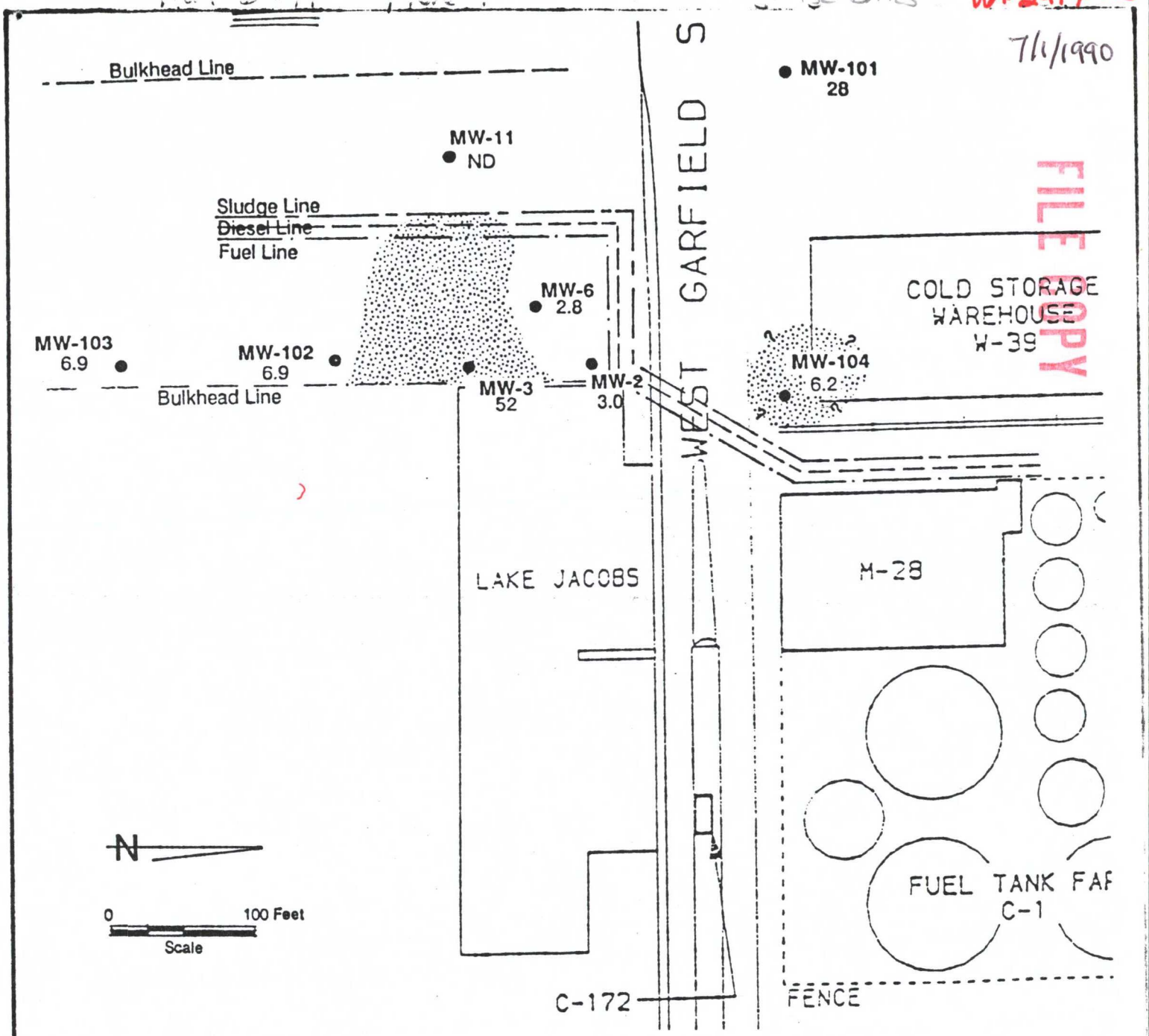
MISC DATES WA 2917 106

7/1/1990



FILE COPY

LEGEND:

MW-3 ● Monitoring well

52 TPH in groundwater in mg/l (ppm) sampled Dec. 6, 7, 1989 ND - Not detected

Estimated extent of floating hydrocarbons in vicinity of MW-3

USEPA RCRA
3012333

Figure No. 8
ESTIMATED EXTENT OF FLOATING HYDROCARBONS IN VICINITY OF MW-3 AND TPH VALUES IN GROUNDWATER
Pacific Northern Oil - Terminal 91

Converse GES

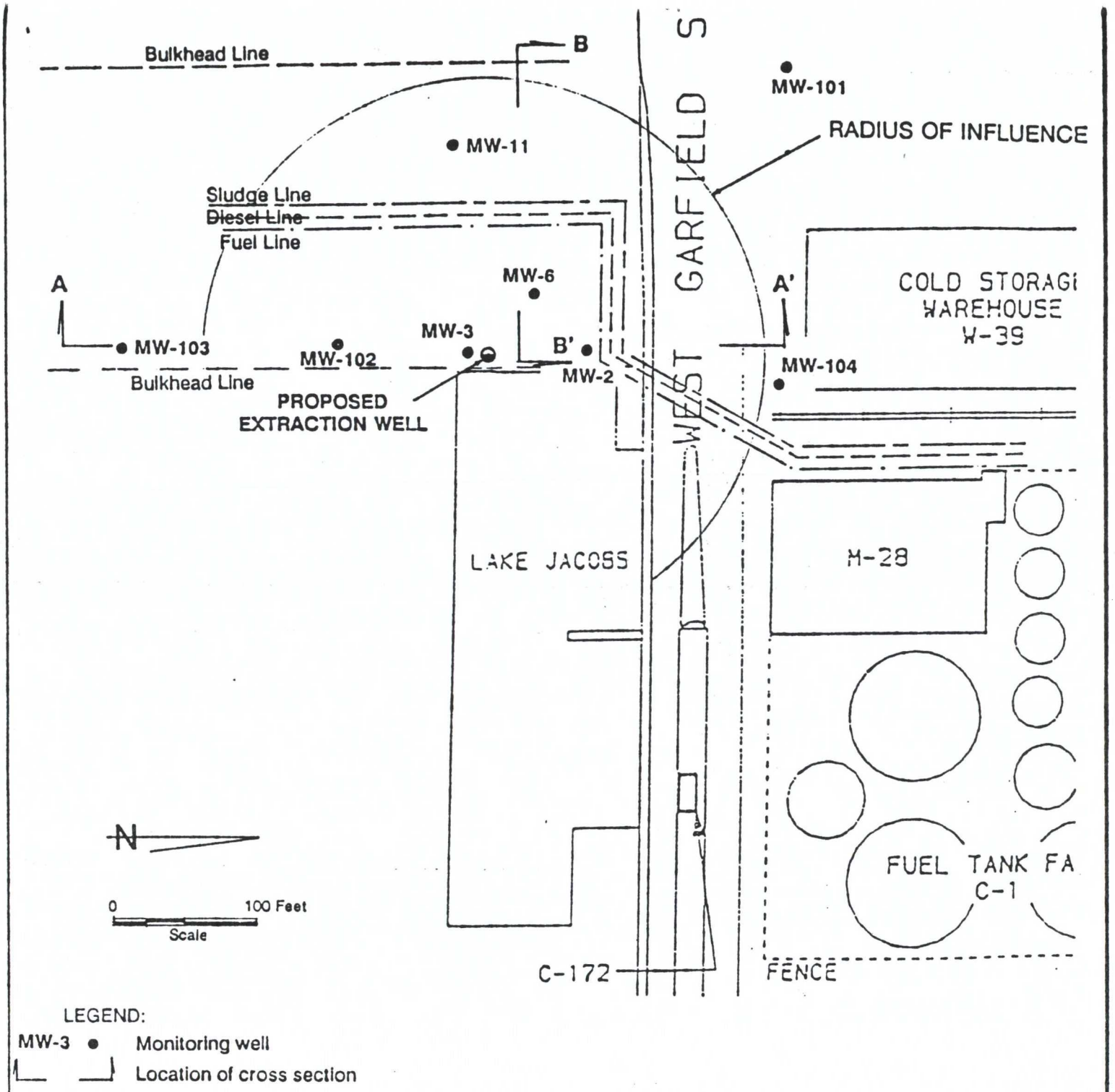
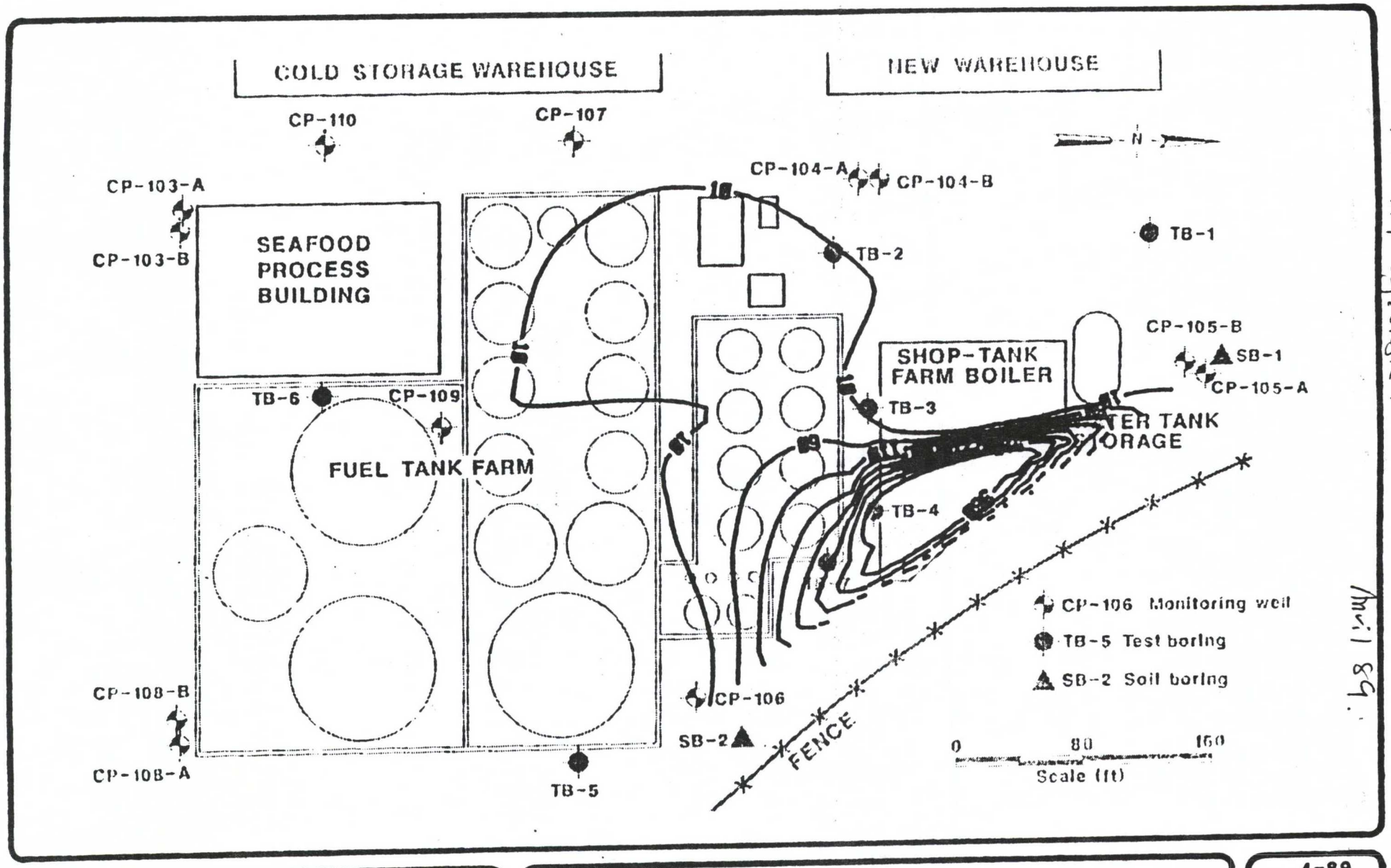


Figure No. 2
RADIUS OF INFLUENCE
Pacific Northern Oil - Terminal 91

From: Memo Converse to G. Markowski.
July 1990

89-45527-01

Converse GES



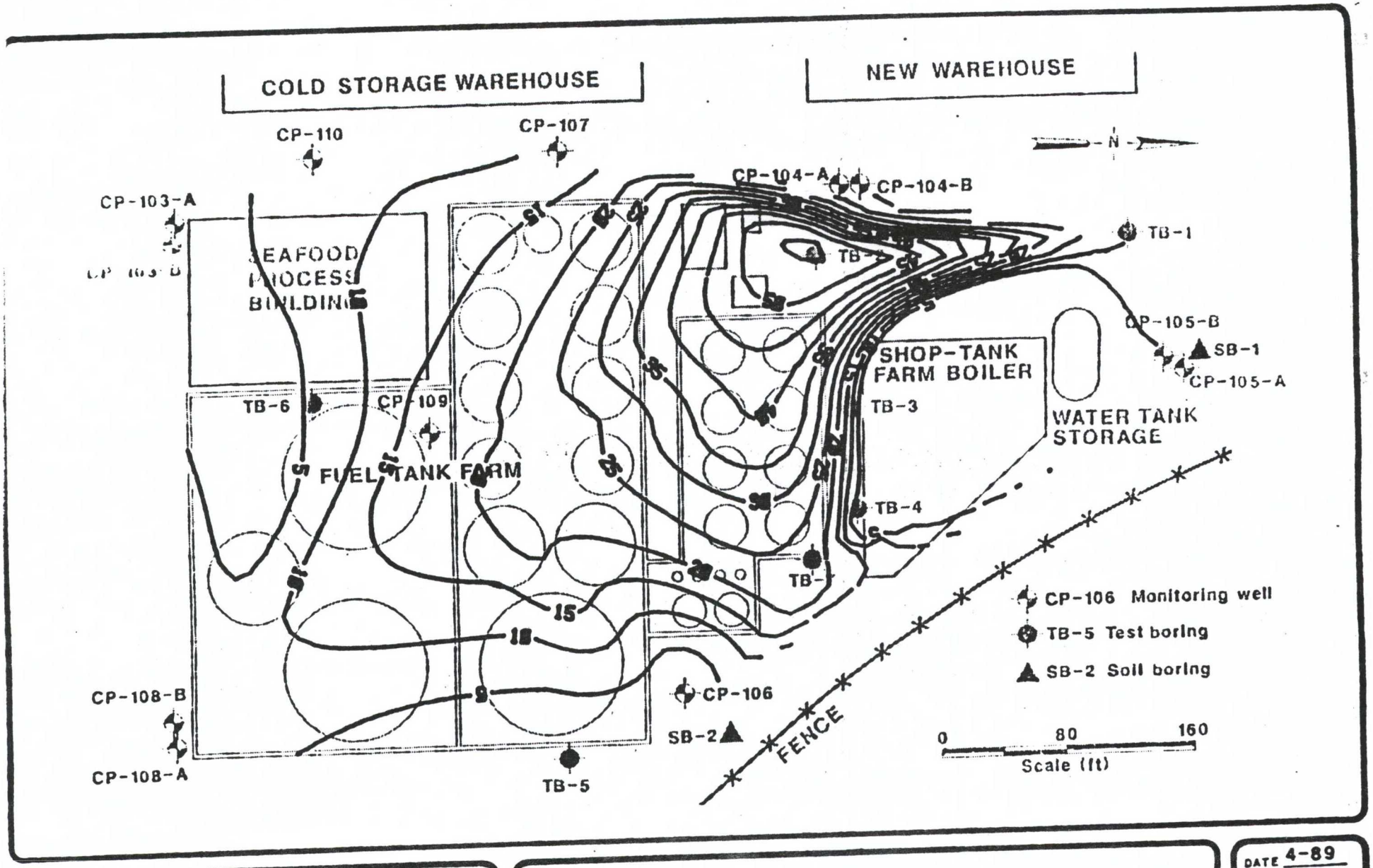
Sweet-Edwards
EMCON

Figure 3-8
CHEMICAL PROCESSORS INC. PIER 91 FACILITY
GROUND WATER GEOCHEMISTRY IN SHALLOW AQUIFER
SQUARE ROOT TOTAL BTEX (ug/l)

DATE 4-89
DWN. TB
APPR. DJ
REVIS.
PROJECT NO. S9407.03

KUKER-RANKEN, INC. / 108857

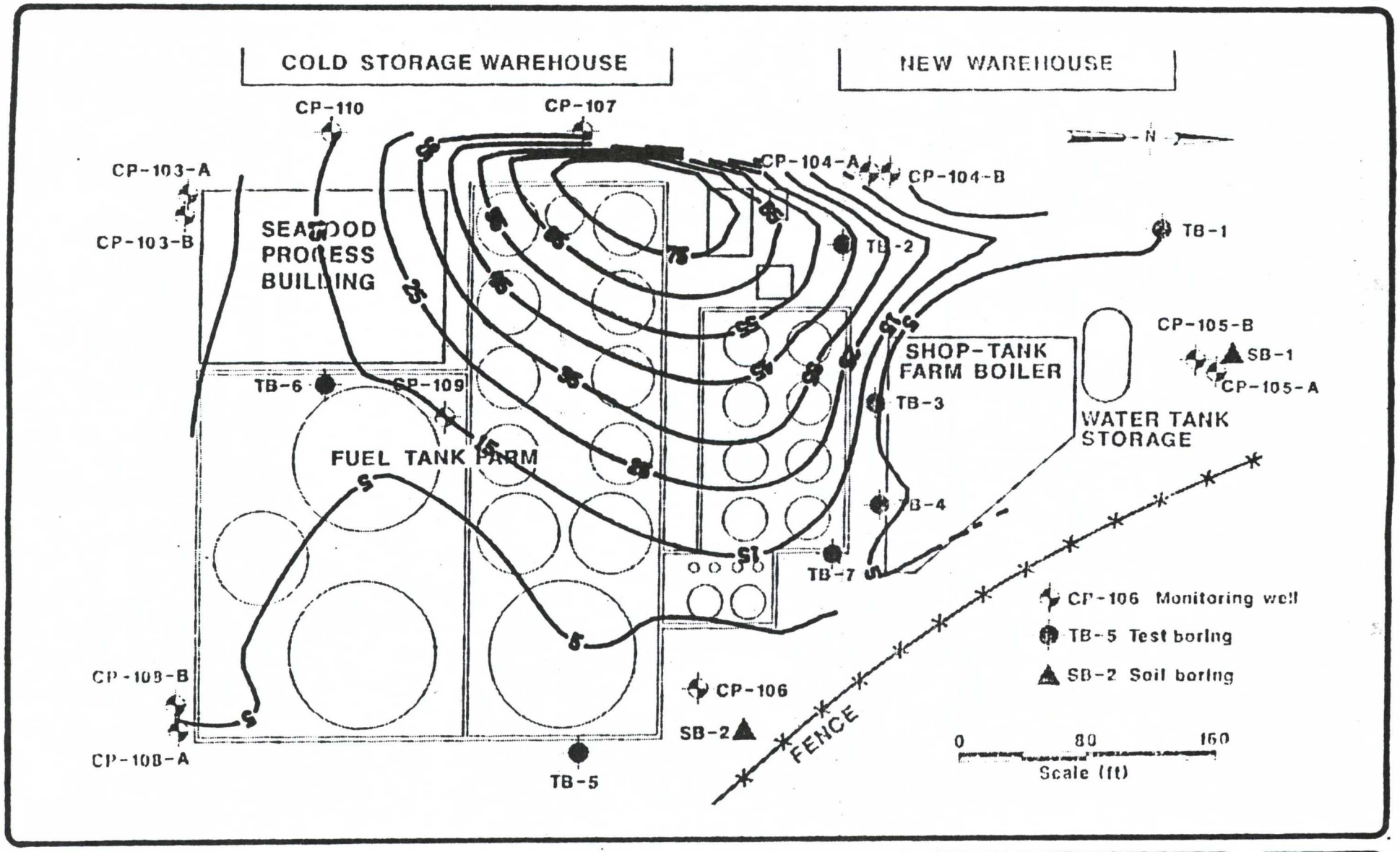
Port Hydrogeologic Inv. Pier 91 Facility Contamination April 89.



Sweet-Edwards
EMCON

Figure 3-9
CHEMICAL PROCESSORS INC. PIER 91 FACILITY
GROUND WATER GEOCHEMISTRY IN SHALLOW AQUIFER
SQUARE ROOT TOTAL CHLORINATED HYDROCARBONS (ug/l)

DATE 4-89
DWN. TB
APPR. DD
REVIS.
PROJECT NO. S9407.03

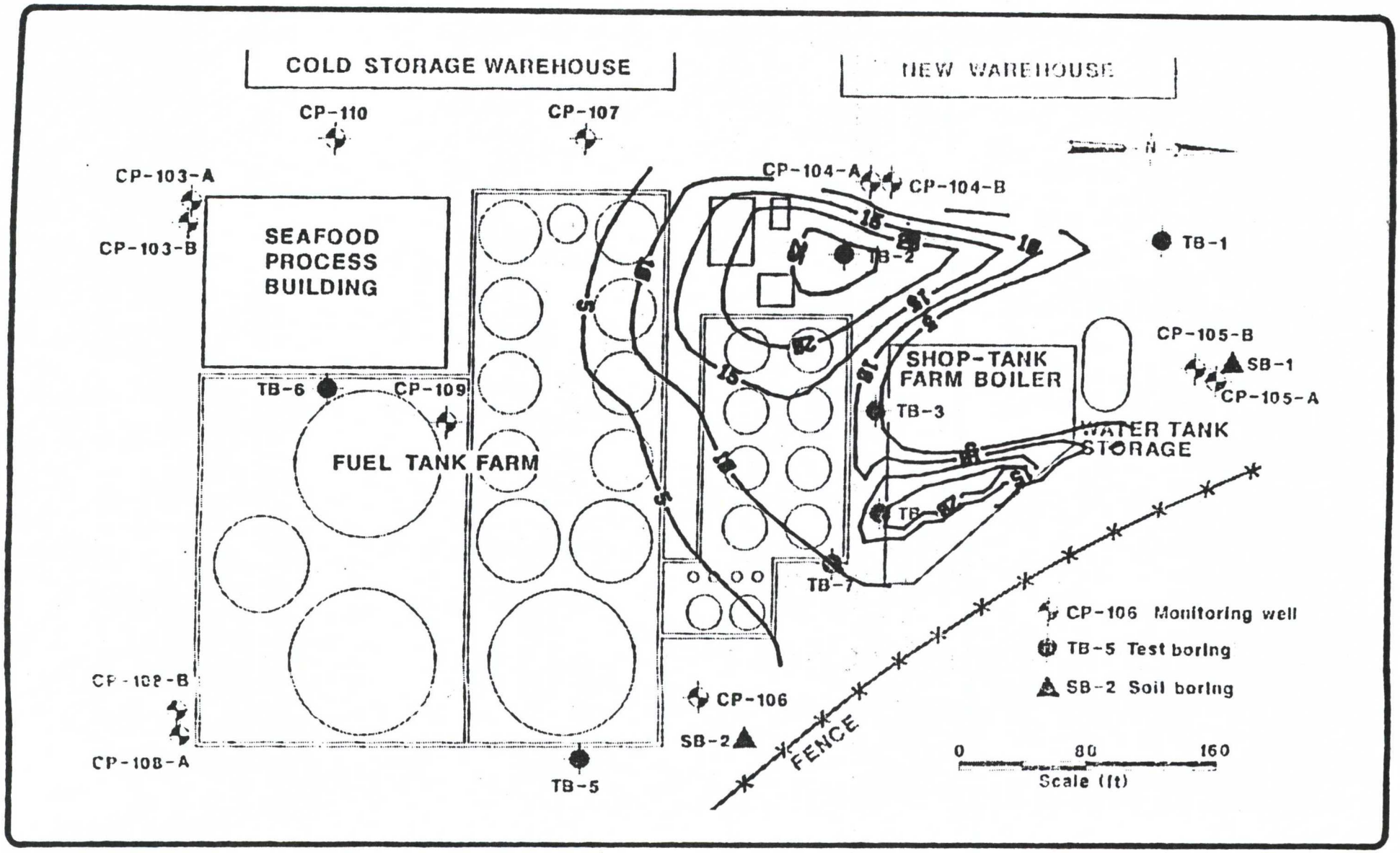


Sweet-Edwards
EMCON

Figure 3-10
CHEMICAL PROCESSORS INC. PIER 91 FACILITY
GROUND WATER GEOCHEMISTRY IN SHALLOW AQUIFER
SQUARE ROOT TOTAL PNA'S (ug/l)

DATE 4-89
DWN. TB
APPR. DJ
REVIS.
PROJECT NO. S9407.03

KUKER-RANKEN INC. / 106857



Sweet-Edwards
EMCON

Figure 3-11
CHEMICAL PROCESSORS INC. PIER 91 FACILITY
GROUND WATER GEOCHEMISTRY IN SHALLOW AQUIFER
SQUARE ROOT TOTAL PHENOLS (ug/l)

DATE 4-89
DWN. TB
APPR. DB
REVIS.
PROJECT NO. S9407.03

KUKER-RANKEN INC / 106857

Proposed local limits for contaminants not currently regulated by Metro

Organics

Based on hazard-ranking criteria Metro is proposing limits for 12 specific organic contaminants and a blanket total toxic organic limit of 5 mg/l for the remaining 103 organic contaminants on EPA's TTO list. The driving force for these limits is worker safety.

Antifreeze

One contaminant singled out for special review was ethylene glycol, which is the primary active ingredient in the antifreeze used by the general public and industry. Metro currently allows used antifreeze to be discharged into the collection system. The fate and effects of ethylene glycol on wastewater treatment operations was evaluated to determine if this practice should be allowed to continue.

Metro proposes that the existing household hazardous waste policy that allows for small-volume discharges of waste antifreeze to the sanitary sewer not be modified. In addition, waste antifreeze from small businesses, such as radiator shops, should also be allowed. Waste antifreeze should be discharged as it is collected rather than saved up and discharged, due to the potential for organic overloading at the treatment plants.

However, Metro will regulate large-volume antifreeze discharges – greater than 40 to 50 gallons at a time – from treatment, storage, and disposal facilities or fleet maintenance operations. These operations will be regulated through waste-discharge permits or special discharge authorizations.

Recommended local limits

The following table compares the local limits Metro is now proposing to the existing limits. In all cases the limits are daily maximum concentrations. As noted earlier, some companies must comply with categorical standards issued by EPA. In all cases the most stringent standard – whether federal or local – applies.

Determining the most stringent standard for heavy metals is straightforward; the lower of the two limits applies. The determination for organics, however, may not be so obvious. The total toxic organic (TTO) limits for metal finishers (2.13 mg/l) and/or electroplaters (4.57 mg/l) are both lower than Metro's limit for remaining TTOs (5.0 mg/l). In some instances, however, discharges may exceed one of Metro's individual organic limits while still meeting the categorical TTO limit. Since the most stringent standard applies, the discharge would be in violation.

	Proposed Limits	Present Limits
METALS	mg/l	mg/l
Arsenic	1.0	1.0
Cadmium	0.5	3.0
Chromium (Total)	2.75	6.0
Copper	2.0	3.0
Lead	1.0	3.0
Mercury	0.1	0.1
Nickel	2.0	6.0
Silver	1.0	1.0
Zinc	5.0	5.0
Cyanide (Total)	1.5	2.0
ORGANICS		
1,1,1-trichloroethane	1.6	N/A
2-butanone (MEK)	330.	N/A
Benzene	0.10	N/A
Chloroform	0.30	N/A
Ethyl benzene	1.40	N/A
Methylene chloride	1.70	N/A
Tetrachloroethene	0.35	N/A
Bis (2-ethylhexyl) phthalate	490.00	N/A
Naphthalene	2.40	N/A
Toluene	1.5	N/A
Phenol	660.00	N/A
Remaining TTOs	5.0	N/A
FATS, OILS and GREASE		
Polar	100	100
Non-polar	100	100
HYDROGEN SULFIDE		
Soluble sulfide	0.2	0.5
Atmospheric sulfide	10	10

From: Industrial Pretreatment Quarterly – May 1990.

From: Metro Industrial Waste Local Limits Review
Dec. 1989.

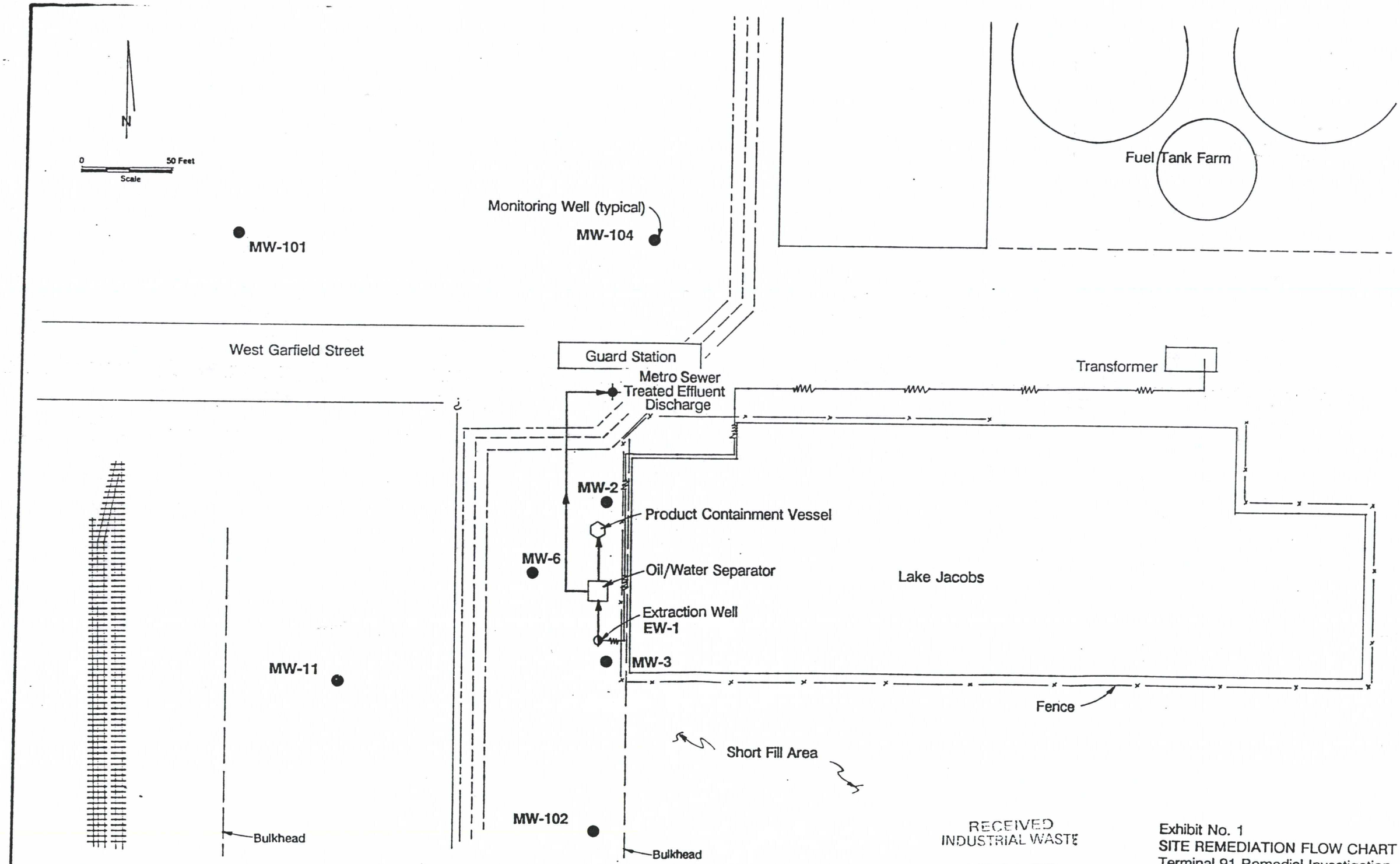
433.11 TTO DEFINITION

The term "TTO" shall mean total toxic organics, which is the summation of all quantifiable values greater than .01 milligrams per liter for the following toxic organics:

Acenaphthene
Acrolein
Acrylonitrile
Benzene
Benzidine
Carbon tetrachloride (tetrachloromethane)
Chlorobenzene
1,2,4-trichlorobenzene
Hexachlorobenzene
1,2-dichloroethane
1,1,1-trichloroethane
Hexachloroethane
1,1-dichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloro-ethane
Chloroethane
Bis(2-chloroethyl) ether
2-chloroethyl vinyl ether (mixed)
2-chloronaphthalene
2,4,6-trichlorophenol
Parachlorometa cresol
2-chlorophenol
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
N-nitrosodi-n-paropylamine
Pentachlorophenol
Phenol
Butyl benzyl phthalate
Di-n-butyl phthalate
Di-n-octyl phthalate
Diethyl phthalate
Dimethyl phthalate
Benzo (a) pyrene (3,4-benzopyrene)
3,4-Benzofluoranthene (benzo(b)fluoranthene)
11,12 benzofluorathene (benzo (k)fluoranthene)
Chrysene
Acenaphthylene
Anthracene
1,12-benzoperylene(benzo(ghi)perylene)
Fluorene
Phenanthrene
1,2,5,6-dibenzantracene (dibenzo(a,h)anthracene)
Indeno (1,2,3-cd)pyrene(2,3-o-phenlene pyrene)
Pyrene
Tetrachloroethylene
Toluene
Trichloroethylene
Vinyl chloride (chloroethylene)
3,3-dichlorobenzidine
1,1-dichloroethylene
1,2-trans-dichloroethylene
2,4-dichlorophenol
1,2-dichloropropane(1,3-dichloropropene)
2,4-dimethylphenol
Chloroform (trichloromethane)
2,4-dinitrotoluene
2,6-diphenylhydrazine
1,2-diphenylhydrazine
Ethylbenzene
Fluoranthene
4-chlorophenyl phenyl ether
4-bromophenyl phenyl ether
Bis(2-ethylhexyl)phthalate
Bis(2-chloroisopropyl)ether
Bis(2-chloroethoxy)methane
Methylene chloride (dichloromethane)
Methyl chloride (chloromethane)

1,2-benzanthracene
(benzo(a)anthracene
Dichlorobromomethane
Hexachlorobutadiene
Isophorone
Nitrobenzene
4-nitrophenol
4,6-dinitro-o-cresol
Aldrin
4,4-DDT
4,4-DDE(p,p-DDX)
Alpha-endosulfan
Endosulfan sulfate
Endrin aldehyde
Heptachlor
Beta-BHC
Delta-BHC
Alpha-BHC
Gamma-BHC
Endrin
Toxaphene

Methyl bromide (bromomethane)
Bromoform (tribromomethane)
Chloradibromomethane
Hexachlorocyclopentadiene
Naphthalene
2-nitrophenol
2,4-dinitrophenol
N-nitrosodimethylamin
Dieldrin
Chlorodane(technical mixture & metabolites)
4,4-DDD(P,P-TDE)
Beta-endosulfan
(PCB)-polychlorinated biphenyls
Heptachlor epoxide(BHC-hexachlorocyclohexane)
PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
(PCB)-polychlorinated biphenyls)
PCB-1221 (Arochlor 1221)
PCB-1232 (Arochlor 1232)
PCB-1248 (Arochlor 1248)
PCB-1260 (Arochlor 1260)
PCB-1016 (Arochlor 1016)
2,3,7,8-tetrachlorodibenzo-p-dioxin(TCDD)



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INDUSTRIAL WASTE
APR 26 1990
METRO

Exhibit No. 1
SITE REMEDIATION FLOW CHART
Terminal 91 Remedial Investigation
Pacific Northern Oil

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