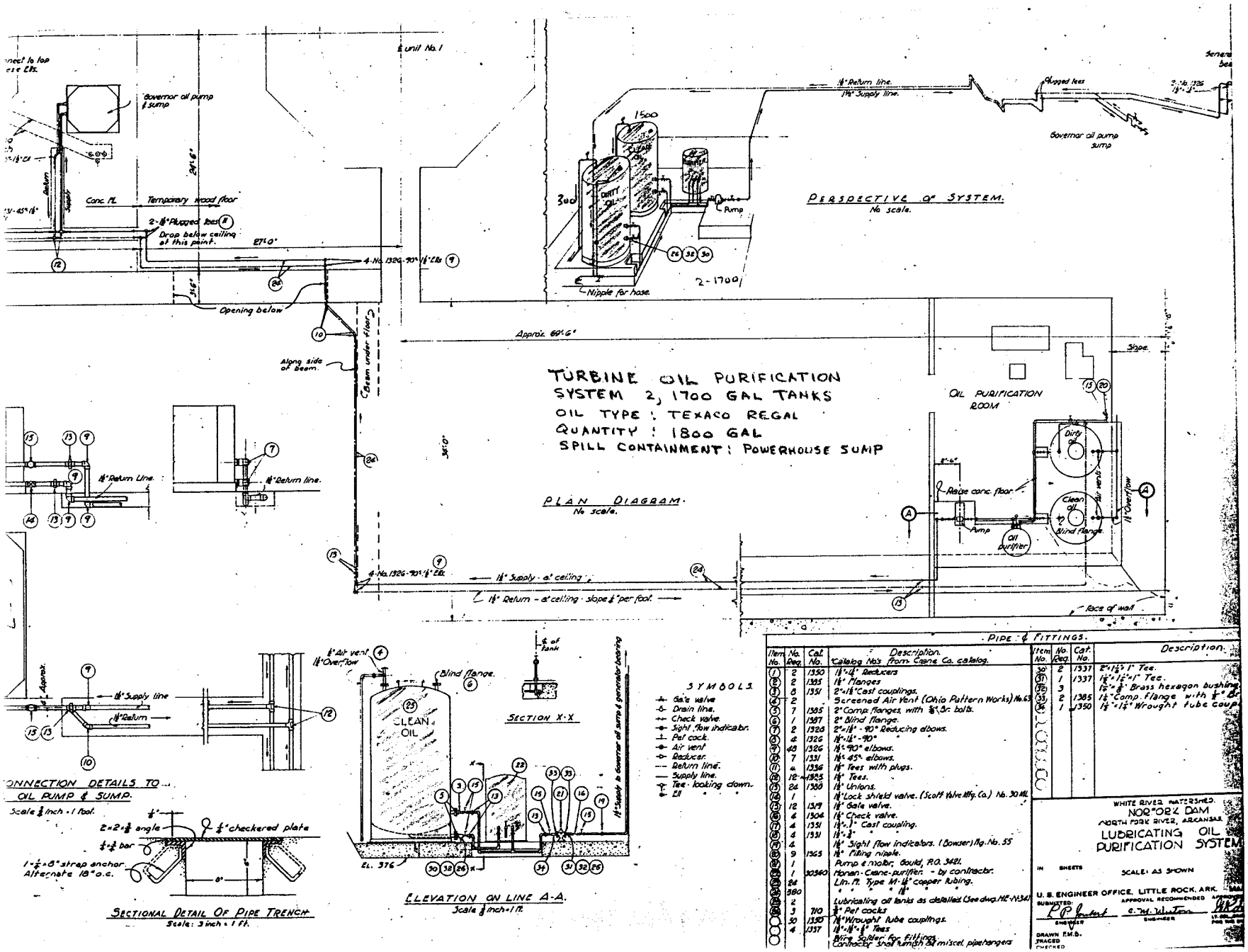
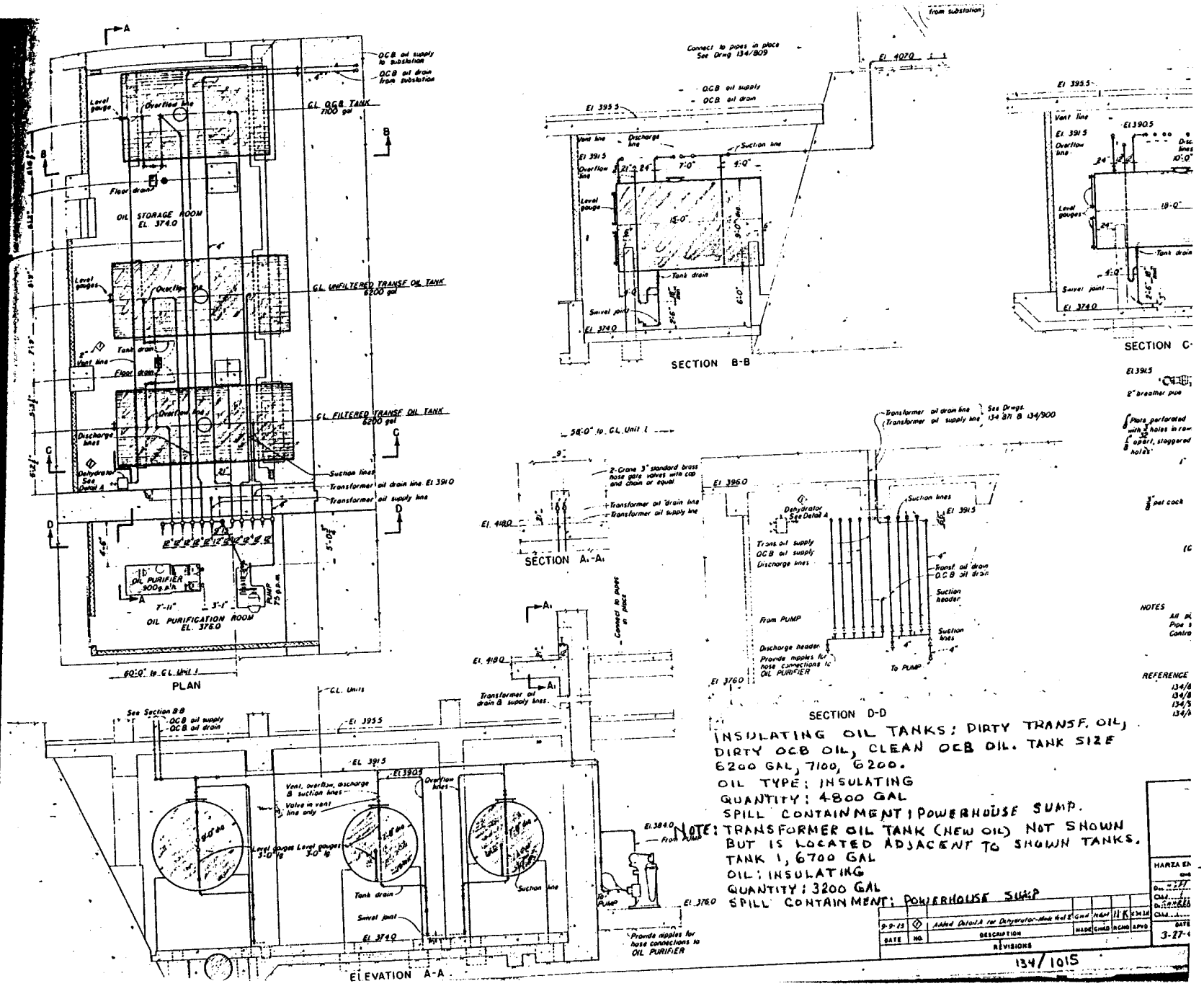
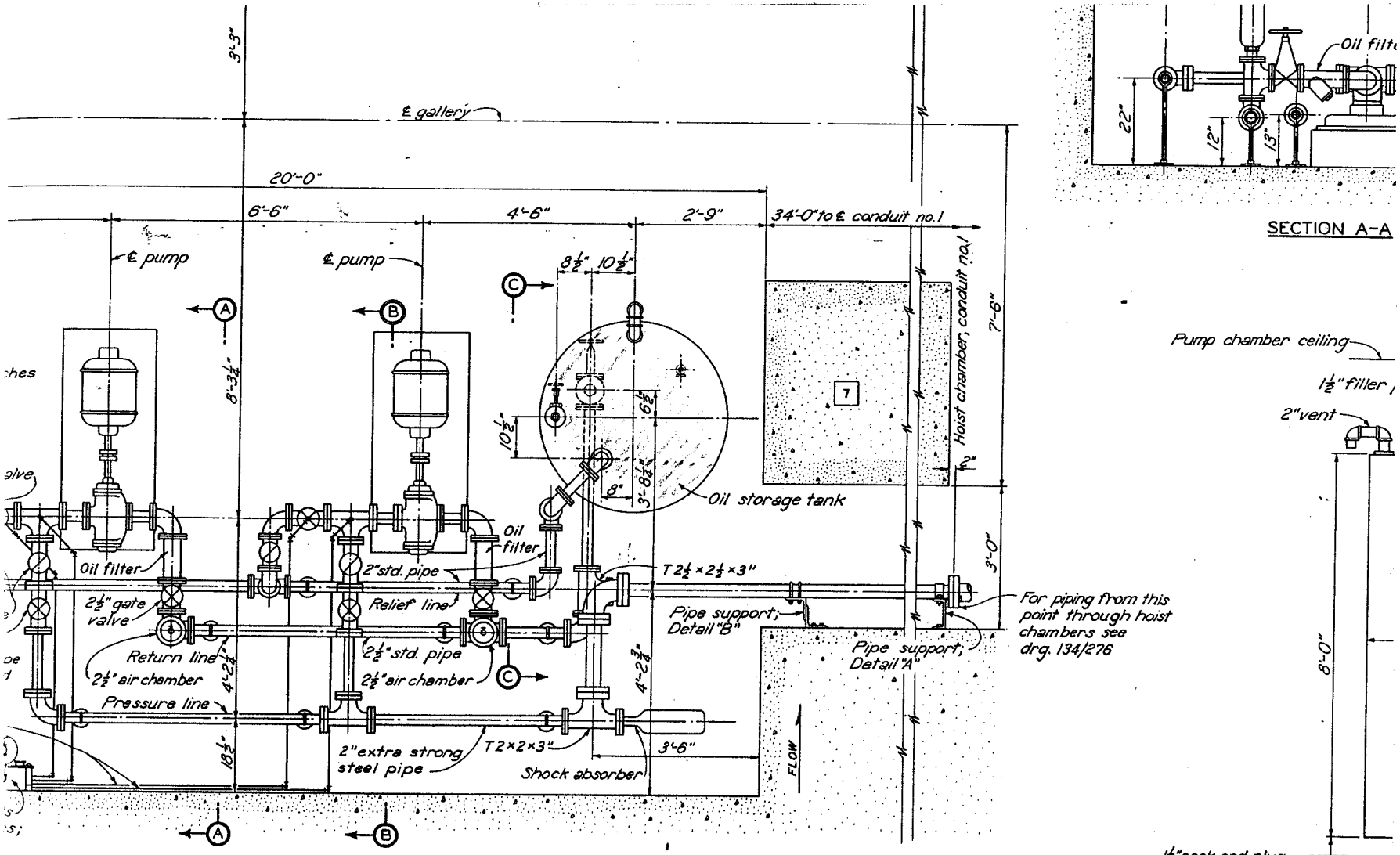
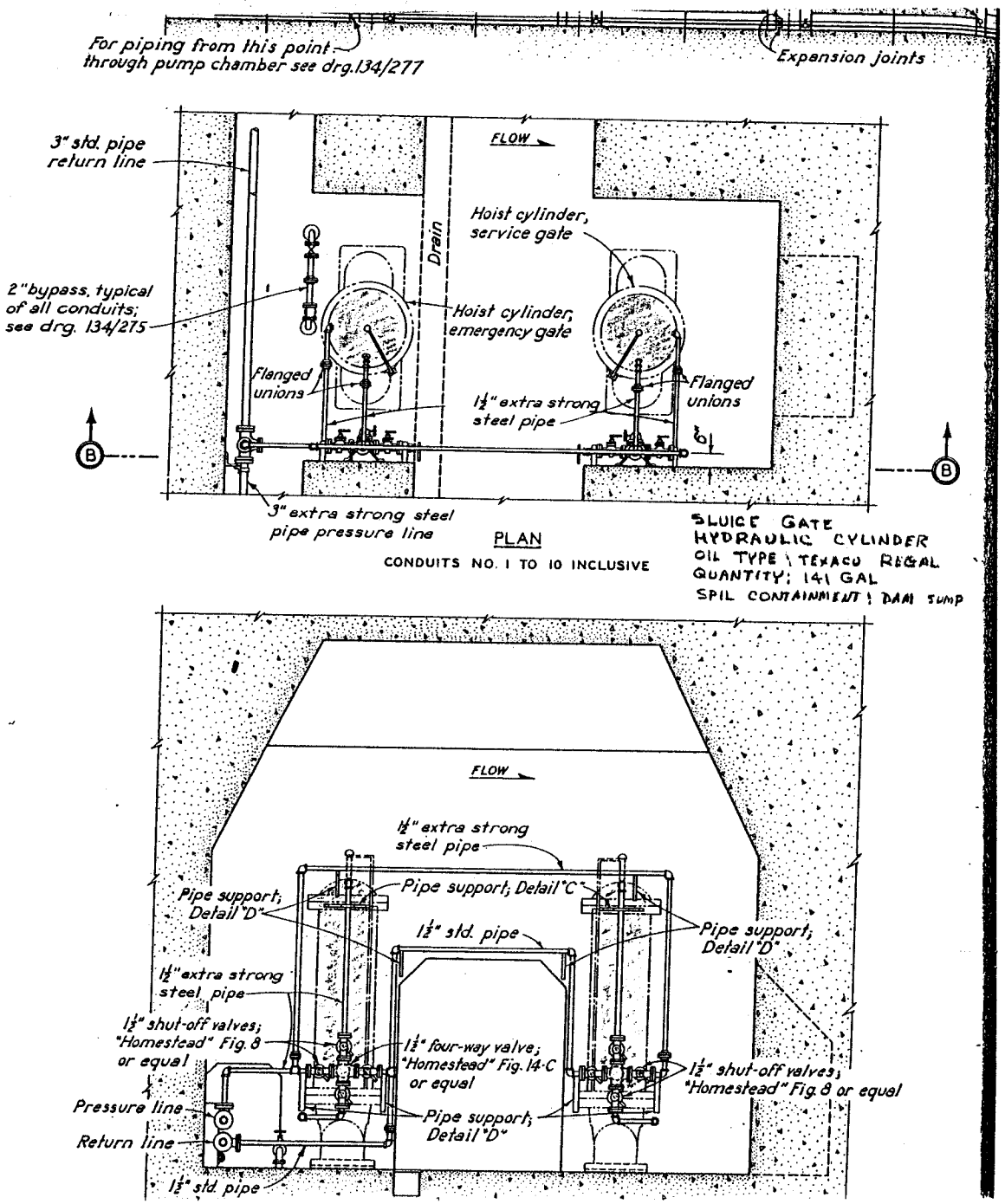


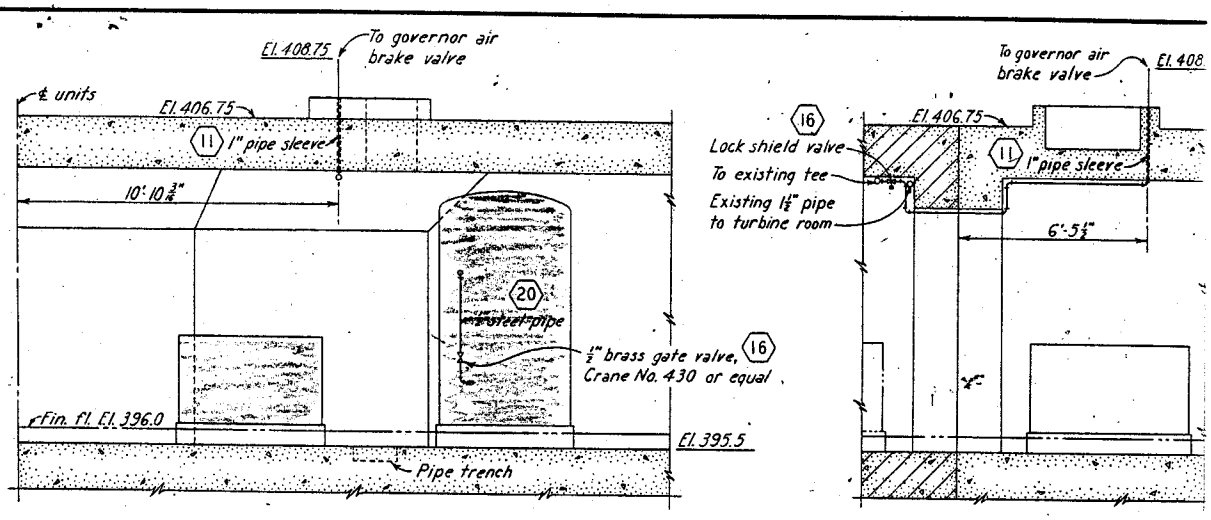
Item No.	No. Req.	Cat. No.	Description. Catalog Nos from Crane Co. catalog.
1	2	1350	1½"-1½" Reducers
2	2	1385	1½" Flanges
3	6	1351	2"-1½" Cast couplings.
4	2		Screened Air Vent (Ohio Pattern Works) No. 63
5	7	1385	2" Comp. flanges, with ⅝" Br. bolts.
6	1	1387	2" Blind flange.
7	2	1326	2"-1½" - 90° Reducing elbows.
8	4	1326	1½"-1½" - 90° " "
9	49	1326	1½" 90° elbows.
10	7	1331	1½" 45° elbows.
11	4	1336	1½" Tees with plugs.
12	12	1395	1½" Tees.
13	24	1360	1½" Unions.
14	1		1½" Lock shield valve. (Scoff Valve Mfg. Co.) No. 30 ML
15	12	1379	1½" Gate valve.
16	4	1304	1½" Check valve.
17	4	1351	1½"-¾" Cast coupling.
18	4	1331	1½"-¾" " "
19	4		1½" Sight flow indicators. (Bowser) Mfg. No. 55
20	9	1365	1½" Filling nipple.
21	1		Pump & motor, Gould, P.O. 3421.
22	1	30340	Honen-Crane-purifier. - by contractor.
23	24		Lin. ft. Type M-½" copper tubing.
24	380		" " " ½" " "
25	2		Lubricating oil tanks as detailed (See dwg. HE-N34)
26	3	710	¾" Pet cocks
30	50	1350	½"-½" Wrought tube couplings.
31	4	1337	½"-½"-½" Tees
			Wire Solder for fittings. Contractor shall furnish all miscel. pipehangers

Item No.	No. Req.	Cat. No.	Description.
32	2	1337	2"-1½"-1" Tee.
33	1	1337	½"-½"-1" Tee.
34	3		½"-¾" Brass hexagon bushing
35	2	1385	1½" Comp. Flange with ⅝" Br
36	1	1350	1½"-1½" Wrought tube coup


PLAN
OIL STORAGE ROOM
EL. 374.0
GL OCB TANK
7100 gal
GL UNFILTERED TRANSF OIL TANK
6200 gal
GL FILTERED TRANSF OIL TANK
6200 gal
OIL PURIFIER
900 g.p.h.
OIL PURIFICATION ROOM
EL. 376.0
60'-0" to GL Unit 1
SECTION B-B
SECTION C-
SECTION A1-A1
SECTION D-D
ELEVATION A-A
NOTES
REFERENCE
INSULATING OIL TANKS; DIRTY TRANSF. OIL, DIRTY OCB OIL, CLEAN OCB OIL. TANK SIZE 6200 GAL, 7100, 6200.
OIL TYPE; INSULATING
QUANTITY; 4800 GAL
SPILL CONTAINMENT; POWERHOUSE SUMP.
NOTE: TRANSFORMER OIL TANK (NEW OIL) NOT SHOWN BUT IS LOCATED ADJACENT TO SHOWN TANKS.
TANK 1, 6700 GAL
OIL; INSULATING
QUANTITY; 3200 GAL
SPILL CONTAINMENT; POWERHOUSE SUMP
REVISIONS
134/1015

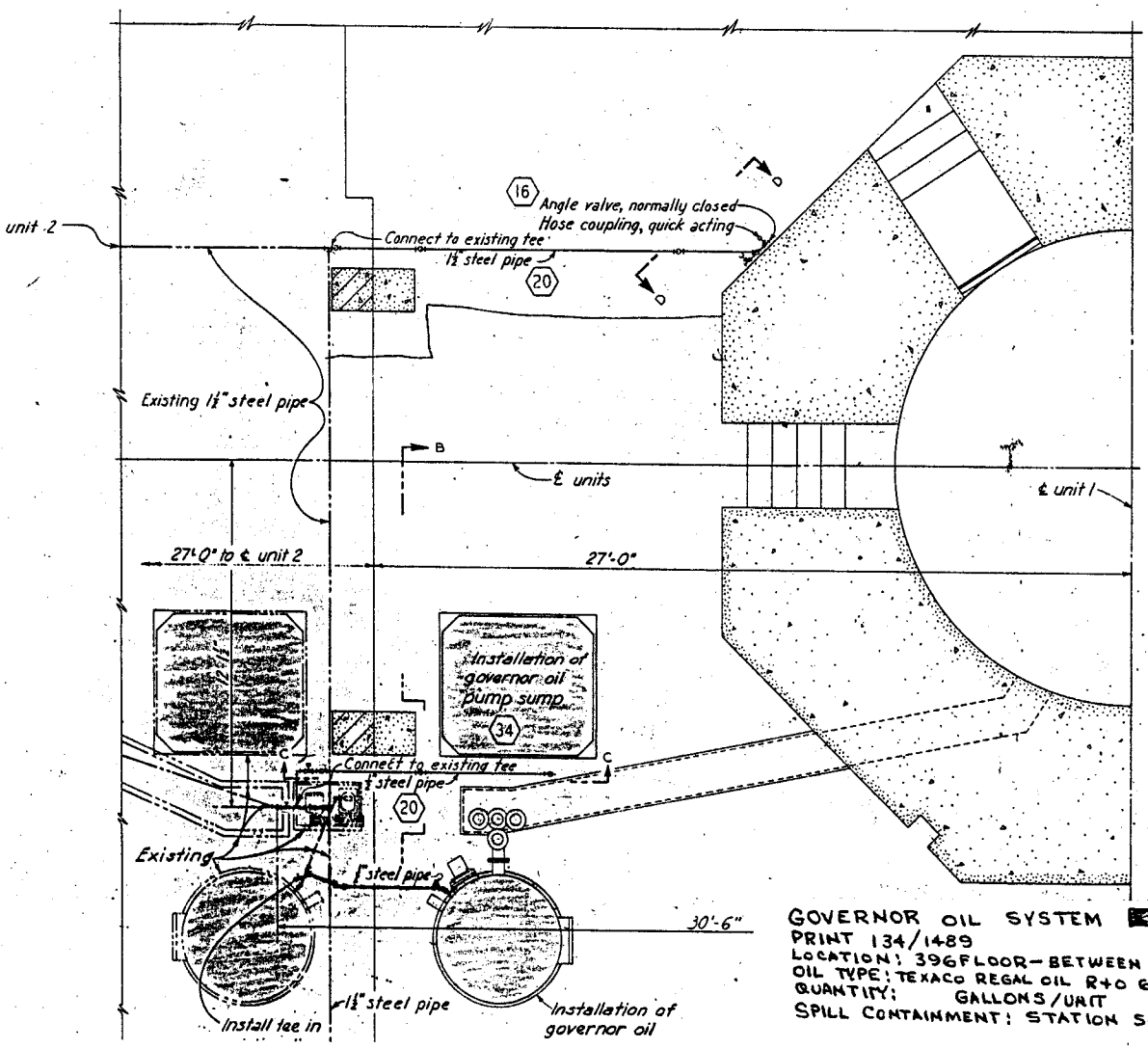

℄ gallery
20'-0"
6'-6"
4'-6"
2'-9"
34'-0" to ℄ conduit no. 1
℄ pump
℄ pump
3'-3"
8'-3½"
8½"
10½"
10½"
6½"
8"
3'-8½"
Oil storage tank
Hoist chamber, conduit no. 1
7'-6"
3'-0"
2"
7
Oil filter
2½" gate valve
Return line
2½" air chamber
Pressure line
2"std. pipe
Relief line
2½" std. pipe
2½" air chamber
Oil filter
T 2½ × 2½ × 3"
Pipe support; Detail "B"
Pipe support; Detail "A"
For piping from this point through hoist chambers see drg. 134/276
4'-2¾"
4'-2¾"
18½"
2" extra strong steel pipe
T 2 × 2 × 3"
3'-6"
Shock absorber
FLOW
A
B
C
PLAN
Oil filter
22"
12"
13"
SECTION A-A
Pump chamber ceiling
1½" filler
2" vent
8'-0"
1½" cock and plug
2'-0"
Flange washers
7"
SLUICE GATE OIL
TANK 750 GAL.
OIL TYPE: TEXACO REGAL OIL R+O 68
QUANTITY: 375 GAL
SPILL CONTAINMENT: DAM SUMP


For piping from this point through pump chamber see drg. 134/277
Expansion joints
3" std. pipe return line
FLOW
Drain
Hoist cylinder, service gate
2" bypass, typical of all conduits; see drg. 134/275
Hoist cylinder, emergency gate
Flanged unions
Flanged unions
1½" extra strong steel pipe
B
B
3" extra strong steel pipe pressure line
PLAN
CONDUITS NO. 1 TO 10 INCLUSIVE
SLUICE GATE
HYDRAULIC CYLINDER
OIL TYPE: TEXACO REGAL
QUANTITY: 141 GAL
SPIL CONTAINMENT: DAM SUMP
FLOW
1½" extra strong steel pipe
Pipe support; Detail "C"
Pipe support; Detail "D"
1½" std. pipe
Pipe support; Detail "D"
1½" extra strong steel pipe
1½" shut-off valves; "Homestead" Fig. 8 or equal
1½" four-way valve; "Homestead" Fig. 14-C or equal
1½" shut-off valves; "Homestead" Fig. 8 or equal
Pressure line
Return line
Pipe support; Detail "D"
1½" std. pipe



SECTION B-B

SECTION C-C

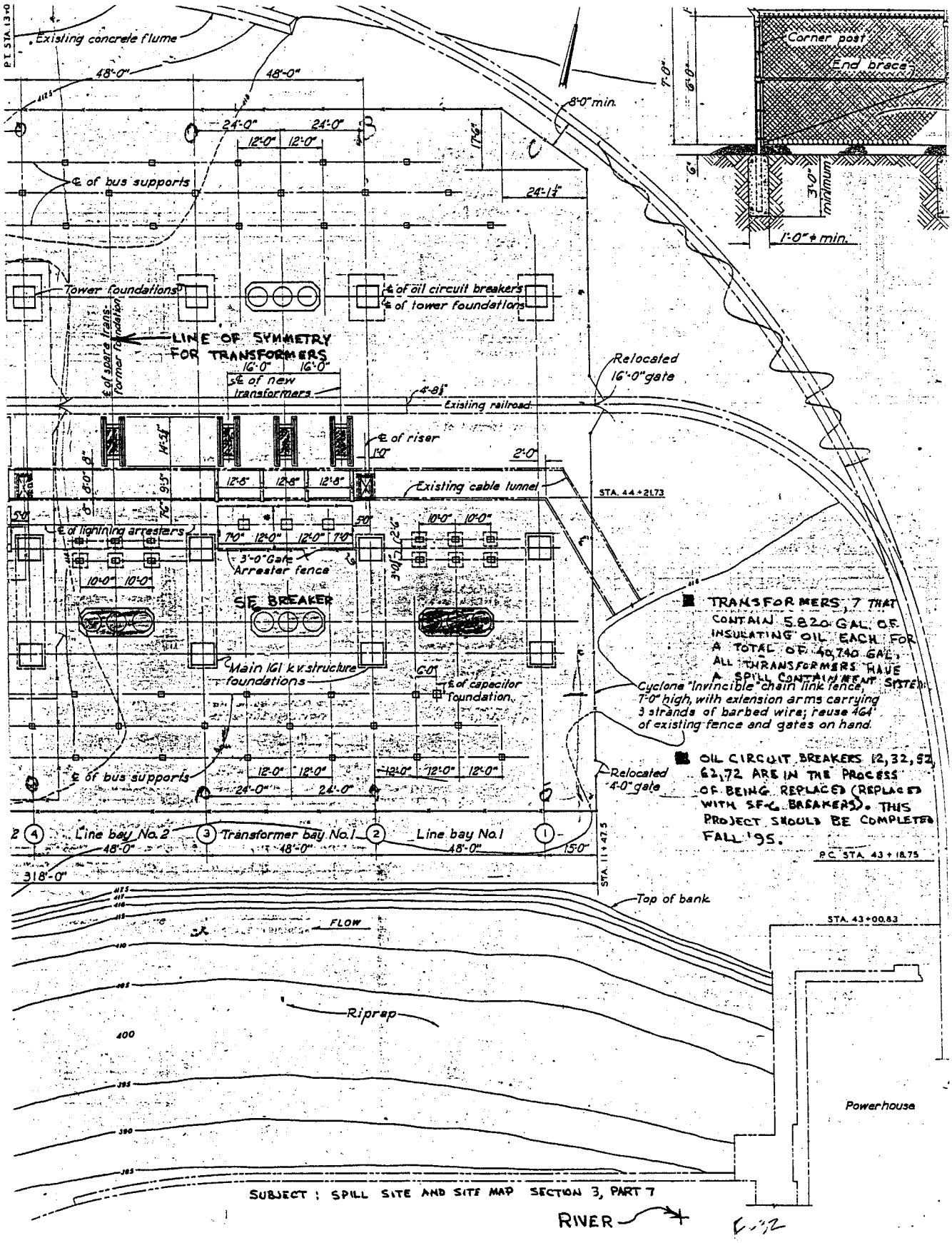


F-31

NOTES:

1. For g
2. The n oper

GOVERNOR OIL SYSTEM
PRINT 134/1489
LOCATION: 396 FLOOR - BETWEEN UNITS 1+2
OIL TYPE: TEXACO REGAL OIL R+O 68
QUANTITY: GALLONS/UNIT
SPILL CONTAINMENT: STATION SUMP


Existing concrete flume
P.T. STA. 13+0
48'-0"
48'-0"
24'-0"
24'-0"
12'-0"
12'-0"
℄ of bus supports
8'-0" min.
Corner post
End brace
7'-0"
6'-0"
6"
3'-0" minimum
1'-0"+ min.
Tower foundations
℄ of oil circuit breakers
℄ of tower foundations
LINE OF SYMMETRY FOR TRANSFORMERS
℄ of spare transformer foundation
16'-0"
16'-0"
℄ of new transformers
Relocated 16'-0" gate
4'-8½"
Existing railroad
℄ of riser
1'-0"
2'-0"
Existing cable tunnel
STA. 44+21.73
℄ of lightning arresters
3'-0" Gate
Arrester fence
SF6 BREAKER
Main 161 kv structure foundations
℄ of capacitor foundation
TRANSFORMERS, 7 THAT CONTAIN 5,820 GAL. OF INSULATING OIL EACH FOR A TOTAL OF 40,740 GAL. ALL TRANSFORMERS HAVE A SPILL CONTAINMENT SYSTEM.
Cyclone "Invincible" chain link fence, 7'-0" high, with extension arms carrying 3 strands of barbed wire; reuse 464' of existing fence and gates on hand.
OIL CIRCUIT BREAKERS 12, 32, 52, 62, 72 ARE IN THE PROCESS OF BEING REPLACED (REPLACED WITH SF6 BREAKERS). THIS PROJECT SHOULD BE COMPLETED FALL '95.
℄ of bus supports
Relocated 4'-0" gate
Line bay No. 2
Transformer bay No. 1
Line bay No. 1
318'-0"
P.C. STA. 43+18.75
STA. 11+47.5
Top of bank
FLOW
STA. 43+00.83
Riprap
Powerhouse
SUBJECT: SPILL SITE AND SITE MAP SECTION 3, PART 7
RIVER

PROJECT INFORMATION, CLIMATE AND SOIL DATA
NORFORK POWERHOUSE AND DAM

Project Information: Norfork Powerhouse and Dam are located on North Fork River, at river mile 4.8, four miles northeast of Norfork, Arkansas. Its primary purposes include flood control and hydroelectric power generation.

Climate: Norfork Powerhouse and Dam are located in Baxter County, Arkansas. Temperatures are hot in summer and moderately cool in winter. Winter has an average temperature of 37 degrees F, and the average daily minimum temperature is 25 degrees. In summer the average temperature is 77 degrees and the average daily maximum temperature is 89 degrees. Prevailing wind is from the south. Average windspeed is highest, 12 miles per hour, in spring.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 2.30 inches	Jul - 3.20 inches
Feb - 2.74 inches	Aug - 2.93 inches
Mar - 3.80 inches	Sep - 4.17 inches
Apr - 4.47 inches	Oct - 3.12 inches
May - 5.07 inches	Nov - 3.73 inches
Jun - 4.26 inches	Dec - 3.31 inches

Rainfall is fairly heavy and well distributed throughout the year. Snow falls nearly every winter, but snow cover lasts but a few days. The total annual precipitation is 43 inches. Of this, 24 inches (or 55 %) usually falls in April through September. Average snowfall is 9 inches. On an average of 4 days, at least 1 inch of snow is on the ground.

Soils: Soils in this area are a mixture of Arkana-Moko complex, 20 - 40 percent slopes; Brockwell gravelly sandy loam, 3 - 8 percent slopes; and Brockwell gravelly sandy loam, 8 - 20 percent slopes.

Arkana-Moko complex, 20 - 40 percent slopes, consists of Arkana and Moko soils on steep hillsides. The slopes are uneven and convex, in many places having a stepped appearance caused by outcrops of horizontally bedded dolomite bedrock.

Arkana soils make up about 45 percent of each mapped area. Typically, the surface layer of Arkana soils is very dark grayish brown very cherty silt loam about 4 inches thick. The next layer is dark brown very cherty silt loam to a depth of about 7 inches. The subsurface layer is brown very cherty silt loam to a depth of 11 inches. The subsoil is yellowish red very cherty silty clay to a depth of about 15 inches; yellowish red, mottled cherty clay to a depth of about 21 inches; and dark yellowish brown clay to a

depth of about 27 inches. Below the subsoil, there is hard, level-bedded dolomite bedrock. Permeability is very slow.

Moko soils make up about 35 percent of each mapped area. Typically, the soil is very dark brown and very dark grayish brown very stony silt loam about 9 inches thick overlying hard, level-bedded dolomite bedrock. Permeability is moderate.

Brockwell gravelly sandy loam, 3 - 20 percent slopes. This is a deep, well drained, gently sloping to moderately steep soil on broad and rolling upland areas. Slopes are smooth and convex. Typically, the surface layer is dark grayish brown gravelly sandy loam about 5 inches thick. The subsurface layer is brown gravelly sandy loam to a depth of about 9 inches. The subsoil is strong brown gravelly sandy loam to a depth of about 13 inches; strong brown gravelly fine sandy loam to a depth of 28 inches; strong brown and pale brown gravelly fine sandy loam to a depth of 60 inches; mottled strong brown, pale brown, and red sandy clay loam to a depth of 72 inches or more. Permeability is moderate.

<u>Groundwater:</u> Depth to seasonal high water table is greater than 6 feet.

Source: Soil Survey of Baxter and Marion Counties, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1983.

SPILL HISTORY - NORFORK POWERHOUSE

CESWL-CO-MH KUETER/425-2700/2 Nov 95

MEMORANDUM FOR Chief, Con-Ops Div

SUBJECT: Spill History

1. Please refer to memo CESWL-CO-E dated 16 October 1995, subject as above.

2. A negative spill history is furnished for Mountain Home Project Office and its activities.

JACK RINTOUL
Resident Engineer

RECEIVED
CON-OPS DIVISION

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
NIMROD-BLUE MOUNTAIN

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Blue Mountain Lake Office Waveland, AR	Diesel Aboveground Storage Tank	636 Gal	Compound	On	Secondary Containment
	Gasoline Aboveground Storage Tank	2000 Gal	Compound	On	Secondary Containment
	Oil	110 Gal	Paint Building	On	Sorbents
	Paint	25 Gal	Paint Building	On	Sorbents
	Solvent	10 Gal	Paint Building	On	Sorbents
	Antifreeze	20 Gal	Paint Building	On	Sorbents
	Grease	25 Gal	Paint Building	On	Sorbents
	Hydraulic Oil	25 Gal	Paint Building	On	Sorbents
	Used Oil	35 Gal	Compound	On	Stored within secondary containment of aboveground storage tank.

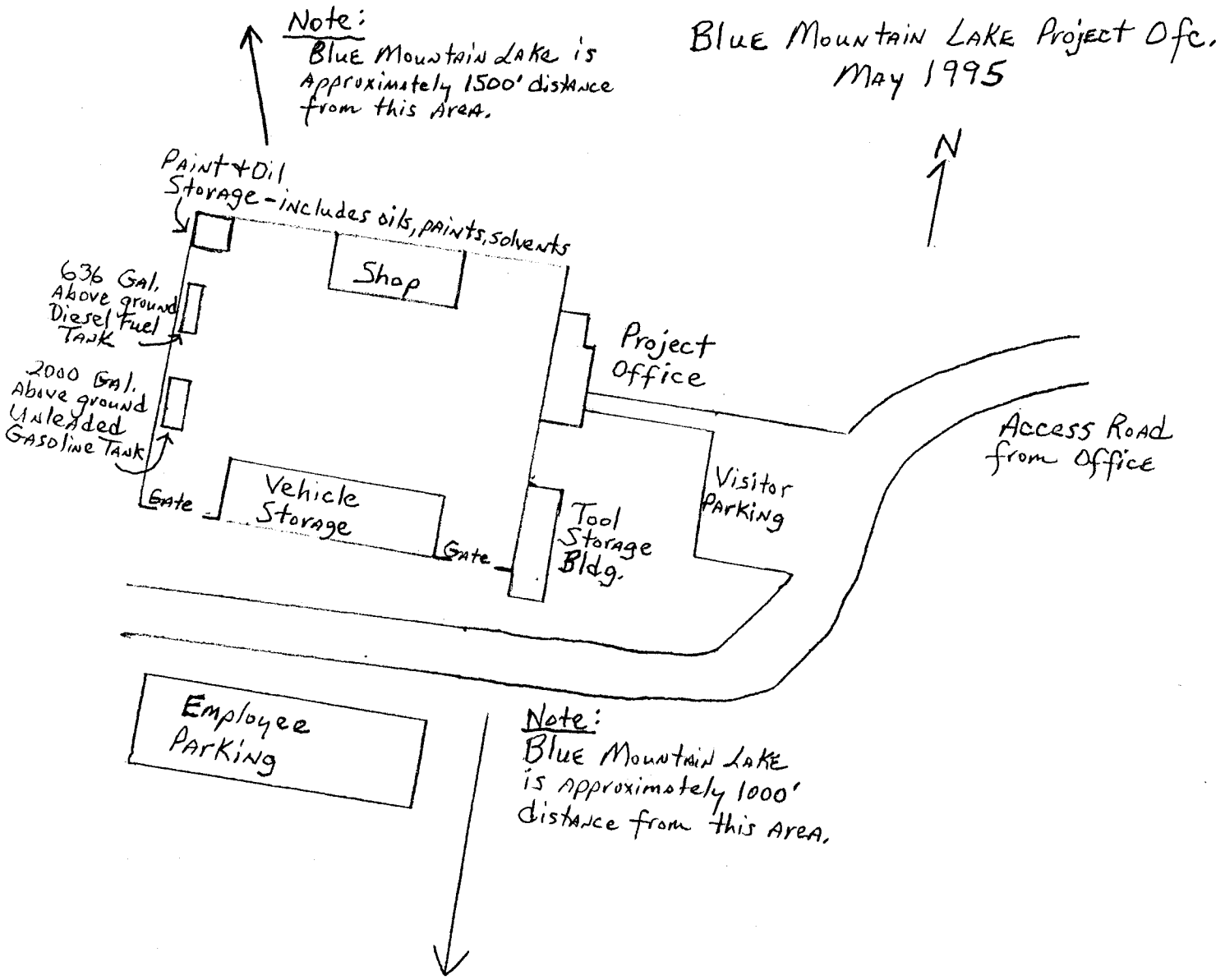
SITE DESCRIPTION AND MAP

BLUE MOUNTAIN LAKE PROJECT OFFICE AREA

A. Paint and Oil Storage Building:
   1. 11'8" x 11'8" CMU with brick veneer. Floor is concrete slab with no drain.
   2. Building has oils, paints, and solvents in storage.
   3. No floor drains.
   4. Largest container stored in 5 gal. cans of paint.
   5. Flow direction is to the north. Distance to nearest watercourse is approximately 1500'.
   6. Rate of flow - estimated .10 ft/sec.
   7. Distance to nearest waterway is approximately 1500'.
   8. Absorbent materials near site.
   9. Groundwater Depth - approximately 10'.

B. Diesel Fuel Storage Tank:
   1. 636 Gal. above ground tank (elevated on concrete piers).
   2. Diesel Fuel stored in tank.
   3. N.A.
   4. Largest quantity stored is 636 gal. of diesel fuel.
   5. Flow direction is to the North (distance to nearest watercourse is approximately 1500') and to the South (distance to nearest watercourse is approximately 1000').
   6. Rate of flow - .10 ft/sec.
   7. See #5 above.
   8. Concrete containment with locked valve is present. Absorbent materials near site.
   9. Groundwater Depth - approximately 10'.

C. Gasoline Storage Tank:
   1. 2000 Gal. above ground tank.
   2. Unleaded Gasoline stored in tank.
   3. N.A.
   4. Largest quantity stored is 2000 gal. of unleaded gasoline.
   5. Flow direction is to the South. Distance to nearest watercourse is approximately 1000'.
   6. Rate of flow - estimated .10 ft/sec.
   7. See #5 above.
   8. Concrete containment with locked valve is present. Absorbent materials near site.
   9. Groundwater Depth - approximately 10'.


Blue Mountain Lake Project Ofc.
May 1995
N
Note:
Blue Mountain Lake is Approximately 1500' distance from this Area.
Paint + Oil Storage - includes oils, paints, solvents
Shop
636 Gal. Above ground Diesel Fuel Tank
2000 Gal. Above ground Unleaded Gasoline Tank
Project Office
Access Road from Office
Gate
Vehicle Storage
Gate
Tool Storage Bldg.
Visitor Parking
Employee Parking
Note:
Blue Mountain Lake is approximately 1000' distance from this Area.

PROJECT INFORMATION, CLIMATE AND SOIL DATA
BLUE MOUNTAIN LAKE OFFICE

Project Information: Blue Mountain Lake Office is located near the Petit Jean River at river mile 74.4, and is one and one-half miles southwest of Waveland, Arkansas. Its primary purposes are to provide administrative and shop areas for managing and operating the dam, recreational parks and facilities.

Climate: Blue Mountain Lake Office is located in Yell County, Arkansas. The climate of Yell County is characterized by warm summers, mild winters, and fairly abundant rainfall. In winter the average temperature is 42 degrees F, and the average daily minimum temperature is 31 degrees. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 91 degrees.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 2.88 inches	Jul - 3.33 inches
Feb - 3.15 inches	Aug - 3.34 inches
Mar - 5.24 inches	Sep - 3.62 inches
Apr - 4.36 inches	Oct - 3.31 inches
May - 5.12 inches	Nov - 4.49 inches
Jun - 4.24 inches	Dec - 3.81 inches

Total annual rainfall is about 48 inches. Of this, 24 inches, or 50 percent, usually falls in April through September. The average seasonal snowfall is 5 inches. The greatest snow depth at any one time during the period of record was 7 inches. On the average of 3 days, at least 1 inch of snow is on the ground, but the number of such days varies greatly from year to year. The prevailing wind is from the southwest. Average windspeed is highest, 10 miles per hour, in spring.

Soils: Soils in the area are comprised of Cane loam, 3 to 8 percent slopes and Enders gravelly fine sandy loam, 8 to 12 percent slopes. Descriptions of both are as follows:

Cane loam, 3 to 8 percent slopes. This soil is deep, moderately well drained, and gently sloping. It is on colluvial foot slopes and old stream terraces in broad valleys. Individual areas ranges from about 10 to 300 acres in size. Typically, the surface layer is dark brown loam about 9 inches thick. The subsoil extends to a depth of at least 72 inches. It is red silty clay loam to a depth of about 26 inches and mottled red, yellowish brown, and grayish brown silty clay loam to a depth of about 42 inches. Below that, the subsoil is mottled yellowish red, yellowish brown, and gray silty clay loam. It has a compact and brittle fragipan at a depth of 26 to 60 inches. Permeability

is moderate above the fragipan and slow in the fragipan.

Enders gravelly fine sandy loam, 8 to 12 percent slopes. This soil is deep, well drained, and very slowly permeable. It is on strongly sloping crests and toe slopes of ridges and hills. Typically, the surface layer is dark grayish brown gravelly fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown gravelly fine sandy loam to a depth of about 7 inches. The subsoil extends to a depth of 59 inches. It is yellowish red silty clay loam to a depth of about 11 inches. To a depth of about 53 inches, the subsoil is red silty clay that has mottles in shades of brown or gray. Below that, it is gray silty clay that has mottles in shades of red and brown. The underlying bedrock is soft weathered shale. Permeability is very slow.

<u>Groundwater:</u> Depth to seasonal high water table ranges from 2-3 feet (within the Cane loam soils) to greater than 6 feet (within the Enders type soils).

Source: Soil Survey of Yell County, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1988.

SPILL HISTORY - BLUE MOUNTAIN LAKE OFFICE

CESWL-CO-NB

17 October 1995
YOUNG/kdk/324-5765

MEMORANDUM FOR CHIEF OF EMERGENCY MANAGEMENT BRANCH

SUBJECT: Spill History

1. Please refer to CESWL-CO-E, dated 16 Oct 95, subject as above.

2. We are not aware of any previous major or minor spills on either the Nimrod or Blue Mountain projects.

JOHN L. YOUNG
Resident Manager
Nimrod-Blue Mtn. RO

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
NIMROD-BLUE MOUNTAIN

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Blue Mountain Dam/Spillway located near Blue Mountain Lake Office Waveland, AR	Diesel Aboveground Storage Tank for Emergency Generator	300 Gal	Dam	Off	Sorbent Boom
	Antifreeze	15 Gal	Dam	Off	Sorbent Boom

SITE DESCRIPTION AND MAP
BLUE MOUNTAIN DAM/SPILLWAY

Diesel Fuel Storage Tank
(see site map)

a. **Size: 300 Gallons aboveground tank**

b. **Substance Stored: Diesel Fuel**

c. **Identify floor drains and sumps in structure: N/A**

d. **Identify largest container stored: 300 Gallons**

e. **Flow direction should a failure occur: Flow direction is to the North.**

f. **Estimate Rate of Flow: Rate of Flow is estimated at 5 feet per second.**

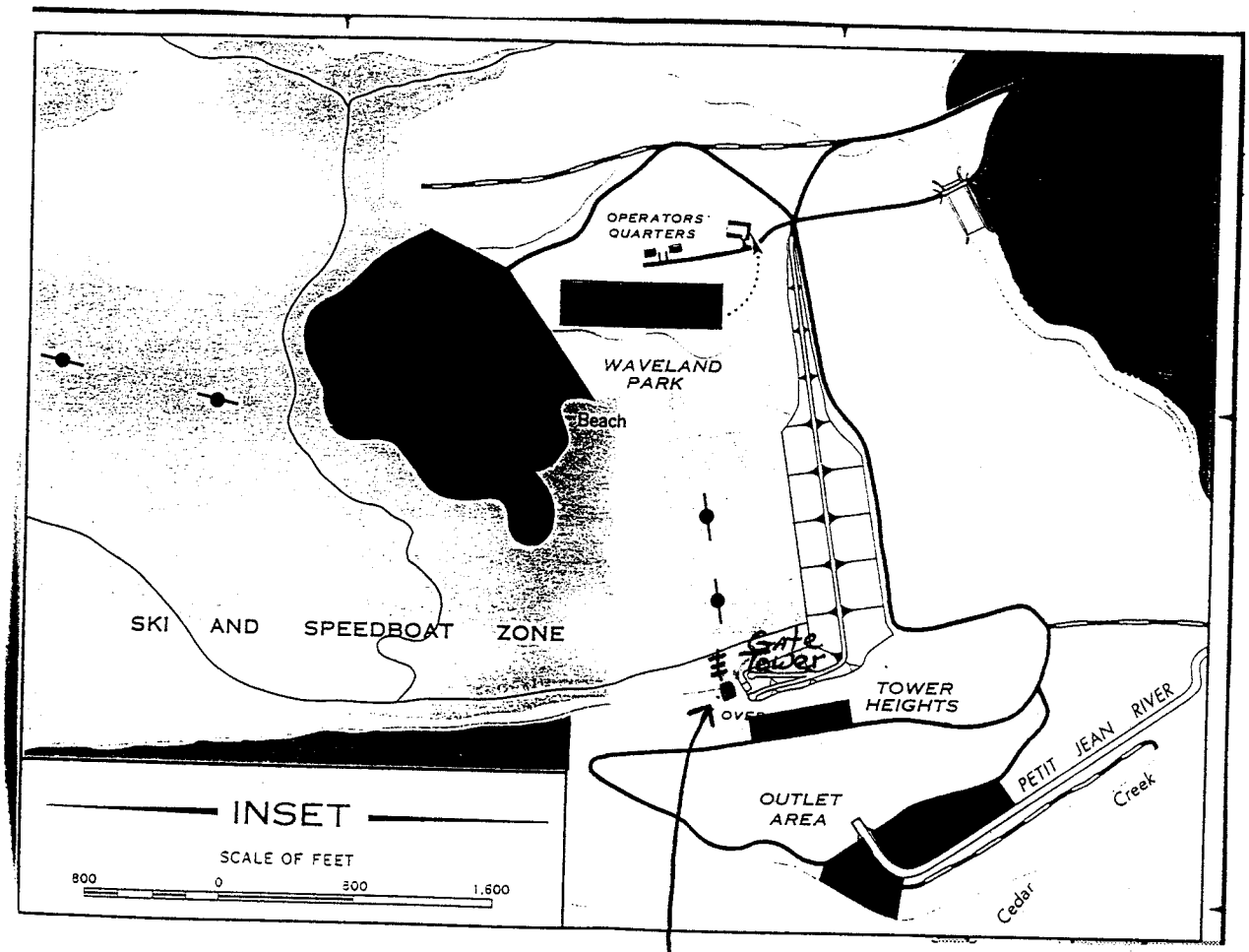
g. **Distance to nearest waterway: Distance to nearest watercourse is approximately 60 feet.**

h. **List type of containment: Concrete containment with locked valve is present.**

i. **Depth to Groundwater: Approximately 40 feet.**

Blue Mountain Dam
May 1995

N



300 Gal. Above ground Diesel Fuel Tank (located on west side of gate tower)

~~####~~ Drainage pattern to lake - distance from fuel tank to lake is Approximately 60'.

PROJECT INFORMATION, CLIMATE AND SOIL DATA
BLUE MOUNTAIN DAM AND SPILLWAY

Project Information: Blue Mountain Dam and Spillway are located on the Petit Jean River at river mile 74.4, one and one-half miles southwest of Waveland, Arkansas. There are 488 square miles of drainage area above the dam. The primary purpose of this project is flood control; however, it also provides recreational facilities at its various parks.

Climate: Blue Mountain Dam and Spillway are located in Yell County, Arkansas. The climate of Yell County is characterized by warm summers, mild winters, and fairly abundant rainfall. In winter the average temperature is 42 degrees F, and the average daily minimum temperature is 31 degrees. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 91 degrees.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 2.88 inches	Jul - 3.33 inches
Feb - 3.15 inches	Aug - 3.34 inches
Mar - 5.24 inches	Sep - 3.62 inches
Apr - 4.36 inches	Oct - 3.31 inches
May - 5.12 inches	Nov - 4.49 inches
Jun - 4.24 inches	Dec - 3.81 inches

Total annual rainfall is about 48 inches. Of this, 24 inches, or 50 percent, usually falls in April through September. The average seasonal snowfall is 5 inches. The greatest snow depth at any one time during the period of record was 7 inches. On the average of 3 days, at least 1 inch of snow is on the ground, but the number of such days varies greatly from year to year. The prevailing wind is from the southwest. Average windspeed is highest, 10 miles per hour, in spring.

Soils: Soil is the area is Nella-Enders stony fine sandy loams, 20 to 40 percent slopes. These soils are on steep hillsides and mountainsides. These soils are too intermingles to be mapped separately. The Nella soil is on foot slopes, side slopes, and benches. It formed in loamy colluvium from acid sandstone and shale. The Enders soil is on side slopes and benches, and it developed from acid shale bedrock.

The Nella soil makes up about 55 percent of the soils in this area. Typically, the surface layer is dark brown stony fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown cobbly sandy loam to a depth of about 7 inches. The subsoil extends to a depth of at least 72 inches. It is yellowish red gravelly loam to a depth of about 14 inches,

yellowish red gravelly clay loam to a depth of about 24 inches, and red gravelly clay loam to a depth of about 56 inches. Below that, the subsoil is yellowish red gravelly clay loam that has mottles in shades of brown. Permeability is moderate.

The enders soil makes up about 30 percent of the soils in this area. Typically, the surface layer is dark grayish brown stony fine sandy loam about 3 inches thick. The subsurface layer is yellowish brown stony fine sandy loam to a depth of about 7 inches. The subsoil extends to a depth of about 59 inches. It is yellowish red silty clay loam to a depth of about 11 inches and red silty clay to a depth of about 31 inches. To a depth of about 53 inches, the subsoil is red silty clay that has mottles in shades of brown and gray. Below that, it is gray silty clay that has mottles in shades of red and brown. The underlying bedrock is weathered shale. Permeability is very slow.

<u>Groundwater:</u> Depth to seasonal high water table is greater than 6 feet.

Source: Soil Survey of Yell County, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1988.

SPILL HISTORY - BLUE MOUNTAIN DAM AND SPILLWAY

CESWL-CO-NB

17 October 1995
YOUNG/kdk/324-5765

MEMORANDUM FOR CHIEF OF EMERGENCY MANAGEMENT BRANCH

SUBJECT: Spill History

1. Please refer to CESWL-CO-E, dated 16 Oct 95, subject as above.

2. We are not aware of any previous major or minor spills on either the Nimrod or Blue Mountain projects.

JOHN L. YOUNG
Resident Manager
Nimrod-Blue Mtn. RO

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
NIMROD-BLUE MOUNTAIN

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Nimrod-Blue Mountain Project Office Plainview, AR	Diesel Aboveground Storage Tank	636 Gal	Compound	On	Secondary Containment
	Diesel Aboveground Storage Tank for Emergency Generator	300 Gal	Compound - Near Operator's Quarters	On	Secondary Containment
	Used Oil	55 Gal	Compound	On	Stored within secondary containment of aboveground storage tank.
	Used Antifreeze	55 Gal	Compound	On	Stored within secondary containment of aboveground storage tank.
	Antifreeze	24 Gal	Paint/Oil Storage Building	On	Sorbents
	Gasoline Aboveground Storage Tank	2000 Gal	Compound	On	Secondary Containment
	Oil	165 Gal	Compound and Paint/Oil Storage Building	On	Sorbents

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
NIMROD-BLUE MOUNTAIN

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Nimrod-Blue Mountain Project Office Plainview, AR (Continued)	Paint	30 Gal	Paint/Oil Storage Building	On	Sorbents
	Kerosene	5 Gal	Paint/Oil Storage Building	On	Sorbents
	Paint Thinner	5 Gal	Paint/Oil Storage Building	On	Sorbents

SITE DESCRIPTION AND MAP

NIMROD-BLUE MOUNTAIN PROJECT OFFICE

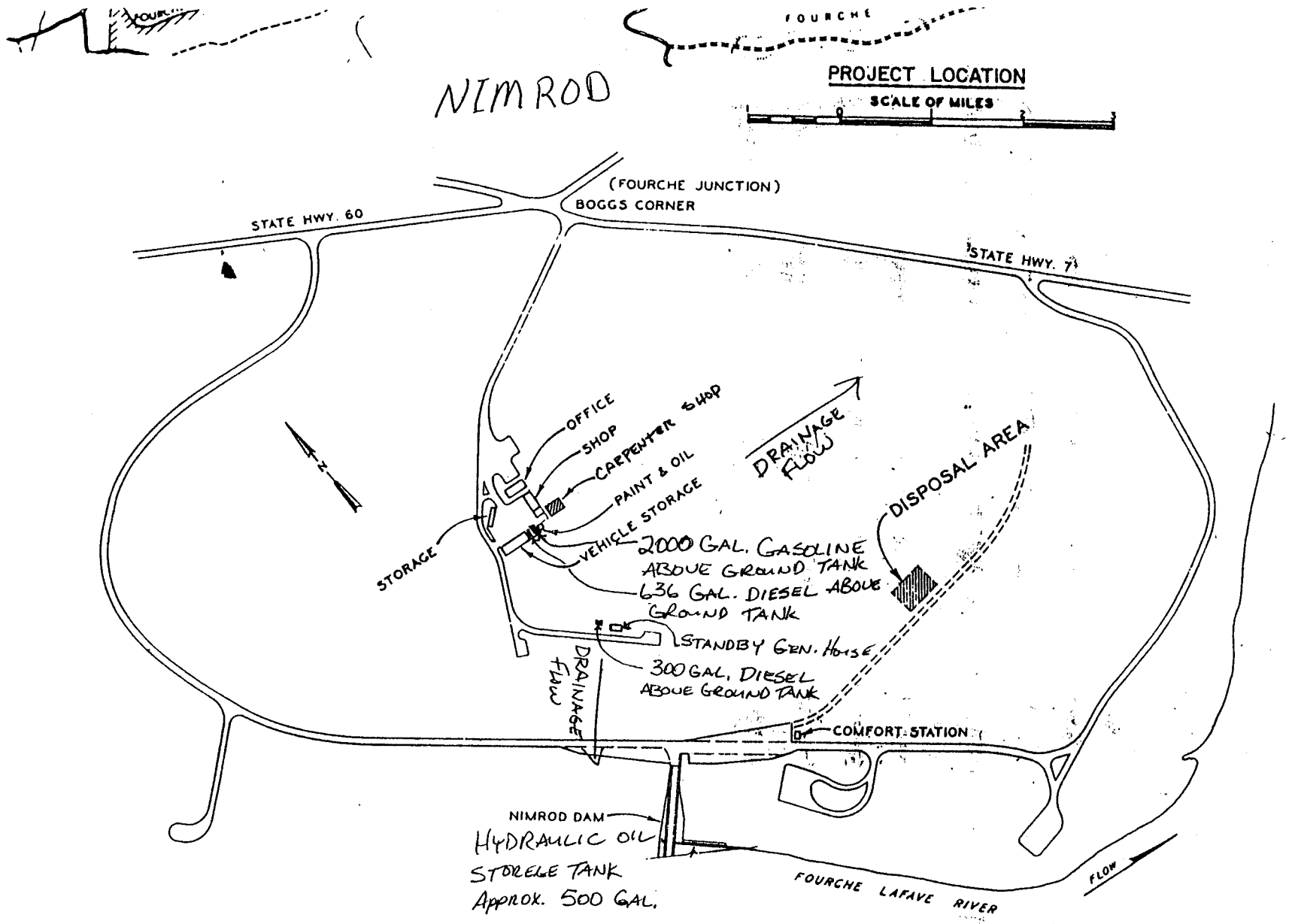
1. 636 Gal. Diesel Fuel (Above Ground Tank) Compound Area
   a. Drainage will be to the East.
   b. Rate of flow - .10 ft/sec.
   c. Distance to Fourche LaFave River - estimated 400-500 yards.
   d. Type of containment - concrete barrier.
   e. Absorbent material located in storage building.

2. 2000 Gal. Gasoline (Above Ground Tank) Compound Area
   a. Drainage will be to the East.
   b. Rate of flow - .10 ft/sec.
   c. Distance to Fourche LaFave River - estimated 400-500 yards.
   d. Type of containment - concrete barrier.
   e. Absorbent material is located in storage building.

3. 300 Gal. Diesel Fuel (Above Ground Tank) Standby Generator House
   a. Drainage will be to the Southwest.
   b. Rate of flow - .20 ft/sec.
   c. Distance to Nimrod Lake - estimated 200-300 yards.
   d. Type of containment - concrete barrier.
   e. Absorbent material located in storage building.

4. Paint and Oil Storage Building Compound Area
   a. 165 gal. of oils; 30 gal. of paints; and 50 gal. of solvents.
   b. Drainage will be to the East.
   c. Rate of flow - .10 ft/sec.
   d. Distance to Fourche LaFave River - estimated 400-500 yards.
   e. Type of containment - 10′ x 10′ CMU building with brick veneer and no floor drains.

5. Hydraulic Oil Storage Tank (Inside Dam)
   a. Drainage will be directly into Fourche LaFave River, downstream of Dam.
   b. Rate of flow - 2-3 ft/sec.
   c. Distance to Fourche LaFave River - less than 75 feet.
   d. Distance to floor drain - 8 feet.
   e. Type of containment - none.
   f. Absorbent material located in storage building in compound.



SITE PLAN OF Compound AREA and Dam

NOT TO SCALE

PROJECT INFORMATION, CLIMATE AND SOIL DATA
NIMROD-BLUE MOUNTAIN PROJECT OFFICE

Project Information: Nimrod-Blue Mountain Project Office is located off State Highway 60, 9 miles southeast of Plainview, Arkansas, near Nimrod Dam and the Fourche LaFave River at river mile 62.6. Its primary purposes are to provide administrative and operational/maintenance support to Nimrod Dam, Blue Mountain Lake Project Office, Blue Mountain Dam, and manage recreational areas.

Climate: Nimrod-Blue Mountain Project Office is located in Perry County, Arkansas. Perry County is characterized by mild winters, warm or hot summers, and generally adequate rainfall. In winter the average temperature is 40 degrees F, and the average daily minimum temperature is 28 degrees. In summer the average temperature is 79 degrees, and the average daily maximum temperature is 91 degrees.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.23 inches	Jul - 3.34 inches
Feb - 3.04 inches	Aug - 3.11 inches
Mar - 5.02 inches	Sep - 3.68 inches
Apr - 4.66 inches	Oct - 2.92 inches
May - 5.24 inches	Nov - 4.00 inches
Jun - 3.80 inches	Dec - 3.78 inches

Rainfall is fairly heavy and well distributed throughout the year. Total annual rainfall is about 46 inches. Of the total annual precipitation, 24 inches, or 50 percent, usually falls in April through September. The average seasonal snowfall is 3 inches. On an average of 1 day, at least 1 inch of snow in on the ground. The number of such days varies greatly from year to year.

Soils: Soils in the area of the Nimrod-Blue Mountain Project Office are a combination of Carnasaw-Pirum-Clebit association, rolling and Carnasaw-Pirum-Clebit association, steep. Slopes range from 8 to 40 percent. A description is as follows:

Carnasaw-Pirum-Clebit association, rolling to steep. This association consists of well drained, deep to shallow soils. Carnasaw soils are deep and make up about 50 to 55 percent of this association. The surface layer is dark brown stony silt loam about 4 inches thick. The subsurface layer is strong brown loam to a depth of 11 inches. The subsoil is yellowish red silty clay loam to a depth of 27 inches and yellowish red silty clay to a depth of 48 inches. Below that is shale laminated with sandstone. Carnasaw soils have slow permeability.

Pirum soils are moderately deep or deep and make up about 25 percent of this association. In a typical profile of Pirum soils, the surface layer is dark brown gravelly fine sandy loam about 4 to 5 inches thick. The subsurface layer is yellowish brown gravelly/stony fine sandy loam to a depth of 10 to 12 inches. The subsoil is yellowish brown loam to a depth of 26 inches and strong brown sandy clay loam to a depth of 32 to 34 inches. Below that is yellowish red, fractured and tilted sandstone bedrock to a depth of 42 inches or more. Pirum soils have moderate permeability.

Clebit soils are shallow and make up about 15 to 20 percent of this association. In a typical profile of Clebit soils, the surface layer is very dark grayish brown stony fine sandy loam about 5 inches thick. The subsoil is strong brown very gravelly fine sandy loam to a depth of 14 inches. Below that is red and brown, fractured and tilted sandstone bedrock. Clebit soils have moderately rapid permeability.

Groundwater: Depth to seasonal high water table is greater than 6 feet.

Source: Soil Survey of Perry County, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1982.

SPILL HISTORY - NIMROD-BLUE MOUNTAIN PROJECT OFFICE

CESWL-CO-NB

17 October 1995
YOUNG/kdk/324-5765

MEMORANDUM FOR CHIEF OF EMERGENCY MANAGEMENT BRANCH

SUBJECT: Spill History

1. Please refer to CESWL-CO-E, dated 16 Oct 95, subject as above.

2. We are not aware of any previous major or minor spills on either the Nimrod or Blue Mountain projects.

JOHN L. YOUNG
Resident Manager
Nimrod-Blue Mtn. RO

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
NIMROD-BLUE MOUNTAIN

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Nimrod Dam and Spillway Located near Nimrod-Blue Mountain Project Office Plainview, AR	Hydraulic Oil - for Hydraulic Spillway Gate System	600 Gal	Dam, Operating Gallery	Off	Inspect daily, bermed containment and sorbents are available.
	Diesel - Emergency Generator	154 Gal	No. 2 Control Tower	Off	Drain plugged, sorbents available.
	Antifreeze - Emergency Generator	4 Gal	No. 2 Control Tower	Off	drain plugged, sorbents available.

SITE DESCRIPTION AND MAP
NIMROD DAM AND SPILLWAY

Hydraulic Oil Storage Tank (Inside Dam)
(see site map)

a. Drainage will be directly into Fourche LaFave River, downstream of Dam.

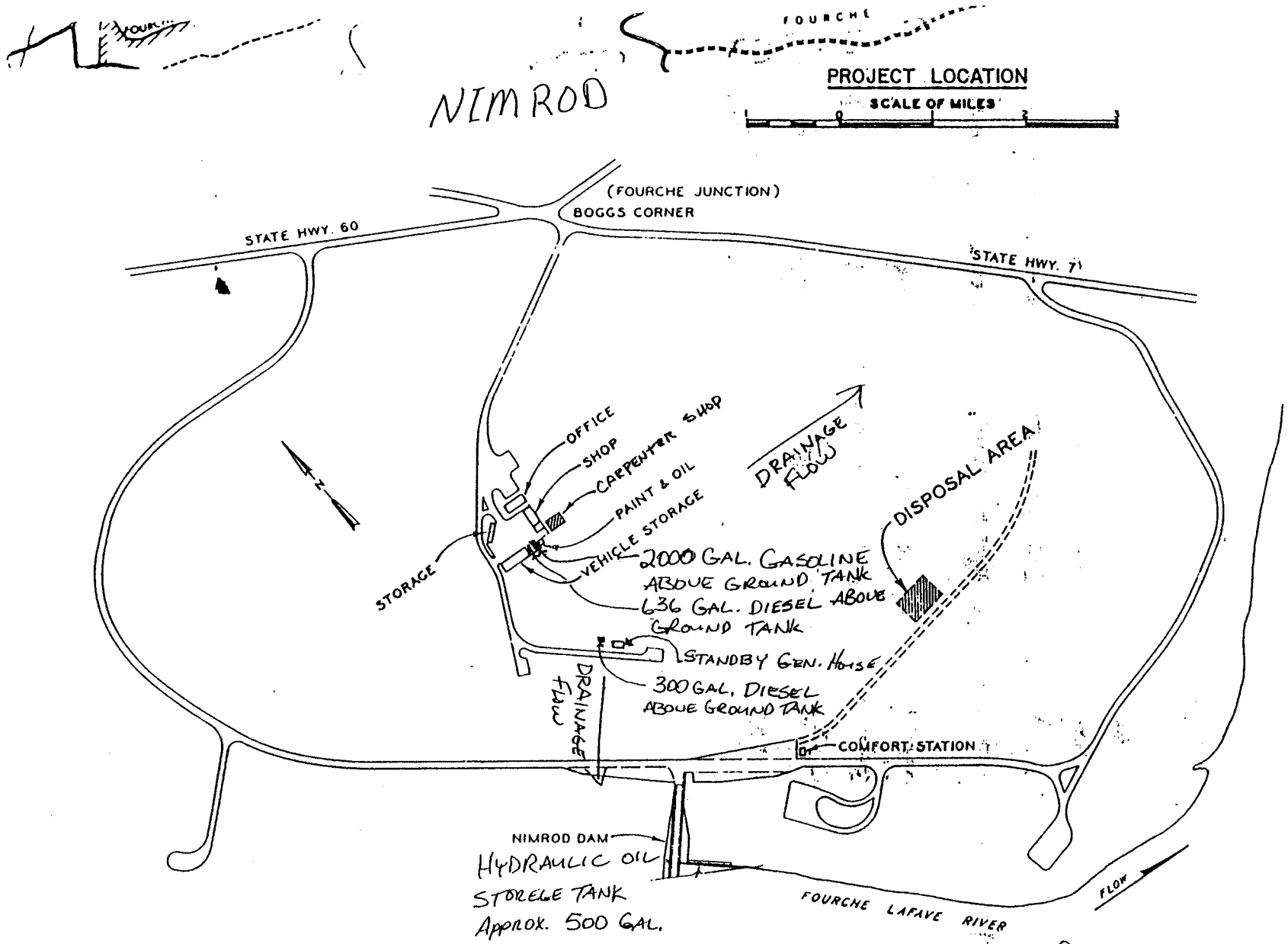
b. Rate of flow: 2 - 3 feet per second.

c. Distance to Fourche LaFave River: Less than 75 feet.

d. Distance to floor drain: 8 feet.

e. Type of containment: None.

f. Absorbent material located in storage building in compound.



SITE PLAN OF 'Compound AREA and Dam

NOT TO SCALE

PROJECT INFORMATION, CLIMATE AND SOIL DATA
NIMROD DAM

Project Information: Nimrod Dam is located 9 miles southeast of Plainview, Arkansas, on the Fourche LaFave River at river mile 62.6. There are 680 square miles of drainage area above the dam. Its primary purpose is flood control.

Climate: Nimrod Dam is located in Perry County, Arkansas. Perry County is characterized by mild winters, warm or hot summers, and generally adequate rainfall. In winter the average temperature is 40 degrees F, and the average daily minimum temperature is 28 degrees. In summer the average temperature is 79 degrees, and the average daily maximum temperature is 91 degrees.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.23 inches	Jul - 3.34 inches
Feb - 3.04 inches	Aug - 3.11 inches
Mar - 5.02 inches	Sep - 3.68 inches
Apr - 4.66 inches	Oct - 2.92 inches
May - 5.24 inches	Nov - 4.00 inches
Jun - 3.80 inches	Dec - 3.78 inches

Rainfall is fairly heavy and well distributed throughout the year. Total annual rainfall is about 46 inches. Of the total annual precipitation, 24 inches, or 50 percent, usually falls in April through September. The average seasonal snowfall is 3 inches. On an average of 1 day, at least 1 inch of snow in on the ground. The number of such days varies greatly from year to year.

Soils: Soils in the area of the Nimrod Dam are a combination of Carnasaw-Pirum-Clebit association, rolling and Carnasaw-Pirum-Clebit association, steep. Slopes range from 8 to 40 percent. A description is as follows:

Carnasaw-Pirum-Clebit association, rolling to steep. This association consists of well drained, deep to shallow soils. Carnasaw soils are deep and make up about 50 to 55 percent of this association. The surface layer is dark brown stony silt loam about 4 inches thick. The subsurface layer is strong brown loam to a depth of 11 inches. The subsoil is yellowish red silty clay loam to a depth of 27 inches and yellowish red silty clay to a depth of 48 inches. Below that is shale laminated with sandstone. Carnasaw soils have slow permeability.

Pirum soils are moderately deep or deep and make up about 25 percent of this association. In a typical profile of Pirum soils, the surface layer is dark brown gravelly fine sandy loam

about 4 to 5 inches thick. The subsurface layer is yellowish brown gravelly/stony fine sandy loam to a depth of 10 to 12 inches. The subsoil is yellowish brown loam to a depth of 26 inches and strong brown sandy clay loam to a depth of 32 to 34 inches. Below that is yellowish red, fractured and tilted sandstone bedrock to a depth of 42 inches or more. Pirum soils have moderate permeability.

Clebit soils are shallow and make up about 15 to 20 percent of this association. In a typical profile of Clebit soils, the surface layer is very dark grayish brown stony fine sandy loam about 5 inches thick. The subsoil is strong brown very gravelly fine sandy loam to a depth of 14 inches. Below that is red and brown, fractured and tilted sandstone bedrock. Clebit soils have moderately rapid permeability.

<u>Groundwater:</u> Depth to seasonal high water table is greater than 6 feet.

Source: Soil Survey of Perry County, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1982.

SPILL HISTORY - NIMROD DAM

CESWL-CO-NB

17 October 1995
YOUNG/kdk/324-5765

MEMORANDUM FOR CHIEF OF EMERGENCY MANAGEMENT BRANCH

SUBJECT: Spill History

1. Please refer to CESWL-CO-E, dated 16 Oct 95, subject as above.

2. We are not aware of any previous major or minor spills on either the Nimrod or Blue Mountain projects.

JOHN L. YOUNG
Resident Manager
Nimrod-Blue Mtn. RO

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
PINE BLUFF

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Arkansas Post Office (Located near Tichnor, AR)	Gasoline Aboveground Storage Tank	8,000 Gal	Compound	On	Concrete Secondary Containment
	Oil	200 Gal	50% - Equipment Compound Shed 25% - Flammable Storage Bldg 25% - Shop Area	On	Sorbents
	Paint	25 Gal	Paint Building	On	Sorbents
	Solvent	20 Gal	Shop Area	On	Sorbents
	Diesel Oil	110 Gal	50% - Flammable Storage Bldg 50% - Equipment Compound Shed	On	Sorbents
	Hydraulic Fluid	110 Gal	50% - Flammable Storage Bldg 50% - Equipment Compound Shed	On	Sorbents
	Transmission Fluid	55 Gal	Flammable Storage Bldg	On	Sorbents
	Antifreeze	165 Gal	66% - Equipment Compound Shed 34% - Flammable Storage Bldg		
	Used Antifreeze	55 Gal	Shop Area	On	Sorbents
	Used Oil	100 Gal	Shop Area	On	Sorbents

SITE DESCRIPTION AND MAP

Arkansas Post Office, Tichnor, AR

a. Site map of facilities enclosed.

b. Description of each building, etc. - see enclosed. Paint storage and flammable materials storage buildings are all metal.

c. Floor drains in the vehicle maintenance area will be sealed using drainblocker spill mats.

d. Portable pallets providing impervious secondary containment will be placed under drums and other containers as necessary to prevent uncontained spills in the event of a leak.

e. Barrel top absorbent mats and drip pans are used to trap drips from dispensers.

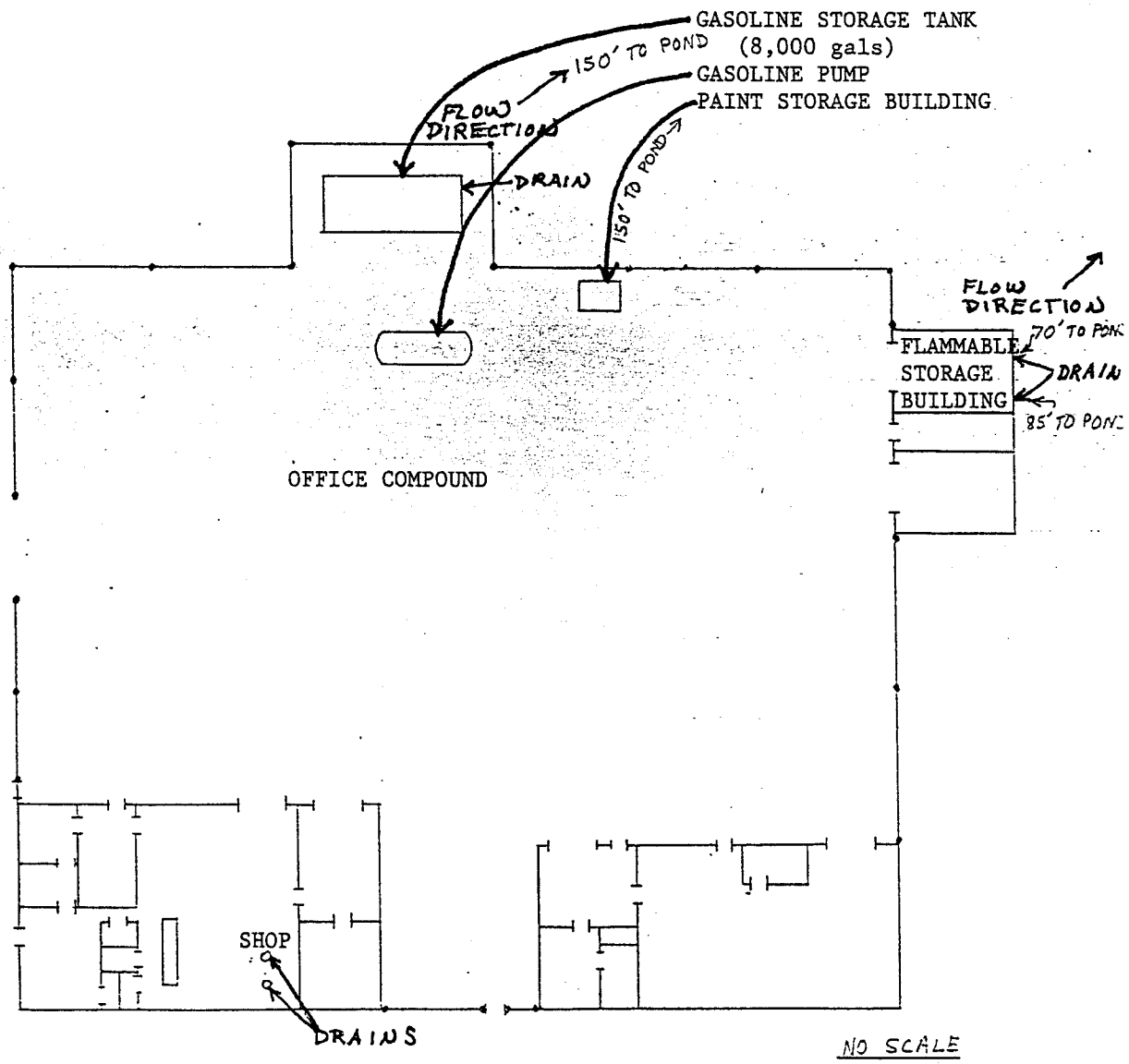
f. Emergency spill kits are located within the main office shop area and the compound storage area.

g. Flow direction - see enclosed.

h. Range of flow - too many variables to determine.

i. Distance to nearby watercourse - see enclosed.

j. Groundwater depth - approximately 8 feet.



ARKANSAS POST FIELD OFFICE

11/96

Encl.

PROJECT INFORMATION, CLIMATE AND SOIL DATA
ARKANSAS POST OFFICE

Project Information: Arkansas Post Office is located approximately 10 miles south of Tichnor, Arkansas, at Lock No. 2. Its primary purpose is to provide administrative and operational/maintenance support to recreational facilities.

Climate: Arkansas Post Office is located in Arkansas County, Arkansas. Arkansas County is characterized by long hot, humid summers, short mild winters, and abundant rainfall. It is believed the climate has varied little since the formation of the soils in the county. The climate is relatively uniform throughout the county and, consequently, does not account for significant differences among the soils.

The warm, moist climate promotes rapid chemical reaction and rapid soil formation. The large amount of available water favors the rapid leaching of soluble and colloidal materials. Plant remains decompose rapidly, and the organic acids thus produced hasten the development of clay minerals and the removal of carbonates. Because the soil freezes for only short periods, soil formation continues almost the year round.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 5.86 inches	Jul - 4.16 inches
Feb - 4.93 inches	Aug - 3.05 inches
Mar - 5.56 inches	Sep - 3.23 inches
Apr - 5.02 inches	Oct - 2.99 inches
May - 4.84 inches	Nov - 4.43 inches
Jun - 3.91 inches	Dec - 4.73 inches

Precipitation averages 53 inches per year. Roughly 60 percent of the annual precipitation falls in winter and in spring; heavy rain is most likely in spring.

Soils: Soils in this area are Grenada silt loam, 1 to 3 percent slopes, and are moderately well drained, slowly permeable soils on uplands. These soils developed in a thick mantle of loess. The surface layer is very dark grayish-brown to brown silt loam about 5 inches thick. The uppermost 12 to 20 inches of the subsoil is dark-brown to yellowish-brown silt loam or silty clay loam, the middle part is light brownish-gray to light-gray silt loam, and the lower part, beginning at a depth of about 24 inches to 72 inches, is a firm, brittle fragipan of light-gray to dark-brown, mottled silty clay loam.

<u>Groundwater:</u> Depth to seasonal higher water table is at approximately 8 feet.

Source: Soil Survey of Arkansas County, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1972.

SPILL HISTORY - ARKANSAS POST OFFICE

CESWL-CO-PB (CESWL-CO-E 16 Oct 95) 1st End LEE/fj/534-0451
SUBJECT: Spill History

Pine Bluff Project Office, P.O. Box 7835, Pine Bluff, AR 71611
22 November 1995

FOR Chief, Construction-Operations Division
ATTN: Jane Smith, CESWL-CO-E

1. All supervisors and employees at the Pine Bluff Project Office have been asked to search their memories as well as their files for any information concerning spills of hazardous substances that have occurred during our history as an operating office. Spill history information is provided as requested.

2. There is only one spill to report.

a. Site/Building: Lock No. 2, McClellan-Kerr Arkansas River Navigation System, above-ground diesel storage tank.

b. Date: discovered on 30 November 1994.

c. Substance: virgin diesel fuel.

d. Quantity Released: approximately 200 gallons.

e. Cause: failure of an underground fuel line leading from an above-ground tank.

f. Corrective Action Taken: Approximately 45 cu. yds. of contaminated soil was excavated from the site and stored on visqueen in another location. Soil samples were taken at the spill site and of the excavated material. Once the sample tests results showed the leak site soil was within permissible limits, the excavation site was backfilled with clean soil. The stockpiled soil has been turned over to Emergency Management Branch and Logistics Management Office for proper disposal.

g. Method of Disposal: The stockpiled contaminated soil will be disposed of in an approved sanitary landfill.

3. There are no other known hazardous substance spills within the Pine Bluff Project Office area.

CHESTER L. SHAW, P.E.
Acting Resident Engineer

RECEIVED
NOV 2 4 1995
CON-OPS DIVISION

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
PINE BLUFF

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
David D. Terry Lock and Dam (Lock and Dam No. 6) near Scott, AR	Diesel Aboveground Storage Tank	5,000 Gal	Dock	On	Secondary Containment
	Diesel Aboveground Storage Tank	560 Gal	Compound	On	Secondary Containment
	Oil 30W	55 Gal	Storage Warehouse	On	Sorbents
	Hydraulic Fluid	3600 Gal	Lock System	Off	System Inspected Daily
	Hydraulic Fluid	55 Gal	Lock No. 6 Control Room	On	Secondary Containment
	Paint	15 Gal	Paint Building	On	Sorbents
	Mineral Spirits	55 Gal	Storage Warehouse	On	Sorbents
	Solvent	20 Gal	Shop	On	Sorbents
	Antifreeze	55 Gal	Storage Warehouse	On	Sorbents
	Used Oil	55 Gal	Storage Warehouse	On	Sorbents
	Oil 90W	110 Gal	Storage Warehouse	On	Sorbents

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
PINE BLUFF

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
David D. Terry Lock and Dam (Lock and Dam No. 6) near Scott, AR (Continued)	EP1 Grease	75 Gal	Next to Old Water Treatment Plant	On	Sorbents
	Grease (AWG, Keystone & Lithium)	20 Gal	Storage Warehouse	On	Sorbents
	Gasoline	10 Gal	Storage Warehouse	On	Sorbents

SITE DESCRIPTION AND MAP

David D. Terry Lock and Dam

a. Site map of facilities enclosed.

b. Description of each building, etc. - see site map. The Control House is brick veneer with concrete floors.

c. Floor drains in the Control House will be sealed using drainblocker spill mats.

d. Portable pallets will be placed under drums and other containers to provide impervious secondary containment to prevent uncontained spills in the event of a leak.

e. Barrel Top absorbent mats and drip pans are used to trap drips from dispensers.

f. Emergency spill absorbent materials are located on site.

g. The 5,000 gallon diesel fuel tank is empty. The disposition of this tank is still being determined.

h. Flow direction - see site map.

i. Rate of flow - too many variables to determine.

j. Distance to nearby watercourses - see site maps.

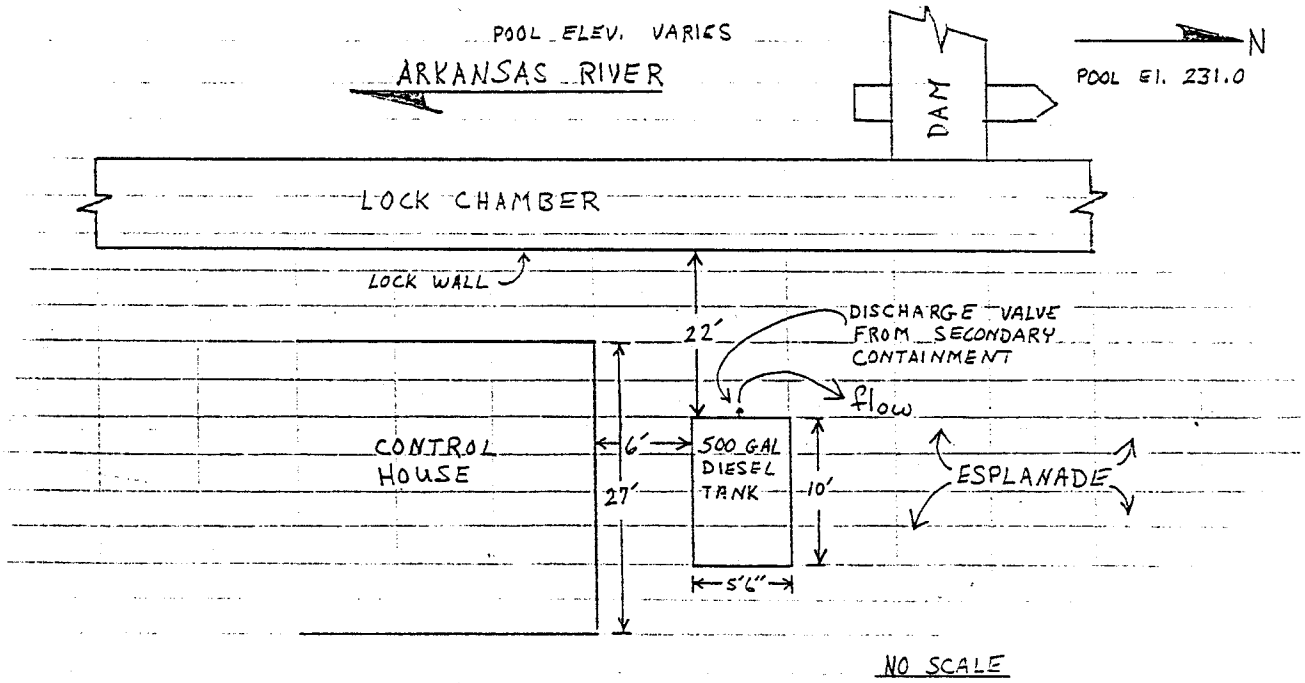
k. Groundwater depth - approximately 10 feet.

M-K Arkansas River Navigation System

COMPUTATION SHEET

Subject Spill Prevention and Response Plan File

Project Pine Bluff Proj. Ofc. Computed by Date Checked By Date Book No



NO SCALE

11/96

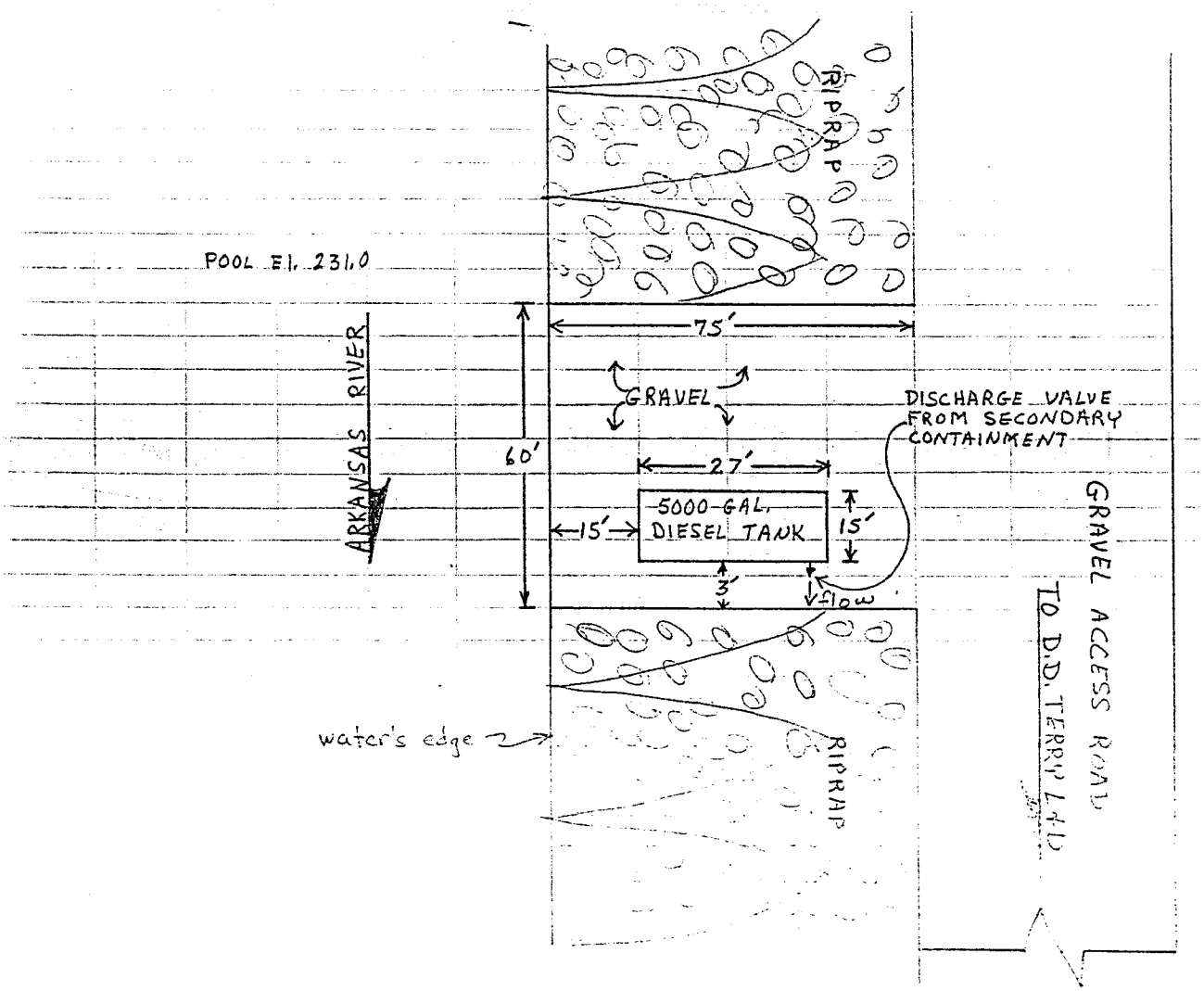
DAVID D. TERRY LOCK

M-K Arkansas River Navigation System

COMPUTATION SHEET

Subject Spill Prevention and Response Plan File

Project Pine Bluff Proj. Ofc. Computed by Date Checked By Date Book No



MOORING DOCK

DAVID D. TERRY LAD

NO SCALE

11/96

PROJECT INFORMATION, CLIMATE AND SOIL DATA
DAVID D. TERRY LOCK AND DAM (NO. 6)

Project Information: David D. Terry Lock and Dam is located at navigation mile 108.1 of the McClellan-Kerr Arkansas River Navigation System. Its primary purpose is to provide a means of navigation for commercial and recreational vessels.

Climate: David D. Terry Lock and Dam is located in Pulaski County, Arkansas. Pulaski County has hot summers with high humidity. Winters are generally mild. Although polar and arctic-type outbreaks are common, they generally are short. Precipitation is fairly heavy throughout the year. The average winter temperature is 41 degrees F, so outdoor work can be done during most of the winter. Snowfall averages 5.7 inches per year, almost half of which falls in January. In summer the average temperature is 82 degrees. July and August are the hottest months. A high temperature of 100 degrees is frequently exceeded.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.23 inches	Jul - 3.34 inches
Feb - 3.04 inches	Aug - 3.11 inches
Mar - 5.02 inches	Sep - 3.68 inches
Apr - 4.66 inches	Oct - 2.92 inches
May - 5.24 inches	Nov - 4.00 inches
Jun - 3.80 inches	Dec - 3.78 inches

The total annual precipitation is approximately 49 inches. Spring is the wettest season, and May is normally the wettest month. During the three months of March, April and May, slightly more than 15 inches of rainfall (nearly 31 percent of the annual total) commonly occurs. August, September and October are the driest months, but about 3 inches in each month can be expected in a normal year.

Soils: Soil in the area is the Norwood silty clay loam. The Norwood series consists of well-drained, level soils on young natural levees along the Arkansas River. These soils formed in loamy sediment carried from the west by the Arkansas River. In a representative profile, the surface layer is dark-brown silty clay loam about 8 inches thick. The underlying material is brown to dark reddish-brown, thinly stratified silty clay loam, silt loam, and very fine sandy loam. Permeability is moderate. This soil is along the Arkansas River. Slopes are less than 1 percent.

<u>Groundwater:</u> Depth to groundwater is approximately 10 feet.

Source: Soil Survey of Pulaski County, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1975.

SWLR 200-1-1
25 Sep 97

SPILL HISTORY - DAVID D. TERRY LOCK AND DAM

CESWL-CO-PB (CESWL-CO-E 16 Oct 95) 1st End LEE/fj/534-0451
SUBJECT: Spill History

Pine Bluff Project Office, P.O. Box 7835, Pine Bluff, AR 71611
22 November 1995

FOR Chief, Construction-Operations Division
ATTN: Jane Smith, CESWL-CO-E

1. All supervisors and employees at the Pine Bluff Project Office have been asked to search their memories as well as their files for any information concerning spills of hazardous substances that have occurred during our history as an operating office. Spill history information is provided as requested.

2. There is only one spill to report.

a. Site/Building: Lock No. 2, McClellan-Kerr Arkansas River Navigation System, above-ground diesel storage tank.

b. Date: discovered on 30 November 1994.

c. Substance: virgin diesel fuel.

d. Quantity Released: approximately 200 gallons.

e. Cause: failure of an underground fuel line leading from an above-ground tank.

f. Corrective Action Taken: Approximately 45 cu. yds. of contaminated soil was excavated from the site and stored on visqueen in another location. Soil samples were taken at the spill site and of the excavated material. Once the sample tests results showed the leak site soil was within permissible limits, the excavation site was backfilled with clean soil. The stockpiled soil has been turned over to Emergency Management Branch and Logistics Management Office for proper disposal.

g. Method of Disposal: The stockpiled contaminated soil will be disposed of in an approved sanitary landfill.

3. There are no other known hazardous substance spills within the Pine Bluff Project Office area.

CHESTER L. SHAW, P.E.
Acting Resident Engineer

RECEIVED
CON-OPS DIVISION

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
PINE BLUFF

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Emmett D. Sanders Lock and Dam (Lock & Dam No. 4) Pine Bluff, AR	Diesel Aboveground Storage Tank	500 Gal	Lock No. 4	On	Secondary Containment
	Oil	5 Gal	Lock No. 4 in Storage Shed	On	Sorbents
	Paint	10 Gal	Lock No. 4 in Paint Building	On	Sorbents
	Solvent	20 Gal	Lock No. 4 in Shop	On	Sorbents
	Hydraulic Fluid	55 Gal	Lock No. 4 in Storage Shed	On	Sorbents
	Hydraulic Fluid	3,200 Gal	Lock System at Lock No. 4	Off	Sorbents & System Inspected Daily

SITE DESCRIPTION AND MAP

Emmett Sanders Lock and Dam

a. Site map of facilities enclosed.

b. Description of each building, etc. - see site map. The Control House is brick veneer with concrete floors.

c. Floor drains in the Control House will be sealed using drainblocker spill mats.

d. Portable pallets and overpak drums will provide impervious secondary containment for drums and other containers as necessary to prevent uncontained spills in the event of a leak.

e. Barrel Top absorbent mats and drip pans are used to trap drips from dispensers.

f. Emergency spill absorbent materials are located on site.

g. Flow direction - see site map.

h. Rate of flow - too many variables to determine.

i. Distance to nearby watercourse - see site map.

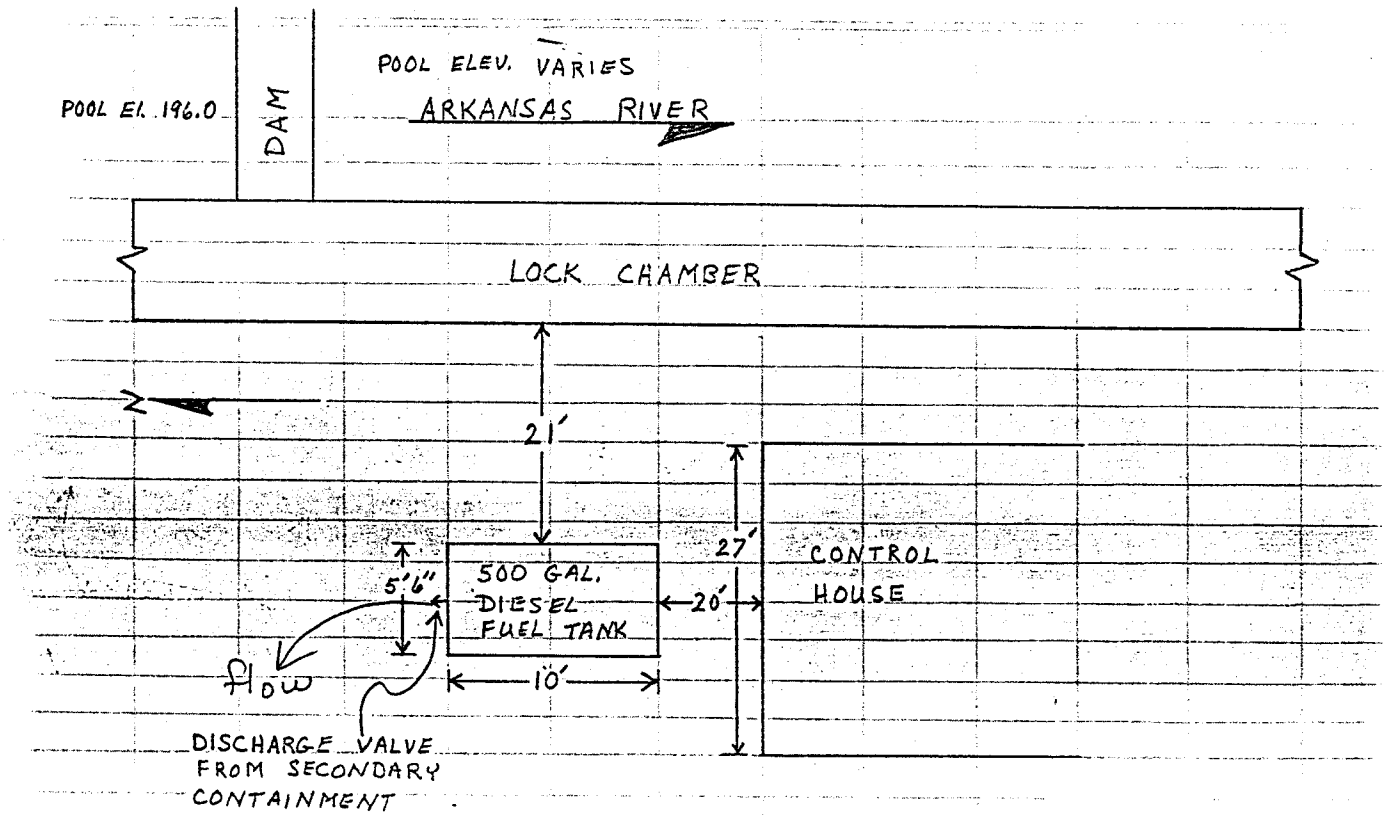
j. Groundwater depth - approximately 10 feet.

M-K Arkansas River Navigation System

COMPUTATION SHEET

Subject Spill Prevention and Response Plan File

Project Pine Bluff Proj. Ofc. Computed by Date Checked By Date Book No



NO SCALE

11/96

EMMETT SANDERS LOCK

PROJECT INFORMATION, CLIMATE AND SOIL DTATA
EMMETT SANDERS LOCK AND DAM (NO. 4)

Project Information: Emmett Sanders Lock and Dam is located at navigation mile 66.0 of the McClellan-Kerr Arkansas River Navigation System. Its primary purpose is to provide a means of navigation for commercial and recreational traffic.

Climate: Emmett Sanders Lock and Dam is located in Jefferson County, Arkansas. Jefferson County has long, hot summers. Winters are cool and fairly short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year. Prolonged droughts are rare. The average winter temperature is 46 degrees F, and the average daily minimum temperature is 36 degrees. In summer the average temperature is 81 degrees, and the average daily maximum temperature is 92 degrees.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.23 inches	Jul - 3.34 inches
Feb - 3.04 inches	Aug - 3.11 inches
Mar - 5.02 inches	Sep - 3.68 inches
Apr - 4.66 inches	Oct - 2.92 inches
May - 5.24 inches	Nov - 4.00 inches
Jun - 3.80 inches	Dec - 3.78 inches

The total annual precipitation is approximately 50 inches. Of the total annual precipitation, 25 inches, or 50 percent, usually falls during the period April through September. The average seasonal snowfall is 4 inches.

Soils: Soil in the area of the Emmett Sanders Lock and Dam is Oklared fine sandy loam, occasionally flooded. This gently undulating, well drained soil is on low parallel ridges and swales between the Arkansas River and its levees. Slope is less than 1 percent. Typically, the surface layer is dark brown fine sandy loam about 12 inches thick. The underlying material extends to a depth of 70 inches or more. It is stratified strong brown and pink fine sandy loam and loamy fine sand. Included with this soil are small areas of Roxana, Coushatta, Crevasse, and Desha soils. Also included are small areas of soils that are finer textured in the surface layer and below a depth of 40 inches. The areas of finer textured soils are in swales. Reaction is mildly alkaline or moderately alkaline. Permeability is moderately rapid.

Groundwater: Depth to seasonal high water table is approximately 10 feet.

Source: Soil Survey of Jefferson and Lincoln Counties, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1980.

SWLR 200-1-1
25 Sep 97

SPILL HISTORY - EMMETT SANDERS LOCK AND DAM

CESWL-CO-PB (CESWL-CO-E 16 Oct 95) 1st End LEE/fj/534-0451
SUBJECT: Spill History

Pine Bluff Project Office, P.O. Box 7835, Pine Bluff, AR 71611
22 November 1995

FOR Chief, Construction-Operations Division
ATTN: Jane Smith, CESWL-CO-E

1. All supervisors and employees at the Pine Bluff Project Office have been asked to search their memories as well as their files for any information concerning spills of hazardous substances that have occurred during our history as an operating office. Spill history information is provided as requested.

2. There is only one spill to report.

a. Site/Building: Lock No. 2, McClellan-Kerr Arkansas River Navigation System, above-ground diesel storage tank.

b. Date: discovered on 30 November 1994.

c. Substance: virgin diesel fuel.

d. Quantity Released: approximately 200 gallons.

e. Cause: failure of an underground fuel line leading from an above-ground tank.

f. Corrective Action Taken: Approximately 45 cu. yds. of contaminated soil was excavated from the site and stored on visqueen in another location. Soil samples were taken at the spill site and of the excavated material. Once the sample tests results showed the leak site soil was within permissible limits, the excavation site was backfilled with clean soil. The stockpiled soil has been turned over to Emergency Management Branch and Logistics Management Office for proper disposal.

g. Method of Disposal: The stockpiled contaminated soil will be disposed of in an approved sanitary landfill.

3. There are no other known hazardous substance spills within the Pine Bluff Project Office area.

CHESTER L. SHAW, P.E.
Acting Resident Engineer

RECEIVED
CON-OPS DIVISION

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
PINE BLUFF

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Lock and Dam No. 3 located near Swan Lake, AR)	Diesel Aboveground Storage Tank	500 Gal	Lock No. 3	On	Sorbents
	Oil (10W30 & 30W)	75 Gal	Dock Compound	On	Sorbents
	Paint	10 Gal	Lock No. 3 in Paint Building	On	Sorbents
	Mineral Spirits	55 Gal	Lock No. 3 in Paint Building	On	Sorbents
	Antifreeze	20 Gal	Dock Compound	On	Sorbents
	Solvent	20 Gal	Lock No. 3 in Shop	On	Sorbents
	Hydraulic Fluid	3,600 Gal	Lock System at Lock No. 3	Off	Sorbents & System Inspected Daily
	Hydraulic Fluid	55 Gal	Dock Compound	On	Sorbents

SITE DESCRIPTION AND MAP

Joe Hardin Lock and Dam

a. Site map of facilities enclosed.

b. Description of each building, etc. - see site map. The Control House is brick veneer with a concrete floor.

c. Portable pallets providing impervious secondary containment will be placed under drums and other containers as necessary to prevent uncontained spills in the event of a leak.

d. Drip plans are used to trap drips from dispensers.

e. Emergency spill absorbent materials are located on site.

f. Flow direction - see site map.

g. Rate of flow - too many variables to determine.

h. Distance to nearby watercourses - see site map.

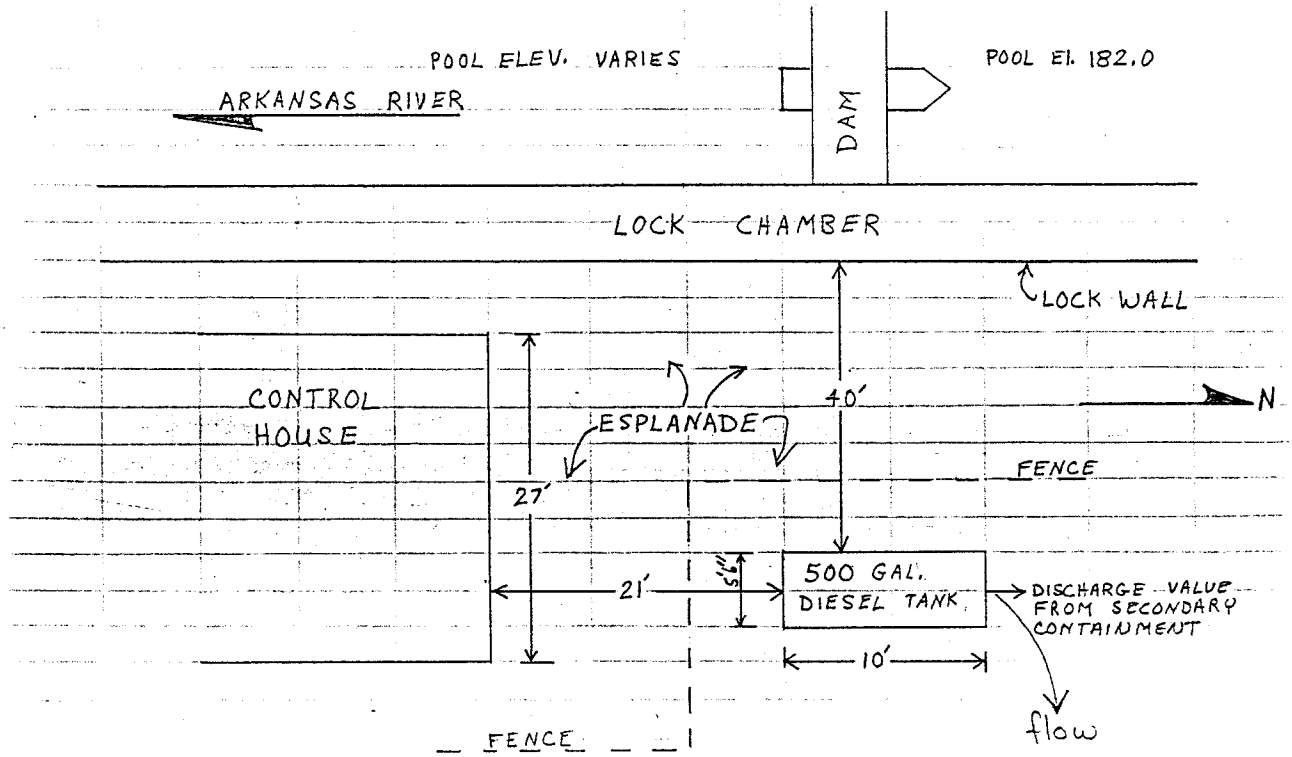
i. Groundwater depth - approximately 10 feet.

M-K Arkansas River Navigation System

COMPUTATION SHEET

Subject Spill Prevention and Response Plan File

Project Pine Bluff Proj. Ofc. Computed by Date Checked By Date Book No



NO SCALE

11/96

JOE HARDIN LOCK

PROJECT INFORMATION, CLIMATE AND SOIL DATA
JOE HARDIN LOCK AND DAM (NO. 3)

Project Information: Joe Hardin Lock and Dam is located at navigation mile 50.2 of the McClellan-Kerr Arkansas River Navigation System. Its primary purpose is to provide a means of navigation for commercial and recreational traffic.

Climate: Joe Hardin Lock and Dam is located in Jefferson County, Arkansas. Jefferson County has long, hot summers. Winters are cool and fairly short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year. Prolonged droughts are rare. The average winter temperature is 46 degrees F, and the average daily minimum temperature is 36 degrees. In summer the average temperature is 81 degrees, and the average daily maximum temperature is 92 degrees.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.23 inches	Jul - 3.34 inches
Feb - 3.04 inches	Aug - 3.11 inches
Mar - 5.02 inches	Sep - 3.68 inches
Apr - 4.66 inches	Oct - 2.92 inches
May - 5.24 inches	Nov - 4.00 inches
Jun - 3.80 inches	Dec - 3.78 inches

The total annual precipitation is approximately 50 inches. Of the total annual precipitation, 25 inches, or 50 percent, usually falls during the period April through September. The average seasonal snowfall is 4 inches.

Soils: Soils in the area of the Joe Hardin Lock and Dam are a combination of Crevasse, frequently flooded and Roxana silt loam, occasionally flooded. Descriptions of both are as follows:

Crevasse soils, frequently flooded. This undifferentiated group consists of excessively drained, level soils between the levee and the Arkansas River. It is flooded once or more every 2 years. It consists of Crevasse loamy fine sand intermingled in an irregular pattern with Crevasse soils that have variable surface texture. Typically, the surface layer is brown loamy fine sand about 9 inches thick. The next layer is yellowish brown fine sand that extends to a depth of about 31 inches. This is underlain with light yellowish brown fine sand that extends to a depth of 65 inches or more. Permeability is rapid and runoff is slow.

Roxana silt loam, occasionally flooded. This unit consists of level soils on the natural levees along the bottom lands of

the arkansas River. They are flooded for periods of 5 to 20 days, generally between January and June. Floods occur on an average of about once every 4 years. Slope is less than 1 percent. Typically, the surface layer is dark brown silt loam about 10 inches thick. The underlying material, extending to a depth of 41 inches, is stratified brown, light brown, dark brown, and reddish brown silt loam. The material below, extending to a depth of 72 inches or more, is dark brown, and reddish brown silt loam and silty clay loam. Included with this soil are small areas of Coushatta, Latanier, and Oklared soils. Also included are small areas of soils that have gray mottles below a depth of 20 inches and small areas of soils that have a brown and dark grayish brown surface layer. Permeability is moderate and runoff is slow.

Groundwater: Depth to seasonal high water table is approximately 10 feet.

Source: Soil Survey of Jefferson and Lincoln Counties, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1980.

SWLR 200-1-1
25 Sep 97

SPILL HISTORY - JOE HARDIN LOCK AND DAM

CESWL-CO-PB (CESWL-CO-E 16 Oct 95) 1st End LEE/fj/534-0451
SUBJECT: Spill History

Pine Bluff Project Office, P.O. Box 7835, Pine Bluff, AR 71611
22 November 1995

FOR Chief, Construction-Operations Division
ATTN: Jane Smith, CESWL-CO-E

1. All supervisors and employees at the Pine Bluff Project Office have been asked to search their memories as well as their files for any information concerning spills of hazardous substances that have occurred during our history as an operating office. Spill history information is provided as requested.

2. There is only one spill to report.

a. Site/Building: Lock No. 2, McClellan-Kerr Arkansas River Navigation System, above-ground diesel storage tank.

b. Date: discovered on 30 November 1994.

c. Substance: virgin diesel fuel.

d. Quantity Released: approximately 200 gallons.

e. Cause: failure of an underground fuel line leading from an above-ground tank.

f. Corrective Action Taken: Approximately 45 cu. yds. of contaminated soil was excavated from the site and stored on visqueen in another location. Soil samples were taken at the spill site and of the excavated material. Once the sample tests results showed the leak site soil was within permissible limits, the excavation site was backfilled with clean soil. The stockpiled soil has been turned over to Emergency Management Branch and Logistics Management Office for proper disposal.

g. Method of Disposal: The stockpiled contaminated soil will be disposed of in an approved sanitary landfill.

3. There are no other known hazardous substance spills within the Pine Bluff Project Office area.

CHESTER L. SHAW, P.E.
Acting Resident Engineer

RECEIVED
CON-OPS DIVISION

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
PINE BLUFF

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Lock and Dam No. 5 near Wright, AR	Diesel Aboveground Storage Tank	500 Gal	Lock No. 5	On	Secondary Containment
	Oil (30W)	35 Gal	Lock No. 5 in Paint Bldg	On	Sorbents
	Hydraulic Oil	55 Gal	Lock No. 5 in Machine Room	On	Sorbents
	Paint	5 Gal	Lock No. 5 in Paint Building	On	Sorbents
	Solvent	20 Gal	Lock No. 5 in Shop	On	Sorbents
	Paint Thinner	55 Gal	Lock No. 5 in Paint Building	On	Sorbents
	Keystone Grease	15 Gal	Lock No. 5 in Paint Building	On	Sorbents
	EP1 Grease	80 Gal	Under Observation Platform	On	Sorbents
	AW/2 Bearing Grease	8 Gal	Lock No. 5 in Paint Bldg & Under Observation Platform	On	Sorbents
	Hydraulic Fluid	3,600 Gal	Lock System at Lock No. 5	Off	Sorbents & System Inspected Daily

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
PINE BLUFF

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Lock and Dam No. 5 near Wright, AR (Continued)	Oil 90W	25 Gal	On Dam No. 5	Off	Sorbents
	Lithium Grease	15 Gal	Lock No. 5 in Paint Bldg	On	Sorbents
	Gasoline	10 Gal	Lock No. 5 in Paint Bldg	On	Sorbents
	AW/0 Grease	8 Gal	Under Observation Platform	On	Sorbents