N00236.001568
ALAMEDA POINT
SSIC NO. 5090.3

FINAL
RADIOLOGICAL REMOVAL ACTION FOR SITES 1, 2, 5 & 10, AND STORM DRAIN LINE F IMPLEMENTATION WORK PLAN TECHNICAL SPECIFICATIONS

DATED 01 AUGUST 1998

IS ENTERED IN THE DATABASE AND FILED AT ADMINISTRATIVE RECORD NO. **N00236.001567**

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY
ALAMEDA POINT
IR SITES 1, 2, 5 & 10 AND STORM DRAIN LINE F
RADIOLOGICAL REMOVAL ACTION DRAWINGS
FOR
IMPLEMENTATION WORK PLAN

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY WEST
NAVAL FACILITIES ENGINEERING COMMAND
SAN BRUNO, CALIFORNIA

FINAL

REVISIONS

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

TETRA TECH EM INC.
MORRISON KNUDSEN CORPORATION

DSGN. ALM | CHK. RFC | DRN. AMA | SATISFACTORY TO | DATE
SUBMITTED BY | DATE
MORRISON KNUDSEN CORP. | AUG 98 | APPROVED | DATE
D.M. | F.P.
BR.HD. | DIR. | EFD FOR COMMANDER NAVFAC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ALAMEDA POINT
RADIOLOGICAL REMOVAL ACTION

TITLE SHEET

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

CODE IDENT. NO.

PROJECT LOCATION
ALAMEDA, CA

CONSTR. CONTR. NO.

SPECIFICATION

NAVFAC DWG. NO.

DWG. NO.
MK-4545-0147-D-001-D

SHEET 1 OF 8

N00236.001568
ALAMEDA POINT
SSIC NO. 5090.3

FILE NAME: P:\4545\ALA_RAD\DWG\0147D001.DWG

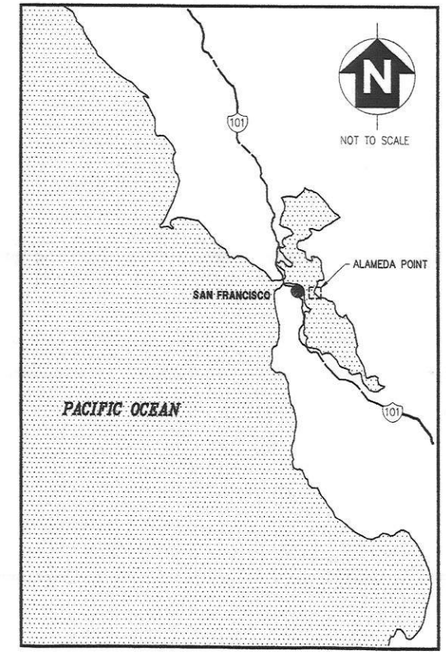
DATE: 08/19/98

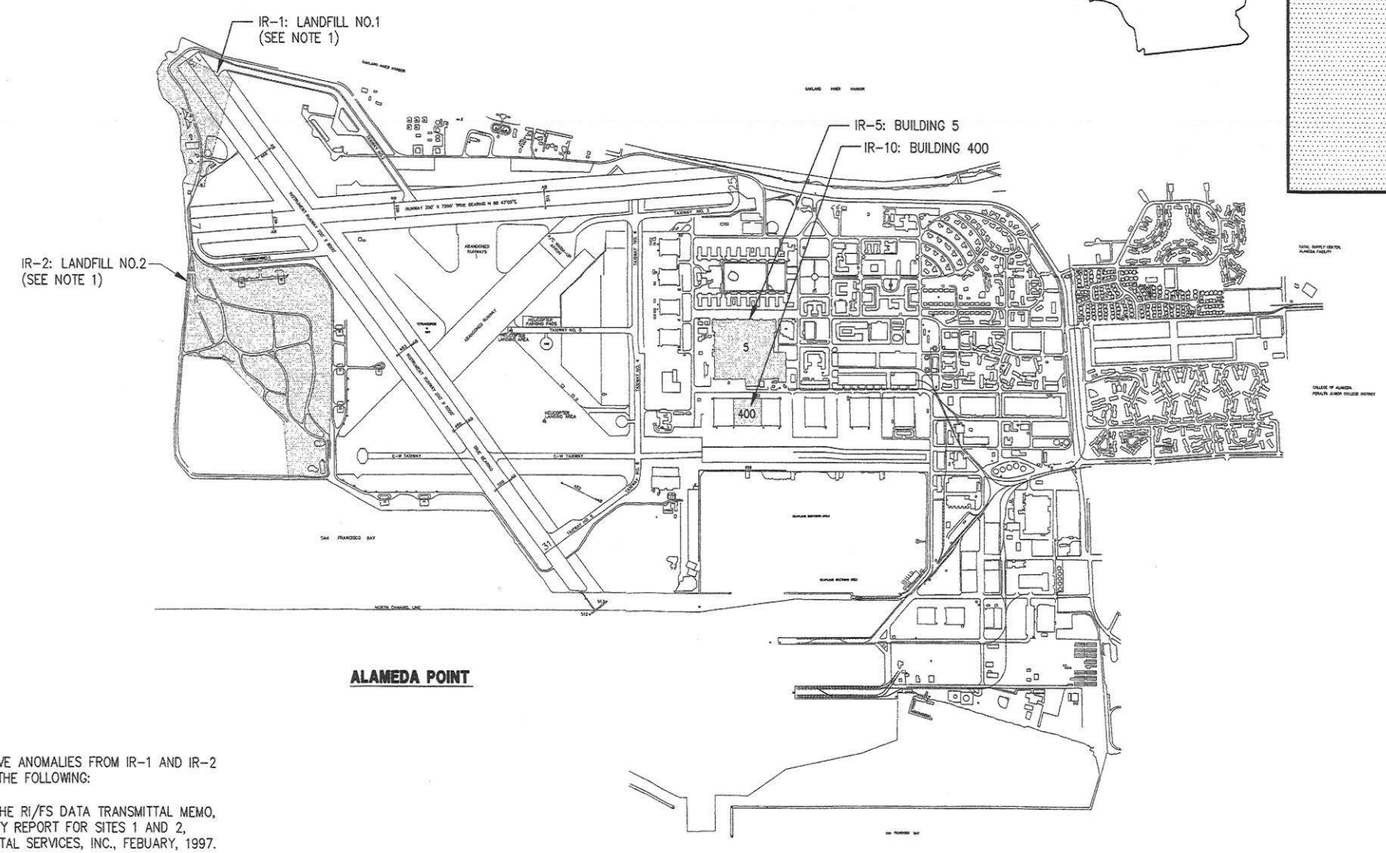
GENERAL LEGEND

- DRAWING MATCH LINE
- RAILROAD TRACKS
- FENCE LINE
- UNDERGROUND COMPRESSED AIR LINE
- WATER LINE
- SPRINKLER MAIN
- UNDERGROUND ELECTRICAL LINE
- UNDERGROUND STEAM LINE
- SANITARY SEWER LINE
- NG — NATURAL GAS LINE
- SD — STORM DRAIN
- IW — INDUSTRIAL WASTE LINE
- F — FUEL LINE
- SD — STORM DRAIN TO BE REMOVED AND REPLACED
- IW — INDUSTRIAL WASTE LINE TO BE REMOVED AND REPLACED
- CLEAN OUT
- 6F-2 R=113.62 I=104.22 — STORM DRAIN MANHOLE TO BE REMOVED AND REPLACED (R=RIM ELEVATION, I=INVERT ELEVATION)
- 4F-1 — STORM DRAIN MANHOLE
- CATCH BASIN
- 1-5 — INDUSTRIAL WASTE MANHOLE
- P.S. — PUMP STATION
- VALVE
- AIR RELIEF VALVE
- VALVE PIT
- 102 — BUILDING AND NUMBER
- INTERIOR BUILDING WALL
- STAIRWAY
- M 21 — BUILDING COLUMN LINE
- LOCKERS
- STORAGE RACKS

DRAWING LIST

SHEET	DRAWING NO.	NAME
1	4545-0147-D-001-A	TITLE SHEET
2	4545-0147-D-002-A	LOCATION MAP, DRAWING LIST
3	4545-0147-D-003-A	UNDERGROUND UTILITY PLAN
4	4545-0147-D-004-A	UNDERGROUND UTILITY PLAN
5	4545-0147-D-005-A	BUILDING 5 AND BUILDING 400 DETAILS
6	4545-0147-D-006-A	RADIATION SURVEY DATA (1 OF 3)
7	4545-0147-D-007-A	RADIATION SURVEY DATA (2 OF 3)
8	4545-0147-D-008-A	RADIATION SURVEY DATA (3 OF 3)





ALAMEDA POINT

GENERAL EXPLANATION

ACM	ASBESTOS CONTAINING MATERIAL
CI	CAST IRON
CIFM	CAST IRON FORCE MAIN
CO	CLEAN OUT
DN	DOWN
ELEV	ELEVATOR
I	INVERT
IW	INDUSTRIAL WASTE
MH	MANHOLE
NG	NATURAL GAS
NTS	NOT TO SCALE
PVC	POLYVINYL CHLORIDE
R	RIM
RC	REINFORCED CONCRETE
SD	STORM DRAIN
UNK	UNKNOWN

NOTES

1. REMOVE RADIOACTIVE ANOMALIES FROM IR-1 AND IR-2 AS INDENTIFIED IN THE FOLLOWING:

   a) ADDENDUM TO THE RI/FS DATA TRANSMITTAL MEMO, RADIATION SURVEY REPORT FOR SITES 1 AND 2, PRC ENVIRONMENTAL SERVICES, INC., FEBUARY, 1997.

   b) RADIATION SURVEY REPORT, NAVAL AIR STATION, ALAMEDA, CALIFORNIA, VOLUMES I AND II, FINAL, PRC EVIRONMENTAL SERVICES, INC., JANUARY, 1998.

FINAL

500' 0 500 1000'
SCALE IN FEET

SYMBOL	DESCRIPTION	PREP. BY	DATE	APPROVED

REVISIONS

TETRA TECH EM INC.
MORRISON KNUDSEN CORPORATION

DSGN. ALM	CHK. RFC	DRN. AMA	DATE	SATISFACTORY TO	DATE
SUBMITTED BY				APPROVED	DATE
MORRISON KNUDSEN CORP.			AUG 98		
D.M.		F.P.		EFD FOR COMMANDER NAVFAC	
BR.HD.		DIR.			

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ALAMEDA POINT
RADIOLOGICAL REMOVAL ACTION

PARCEL B
LOCATION MAP, DRAWING LIST

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
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CODE IDENT. NO.

PROJECT LOCATION
SAN FRANCISCO, CA

CONSTR. CONTR. NO.

SPECIFICATION

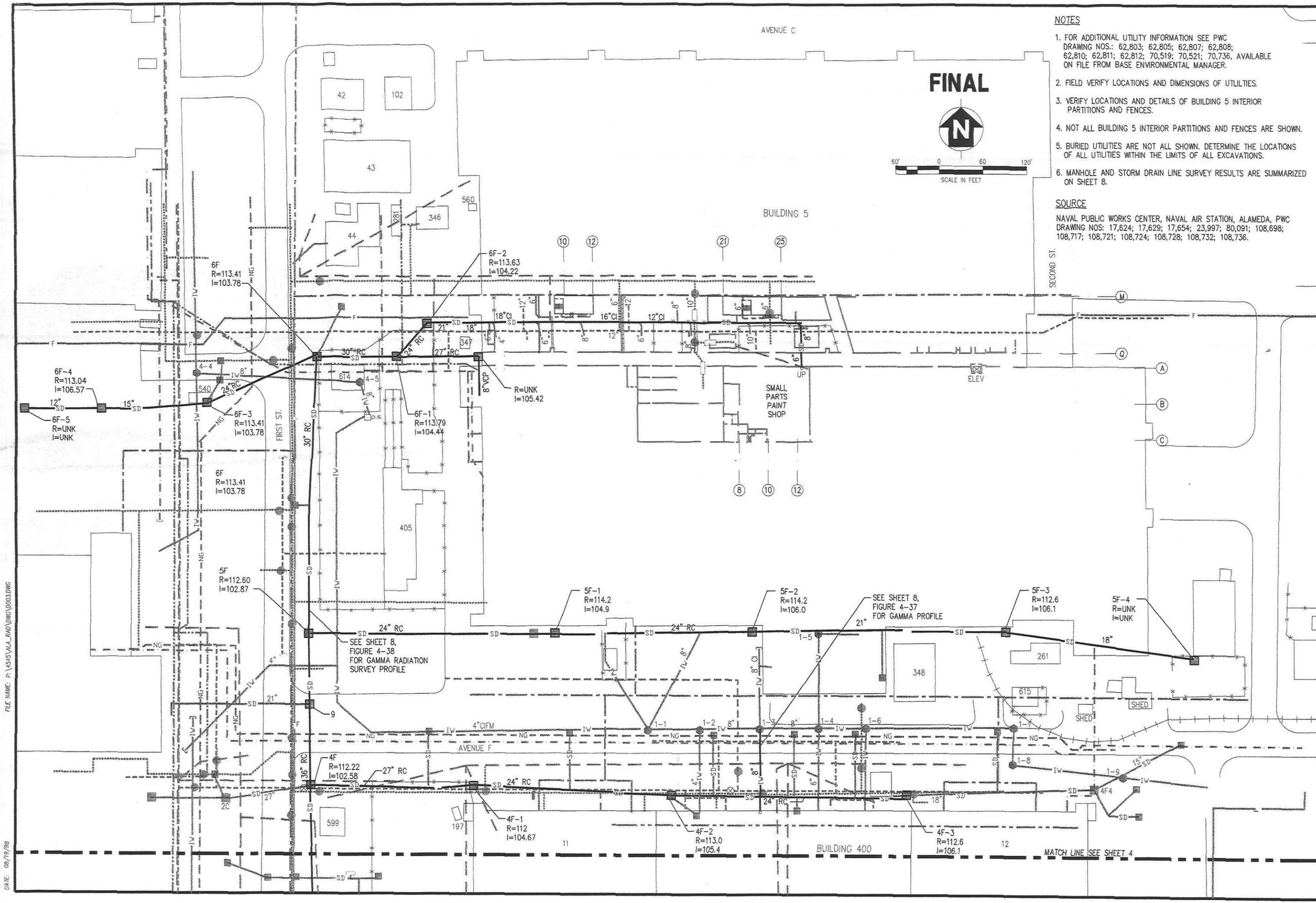
NAVFAC DWG. NO.

DWG. NO.
MK-4545-0147-D-002-D

SHEET 2 OF 8

FILE NAME: P:\4545\ALA_RAD\DWG\0147D002.DWG

DATE: 06/19/98



NOTES

1. FOR ADDITIONAL UTILITY INFORMATION SEE PWC DRAWING NOS.: 62,803; 62,805; 62,807; 62,808; 62,810; 62,811; 62,812; 70,519; 70,521; 70,736, AVAILABLE ON FILE FROM BASE ENVIRONMENTAL MANAGER.
2. FIELD VERIFY LOCATIONS AND DIMENSIONS OF UTILITIES.
3. VERIFY LOCATIONS AND DETAILS OF BUILDING 5 INTERIOR PARTITIONS AND FENCES.
4. NOT ALL BUILDING 5 INTERIOR PARTITIONS AND FENCES ARE SHOWN.
5. BURIED UTILITIES ARE NOT ALL SHOWN. DETERMINE THE LOCATIONS OF ALL UTILITIES WITHIN THE LIMITS OF ALL EXCAVATIONS.
6. MANHOLE AND STORM DRAIN LINE SURVEY RESULTS ARE SUMMARIZED ON SHEET 8.

SOURCE

NAVAL PUBLIC WORKS CENTER, NAVAL AIR STATION, ALAMEDA, PWC DRAWING NOS: 17,624; 17,629; 17,654; 23,997; 80,091; 108,698; 108,717; 108,721; 108,724; 108,728; 108,732; 108,736.

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

REVISIONS

TETRA TECH EM INC.
MORRISON KNUDSEN CORPORATION

DSGN. AJM	CHK. RFC	DRN. AMA	SATISFACTORY TO	DATE
SUBMITTED BY MORRISON KNUDSEN CORP.		DATE AUG 98	APPROVED	DATE
D.M.		F.P.	EFD FOR COMMANDER NAVFAC	
BR.HD.		DIR.		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND

ALAMEDA POINT
RADIOLOGICAL REMOVAL ACTION

PARTIAL UTILITY PLAN - NORTH

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

CODE IDENT. NO.

PROJECT LOCATION
ALAMEDA, CALIFORNIA

CONSTR. CONTR. NO.

SPECIFICATION

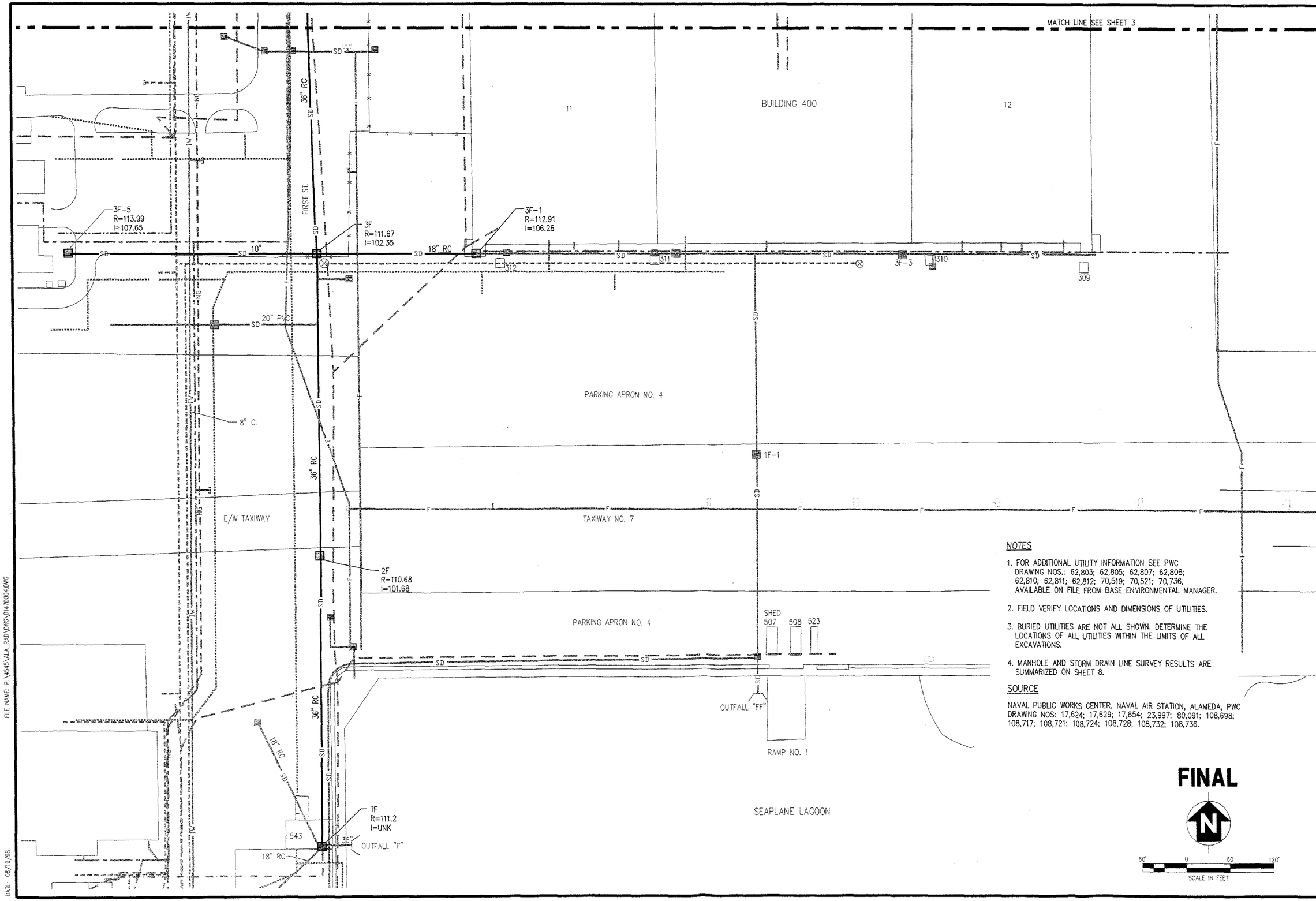
NAVFAC DWG. NO.

DWG. NO.
MK-4545-0147-D-003-D

SHEET 3 OF 8

FILE NAME: P:\4545\ALA_RAD\DWG\D003.DWG

DATE: 08/19/98



NOTES

1. FOR ADDITIONAL UTILITY INFORMATION SEE PWC DRAWING NOS.: 62,803; 62,805; 62,807; 62,808; 62,810; 62,811; 62,812; 70,519; 70,521; 70,736, AVAILABLE ON FILE FROM BASE ENVIRONMENTAL MANAGER.
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4. MANHOLE AND STORM DRAIN LINE SURVEY RESULTS ARE SUMMARIZED ON SHEET 8.

SOURCE

NAVAL PUBLIC WORKS CENTER, NAVAL AIR STATION, ALAMEDA, PWC DRAWING NOS: 17,624; 17,629; 17,654; 23,997; 80,091; 108,698; 108,717; 108,721; 108,724; 108,728; 108,732; 108,736.

FINAL

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

REVISIONS

TETRA TECH EM INC.
MORRISON KNUDSEN CORPORATION

DSGN. ALM	CHK. RFC	DRN. AMA	SATISFACTORY TO	DATE
SUBMITTED BY		DATE	APPROVED	DATE
MORRISON KNUDSEN CORP.		AUG 98		
D.M.		F.P.		
BR.HD.		DR.	EFD FOR COMMANDER NAVFAC	

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND

ALAMEDA POINT
RADIOLOGICAL REMOVAL ACTION

PARTIAL UTILITY PLAN - SOUTH

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
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PROJECT LOCATION
ALAMEDA, CALIFORNIA

CONSTR. CONTR. NO.

SPECIFICATION

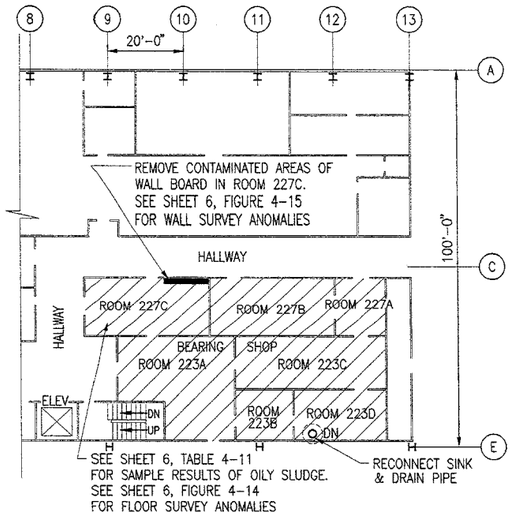
NAVFAC DWG. NO.

DWG. NO.
MK-4545-0147-D-004-D

SHEET 4 OF 5

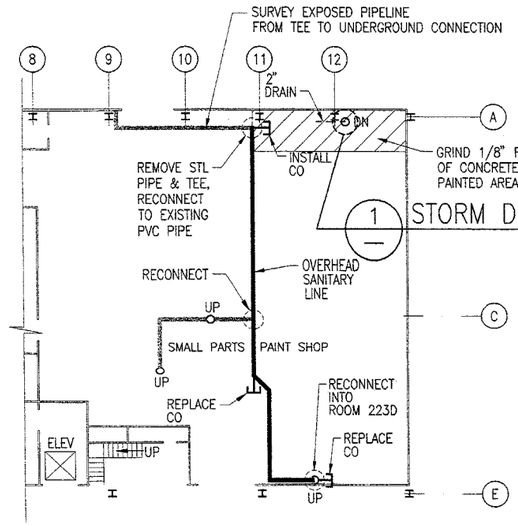
FILE NAME: P:\4545\ALA_RAD\DWG\0147D004.DWG

DATE: 08/19/98



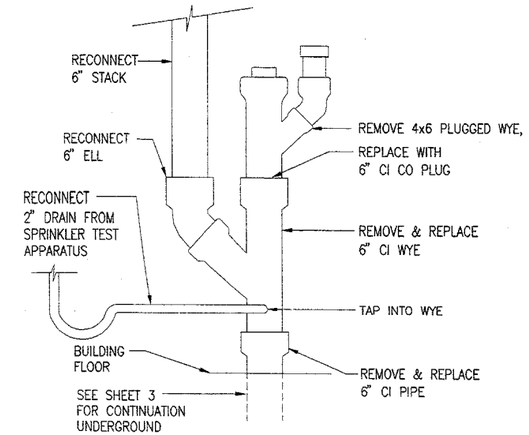
BUILDING 5 – SECOND FLOOR PLAN

SCALE: 1"= 20'-0"



BUILDING 5 – GROUND FLOOR PLAN

SCALE: 1"= 20'-0"



STORM DRAIN INLET DETAIL 1

NTS

LEGEND

- DECONTAMINATE ROOM (SEE NOTE 2)
- EXPOSED DRAIN PIPE TO BE REMOVED
- EXPOSED DRAIN PIPE TO BE REMOVED AND REPLACED
- EXPOSED DRAIN PIPE TO REMAIN
- CLEAN OUT
- BUILDING WALL
- BUILDING COLUMN

NOTES

1. RECONNECT TO REMAINING PIPES AND REPLACE CLEANOUTS (NOT SHOWN).
2. PIPES IN BUILDING 400, ROOMS 112 AND 113 ARE ABOVE SUSPENDED CEILING.
3. DECONTAMINATE ROOMS AS FOLLOWS
   BUILDING 5:
   REMOVE SLUDGE-LIKE MATERIAL ON FLOOR OF ROOM 227C.

   REMOVE CONTAMINATED AREAS OF WALL COVERING/ SHEETING FROM THE NORTH INTERIOR WALL IN ROOM 227C.

   REMOVE ALL FLOOR COVERING AND MASTIC FROM ROOMS 223A, B, C, D AND 227A AND B.

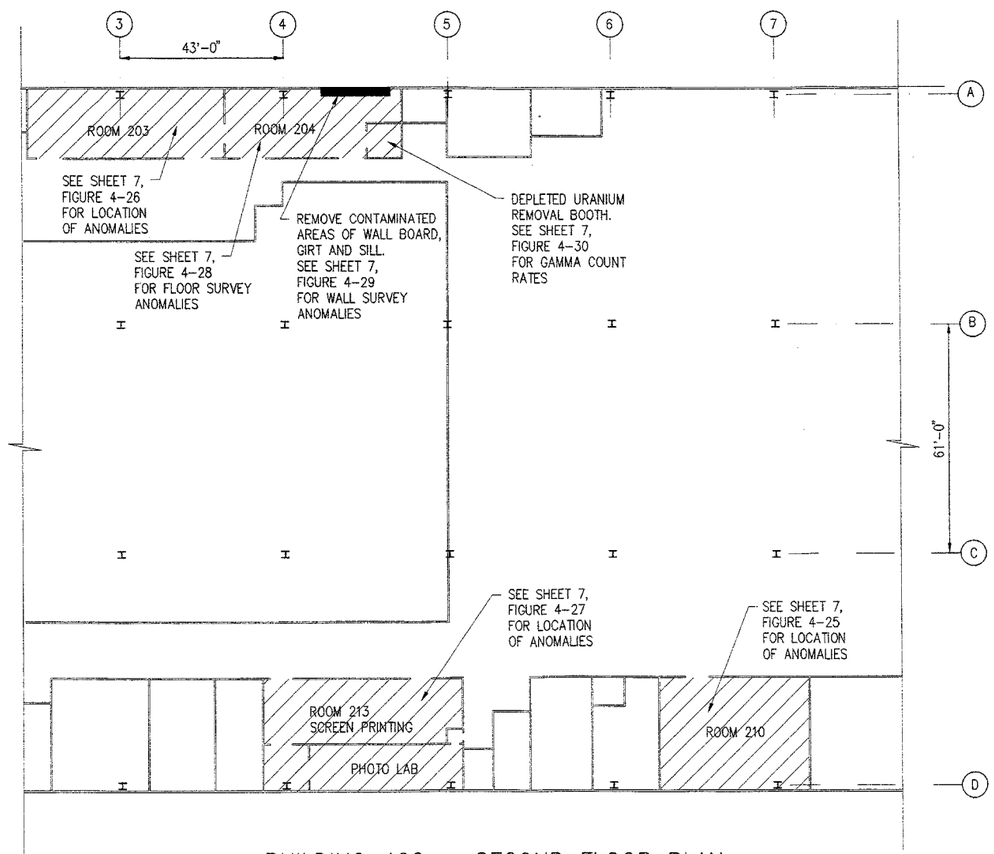
   GRIND CONCRETE IN PAINTED FLOOR AREA OF SMALL PARTS PAINT SHOP.

   BUILDING 400:
   REMOVE CONTAMINATED AREAS OF WALL COVERING FROM THE NORTH INTERIOR WALL OF ROOM 204.

   REMOVE SURFACE CONCRETE FROM THE FLOOR OF THE DEPLETED URANIUM REMOVAL BOOTH IN ROOM 204.

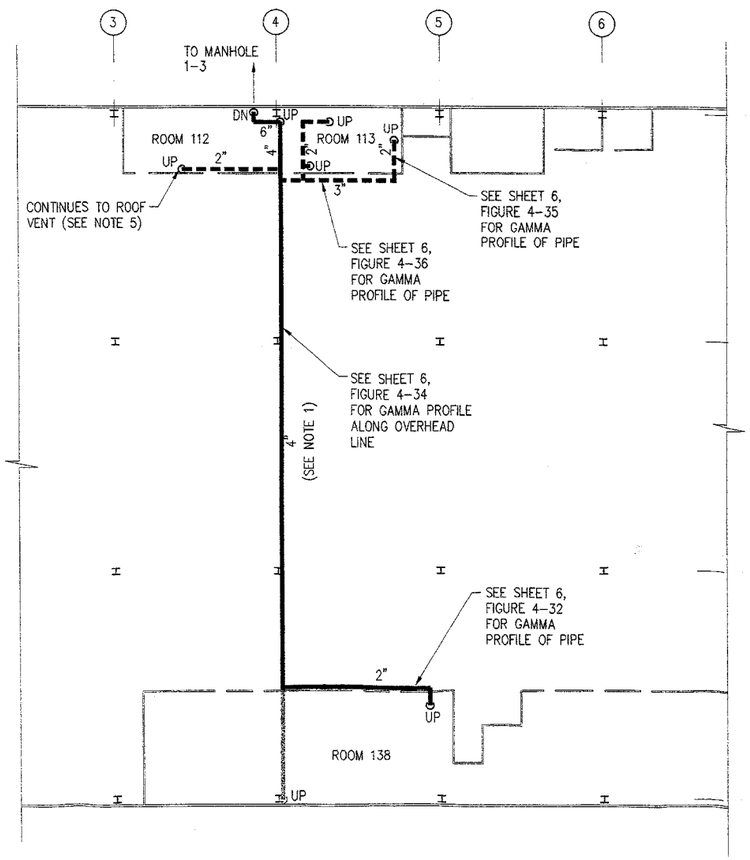
   REMOVE RADIUM-226 CONTAMINATED FLOOR COVERING FROM ROOM 210.

   REMOVE ALL FLOOR COVERING FROM ROOMS 203, 210 AND 213 (FLOOR OF 213 IS PARTIALLY COVERED). CONTAINERIZE WASTE FROM ANOMALY AREAS FOR SEPARATE DISPOSAL.
4. SOME FLOOR COVERING MAY BE ASBESTOS CONTAINING MATERIAL (ACM).
5. REMOVE ALL STEEL PIPE BELOW COPPER TEE LOCATED APPROXIMATELY 10' ABOVE 2ND FLOOR SURFACE. INSTALL EXPANSION PLUG IN TEE. INSTALL STEEL VERTICAL PIPE RISER CLAMP TO REST ON 3RD FLOOR SURFACE.
6. ACCESS AND WALL OPENINGS ARE NOT SHOWN FOR ROOMS THAT DO NOT REQUIRE REMOVAL ACTION.
7. SEE SHEET 6, TABLE 4-17 FOR SUMMARY OF BUILDING 400 DRAIN LINE ANOMALIES.
8. SEE SHEET 7, TABLES 4-15 AND 4-16 FOR ALPHA ANOMALIES IN BUILDING 400.



BUILDING 400 – SECOND FLOOR PLAN

SCALE: 1"= 20'-0"



BUILDING 400 – GROUND FLOOR PLAN

SCALE: 1"= 20'-0"

FINAL

N

20' 0 20 40'

SCALE IN FEET

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

REVISIONS

TETRA TECH EM INC.
MORRISON KNUDSEN CORPORATION

DSGN. AJM	CHK. RFC	DRN. AMA	DATE
SUBMITTED BY		SATISFACTORY TO	DATE
MORRISON KNUDSEN CORP.		APPROVED	DATE
D.M.	F.P.	AUG 98	
BR.HD.	DIR.	EFD FOR COMMANDER NAVFAC	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ALAMEDA POINT
RADIOLOGICAL REMOVAL ACTION

BUILDING 5 AND BUILDING 400 DETAILS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
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CODE IDENT. NO.

PROJECT LOCATION
ALAMEDA, CA

CONSTR. CONTR. NO.

SPECIFICATION

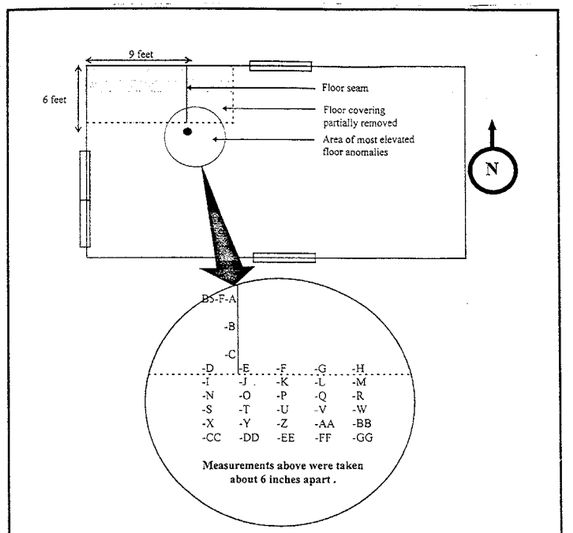
NAVFAC DWG. NO.

DWG. NO.
MK-4545-0147-D-005-D

SHEET 5 OF 8

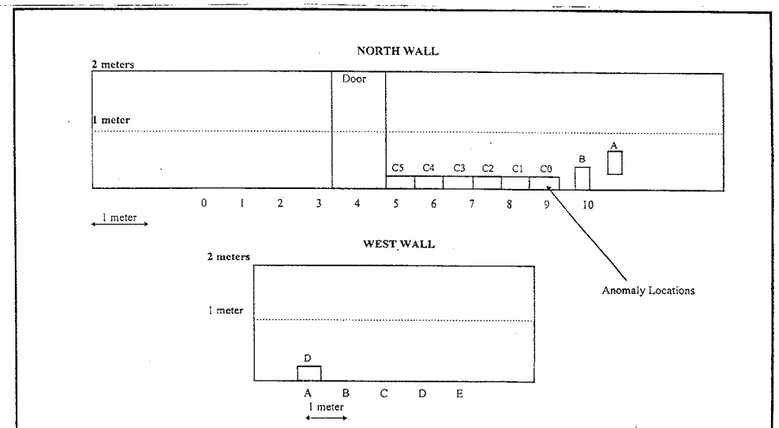
FILE NAME: P:\4545\ALA. RAD\DWG\014700005.DWG

DATE: 08/19/98



Note: Drawing Not To Scale

NAS ALAMEDA, CALIFORNIA
FIGURE 4-14
FLOOR SURVEY ANOMALIES
ROOM 227C, BUILDING 5
PRC Environmental Management, Inc.



Note: Drawing Not To Scale

NAS ALAMEDA, CALIFORNIA
FIGURE 4-15
WALL SURVEY ANOMALIES
ROOM 227C, BUILDING 5
PRC Environmental Management, Inc.

TABLE 4-9
BETA ACTIVITIES FOR FLOOR ANOMALIES IDENTIFIED IN BUILDING 5 BEARING SHOP

Location	Activity (dpm/100cm²)	Location	Activity (dpm/100cm²)	Location	Activity (dpm/100cm²)
B5-F-A	490±370	B5-F-L	1,500±500	B5-F-W	1,500±510
B5-F-B	<470	B5-F-M	1,800±540	B5-F-X	1,200±470
B5-F-C	<220	B5-F-N	1,100±460	B5-F-Y	1,600±510
B5-F-D	<100	B5-F-O	3,400±700	B5-F-Z	1,700±530
B5-F-E	490±370	B5-F-P	2,100±580	B5-F-AA	1,400±500
B5-F-F	<440	B5-F-Q	1,500±500	B5-F-BB	1,800±540
B5-F-G	<400	B5-F-R	1,200±470	B5-F-CC	1,300±480
B5-F-H	<230	B5-F-S	1,500±500	B5-F-DD	1,000±440
B5-F-I	1,700±530	B5-F-T	2,100±570	B5-F-EE	1,300±480
B5-F-J	1,600±520	B5-F-U	1,700±520	B5-F-FF	1,900±550
B5-F-K	1,200±470	B5-F-V	1,800±540	B5-F-GG	1,400±490

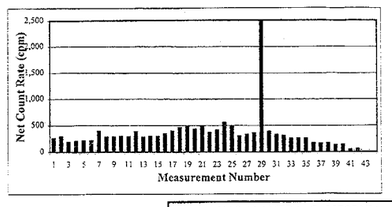
Notes: dpm/100cm² - disintegrations per minute per 100 square centimeters

TABLE 4-10
BETA ACTIVITIES FOR WALL ANOMALIES IDENTIFIED IN BUILDING 5 BEARING SHOP

Anomaly Location	Beta Activity (dpm/100cm²) Gas Proportional Detector [a]	GM Detector [b]
B5-W-A	2,012 ± 80	2,169 ± 414
B5-W-B[c,d]	4,752 ± 116	9,939 ± 1,559
B5-W-C0	606 ± 52	1,795 ± 386
B5-W-C1	373 ± 46	330 ± 247
B5-W-C2	359 ± 45	n/a
B5-W-C3	965 ± 60	1,000 ± 318
B5-W-C4	1,010 ± 61	1,125 ± 329
B5-W-C5	423 ± 47	377 ± 253
B5-W-C6	263 ± 42	n/a
B5-W-D	293 ± 43	n/a
Bkgd.	n/a	n/a

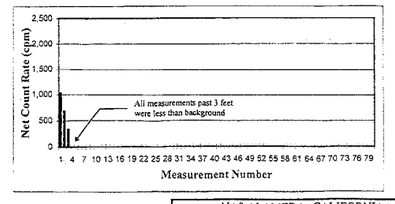
Notes:

GM - Geiger-Mueller
dpm/100cm² - disintegrations per minute per 100 square centimeters
a - L_D = 58 dpm/100cm², assumes no shielding
b - L_D = 383 dpm/100cm², assumes no shielding
c - Above the 3,000 dpm/100cm² maximum concentration release limits for some beta-emitting isotopes (USAEC 1974)
d - A one-minute gamma count using the 2x2 NaI gamma scintillation detector at this location had a net gamma count rate of 2,145 cpm above background. The exposure rate on contact with the anomalous location was 11 to 12 μR/hr.
n/a - Not able to pin-point a small area of elevated activity; not applicable
Bkgd. - Background count rate (cpm)



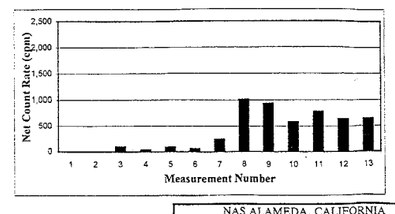
Background = 1,236 cpm

NAS ALAMEDA, CALIFORNIA
FIGURE 4-32
GAMMA PROFILE
DRAIN LINE FROM ROOM 213 TO THE FIRST FLOOR MAIN OVERHEAD DRAIN LINE, BUILDING 400
PRC Environmental Management, Inc.



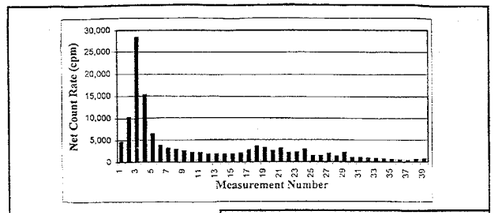
Background = 3,561 cpm

NAS ALAMEDA, CALIFORNIA
FIGURE 4-34
GAMMA PROFILE
FIRST FLOOR MAIN OVERHEAD DRAIN LINE FROM ROOM 112 TO ROOM 138, BUILDING 400
PRC Environmental Management, Inc.



Background = 1,305 cpm

NAS ALAMEDA, CALIFORNIA
FIGURE 4-35
GAMMA PROFILE
FIRST FLOOR OVERHEAD DRAIN LINE IN ROOM 113 SOUTH WALL TO NORTH WALL, BUILDING 400
PRC Environmental Management, Inc.



Background = 3,626 cpm

NAS ALAMEDA, CALIFORNIA
FIGURE 4-36
GAMMA PROFILE
FIRST FLOOR OVERHEAD DRAIN LINE FROM ROOM 204 TO ROOM 112, BUILDING 400
PRC Environmental Management, Inc.

TABLE 4-17
SUMMARY OF BUILDING 400 DRAIN LINE ANOMALIES

Building 400 Drain Line Survey Location	Measurement Number	Estimated Radium-226 Activity (nCi)
Drain line from Room 213 to the first floor main overhead drain line (see Figure 4-32)	29	29
South wall downcomer from Room 213 to Room 138 (first floor) (see Figure 4-33)	22	15 [a]
First floor main overhead drain line from Room 112 to Room 138 (see Figure 4-34)	1	11[a]
First floor overhead drain line in Room 113 from the south wall to the north wall (see Figure 4-35)	8	11[a]
First floor overhead drain line from Room 204 to Room 112 (see Figure 4-36)	3	313 [b]
Industrial waste sewer line from manhole R112 (north side of Building 400 in the middle of Avenue F) towards Building 400 (see Figure 4-37)	43	8,540 [c]

Notes:
a - gross counts less than twice background
b - maximum activity in the line (75 percent of all measurements were greater than 5 times the L_D)
c - maximum activity in the line (all measurements greater than 8 times the L_D)

TABLE 4-11
SAMPLE RESULTS FOR OILY SLUDGE COLLECTED FROM ROOM 227C OF BUILDING 5 BEARING SHOP

Analysis	Isotope	Concentration (pCi/g)	L_D
Gamma Spectroscopy	Potassium-40	270 ± 17	4
	Lead-210	U	---
	Lead-214	2.2 ± 0.8	0.8
	Bismuth-214	2.2 ± 0.7	0.7
Gross alpha	Gross alpha	28 ± 46	150
Gross beta	Gross beta	1,300 ± 90	97
Total Strontium	Strontium-89/90	0.0 ± 0.4	2

Notes: pCi/g - picoCuries per gram
L_D - lower limit of detection
U - not detected

FINAL

NOTES

1. TABLES AND FIGURES TAKEN FROM RADIATION SURVEY REPORT, NAVAL AIR STATION, ALAMEDA, CALIFORNIA, FINAL, PRC ENVIRONMENTAL SERVICES, INC., JANUARY, 1998.

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED
	REVISIONS			

TETRA TECH EM INC.
MORRISON KNUDSEN CORPORATION

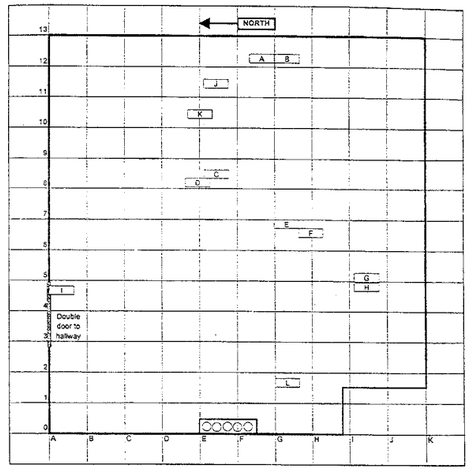
DSGN. ALM | CHK. RFC | DRN. AMA
SUBMITTED BY: MORRISON KNUDSEN CORP. | DATE: AUG. 98
SATISFACTORY TO: | DATE:
APPROVED: | DATE:
D.M. | F.P.
BR.HD. | DIR.
EFD FOR COMMANDER NAVFAC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ALAMEDA POINT
RADIOLOGICAL REMOVAL ACTION
RADIATION SURVEY DATA (1 OF 3)
BUILDING 5 FLOOR & WALL SURFACES
BUILDING 400 DRAIN LINES

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

CODE IDENT. NO.
PROJECT LOCATION: ALAMEDA, CA
CONSTR. CONTR. NO.
SPECIFICATION
NAVFAC DWG. NO.
DWG. NO. MK-4545-0147-D-006-D
SHEET 6 OF 8

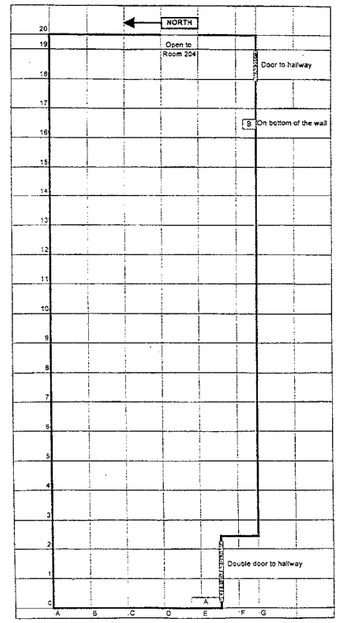
FILE NAME: P:\4545\ALA_RM\DWG\0147D006.DWG
DATE: 08/19/98



A Anomaly Location

Note: Drawing Not To Scale

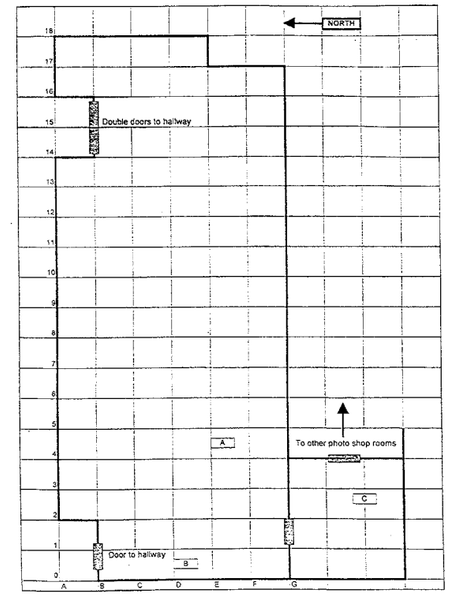
NAS ALAMEDA, CALIFORNIA
FIGURE 4-25
ROOM 210 SURVEY GRID
BUILDING 400
PRC Environmental Management, Inc.



A Anomaly Location

Note: Drawing Not To Scale

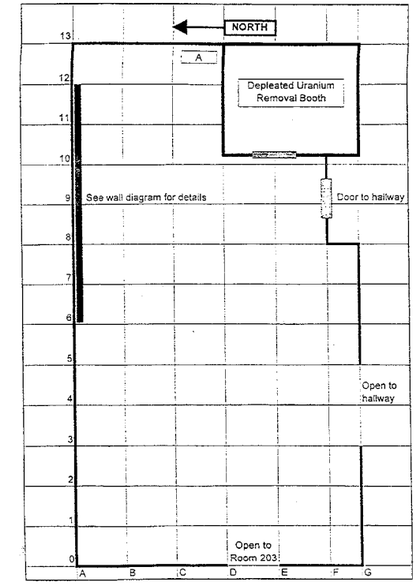
NAS ALAMEDA, CALIFORNIA
FIGURE 4-26
ROOM 203 SURVEY GRID
BUILDING 400
PRC Environmental Management, Inc.



A Anomaly Location

Note: Drawing Not To Scale

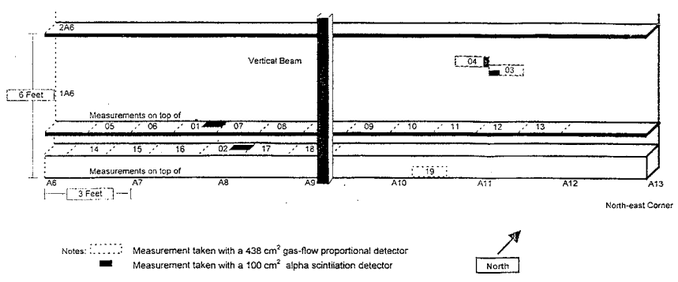
NAS ALAMEDA, CALIFORNIA
FIGURE 4-27
ROOM 213 SURVEY GRID
BUILDING 400
PRC Environmental Management, Inc.



A Anomaly Location

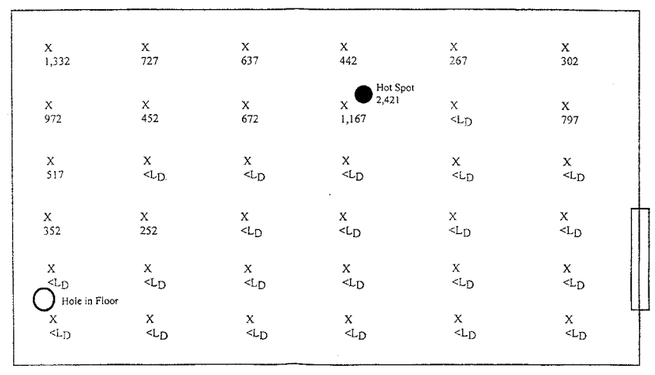
Note: Drawing Not To Scale

NAS ALAMEDA, CALIFORNIA
FIGURE 4-28
ROOM 204 SURVEY GRID
BUILDING 400
PRC Environmental Management, Inc.



Note: Drawing Not To Scale

NAS ALAMEDA, CALIFORNIA
FIGURE 4-29
ALPHA RADIATION ANOMALIES
NORTH WALL, ROOM 204, BLDG. 400
PRC Environmental Management, Inc.



L_D = 250 net cpm
X - Measurement Location (count rates in cpm)

Note: Drawing Not To Scale

NAS ALAMEDA, CALIFORNIA
FIGURE 4-30
NET GAMMA COUNT RATES
DU REMOVAL BOOTH, ROOM 204, BLDG. 400
PRC Environmental Management, Inc.

TABLE 4-15
BUILDING 400 ALPHA ANOMALIES THAT EXCEED THE RELEASE LIMIT FOR FIXED ALPHA SURFACE ACTIVITY

Room Number	Location / ID Number [a]	Total Alpha Activity [b] (dpm/100cm²)
210	Floor / D	467 ±74
210	Floor / G	370 ±66
204	Lower beam / 01	1,006 ±108
204	Concrete ledge / 02	669 ±89
204	North wall / 03	1,613 ±137
204	North wall / 04	1,607 ±137

Note:

dpm/100cm² - disintegrations per minute per 100 square centimeters
a - identified on Figures 4-25 and 4-29
b - Release limit for fixed alpha surface activity is 300 dpm/100 cm²

TABLE 4-16
SUMMARY OF REMOVABLE ALPHA ACTIVITY DATA FOR SWIPE SAMPLES TAKEN IN BUILDING 400

Room Number	Swipe Sample Location and Identification Number	Alpha Activity (dpm/100cm²)
210	Near floor grid node G12 at Anomalies A and B, # 400-R210-26	40 ±15
204	Lower ledge on wall at grid node A8, # 400-R204-31	29 ±13
210	Equipment #3, inside the metal cubby hole, # 400-R210-K	15 ±8

Note: dpm/100cm² - disintegrations per minute per 100 square centimeters

NOTES

1. TABLES AND FIGURES TAKEN FROM RADIATION SURVEY REPORT, NAVAL AIR STATION, ALAMEDA, CALIFORNIA, FINAL, PRC ENVIRONMENTAL SERVICES, INC., JANUARY, 1998.

FINAL

SYMBOL	DESCRIPTION	PREP-BY	DATE	APPROVED

REVISIONS

TETRA TECH EM INC.
MORRISON KNUDSEN CORPORATION

DSGN. ALM	CHK. RFC	DRN. AMA	SATISFACTORY TO	DATE
SUBMITTED BY: MORRISON KNUDSEN CORP.		DATE AUG 98	APPROVED	DATE
D.M.	F.P.			
BR.HD.	DIR.		EFD FOR COMMANDER NAVFAC	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ALAMEDA POINT
RADIOLOGICAL REMOVAL ACTION
RADIATION SURVEY DATA (2 OF 3)
BUILDING 400 FLOOR & WALL SURFACES

SIZE D
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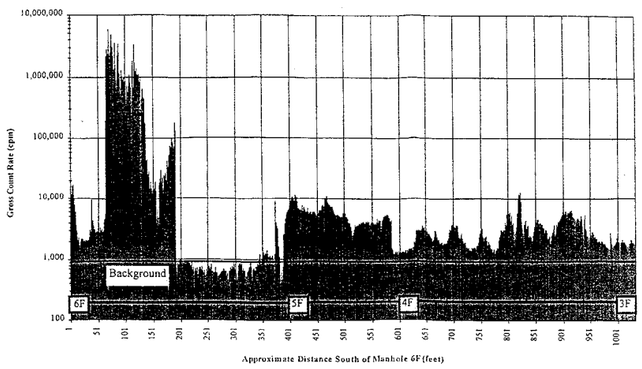
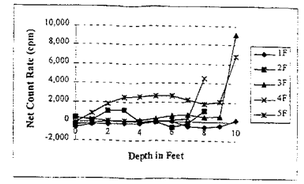
PROJECT LOCATION
ALAMEDA, CA
CONSTR. CONTR. NO.
SPECIFICATION
NAVFAC DWG. NO.
DWG. NO.
MK-4545-0147-D-007-D
SHEET 7 OF 8

FILE NAME: P:\4545\ALA_RAD\DWG\014/D007.DWG
DATE: 08/19/98

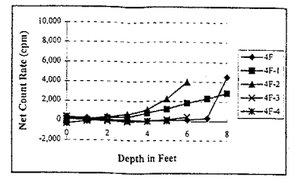


6F —— Manhole

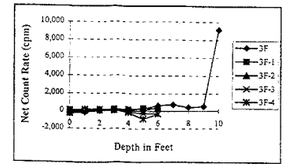
NAS ALAMEDA, CALIFORNIA
FIGURE 4-38
STORM SEWER LINE F GAMMA
RADIATION SURVEY PROFILE
PRC Environmental Management, Inc.



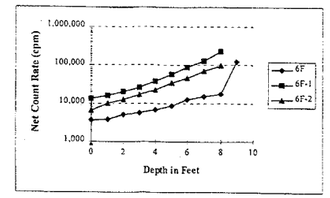
NAS ALAMEDA, CALIFORNIA
FIGURE 4-40
STORM SEWER LINE F
MANHOLE SURVEY RESULTS
PRC Environmental Management, Inc.



NAS ALAMEDA, CALIFORNIA
FIGURE 4-41
STORM SEWER LINE 4F
MANHOLE SURVEY RESULTS
PRC Environmental Management, Inc.



NAS ALAMEDA, CALIFORNIA
FIGURE 4-42
STORM SEWER LINE 3F
MANHOLE SURVEY RESULTS
PRC Environmental Management, Inc.



NAS ALAMEDA, CALIFORNIA
FIGURE 4-43
STORM SEWER LINE 6F
MANHOLE SURVEY RESULTS
PRC Environmental Management, Inc.

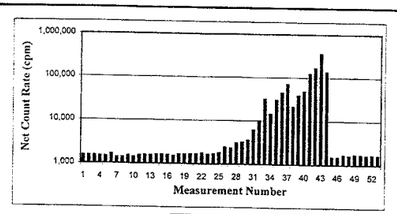
TABLE 4-18
MAXIMUM GROSS GAMMA COUNT RATES AND POINT-SOURCE EQUIVALENT ACTIVITIES FOR RADIUM-226 IN STORM SEWER LINE F

Survey Section Storm Sewer Line F	Measurement Number	Maximum Gross Gamma Count Rates (cpm)	Point-Source Equivalent Activity for Radium-226 (nCi)
Manhole 6F to 5F	69	5,900,000	470,000
Manhole 5F to 4F	22	11,000	150
Manhole 4F to 3F	233	12,000	280
Manhole 3F to 45 feet south of 3F	10	2,200	36

Note: cpm - counts per minute
nCi - nanoCuries

TABLE 4-20
ANOMALOUS STORM SEWER MANHOLES AND MAXIMUM ACTIVITIES

Manhole Number	Maximum Point-Source Equivalent Activity for Radium-226 (nCi)
3F	208
4F	123
4F-1	65
4F-2	105
5F	133
6F	1,624
6F-1	2,720
6F-2	1,346
Industrial Waste Sewer Manhole R112	54



Background = 1,323 cpm

NAS ALAMEDA, CALIFORNIA
FIGURE 4-37
GAMMA PROFILE
INDUSTRIAL WASTE DRAIN LINE
FROM MANHOLE TOWARDS BUILDING 400
PRC Environmental Management, Inc.

FINAL

NOTES
1. TABLES AND FIGURES TAKEN FROM RADIATION SURVEY REPORT, NAVAL AIR STATION, ALAMEDA, CALIFORNIA, FINAL, PRC ENVIRONMENTAL SERVICES, INC., JANUARY, 1998.

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REVISIONS

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D.M.	F.P.		
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DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ALAMEDA POINT
RADIOLOGICAL REMOVAL ACTION

RADIATION SURVEY DATA (3 OF 3)
STORM DRAIN LINE
INDUSTRIAL WASTE DRAIN LINE

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CODE IDENT. NO.

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MK-4545-0147-D-008-D

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