R-037-202.1

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REMOVAL SITE EVALUATION PLANT 7 DISMANTLING REMOVAL ACTION 19

01/27/93

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RSE

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Removal Site Evaluation
Plant 7 Dismantling
Removal Action 19

Revision 0

Fernald Environmental Management Project
Fernald, Ohio
January, 1993

U. S. Department of Energy
Fernald Field Office

01

Removal Site Evaluation
Plant 7 Dismantling

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LIST OF ACRONYMS AND ABBREVIATIONS

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ACM	asbestos containing material
AHERA	Asbestos Hazard Emergency Response Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DEI	Diagnostic Engineering, Inc.
dpm	disintegrations per minute
DOE	(United States) Department of Energy
EE/CA	Engineering Evaluation/Cost Analysis
FEMP	Fernald Environmental Management Project
FERMCO	Fluor Daniel Environmental Restoration Management Corporation
NCP	National (Oil and Hazardous Substances Pollution) Contingency Plan
PPE	personal protective equipment
RAWP	Removal Action Work Plan
RSE	Removal Site Evaluation
US EPA	United States Environmental Protection Agency
WEMCO	Westinghouse Environmental Management Company of Ohio

SECTION 1

INTRODUCTION

Plant 7 was constructed in 1954 and is located in the former Production Area at the Fernald Environmental Management Project (FEMP). This building housed the process to reduce uranium hexafluoride (UF_6) to uranium tetrafluoride (UF_4, also referred to as green salt). In addition to these compounds, NH_3, H_2, N_2, HF (anhydrous and aqueous), and freon were used in the facility. Plant 7 was operational from 1954 to 1956, after which the Pilot Plant assumed this operation. Machining of thorium metal was also performed at Plant 7 but was not a predominate process. Currently, the building is used for storage of equipment, empty containers, and containerized green salt generated at the FEMP.

The building dimensions are approximately 80' x 110' x 110' (seven stories). Asbestos containing material (ACM) was heavily used in the construction of Plant 7. The outside wall consists of a single layer of ACM siding secured with steel pins and lead caps. The roof is constructed with a double layer of ACM panels and the interior walls are composed of flat ACM. The floor on the first level is a concrete slab while the remaining floors are 5/16-inch thick steel plates. The second and fifth floors also contain small concrete slabs in addition to the steel plates.

This Removal Site Evaluation (RSE) has been completed by the Department of Energy (DOE) under Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and is consistent with Section 300.410 of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP, 40 CFR 300). This RSE addresses the dismantling of Plant 7 and has been prepared to support the decision as to whether the present conditions warrant a removal action. This action was identified in the Amended Consent Agreement between the DOE and the United States Environmental Protection Agency (US EPA 1991).

SECTION 2

IDENTIFICATION OF SOURCE TERMS

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There are three types of contamination present within Plant 7. Asbestos, radiological contaminants, and histoplasma capsulatum have been identified as primary contaminants within the building. The paragraphs below describe each contaminant as well as the extent of contamination present within Plant 7.

Asbestos

An asbestos survey performed by Diagnostic Engineering, Inc. (DEI 1991) identified the areas containing asbestos in Plant 7. The report, provided as Attachment A, showed that Plant 7 contains significant quantities of both friable and nonfriable asbestos.

Friable asbestos is present in pipe, tank and duct insulation as well as firebrick. Friable asbestos is an inhalation hazard, capable of causing asbestosis, mesothelioma, and bronchial or lung cancer.

Nonfriable asbestos is present in duct insulation, floor tile, gasketry, roofing, siding, and interior walls. The siding, roofing and interior walls consist of a mixture of portland cement, fine silica sand, asbestos fibers and water that was commonly known as transite. In a nonfriable form, the probability of exposure to asbestos fibers is greatly reduced.

The report results assessed the ACM per the Asbestos Hazard Emergency Response Act (AHERA) to be in poor to good condition. Also, the AHERA hazard ranking for ACM was the highest possible (poor, significant damage), representing the most hazardous condition. It was recommended that the ACM be either removed and replaced or repaired.

Radiological

Radiological Survey Reports were prepared in March 1991 and May 1992 for Plant 7. These surveys, presented as Attachments B and C respectively, examined alpha and beta-gamma activities (dpm/100cm^2) but did not identify the specific radionuclides involved. A review of the plant history indicates that thorium metal was machined at one time, although not a predominate process. Sampling was performed at the Plant 7 tank and sump (provided in Attachment D) and revealed that uranium is the primary radiological contaminant. This supports the review of plant history as well as the Engineering Evaluation/Cost Analysis (EE/CA) that is being prepared for Removal Action No. 27, Management of Contaminated Structures (WEMCO 1992), which includes the dismantling of Plant 7. A summary of the radiological survey reports is presented in Table 2-1.

Table 2-1 Summary of Radiological Survey Reports[a]

FLOOR	ALPHA COUNTS (dpm/100cm²)			BETA-GAMMA COUNTS (dpm/100cm²)		
	Low	High	Mean	Low	High	Mean
One	15	1,209	139	29	3,355	472
Two	23	4,776	208	135	11,080	775
Three	133	3,589	589	198	41,611	2,699
Four	133	7,616	917	130	15,939	3,042
Five	133	33,253	2,300	335	55,620	6,449
Six	133	3,757	892	153	21,246	4,247
Seven	133	10,971	2,332	130	73,296	11,063

[a] Results for floors one and two are from the 1991 Radiological Survey Report and the results for floors three through seven are from the 1992 Radiological Survey Report as floors one and two were not part of the 1992 survey.

Histoplasma Capsulatum

Histoplasma capsulatum is a fungus or mold that is capable of causing the airborne disease histoplasmosis. Histoplasmosis is a disease that can be severe, causing an illness similar to influenza or, with more serious symptoms, similar to tuberculosis. This fungus is usually found in areas where bird droppings have accumulated. Plant 7 currently has areas where bird droppings have accumulated and presents a risk to workers. The areas consist of primarily the sixth and seventh floors as well as the Plant 7 penthouse.

EVALUATION OF THE MAGNITUDE OF THE POTENTIAL THREAT

Presented below are the magnitudes of potential threat for each contaminant identified in Section 2 of this RSE. The potential threat will be examined to assess the need for a removal action in Section 4.

Asbestos

The asbestos survey report completed for Plant 7 (DEI 1991) identifies a large amount of friable asbestos. This material poses a significant airborne inhalation threat to site personnel involved in activities within the building, such as inspecting the containerized material stored within Plant 7. The AHERA hazard ranking for ACM was the highest possible (poor, significant damage), representing the most hazardous condition.

Radiological

The Plant 7 primary radiological contaminant is uranium, which is widespread throughout the building. The majority of the contamination is below the allowable surface residual limits (per DOE Order 5400.5) for uranium materials. These limits are provided in Table 3-1. Contamination above these allowable limits shall be removed prior to releasing the material for disposal.

Uranium is an alpha emitter and uranium particles that are inhaled or ingested can pose a significant threat. The alpha radiation exposure to site personnel is not expected to be significant while wearing proper personal protective equipment (PPE). Areas identified in Plant 7 that pose a potential threat will be isolated utilizing applicable containment procedures.

Histoplasma Capsulatum

Several areas have been identified in Plant 7 that contain significant accumulations of bird droppings. It is also known that the droppings have been present for many years, hence the presence of histoplasma capsulatum is certain. The presence of this material poses a significant threat to site personnel without PPE involved in activities within Plant 7.

Table 3-1 Surface Contamination Guidelines

Radionuclide[b]	Allowable Total Surface Residual Contamination (dpm/100 cm^2)[a]		
	Average[c,d]	Maximum[d,e]	Removable[d,f]
U-Natural, U^{235}, U^{238}, and associated decay products	5,000α	15,000α	1,000α

[a] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[b] Where surface contamination by both alpha- and beta-gamma emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.

[c] Measurements of average contamination should not be averaged over an area of more than 1 m^2. For objects of less surface area, the average should be derived for each object.

[d] The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at a depth of 1 cm.

[e] The maximum contamination level applies to an area of not more than 100 cm^2.

[f] The amount of removable material per 100 cm^2 of surface area should be determined by wiping an area of that size with dry filter of soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wiping with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm^2 is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. It is not necessary to use wiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination.

SECTION 4

ASSESSMENT OF THE NEED FOR A REMOVAL ACTION

Pursuant to 40 CFR 300.410, the DOE has evaluated the appropriateness of a removal action. Of the several factors for determining the appropriateness of a removal action (presented in 40 CFR 300.415(b)(2)), the following applies to this action:

1) 40 CFR 300.415(b)(2)(i) - Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

2) 40 CFR 300.415(b)(2)(viii) - Other situations or factors that may pose threats to public health or welfare or the environment.

These factors are considered appropriate because there exists the potential for site personnel to be exposed to asbestos and/or histoplasma capsulatum. The presence of these contaminants already warrants the use of anti-contamination clothing and respirators for any activities conducted within Plant 7.

SECTION 5

APPROPRIATENESS OF A RESPONSE

It has been determined that a non-time critical removal action is required to address the dismantling of Plant 7. There is no imminent or substantial endangerment which would warrant a time critical removal action (a removal action requiring initiation within six months). This determination was based upon the fact that the contamination present poses an airborne threat to personnel within the building. Non-time critical removal actions have a time period greater than six months before response actions begin. As required by the NCP, an EE/CA is being prepared that includes this removal action (WEMCO 1992). An Action Memorandum will be issued and included in the Administrative Record to document the decision for a removal action. The dismantling of Plant 7 is also consistent with the remediation goals of the FEMP.

A Removal Action Work Plan (RAWP) will be prepared for the implementation of this action as required by Section IX.F.2 of the Amended Consent Agreement between the DOE and the US EPA (US EPA 1991). The schedule for developing the RAWP has been submitted to the US EPA as a Phase III removal action under the Amended Consent Agreement. The RAWP will be submitted to the US EPA for approval prior to initiating the removal action.

REFERENCES

(DEI 1991) Diagnostic Engineering, Inc., 1991. *Facility Owner's - Asbestos Survey Report, WEMCO - FEMP Building # 7, Plant # 7.*

(US EPA 1991) United States Environmental Protection Agency - Region V, U. S. Department of Energy, 1991. *Consent Agreement as Amended Under CERCLA Sections 120 and 106(a).* Administrative Docket Number : V-W-90-C-057.

(WEMCO 1992) Westinghouse Environmental Management Company of Ohio, August 1992. *Engineering Evaluation/Cost Analysis for Removal Action No. 27, Management of Contaminated Structures.* Draft.

ATTACHMENT A

ASBESTOS SURVEY REPORT

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REPORT CONCLUSIONS

GENERAL:

At the request of the Westinghouse Environmental Management Company (WEMCO): Building #7, Plant # 7 a 41,572 S.F. facility, located at the Fernald Environmental Management Project (FEMP) in Fernald, Ohio was surveyed by Diagnostic Engineering Inc. (DEI) from April 24, thur April 30, 1991, for asbestos-containing materials (ACM). The survey included visual observation for ACM, sampling of suspect materials, and laboratory analysis through WEMCO facilities. Effort was made to survey all accessible suspect materials. Additional suspect but unsampled materials could be located between walls, in voids, in electrical wiring or in other inaccessible areas; caution should be exercised regarding these areas. Quantities were assessed for all suspect materials by means of mechanical measuring devices and visual observation. Boxes of replacement insulation are located throughtout the facility. These boxes are labeled asbestos free and were not sampled.

The ACM can be defined into the following categories:

FRIABLE - Means any asbestos-containing material that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

NONFRIABLE - Means any asbestos-containing material that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

BULK SAMPLE RESULTS:

Materials discovered to contain asbestos fibers in percentages of greater than one percent (>1%) fall into the following categories:

Friable Materials	Sample Location
Pipe run insulation	Througnout facility
Pipe fitting insulation	Throughout facility
Tank insulation	6th floor Dissociation Room
Duct insulation	4th floor Process area
Firebrick	Room 7-19 and 6th floor

Nonfriable Materials	Sample Location
Duct insulation	5th floor Process area
Transite sheet material	All Interior walls
Resilient floor tile (9"x9")	2nd floor Production office
Floor tile mastic	2nd floor Production office
Gasketry	Storage room 719
Transite sheet material	Exterior Walls

Suspect materials sampled which do not contain detectable levels of asbestos fibers include:

Suspect Materials	Material Location
HVAC Flexible connector	7th floor, column D-1

ASSUMPTIONS:

Materials sampled which are considered to be contaminated due to the proximity to asbestos-containing material include:

Suspect Materials	Material Location
None observed	

Identified below are other materials which may contain asbestos but which were not sampled as part of the scope of this project or because of inaccessibility, or which could not be representatively sampled. Such materials should be assumed to contain asbestos until they are confirmed to be asbestos-free.

Suspect Materials	Material Location	Reason Excluded
Fire-Rated/Insulated Door Core	Various Locations	Destructive Sampling
Roofing Materials	Roof	Per scope of work
Residual Material	Exterior Gutters	Per scope of work

CONDITION:

All material that has been tested positive for asbestos, or is assumed to be asbestos, is assessed to be in POOR to GOOD condition. A summary of the current condition, potential for disturbance, and quantities of ACM is shown graphically in the following pages.

RECOMMENDED RESPONSE ACTIONS:

The highest assessed hazard rank for ACM in Building # Z is Z (where a rank of Z represents the most hazardous condition). Remove and replace or repair all ACM in categories 4 through Z. After these measures are taken all remaining ACM can be managed in place per the operations and maintenance procedures described in IH&S-IH-03 "Control of Work Involving Asbestos".

WARNING

Under certain conditions, asbestos is a cancer causing material. Its condition, handling and disposal are regulated by federal, state and local agencies. All asbestos abatement work must be performed in accordance with governing agency regulations. If ACM is disturbed or appears to have become damaged, the condition should be reported immediately to the Facility Owner, the AEDO and to Industrial Hygiene.

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SURVEY TABULATION GRAPHICS

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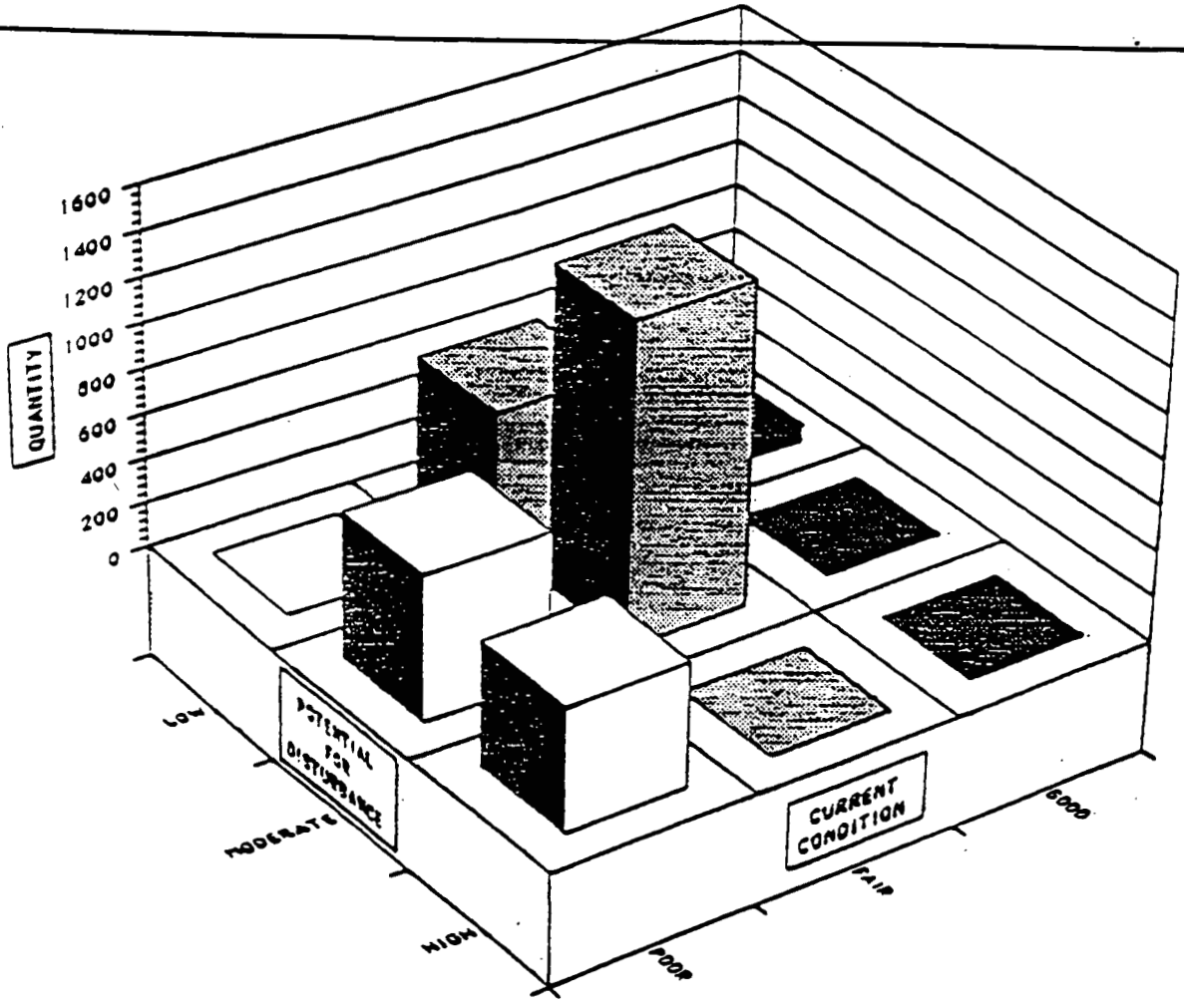
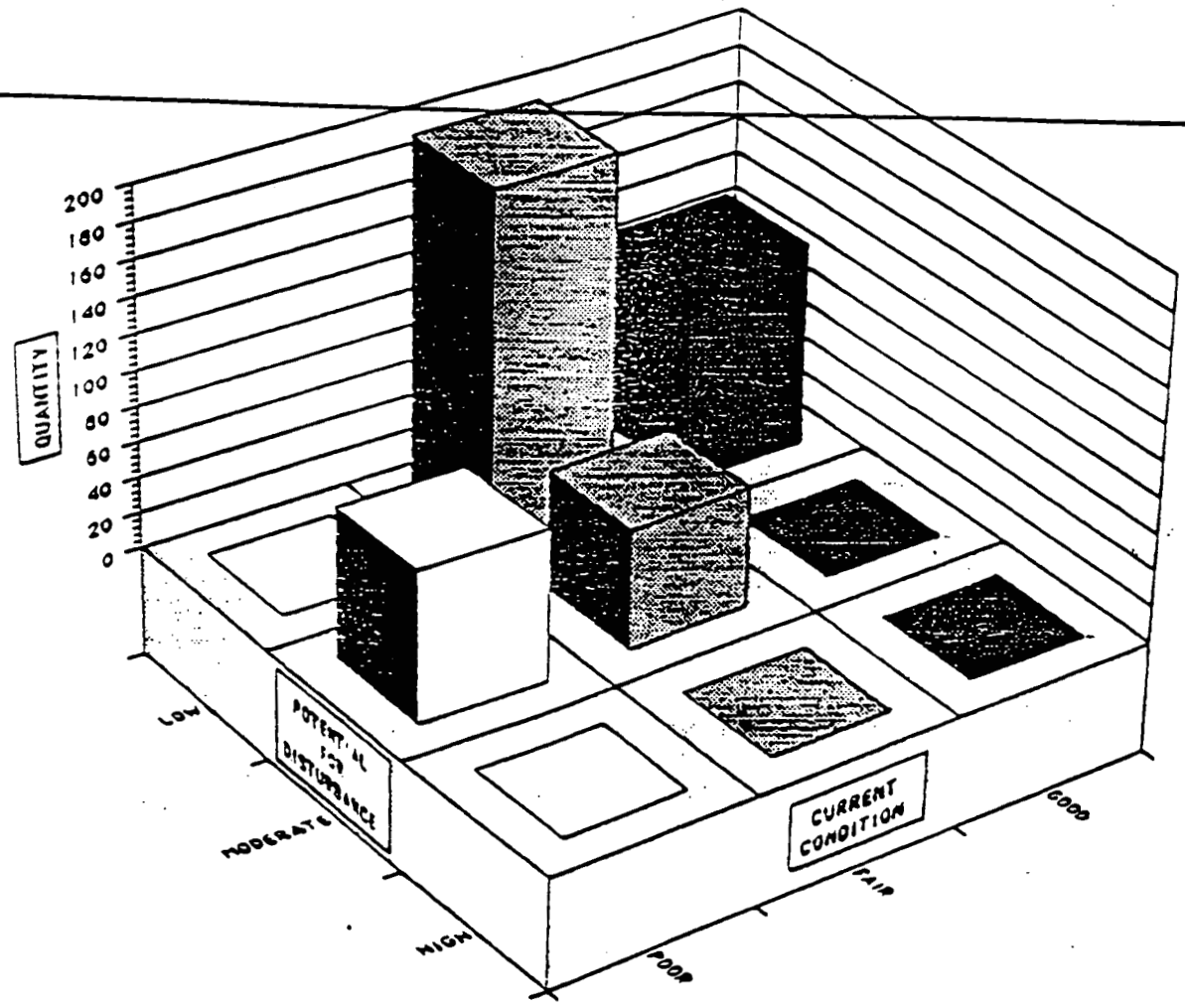


ACM THERMAL SYSTEM INSULATION
PIPING (BY LINEAR FOOTAGE)
NOTE: CONDITION PATTERNS CORRESPOND TO
THOSE SHOWN ON TOP OF 3D COLUMNS

- GOOD
- FAIR
- POOR



ACM THERMAL SYSTEM INSULATION
FITTINGS (EACH)
NOTE: CONDITION PATTERNS CORRESPOND TO
THOSE SHOWN ON TOP OF 3D COLUMN

■ GOOD
▩ FAIR
□ POOR

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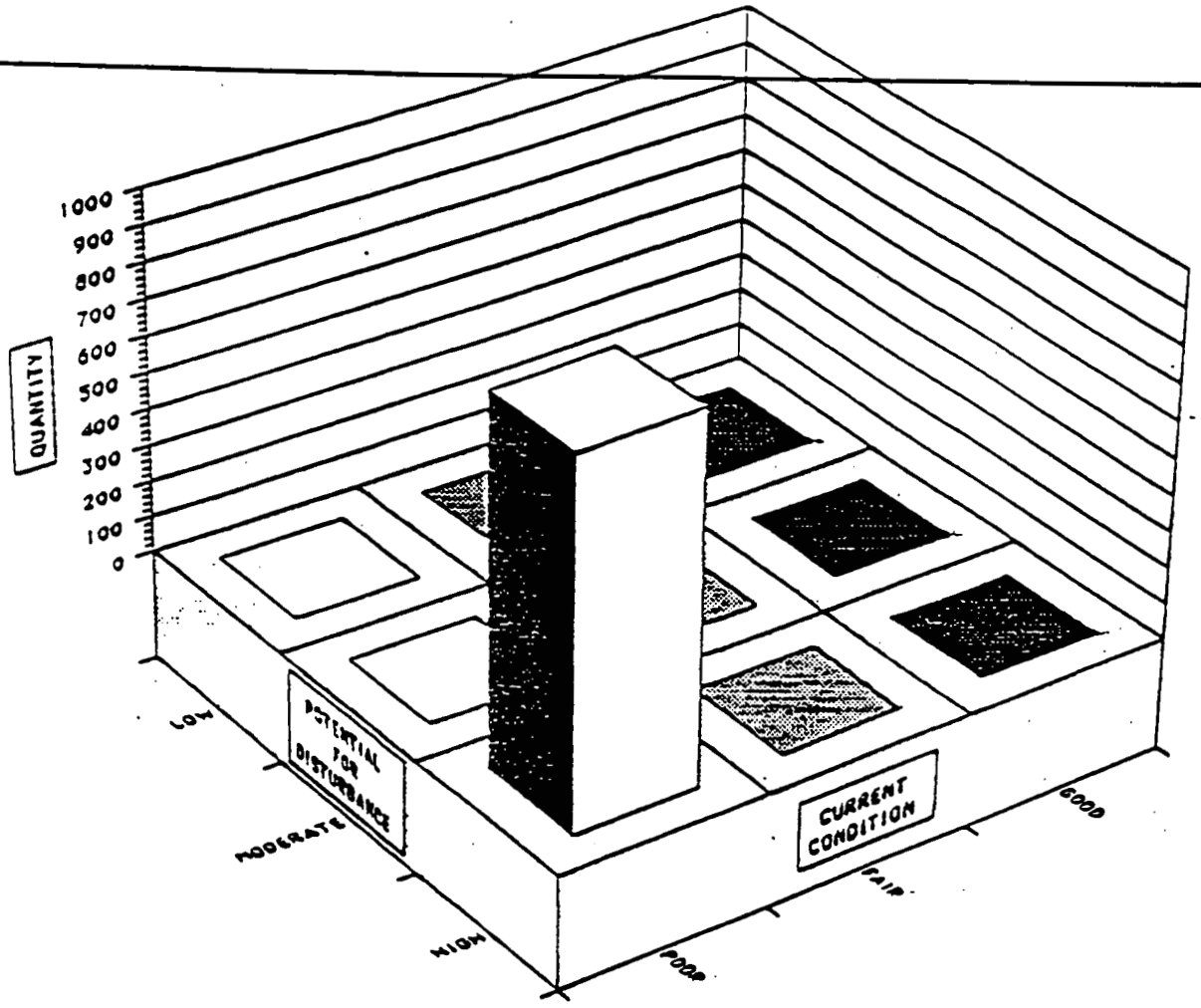
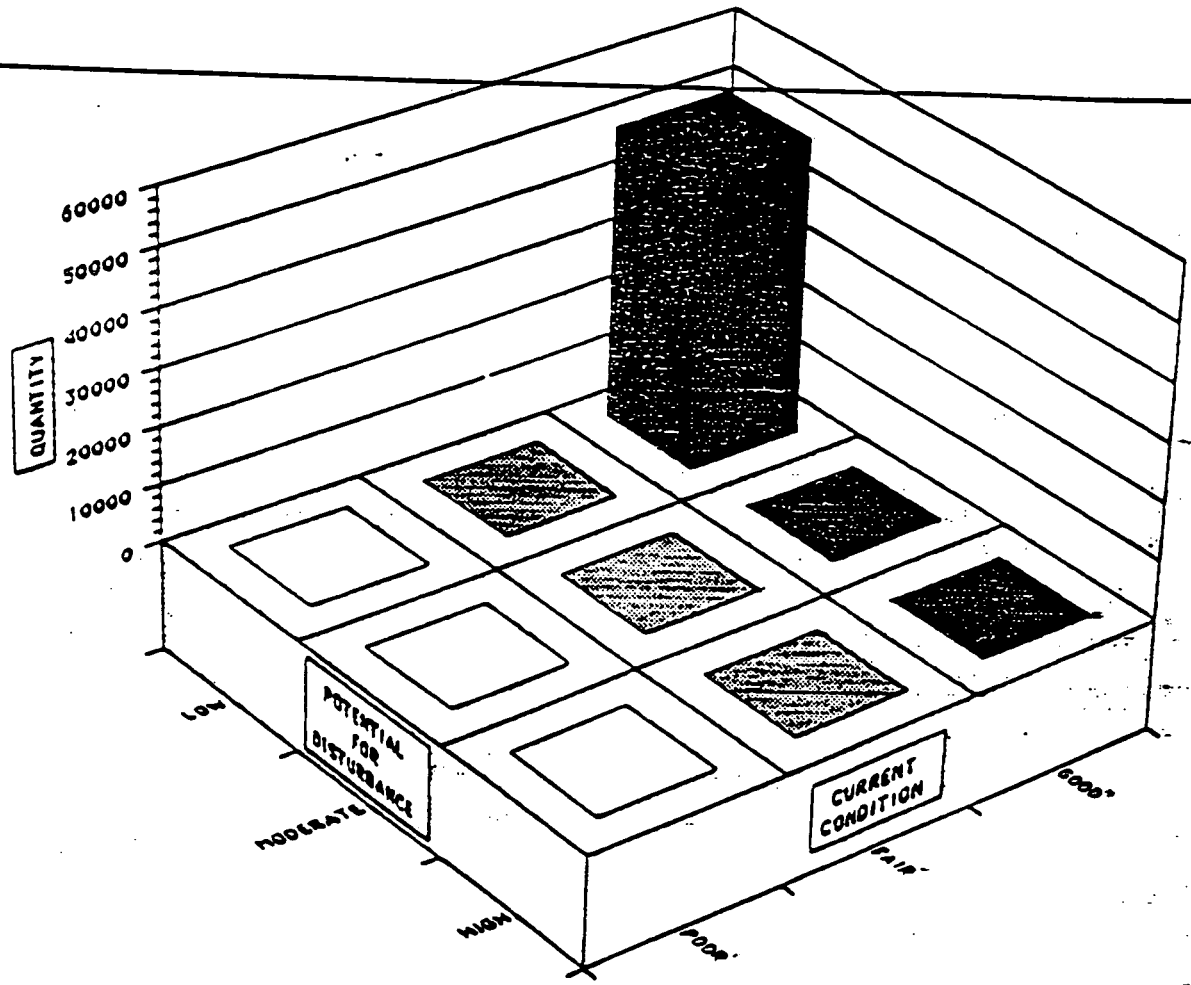


ACM FLOOR TILE
(BY SQUARE FOOTAGE)
NOTE: CONDITION PATTERNS CORRESPOND TO
THOSE SHOWN ON TOP OF 3D COLUMNS

GOOD
FAIR
POOR



TRANSITE SHEET MATERIAL
(BY SQUARE FOOTAGE)
NOTE: CONDITION PATTERNS CORRESPOND TO
THOSE SHOWN ON TOP OF 3D COLUMNS

■ GOOD
▩ FAIR
□ POOR

Client:
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY

ASBESTOS-CONTAINING MATERIALS RESPONSE ACTION TABLE BY HOMOGENEOUS AREA

Survey Date(s): 04/24/91

Revision Date:

Facility:
FERNALD ENVIROMENTAL MANAGEMENT PROJECT

DIAGNOSTIC ENGINEERING INC.
5725 Dragon Way, Suite 321
Cincinnati, Ohio 45227
(513) 271-3737

City, State:
FERNALD, OHIO

BUILDING # and NAME:
Plant #7

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Homogeneous Area Number	Material	Comments	WEMCO Hazard Rank	Recommended Response Action
07-001	Pipe Run Insulation	(4" O.D.) Steam line insulation	7	Remove and Replace
07-002	Pipe Fitting Insulation	(4" O.D.) Steam line tee valve insulation	1	O & M
07-003	HVAC Flexible Connector	Flexible connector on fan unit	NA	NA
07-004	Pipe Run Insulation	(4" O.D.) Steam line insulation	7	Remove and Replace
07-005	Pipe Fitting Insulation	(3" O.D.) Ammonia line fitting insulation	7	Remove and Replace
07-006	Pipe Run Insulation	(4" O.D.) Ammonia line insulation	7	Remove and Replace
07-007	Storage Tank / Exchanger Insulation	Light gas surge tank insulation	4	Repair and O & M
07-008	Pipe Run Insulation	(4" O.D.) Condensate line insulation	7	Remove and Replace
07-009	Pipe Run Insulation	(5" O.D.) Service water line insulation	5	Repair and O & M
07-010	Pipe Fitting Insulation	(6" O.D.) LS steam line fitting insulation	1	O & M
07-011	Pipe Run Insulation	(10" O.D.) Steam line insulation	5	Repair and O & M
07-012	Pipe Fitting Insulation	(4" O.D.) Condensate line fitting insulation	4	Repair and O & M
07-013	Pipe Run Insulation	(4" O.D.) Condensate line insulation	4	Repair and O & M
07-014	Pipe Run Insulation	(6" O.D.) Service water line insulation	5	Repair and O & M
07-015	Pipe Fitting Insulation	(3" O.D.) Potable water line fitting insulation	1	O & M
07-016	Pipe Run Insulation	(4" O.D.) Potable water line insulation	5	Repair and O & M
07-017	Pipe Run Insulation	(4" O.D.) Service water line insulation	4	Repair and O & M
07-018	Pipe Fitting Insulation	(6" O.D.) Service water line tee fitting insulation	5	Repair and O & M
07-019	Duct Insulation	Duct insulation	4	Repair and O & M
07-020	Pipe Run Insulation	(10" O.D.) Steam line insulation	7	Remove and Replace
07-021	Pipe Fitting Insulation	(6" O.D.) Steam line fitting insulation	1	O & M
07-022	Pipe Run Insulation	(4" O.D.) Condensate line insulation	5	Repair and O & M
07-023	Pipe Fitting Insulation	(4" O.D.) Condensate line fitting insulation	5	Repair and O & M
07-024	Pipe Run Insulation	(6" O.D.) Service water line insulation	7	Remove and Replace
07-025	Pipe Run Insulation	(4" O.D.) Potable water line insulation	1	O & M
07-026	Duct Insulation	Duct insulation	4	Repair and O & M
07-027	Pipe Fitting Insulation	(6" O.D.) Service water line tee fitting insulation	1	O & M
07-028	Transite Sheet Material	Transite wall	1	O & M
07-029	Pipe Fitting Insulation	(3" O.D.) Steam line fitting insulation	1	O & M

Client:
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY

ASBESTOS-CONTAINING MATERIALS
RESPONSE ACTION TABLE
BY HOMOGENEOUS AREA

Survey Date(s): 04/2

Facility:
FERNALD ENVIROMENTAL MANAGEMENT PROJECT

DIAGNOSTIC ENGINEERING INC.
5725 Dragon Way, Suite 321
Cincinnati, Ohio 45227
(513) 271-3737

Revision Date:

City, State:
FERNALD, OHIO

BUILDING # and NAME:
Plant #7

Homogeneous Area Number	Material	Comments	WEMCO Hazard Rank	Recommended Response Action
07-030	Pipe Run Insulation	(4" O.D.) Steam line insulation	7	Remove and Replace
07-031	Pipe Run Insulation	(4" O.D.) Condensate line insulation	7	Remove and Replace
07-032	Pipe Run Insulation	(4" O.D.) Service water line insulation	4	Repair and O & M
07-033	Pipe Run Insulation	Potable water line pipe could not be sampled due to drums in the way.	1	O & M
07-034	Pipe Fitting Insulation	(4" O.D.) Steam line fitting insulation	1	O & M
07-035	Pipe Run Insulation	(6" O.D.) Steam line insulation	5	Repair and O & M
07-036	Pipe Fitting Insulation	(4" O.D.) Condensate line fitting insulation	1	O & M
07-037	Pipe Run Insulation	(4" O.D.) Condensate line insulation	4	Repair and O & M
07-038	Pipe Fitting Insulation	(6" O.D.) Service water line tee valve insulation	1	O & M
07-039	Pipe Run Insulation	(4" O.D.) Service water line insulation	1	O & M
07-040	Pipe Fitting Insulation	(4" O.D.) Service water line tee fitting insulation	1	O & M
07-041	Pipe Run Insulation	(4" O.D.) Service water line insulation	1	O & M
07-042	Pipe Run Insulation	(3" O.D.) Potable water line insulation	4	Repair and O & M
07-043	Pipe Fitting Insulation	(4" O.D.) Potable water line fitting insulation	1	O & M
07-044	Resilient Floor Tile (9" X 9")	(9" X 9") Resilient floor tile, red	7	Remove and Replace
07-044	Floor Tile Mastic	Floor tile mastic, black	7	Remove and Replace
07-045	Gasketry - REMOVED, PER DEI LETTER DATED 1-28-92	Rope Gasket - RM	1	O & M
07-046	Pipe Fitting Insulation	(6" O.D.) Steam line fitting insulation	4	Repair and O & M
07-047	Pipe Run Insulation	(4" O.D.) Steam line insulation	5	Repair and O & M
07-048	Pipe Fitting Insulation	(4" O.D.) Condensate line fitting insulation.	4	Repair and O & M
07-049	Pipe Run Insulation	(4" O.D.) Condensate line insulation	7	Remove and Replace
07-050	Pipe Fitting Insulation	(4" O.D.) Service water line fitting insulation	5	Repair and O & M
07-051	Pipe Run Insulation	(4" O.D.) Service water line insulation	4	Repair and O & M
07-052	Transite Sheet Material	Transite siding	1	O & M
07-53	Fireonex	Stored Fireonex, white in color inside room 7-19	1	O & M
07-54	Fireonex	Pink in color on the process floor discarded	NA	NA
07-56	Pipe Run Insulation	(5" O.D.) Live steam line	1	O & M
07-57	Pipe Run Insulation	(4" O.D.) Clean condensate line	1	O & M
07-58	Transite Sheet Material	Interior transite smooth sampled from broken section	1	O & M

ATTACHMENT B

1991 RADIOLOGICAL SURVEY REPORT

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FMPC

INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT

Date: 3/3/91 | LOCATION: PLT 7 | RST: | Page 1 of 2

Time: | LEVEL: 580

REASON FOR SURVEY: ☒ ROUTINE ☒ SPECIAL REQUEST ☐ RWP ☐ INCIDENT

COMMENTS:

FLOOR 1

MDA 15/19 DPM/BX

FOLLOW-UP SURVEY ATTACHED ☐ YES ☒ NO

SURVEY MAP ATTACHED ☒ YES ☐ NO

INSTRUMENTS

MODEL	SERIAL NUMBER	CALIBRATION DATE	BKRD.
LB5100	#4	11/90 α	.52
		β-γ	300

ANALYZE FOR: ☒ ALPHA ☒ BETA-GAMMA ☐ OTHER

TYPE OF SURVEY: ☒ CONTAMINATION ☐ RADIATION ☐ OTHER

ITEM NUMBER	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr) γ CONTACT	β/γ CONTACT	γ 3 FT.	β/γ 3 FT.	DPM ALPHA 100 CM²	PROBE	DPM BETA-G. 100 CM²
1		FLOOR					23		295
2							23		190
3							15		158
4							67		425
5							110		259
6							231		667
7							318		939
8							198		937
9							118		148
10							101		170
11							136		764
12							58		98
13							75		529
14							196		768
15							127		690
16							84		616

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2	Radiological Safety Engineer
3	Facility Supervisor

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

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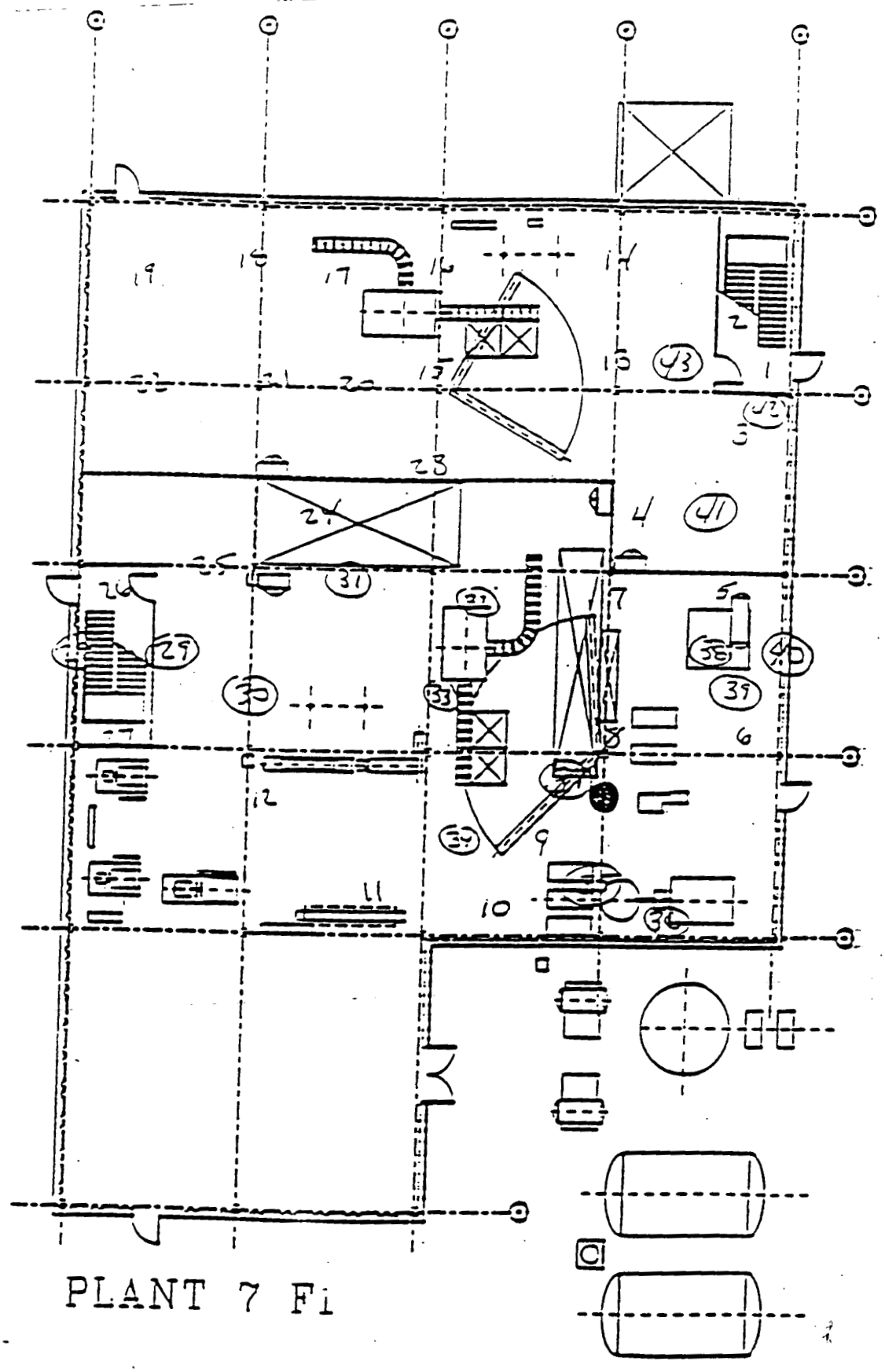
RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET)

ITEM NUMBER	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr)				DPM ALPHA		DPM BETA-GAMMA	
			γ	β/γ	γ	β/γ				
			CONTACT	CONTACT	3 FT.	3 FT.	100 CM²	PROBE	100 CM²	39
17		FLOOR					170		474	
18							67		231	
19							118		500	
20							495		1222	
21							127		495	
22							118		506	
23							231		424	
24							170		396	
25							49		222	
26							136		378	
27		↓					110		396	
28		WINDOW SILL					144		470	
29		TOP OF CONTROL BOX					733		2489	
30		TOP OF ENRICHED CAN					421		456	
31		TOP OF CAN					162		583	
32		CONVEYER SCREW					[illegible]		29	
33		CONVEYER SCREW					15		48	
34		CONVEYER SCREW					41		89	
35		MOTOR					517		335	
36		WINDOW SILL					425		1457	
37		EQUIPMENT BLOCK					387		1415	
38		~~CONTAINER~~ DRUM					283		653	
39		CONTAINER					136		425	
40		WINDOW SILL					170		428	
41		CONVEYER FRAME					120		280	
42		TOP OF DRUM					222		1538	
43		TOP OF DRUM					118		456	



PLANT 7 F1

FMPC

INDUSTRIAL RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT

4040

Date: 3/3/91 | LOCATION: PLT 7 | ASF

Time: 1100 | LEVEL: 2ND FLOOR

Page 1 of 2

REASON FOR SURVEY: ☒ ROUTINE ☒ SPECIAL REQUEST ☐ RWP ☐ INCIDENT

COMMENTS:

MDA 15/19 DPM α/β-γ

INSTRUMENTS			
MODEL	SERIAL NUMBER	CALIBRATION DATE	EXPIR.
LR5120	BY	11/90	2 53

ANALYZE FOR: ☒ ALPHA ☒ BETA-GAMMA ☐ OTHER

TYPE OF SURVEY: ☒ CONTAMINATION ☐ RADIATION ☐ OTHER

FOLLOW-UP SURVEY ATTACHED ☐YES ☐NO

SURVEY MAP ATTACHED ☐YES ☐NO

ITEM NUMBER	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr) γ CONTACT	β/γ CONTACT	γ 3 FT.	β/γ 3 FT.	DPM ALPHA 100 CM²	PROBE	CPM BETA-GAMMA 100 CM²	PROBE
1		FLOOR					110		135	
2							144		204	
3							283		983	
4							188		483	
5							110		726	
6							387		2050	
7							153		245	
8							170		226	
9							179		456	
10							92		295	
11							318		731	
12							505		3600	
13							231		658	
14							110		571	
15							188		692	
16							378		892	

NO.	DISTRIBUTION OF COPIES
1	Radiological Safety Technician Supervisor
2	Radiological Safety Engineer
3	Facility Supervisor

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

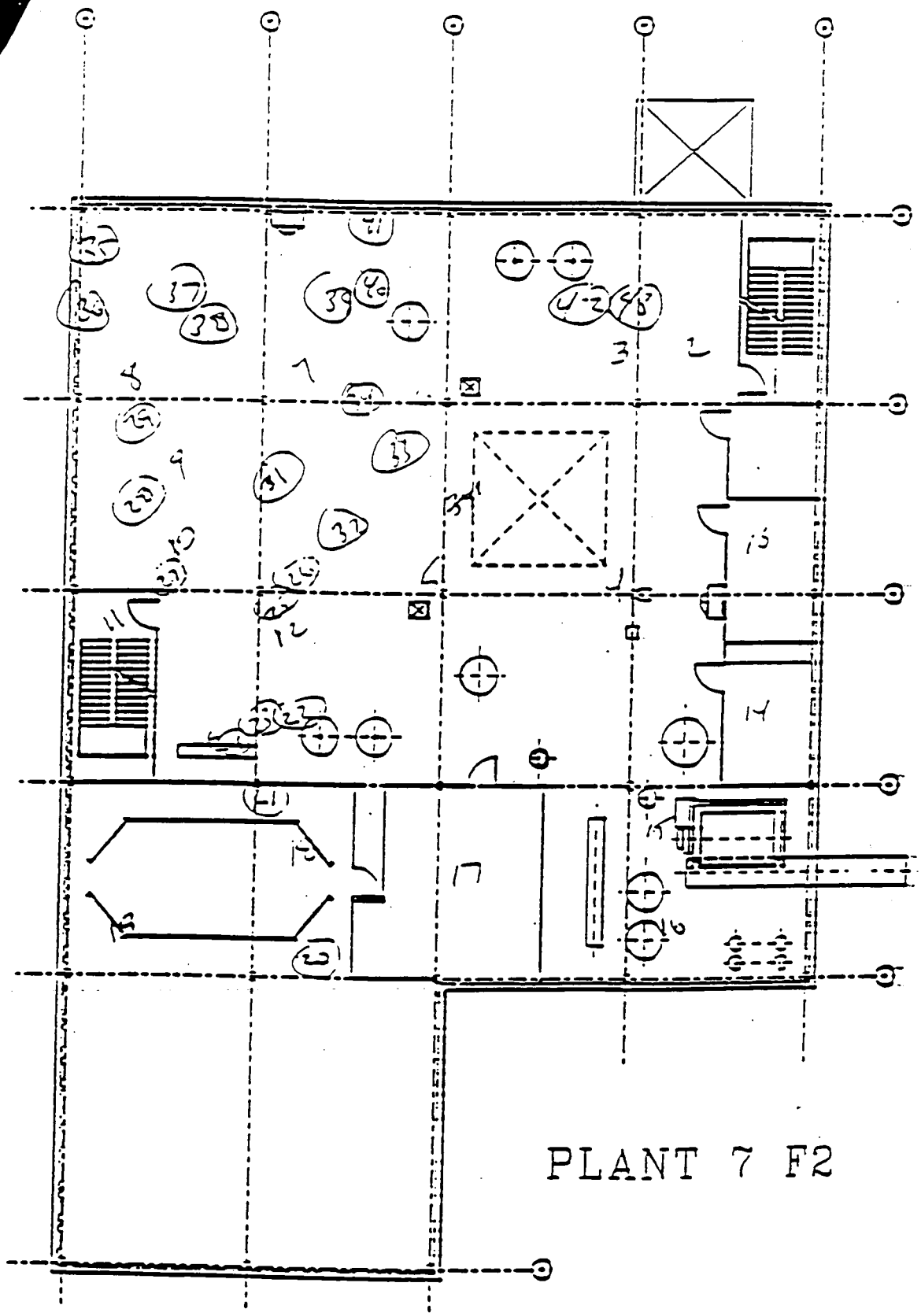
FMPC

OPERATIONS SAFETY & HEALTH - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET)

4040

	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr) γ CONTACT	β/γ CONTACT	γ 3 FT.	β/γ 3 FT.	DPM ALPHA 100 CM²	PROBE	DPM BETA-GAMMA 100 CM²	PROBE
		FLOOR					75		126	
18		↓					1135		506	
19		↓					144		749	
20		X-BEAM					785		2597	
21		T BEAM					214		475	
22		DRUM					300		768	
23		OVHD I BEAM					1279		5208	
24		TOP OF CONTROLLER					3105		11080	
25		DRUM					318		690	
26		I BEAM					1504		5674	
27		SHELF					92		245	
28		SHELF					118		350	
29		SHELF					4776		9121	
30		I BEAM					1755		5763	
31		CAN					274		520	
32		CAN					1305		3350	
33		I BEAM					1789		5924	
34		DUCT					1530		5337	
35		WINDOW SILL					283		713	
36		DRUM					188		704	
37		OVHD					569		1323	
38		DRUM					300		547	
39		DRUM					23		190	
40		OVHD T-BEAM					1270		4410	
41		WINDOW					170		185	
42		DRUM					248		823	
43		OVERHEAD					967		2488	



PLANT 7 F2

4040

FMPC

INDUSTRIAL RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT

Date: 2/2/91 | LOCATION: PLT 7 | AST: | Page 1 of 2

Time: 1730 | LEVEL: 3RD FLOOR

REASON FOR SURVEY: ☐ ROUTINE ☒ SPECIAL REQUEST ☐ RWP ☐ INCIDENT

COMMENTS:

MDC 15/19 α/hr DPM

INSTRUMENTS				
MODEL	SERIAL NUMBER	CALIBRATION DATE	EXPD.	E
LUCO	#4	11/90	α	.52
			A-S	304

ANALYZE FOR: ☒ ALPHA ☒ BETA-GAMMA ☐ OTHER

TYPE OF SURVEY: ☒ CONTAMINATION ☐ RADIATION ☐ OTHER

FOLLOW-UP SURVEY ATTACHED ☐ YES ☒ NO

SURVEY MAP ATTACHED ☒ YES ☐ NO

ITEM NUMBER	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr) γ CONTACT	β/γ CONTACT	γ 3 FT.	β/γ 3 FT.	CPM ALPHA 100 CM²	PROBE	CPM BETA-GAMMA 100 CM²	PROBE
1		FLOOR					370		1000	
2							214		630	
3							75		84	
4							283		915	
5							179		437	
6							283		804	
7							257		420	
8							541		658	
9							110		360	
10							110		257	
11							252		804	
12							58		103	
13							127		255	
14							352		864	
15							335		937	
16		↓					456		457	

NO.	DISTRIBUTION OF COPIES
1	Radiological Safety Technician Supervisor
2	Radiological Safety Engineer
3	Facility Supervisor

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

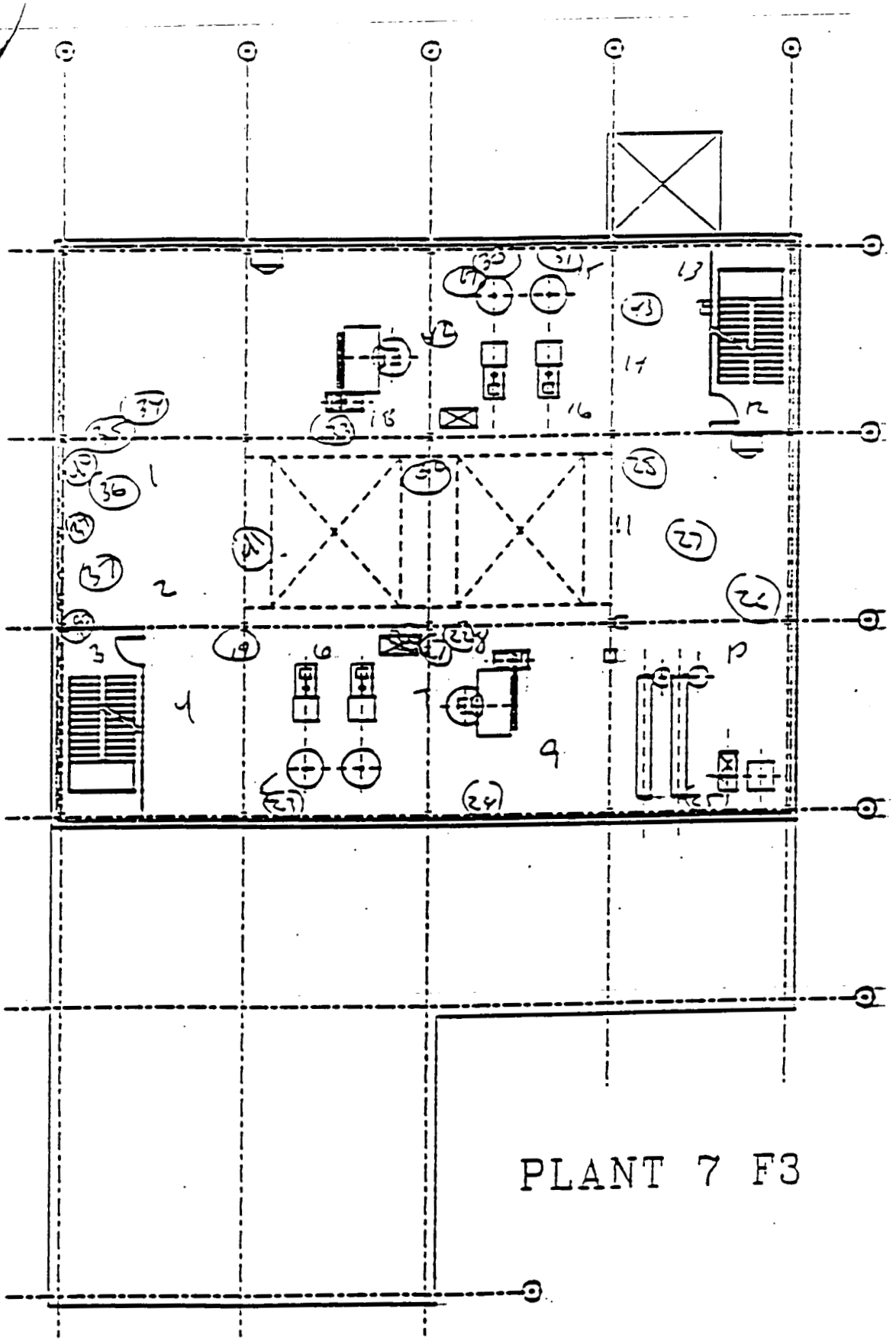
FMPC

OPERATIONS SAFETY & HEALTH - RADIOLOGICAL SAFETY

4040

RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET)

ITEM NUMBER	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr) γ CONTACT	β/γ CONTACT	γ 3 FT.	β/γ 3 FT.	DPM ALPHA 100 CM²	DPM ALPHA PROBE	DPM BETA-GAMMA 100 CM²	DPM BETA-GAMMA PROBE
17		FLOOR					179		736	
18		FLOOR					240		807	
19		JUNCTION BOX					517		1731	
20		INSIDE CANS					1231		4502	
21		INSIDE CANS					3062		16557	
22		INSIDE CANS					1478		8756	
23		WINDOW SILL					2101		8869	
24		WINDOW SILL					335		1027	
25		WINDOW SILL					482		1002	
26		TOP OF CANS					179		565	
27		TOP OF CANS					257		603	
28		TOP OF DUCT					2214		10566	
29		CONTROLLER					283		804	
30		BOX					318		626	
31		JCT BOX					1270		5652	
32		TOP OF CAN					274		992	
33		TOP OF CAN					378		1323	
34		TOP OF CAN					257		722	
35		ELECTRICAL EQUIPMENT ON PALLET					499		1763	
36		BREAKER					499		1213	
37		DRUM LID					257		515	
38		TOP OF CAN					185		511	
39		TOP OF CAN					491		1024	
40		TOP OF CAN					283		574	
41		RAILING					231		584	
42		LIGHT					214		626	
43		TOP OF WIRE RUN					1270		4595	



PLANT 7 F3

FMPC

INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT

4040

Date: 4/19/91 | LOCATION: Plant F | RST: | Page 1 of 5

Time: 1530 | LEVEL: 4 → 7 Floor

REASON FOR SURVEY: ☒ ROUTINE ☐ SPECIAL REQUEST ☐ RWP ☐ INCIDENT

COMMENTS:

Contamination Survey [illegible]

(Semi Annual)

Radiation Readings [illegible] mr/hr

Non corrected

FOLLOW-UP SURVEY ATTACHED ☐ YES ☒ NO

SURVEY MAP ATTACHED ☒ YES ☐ NO

INSTRUMENTS

MODEL	SERIAL NUMBER	CALIBRATION DATE	BKRD.	E
LB5100	#4	11/90	.34	
			2.84	

ANALYZE FOR: ☒ ALPHA ☒ BETA-GAMMA ☐ OTHER

TYPE OF SURVEY: ☒ CONTAMINATION ☐ RADIATION ☐ OTHER

ITEM NUMBER	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr) γ CONTACT	β/γ CONTACT	γ 3 FT.	β/γ 3 FT.	CPM ALPHA 100 CM²	PROBE	CPM BETA-GAMM 100 CM²	PRO
1		Floor					32		80	
2							134		213	
3							92		190	
4							49		295	
5							41		103	
6							117		153	
7							100		313	
8							168		255	
9							168		332	
10							160		474	
11							117		327	
12							75		117	
13							75		112	
14							41		112	
15							58		135	
16							58		80	

NO.	DISTRIBUTION OF COPIES
1	Radiological Safety Technician Supervisor
2	Radiological Safety Engineer
3	Facility Supervisor

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE
				ATC	4/23/91

FMPC

OPERATIONS SAFETY & HEALTH - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET)

4040

ITEM NUMBER	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr) γ CONTACT	β/γ CONTACT	γ 3 FT.	β/γ 3 FT.	DPM ALPHA 100 CM²	DPM ALPHA PROBE	DPM BETA-GAMMA 100 CM²	DPM BETA-GAMMA PROBE
17		Floor					41		149	
18							66		190	
19							219		300	
20							126		194	
21							72		112	
22							492		986	
23							13[illegible]		2[illegible]	
24							350		895	
25							58		185	
26							75		213	
27							87		181	
28							358		1142	
29							75		226	
30							168		405	
31							194		272	
32							100		167	
33							75		249	
34							83		249	
35							262		808	
36							24		35	
37							151		657	
38							177		309	
39							83		154	
40							92		171	
41							117		240	
42							126		171	
43							567		1057	

FMPC
OPERATIONS SAFETY & HEALTH - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET)

	GRID ORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr)				CPM ALPHA		CPM BETA-GAMMA	
			γ	β/γ	γ	β/γ				
			CONTACT	CONTACT	3 FT.	3 FT.	100 CM²	PROBE	100 CM²	[illegible]
44		Floor					75		112	
45							55		117	
46							58		[illegible]	
47							75		152	
48							126		236	
49							58		171	
50							202		[illegible]	
51							170		692	
52							2[illegible]		[illegible]	
53							53		251	
54							270		56[illegible]	
55							245		542	
56							390		568	
57							858		[illegible]	
58							611		1252	
59							117		295	
60							168		364	
61							[illegible]		297	
62							159		254	
63							117		159	
64							151		309	
65							211		254	
66							245		332	
67							109		185	
68							100		117	
69							117		355	
70							279		487	

FMPC

OPERATIONS SAFETY & HEALTH - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET)

4040

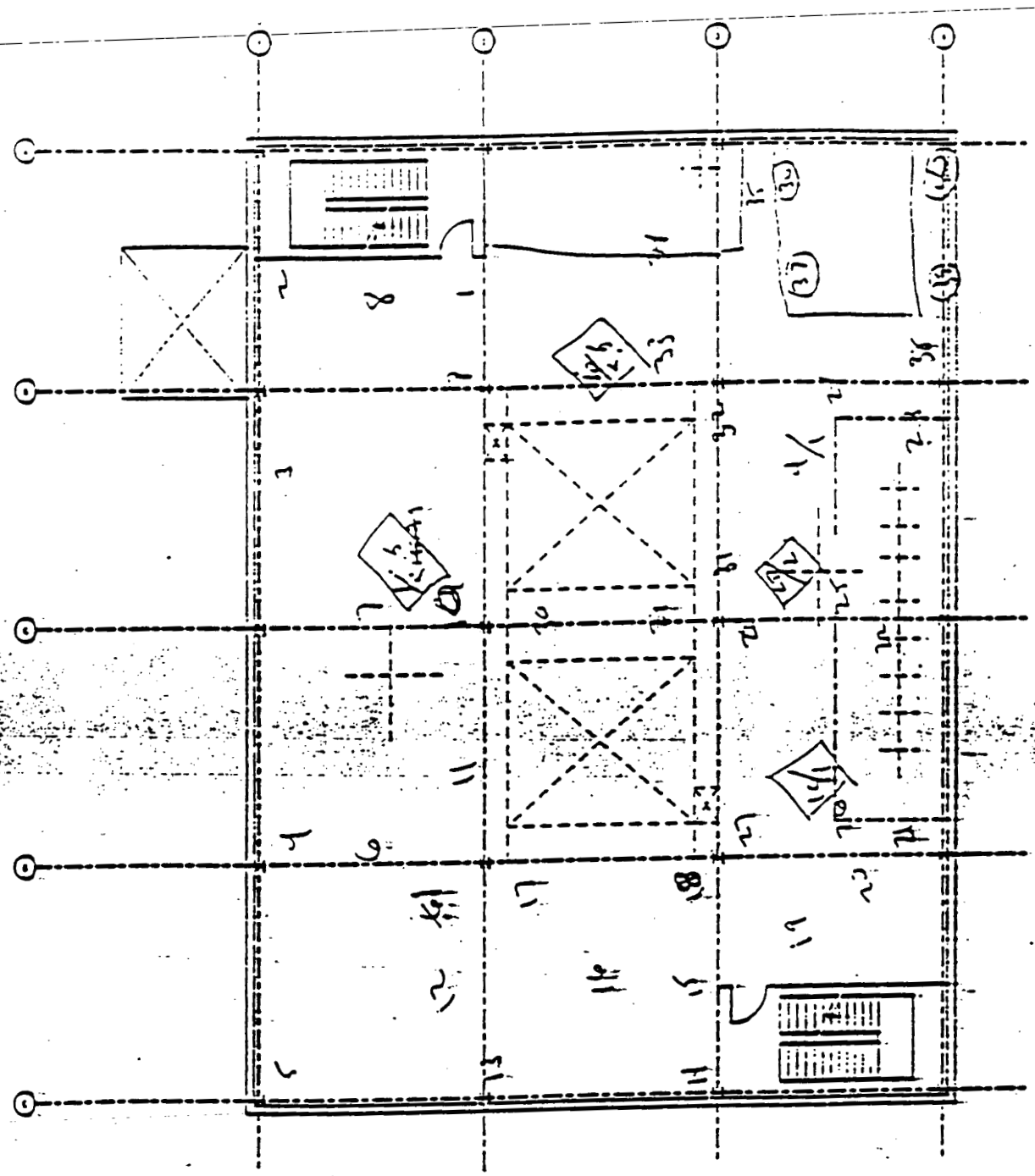
	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr) γ CONTACT	β/γ CONTACT	γ 3 FT.	β/γ 3 FT.	DPM ALPHA 100 CM²	PROBE	DPM BETA-GAMMA 100 CM²	PROBE
71		[illegible]					390		970	
72							92		245	
73							185		320	
74							09		125	
75							679		1525	
76							177		501	
77							100		360	
78							55		215	
79							24		217	
80							58		185	
81							83		187	
82							50		112	
83							566		1750	
84							92		245	
85							135		130	
86							75		175	
87							92		157	
88							58		187	
89							92		273	
90							100		250	
91							100		125	
92							01		66	
93							83		204	
94							134		255	
95							09		130	
96							15		85	
97							600		107	

FMPC

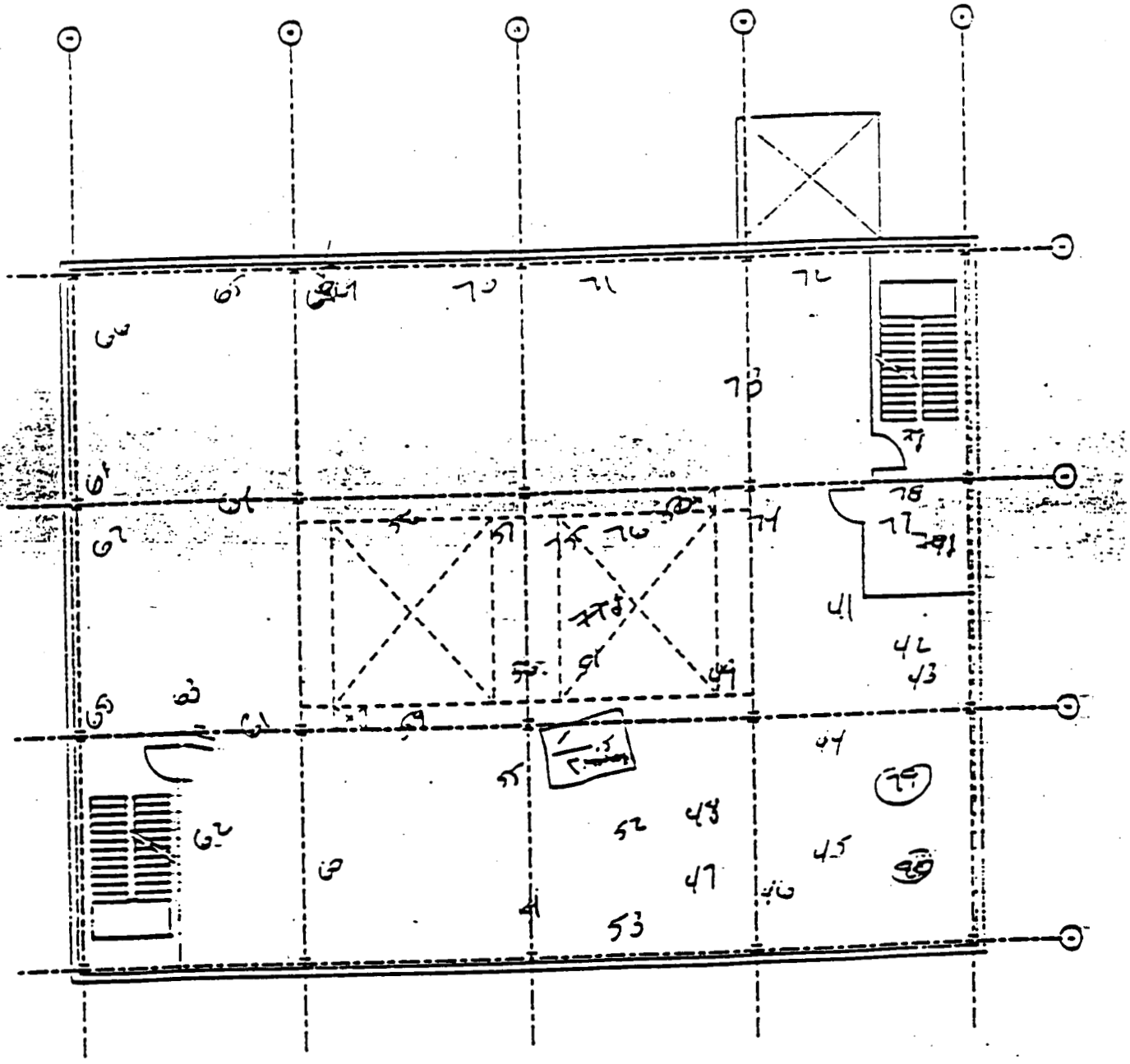
OPERATIONS SAFETY & HEALTH - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET) 4040

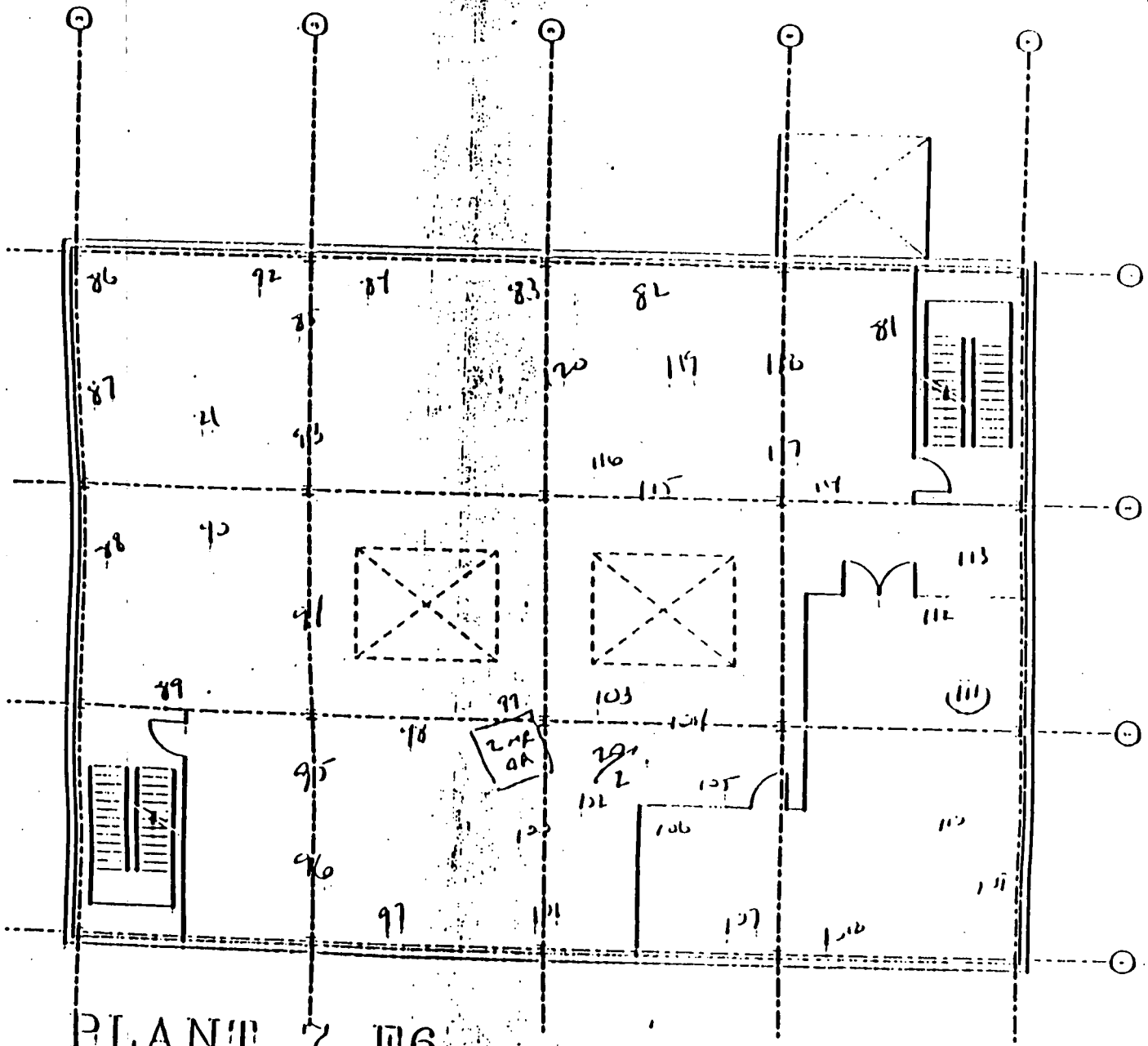
[illegible]	GRID COORDINATES	DESCRIPTION	CORRECTED DOSE RATE (mRem/hr)				CPM ALPHA		CPM BETA-GA[illegible]
			γ	β/γ	γ	β/γ			
			CONTACT	CONTACT	3 FT.	3 FT.	100 CM²	PROBE	100 CM²
98		[illegible]					50		135
99							92		107
100							220		501
101							100		126
102							[illegible]		[illegible]
103							100		217
104							1215		2720
105							2751		12[illegible]
106							202		341
107							75		171
108							58		85
109							58		117
[illegible]							75		176
111							83		144
112							58		135
113							58		139
114							126		144



PLANT 7 F4

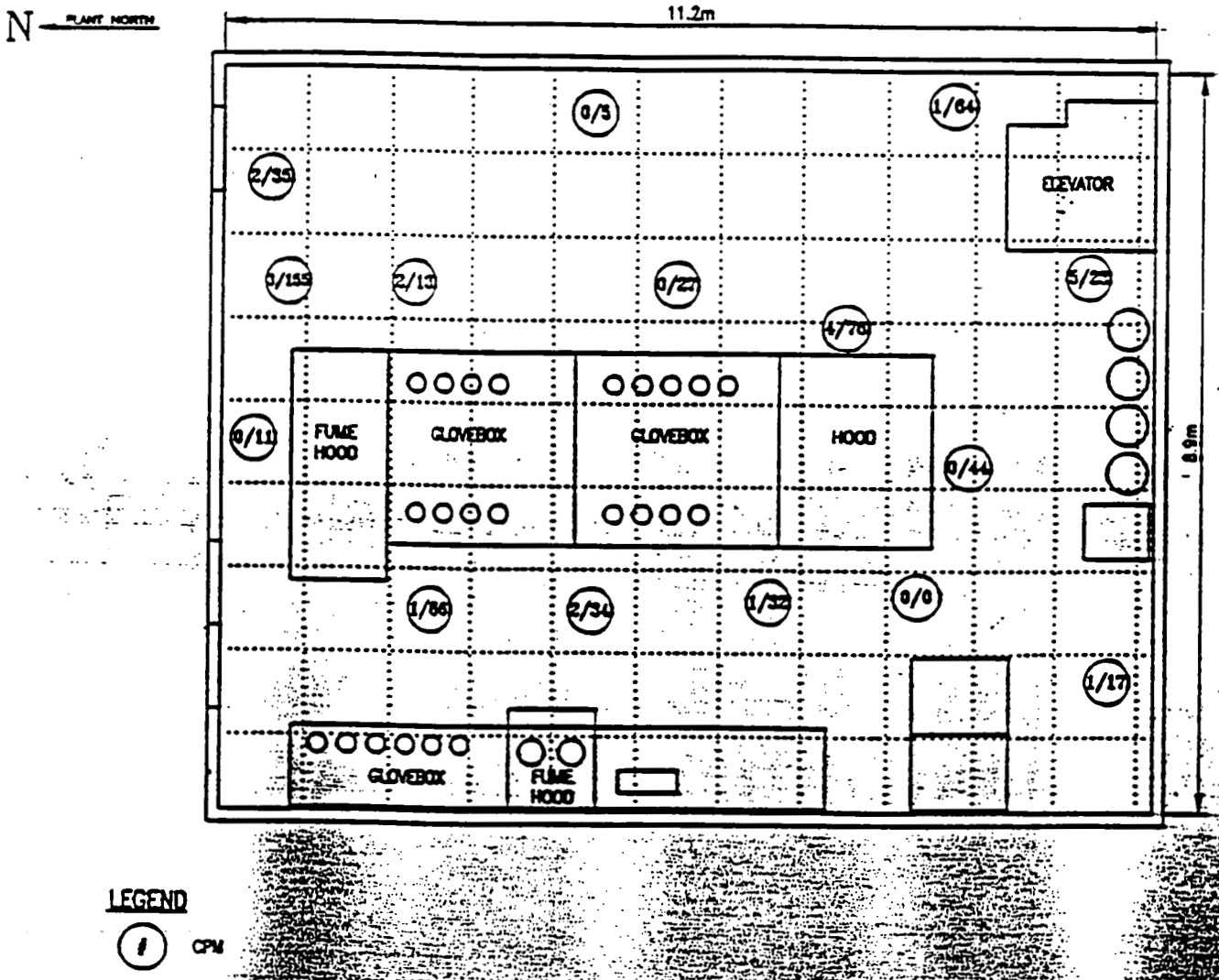


PLANT 7 F5



PLANT 7 F6

PLANT 7 FT



HEALTH PHYSICS SURVEY (SW-19)
TRANSFERABLE ALPHA/BETA (PERFORMED ON 03-08-91)

Figure 4

ATTACHMENT C

1992 RADIOLOGICAL SURVEY REPORT

Copy

4040

Fernald Site

INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT

Date: 05/13/92 Time: 18: 0 RSTs: INC

Location: PLANT 7 Level: 3RD - 7TH FLOORS Reason: PRE-RWP SURVEY OF UPPER LEVELS OF PLANT 7

*** NOTIFICATION OF SURVEY RESULTS ***

Supervisor Notified	Time	Date	Notified by

*** REVIEW OF SURVEY RESULTS ***

Reviewed by	Date

*** COUNTING SYSTEM & SURVEY INSTRUMENTS ***

Model	SN	Type	Calib. Due	Bkgd. (cpm)	Eff./CF	MDA (dpm)	(OPTIONAL) Inspection/Response Sat. (Y/N)
LB5100	8	Alpha	JUN92	0.36	0.298	133.0	N/A
LB5100	8	B-G	JUN92	2.66	0.439	130.0	N/A

		Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/hr			
ITEM NUM	LOCATION/ DESCRIPTION	REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	3-F B-g
1	OVERHEAD	2884		9173					
2	OVERHEAD	5468		26713					
3	OVERHEAD	5804		31474					
4	OVERHEAD	6911		28900					
5	OVERHEAD	6777		21041					
6	OVERHEAD	8153		49014					
7	OVERHEAD	6307		31383					
8	OVERHEAD	9562		46918					
9	OVERHEAD	9797		53615					
10	OVERHEAD	10971		73296					
11	FLOOR	1173		4572					
12	FLOOR	133		198					
13	FLOOR	1542		4663					
14	FLOOR	< MDA		540					
15	FLOOR	200		267					
16	FLOOR	< MDA		130					

FS-F-1993-1 (REV. 10/2/91) equivalent

RADIOLOGICAL SURVEY REPORT (CONTINUATION)

		Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/hr			
ITEM NUM	LOCATION/ DESCRIPTION	REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	3-F B-g
17	FLOOR	401		1064					
18	FLOOR	1005		3319					
19	FLOOR	< MDA		950					
20	FLOOR	267		426					
21	FLOOR	166		312					
22	FLOOR	< MDA		130					
23	FLOOR	233		198					
24	FLOOR	669		2249					
25	FLOOR	703		1747					
26	FLOOR	367		1315					
27	FLOOR	334		1224					
28	FLOOR	636		3706					
29	FLOOR	1273		6007					
30	FLOOR	569		6850					
31	FLOOR	5535		18126					
32	FLOOR	3354		10495					
33	FLOOR	3086		18148					
34	FLOOR	334		4253					
35	FLOOR	2280		11725					
36	FLOOR	9394		29857					
37	FLOOR	166		449					
38	FLOOR	< MDA		< MDA					
39	FLOOR	166		335					
40	FLOOR	904		2886					
41	FLOOR	< MDA		449					
42	FLOOR	< MDA		< MDA					

FS-F-1993-1 (REV. 10/2/91) equivalent

Fernald Site

INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION)

		Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/h			
ITEM NUM	LOCATION/ DESCRIPTION	REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	3- B-
43	FLOOR	< MDA		290					
44	FLOOR	669		1998					
45	FLOOR	267		677					
46	FLOOR	703		3911					
47	FLOOR	< MDA		< MDA					
48	FLOOR	4663		28057					
49	FLOOR	703		4321					
50	FLOOR	1676		5779					
51	FLOOR	300		495					
52	FLOOR	401		1474					
53	FLOOR	502		1474					
54	FLOOR	435		1634					
55	FLOOR	< MDA		517					
56	FLOOR	737		2180					
57	FLOOR	669		1269					
58	FLOOR	1945		9128					
59	FLOOR	< MDA		153					
60	FLOOR	2180		9287					
61	FLOOR	3354		20813					
62	FLOOR	267		973					
63	FLOOR	904		4526					
64	FLOOR	267		1406					
65	FLOOR	669		4208					
66	FLOOR	< MDA		312					
67	FLOOR	< MDA		608					
68	FLOOR	< MDA		299					

FS-F-1993-1 (REV. 10/2/91) equivalent

Fernald Site

INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION)

		Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/hr)			
ITEM NUM	LOCATION/ DESCRIPTION	REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	3-FT B-g
69	FLOOR	334		882					
70	FLOOR	< MDA		381					
71	FLOOR	< MDA		381					
72	FLOOR	435		973					
73	FLOOR	401		1246					
74	FLOOR	< MDA		244					
75	FLOOR	133		381					
76	FLOOR	133		540					
77	FLOOR	971		3638					
78	FLOOR	1643		6964				-	
79	FLOOR	569		3638					
80	FLOOR	300		1747					
81	FLOOR	367		1087					
82	FLOOR	1240		6417					
83	FLOOR	1710		9743					
84	FLOOR	804		1998					
85	FLOOR	1106		4777					
86	FLOOR	133		631					
87	FLOOR	3119		13251					
88	FLOOR	3757		21246					
89	FLOOR	3555		20130					
90	FLOOR	1441		4891					
91	FLOOR	133		472					
92	FLOOR	535		2727					
93	FLOOR	1341		7306					
94	FLOOR	503		3044					

FS-F-1993-1 (REV. 10/2/91) equivalent

		Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/			
ITEM NUM	LOCATION/ DESCRIPTION	REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	3 B
95	FLOOR	267		2066					
96	FLOOR	636		4709					
97	FLOOR	502		2408					
98	FLOOR	8320		33866					
99	FLOOR	602		1839					
100	FLOOR	1643		6713					
101	FLOOR	< MDA		950					
102	FLOOR	< MDA		< MDA					
103	FLOOR	267		813					
104	FLOOR	401		1224					
105	FLOOR	602		5119					
106	FLOOR	233		1406					
107	FLOOR	1508		6121					
108	FLOOR	871		3501					
109	FLOOR	166		1224					
110	FLOOR	267		700					
111	FLOOR	569		1884					
112	FLOOR	468		1337					
113	FLOOR	2045		8331					
114	FLOOR	971		4116					
115	FLOOR	502		1588					
116	FLOOR	1676		4982					
117	FLOOR	602		1907					
118	FLOOR	1676		7055					
119	FLOOR	1273		4618					
120	FLOOR	18058		41110					

Fernald Site

INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION)

ITEM-NUM	LOCATION/ DESCRIPTION	Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/hr			
		REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	3-F B-g
121	FLOOR	< MDA		381					
122	FLOOR	166		335					
123	FLOOR	1139		5255					
124	FLOOR	971		3775					
125	FLOOR	1307		5506					
126	FLOOR	1441		4731					
127	FLOOR	1374		4435					
128	FLOOR	1441		5825					
129	FLOOR	1072		3524					
130	FLOOR	33253		55620					
131	FLOOR	133		290					
132	FLOOR	< MDA		176					
133	FLOOR	200		1110					
134	FLOOR	200		905					
135	FLOOR	133		608					
136	FLOOR	300		608					
137	FLOOR	435		1178					
138	FLOOR	< MDA		130					
139	FLOOR	< MDA		244					
140	FLOOR	< MDA		153					
141	FLOOR	133		176					
142	FLOOR	2045		15939					
143	FLOOR	2884		11793					
144	FLOOR	1441		6007					
145	FLOOR	300		700					
146	FLOOR	737		3750					

FS-F-1993-1 (REV. 10/2/91) equivalent

Fernald Site
INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION)

		Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/h			
ITEM NUM	LOCATION/ DESCRIPTION	REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	3- B-
147	FLOOR	< MDA		540					
148	FLOOR	1710		8604					
149	FLOOR	669		1497					
150	FLOOR	435		1588					
151	FLOOR	< MDA		130					
152	FLOOR	435		1474					
153	FLOOR	< MDA		< MDA					
154	FLOOR	401		1064					
155	FLOOR	971		3547					
156	FLOOR	1374		4390					
157	FLOOR	904		2362					
158	FLOOR	636		1474					
159	FLOOR	1374		6053					
160	FLOOR	1039		3524					
161	FLOOR	2414		7192					
162	FLOOR	1844		6759					
163	FLOOR	569		1474					
164	FLOOR	267		859					
165	FLOOR	7616		9196					
166	FLOOR	< MDA		290					
167	FLOOR	636		1451					
168	FLOOR	1877		5870					
169	FLOOR	837		2841					
170	FLOOR	837		3684					
171	FLOOR	267		631					
172	FLOOR	737		3410					

FS-F-1993-1 (REV. 10/2/91) equivalent

Fernald Site
INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION)

		Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/			
ITEM NUM	LOCATION/ DESCRIPTION	REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	3 B-
173	FLOOR	837		3091					
174	FLOOR	< MDA		198					
175	FLOOR	3589		41611					
176	FLOOR	636		1360					
177	FLOOR	133		586					
178	FLOOR	267		791					
179	FLOOR	< MDA		< MDA					
180	FLOOR	133		472					
181	FLOOR	< MDA		244					
182	FLOOR	502		2613					
183	FLOOR	535		1884					
184	FLOOR	1106		2772					
185	FLOOR	2683		8718					
186	FLOOR	166		290					
187	FLOOR	< MDA		335					
188	FLOOR	300		426					
189	FLOOR	904		2271					
190	FLOOR	1039		3456					
191	FLOOR	233		973					
192	FLOOR	435		1565					
193	FLOOR	435		1816					
194	FLOOR	1341		3661					
195	FLOOR	300		586					
196	FLOOR	267		631					
197	FLOOR	< MDA		813					
198	FLOOR	166		1324					

FS-F-1993-1 (REV. 10/2/91) equivalent

Fernald Site

INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT (CONTINUATION)

		Alpha DPM/100cm^2		B-G DPM/100cm^2		CORRECTED DOSE RATES (mrem/			
ITEM NUM	LOCATION/ DESCRIPTION	REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT g	CONTACT B-g	3-FT g	E
199	FLOOR	< MDA		1041					
200	FLOOR	233		1224					
201	FLOOR	200		495					
202	FLOOR	502		1679					
203	FLOOR	770		2226					
204	FLOOR	166		495					
205	FLOOR	1341		3570					
206	FLOOR	1072		2750					
207	FLOOR	166		517					
208	FLOOR	837		3319					
209	FLOOR	367		677					
210	FLOOR	300		836					

ATTACHMENT D

RESULTS OF PLANT 7 TANK AND SUMP SAMPLING

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Westinghouse Materials Co of Ohio
Analytical Chemistry Department
Results of Analyses

4040

AnaLIS ID: 910819-070 Project: 0020 0001 Customer Sample ID: 91-092-2901
Customer: SITE MEDIA SAMPLING Requisition Number:
Date Sampled: 19-AUG-1991 Date Sample Received: 19-AUG-1991
Sampled By: W BUDACH Date Sample Completed:
Material Description: PLT 7 TANK & SUMP SP-2 SUMP Charge Number: SJA00

Activ. Number	Procedure No.	Analysis	Result	Units	Data Entered By	QA File Number	Date Completed
		1,1-Dichlorethylene	--------	mg/L			
		1,2-Dichloroethane	--------	mg/L			
		1,4-Dichlorobenzene	--------	mg/L			
		2,4,5-Trichlorophenol	--------	mg/L			
		2,4,6-Trichlorophenol	--------	mg/L			
		2,4-Dinitrotoluene	--------	mg/L			
		2-Butanone (MEK)	--------	mg/L			
		2-Methylphenol (o-Cresol)	--------	mg/L			
		4-Methylphenol (p-Cresol)	--------	mg/L			
		Ag (TCLP)	--------	mg/L			
		As (TCLP)	--------	mg/L			
		Ba (TCLP)	--------	mg/L			
		Benzene	--------	mg/L			
		Carbon Tetrachloride	--------	mg/L			
		Cd (TCLP)	--------	mg/L			
		Chlorobenzene	--------	mg/L			

		Chloroform	--------	mg/L			
		Cr (TCLP)	--------	mg/L			
		Hexachlorobenzene	--------	mg/L			
		Hexachlorobutadiene	--------	mg/L			
		Hexachloroethane	--------	mg/L			
		Hg (TCLP)	--------	mg/L			
		Nitrobenzene	--------	mg/L			
		Pb (TCLP)	--------	mg/L			
		Pentachlorophenol	--------	mg/L			
		Pyridine	--------	mg/L			
		Se (TCLP)	--------	mg/L			
		Tetrachloroethene	--------	mg/L			
		Trichloroethene	--------	mg/L			
		Vinyl Chloride	--------	mg/L			
		m-Cresol	--------	mg/L			
300204	3002	U - BrPADAP AnL	22522	ppm	FL MILLER	DLH	5-SEP-199
303304	3033	pH - Electrode AnL	VOID	pH	FL MILLER	1	12-DEC-199
305904	3059	Total Th - Color. AnL	<45	ppm	FL MILLER	1	12-DEC-199
401304	4013	Alpha Activity - ISO RAD	1700	pCi/g	TB GRANAT	4013-91-163	20-AUG-199
	4013	Beta Activity - ISO RAD	2400	pCi/g	TB GRANAT	4013-91-163	20-AUG-199

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***** Comments from the ENVIRONMENTAL & PROCESS MATERIALS LABORATORY for sample 910819-070 *****

Unable to do pH on solid sample

Westinghouse Materials Co of Ohio
Analytical Chemistry Department
Results of Analyses

4040

AnaLIS ID: 910815-093 Project: 0020 0001 Customer Sample ID: 91-092-2900
Customer: SITE MEDIA SAMPLING Requisition Number:
Date Sampled: 15-AUG-1991 Date Sample Received: 15-AUG-1991
Sampled By: O.D.LAURSEN Date Sample Completed:
Material Description: PLANT 7 TANK&SUMP Charge Number: SJA00

Activ. Number	Procedure No.	Analysis	Result	Units	Data Entered By	QA-File Number	Date Complet
		1,1-Dichlorethylene	--------	mg/L			
		1,2-Dichloroethane	--------	mg/L			
		1,4-Dichlorobenzene	--------	mg/L			
		2,4,5-Trichlorophenol	--------	mg/L			
		2,4,6-Trichlorophenol	--------	mg/L			
		2,4-Dinitrotoluene	--------	mg/L			
		2-Butanone (MEK)	--------	mg/L			
		2-Methylphenol (o-Cresol)	--------	mg/L			
		4-Methylphenol (p-Cresol)	--------	mg/L			
		Ag (TCLP)	--------	mg/L			
		As (TCLP)	--------	mg/L			
		Ba (TCLP)	--------	mg/L			
		Benzene	--------	mg/L			
		Carbon Tetrachloride	--------	mg/L			
		Cd (TCLP)	--------	mg/L			
		Chlorobenzene	--------	mg/L			

		Cr (TCLP)	--------	mg/L			
		Hexachlorobenzene	--------	mg/L			
		Hexachlorobutadiene	--------	mg/L			
		Hexachloroethane	--------	mg/L			
		Hg (TCLP)	--------	mg/L			
		Nitrobenzene	--------	mg/L			
		Pb (TCLP)	--------	mg/L			
		Pentachlorophenol	--------	mg/L			
		Pyridine	--------	mg/L			
		Se (TCLP)	--------	mg/L			
		Tetrachloroethene	--------	mg/L			
		Trichloroethene	--------	mg/L			
		Vinyl Chloride	--------	mg/L			
		m-Cresol	--------	mg/L			
103905	1039	U - Volumetric AnL INORG	10.7	%	JE REILMAN	1	5-SEP-199
305905	3059	Total Th - Color. AnL	<45	ppm	FL MILLER	1	29-NOV-199
401305	4013	Alpha Activity - ISO RAD	37,000	pCi/g	PA PAPET	4013-91-162	19-AUG-199
	4013	Beta Activity - ISO RAD	46,000	pCi/g	PA PAPET	4013-91-162	19-AUG-199

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