DECISION DOCUMENTATION PACKAGE
COVER SHEET

PREPARED IN ACCORDANCE WITH

TRACK 1 SITES:
GUIDANCE FOR ASSESSING
LOW PROBABILITY HAZARD SITES
AT INEL

SITE DESCRIPTION: CONTAMINATED SOIL IN TANK FARM AREA.

SITE ID: CPP-25 **OPERABLE UNIT:** 3-07

WASTE AREA GROUP: 3

I. SUMMARY - PHYSICAL DESCRIPTION OF THE SITE:

The site is located immediately adjacent to the northern side of building CPP 604. An undocumented line adjacent to the north side of Building 604 ruptured on August 28, 1960 contaminating the building and "dirt adjacent to building". It was reported that nine cubic yards of dirt was removed to the RWMC and the building was washed to reduce contamination to acceptable levels.

It is currently known that the entire area was excavated and removed to site CPP-34 due to upgrades in the Tank Farm in 1982 and in 1983-84 as part of the Phase I and II Fuel Processing Facility Upgrade Project. Based upon interviews with plant personnel, the only contamination found during the excavation was at a depth of 40′ near valve box C-30.

II. SUMMARY - Qualitative Assessment of Risk:

Due to the fact that the site has been excavated and backfilled with clean material, the qualitative assessment of risk is low with a high overall reliability.

III. SUMMARY - Consequences of Error:

Site wide surface radiation surveys conducted in 1990 and 1991 (ref. 7, 8) do not indicate surface radiation above background levels at this site. Any potential residuals would be considered in the Comprehensive RI/FS. Additionally, the contamination is currently underground and would not contribute significantly to the background levels found in other units in the tank farm.

IV. SUMMARY - Other Decision Drivers:

None.

Recommended action:

The recommended action for site CPP-25 is No Further Field Investigation. This recommendation is based upon the fact that the entire site was excavated to a depth of 40 feet bls during the phase I and II of the Fuel Processing Facility Upgrade Project. The excavation has been documented by photographs and personnel interviews of construction engineers working on the project. Based upon interviews with plant personnel, the only contamination found during the excavation was at a depth of 40' near valve box C-30.

In addition, it is recommended that the contaminated backfill soil, left in the bottom 10 feet of the excavation, be considered in the Comprehensive RI/FS for the ICPP. This recommendation is being made due to the fact that WINCO policy had allowed backfill of excavations with materials meeting a certain contamination threshold criteria. This criteria has become more stringent over the years, however, it is no longer allowed. The Comprehensive RI/FS should address low level contamination due to backfill of excavations on a site wide basis. This site will be considered when evaluating the vadose zone.

Signatures	# PAGES:	DATE:
Prepared By:	DOE WAG Manager:	

PROCESS/WASTE WORKSHEET
SITE ID CPP-25

Col 1 Processes Associated with this Site	Col 2 Waste Description & Handling Procedures	Col 3 Description & Location of any Artifacts/Structures/Disposal Areas Associated with this Waste or Process
Process One time leak of unidentified pipe.	A radioactive liquid which may have been contaminated with acid, metals or organics.	Artifact none Location near CPP-604 Description
		Artifact Location Description
		Artifact Location Description
Process		Artifact Location Description
		Artifact Location Description
		Artifact Location Description
Process		Artifact Location Description
		Artifact Location Description
		Artifact Location Description

CONTAMINANT WORKSHEET
SITE ID CPP-25
PROCESS (Col 1) Unknown Ruptured line **WASTE** (Col 2) LIQUID WASTE

Col 4 What known/potential hazardous substances/constituents are associated with this waste or process?	Col 5 Potential sources associated with this hazardous material	Col 6 Known/estimated concentration of hazardous substances/ constituents[a]	Col 7 Risk based concentration mg/kg	Col 8 Qualitative risk assessment (Hi/Med/Lo)	Col 9 Overall reliability (Hi/Med/Lo)
Radioactive Constituents	N/A, Contaminated soil removed	N/A		Low	High
Metals	N/A, Contaminated soil removed	N/A		Low	High
Acids	N/A, Contaminated soil removed	N/A		Low	High
Organics	N/A, Contaminated soil removed	N/A		Low	High

a. ND = not detected
DL = detection limit in ppm

Question 1. What are the waste generation process locations and dates of operation associated with this site?

Block 1 Answer:

A one time leak of an undocumented pipeline containing radioactive solution occurred on August 28, 1960. Direct radiation readings were reported to be 2-4 Rep/hr (rotegen equipment physical - in a worst case scenario, one Rep/hr is approximately equal to one R/hr). No air activity was detected. It was reported that nine cubic yards of dirt were removed and shipped to the RWMC. The building was washed to reduce contamination to acceptable levels. Due to the lack of historical records, no further information is known regarding the associated processes, line identification or constituents involved.

Block 2 How reliable is/are the information source/s? __High __Med x Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

The Radioactivity Incident Report is barely legible and some interpretation of the report was required.

Block 3 Has this INFORMATION been confirmed? __Yes x No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Block 4 **SOURCES OF INFORMATION** (check appropriate box/es & source number from reference list)

No available information	[ ]		Analytical data	[ ]	
Anecdotal	[ ]		Documentation about data	[ ]	
Historical process data	[ ]		Disposal data	[ ]	
Current process data	[ ]		Q.A. data	[ ]	
Areal photographs	[ ]		Safety analysis report	[ ]	
Engineering/site drawings	[ ]		D&D report	[ ]	
Unusual Occurrence Report	[x]	1	Initial assessment	[ ]	
Summary documents	[ ]		Well data	[ ]	
Facility SOPs	[ ]		Construction data	[ ]	
OTHER	[ ]				

Question 2. What are the disposal process locations and dates of operation associated with this site?

Block 1 Answer:

A one-time pipeline leak on 8/28/60. No disposal processes are associated with this site.

Block 2 How reliable is/are the information source/s? __High _X_Med __Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

The one time release information was from the report and is therefore considered highly reliable that the incident was a one time occurrence. The overall reliability is therefore given a medium.

Block 3 Has this INFORMATION been confirmed? __Yes _x_No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Block 4 **SOURCES OF INFORMATION** (check appropriate box/es & source number from reference list)

No available information	[ ]	Analytical data	[ ]
Anecdotal	[ ]	Documentation about data	[ ]
Historical process data	[ ]	Disposal data	[ ]
Current process data	[ ]	Q.A. data	[ ]
Areal photographs	[ ]	Safety analysis report	[ ]
Engineering/site drawings	[ ]	D&D report	[ ]
Unusual Occurrence Report	[x] 1	Initial assessment	[ ]
Summary documents	[ ]	Well data	[ ]
Facility SOPs	[ ]	Construction data	[ ]
OTHER	[ ]		

Question 3. Is there empirical, circumstantial, or other evidence of migration? If so, what is it?

Block 1 Answer:

No, the entire area was excavated in 1982 and 1983-84, during phase I and II of the Fuel Processing Facility Upgrade Project. During phase I, the entire area was excavated down to 40 feet. Based upon personnel interviews, the first 10 feet of soils were backfilled with 5 mR dirt which was then covered with 30 feet of clean fill. The source of clean fill is unknown. During phase II, the area appears to have been excavated again. Based upon the personnel interviews, soils were excavated down to forty feet for the 1983 project (phase II). Only at the location of valve box C-30 were soils found to be contaminated. This project would have removed the eastern sections of sites CPP 20 and 25. The excavated soils were stock piled and contaminated soils separated and later placed in CPP-34. Fill materials placed back into the excavation consisted of 3 mR material placed in the bottom 10 feet and clean soils placed in the upper 30 feet. The sources of the clean soils included the soils excavated from a sand and gravel pit located at CFA.

Block 2 How reliable is/are the information source/s? x High __Med __Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

Photographs of the excavations during Phase I and Phase II of the project, and interviews with the construction engineers were used and are considered highly reliable. In addition, a report of disposal of the excavated materials was available.

Block 3 Has this INFORMATION been confirmed? x Yes __No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Photographs of the excavations during Phase I and Phase II of the project (reference 3a, 3b, 5, 6) were reviewed, and interviews with two separate project personnel were conducted to verify the location of the excavations.

Block 4 **SOURCES OF INFORMATION** (check appropriate box/es & source number from reference list)

No available information	[ ]		Analytical data	[ ]	
Anecdotal	[ ]		Documentation about data	[ ]	
Historical process data	[ ]		Disposal data	[ ]	
Current process data	[ ]		Q.A. data	[ ]	
Areal photographs	[x]	3a, 3b, 5, 6	Safety analysis report	[ ]	
Engineering/site drawings	[ ]		D&D report	[ ]	
Unusual Occurrence Report	[x]	1	Initial assessment	[ ]	
Summary documents	[ ]		Well data	[ ]	
Facility SOPs	[ ]		Construction data	[4]	4
OTHER	[x]	2a, 2b, 2c			

Question 4. Is there evidence that a source exists at this site? If so, list the sources and describe the evidence.

Block 1 Answer:

No, the entire area has been excavated twice, and would have removed the original source. However, based upon personnel interviews, the latest excavation used 3 mR soil as fill material at the bottom 10 feet of the excavation in 1983-84. Clean fill material, taken from a soil/gravel pit at CFA, was placed in the upper 30 feet.

Block 2 How reliable is/are the information source/s? X High __Med __Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

The information was taken from the photographs (ref. 3a, 3b, 5, 6) and personnel interviews(ref. 2a, 2b and 2c).

Block 3 Has this INFORMATION been confirmed? X Yes __No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Interviews with two separate project personnel who worked on the project, have verified the excavations that occurred at this site.

Block 4 **SOURCES OF INFORMATION** (check appropriate box/es & source number from reference list)

No available information	[ ]	Analytical data	[ ]
Anecdotal	[ ]	Documentation about data	[ ]
Historical process data	[ ]	Disposal data	[ ]
Current process data	[ ]	Q.A. data	[ ]
Areal photographs	[x] 3a, 3b, 5, 6	Safety analysis report	[ ]
Engineering/site drawings	[ ]	D&D report	[ ]
Unusual Occurrence Report	[ ]	Initial assessment	[ ]
Summary documents	[ ]	Well data	[ ]
Facility SOPs	[ ]	Construction data	[ ]
OTHER	[x] 2a, 2b, 2c		

Question 5. Does site operating or disposal historical information allow estimation of the pattern of potential contamination? If the pattern is expected to be a scattering of hot spots, what is the expected minimum size of a significant hot spot?

Block 1 Answer:

Yes, all reports indicate that the contaminants from the original incident have been removed. However, based on personnel interviews, 5 mR soil was placed at the bottom 10 feet of the excavation in phase I, and 3 mR soil in the bottom 10 feet of the excavation for phase II. The backfill is assumed to be homogeneous.

Block 2 How reliable is/are the information source/s? x High __Med __Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

The information was taken from the photographs (reference 3a, 3b, 5, 6) and personnel interviews (ref. 2a, 2b, and 2c).

Block 3 Has this INFORMATION been confirmed? x Yes __No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Interviews with two separate project personnel who worked on the project confirmed this information.

Block 4 **SOURCES OF INFORMATION** (check appropriate box/es & source number from reference list)

No available information	[ ]		Analytical data	[ ]	
Anecdotal	[ ]		Documentation about data	[ ]	
Historical process data	[ ]		Disposal data	[ ]	
Current process data	[ ]		Q.A. data	[ ]	
Areal photographs	[x]	3a, 3b, 5, 6	Safety analysis report	[ ]	
Engineering/site drawings	[ ]		D&D report	[ ]	
Unusual Occurrence Report	[ ]		Initial assessment	[ ]	
Summary documents	[ ]		Well data	[ ]	
Facility SOPs	[ ]		Construction data	[ ]	
OTHER	[x]	2a, 2b, 2c			

Question 6. Estimate the length, width, and depth of the contaminated region. What is the known or estimated volume of the source? If this is an estimated volume, explain carefully how the estimate was derived.

Block 1 Answer:

The original area has been excavated. However, based upon personnel interviews 5 mR soil was placed at the bottom 10 feet of the excavation in phase I and 3 mR soil in the bottom of the excavation for phase II. The total area excavated is approximately 7,053 ft^2.

Block 2 How reliable is/are the information source/s? __High __Med x Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

Actual quantities are unknown, the estimate was approximated from the photographs in references 3a, 3b, 5 and 6.

Block 3 Has this INFORMATION been confirmed? __Yes x No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

The quantity of backfill material has not been confirmed.

Block 4 **SOURCES OF INFORMATION** (check appropriate box/es & source number from reference list)

No available information	[ ]		Analytical data	[ ]	
Anecdotal	[ ]		Documentation about data	[ ]	
Historical process data	[ ]		Disposal data	[ ]	
Current process data	[ ]		Q.A. data	[ ]	
Areal photographs	[x]	3a, 3b, 5, 6	Safety analysis report	[ ]	
Engineering/site drawings	[ ]		D&D report	[ ]	
Unusual Occurrence Report	[ ]		Initial assessment	[ ]	
Summary documents	[ ]		Well data	[ ]	
Facility SOPs	[ ]		Construction data	[ ]	
OTHER	[ ]				

Question 7. What is the known or estimated quantity of hazardous substance/constituent at this source? If the quantity is an estimate, explain carefully how the estimate was derived.

Block 1 Answer:

The original area was excavated. The quantity of hazardous substance placed in the bottom 10 feet of the two excavations is unknown.

Block 2 How reliable is/are the information source/s? __High __Med __Low (check one)
EXPLAIN THE REASONING BEHIND THIS EVALUATION.

N/A

Block 3 Has this INFORMATION been confirmed? __Yes __No (check one)
IF SO, DESCRIBE THE CONFIRMATION.

N/A

Block 4 **SOURCES OF INFORMATION** (check appropriate box/es & source number from reference list)

No available information	[x]		Analytical data	[ ]	
Anecdotal	[ ]		Documentation about data	[ ]	
Historical process data	[ ]		Disposal data	[ ]	
Current process data	[ ]		Q.A. data	[ ]	
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Unusual Occurrence Report	[ ]		Initial assessment	[ ]	
Summary documents	[ ]		Well data	[ ]	
Facility SOPs	[ ]		Construction data	[ ]	
OTHER	[ ]				

Question 8. Is there evidence that this hazardous substance/constituent is present at the source as it exists today? If so, describe the evidence.

Block 1 Answer:

Yes, all reports indicate that the contaminants from the original incident location have been removed. However, based upon personnel interviews 5 mR soil was placed at the bottom 10 feet of the excavation in phase I and 3 mR soil in the bottom of the excavation for phase II.

Block 2 How reliable is/are the information source/s? x High __Med __Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

Knowledge by personnel involved with the operations of the area and review of the construction report associated with the excavation.

Block 3 Has this INFORMATION been confirmed? _xYes __No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Photographs of the excavation (reference 3a, 3b, 5, 6) and interviews with two separate project personnel confirm this information.

Block 4 **SOURCES OF INFORMATION** (check appropriate box/es & source number from reference list)

No available information	[ ]		Analytical data	[ ]	
Anecdotal	[ ]		Documentation about data	[ ]	
Historical process data	[ ]		Disposal data	[ ]	
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Summary documents	[ ]		Well data	[ ]	
Facility SOPs	[ ]		Construction data	[ ]	
OTHER	[X]	2a, 2b, 2c			

REFERENCES

1. WINCO, Radioactivity Incident Report, August 28, 1960.

2(a). WINCO, Memo of Conversation, December 17, 1991, between Neilson Birch, Environmental Compliance and Frank Ward, Plant Projects Personnel.

2(b). WINCO, Memo of Conversation, December 18, 1991, between Neilson Birch, Environmental Compliance and George Bruha, Plant Projects Personnel.

2(c). WINCO, Memo of Conversation, January 8, 1992, between Brenda Cole, Environmental Compliance and George Bruha, Plant Projects Personnel.

3(a). WINCO, Photograph, Project Title: Fuel Processing Facility Upgrade (FPFU) - Low-Level Waste Collection System Modification, Contract # S-2165, Date: November 11, 1983, Subject: Cell Walls to EL-4895' 0" - 83-602-1-6.

3(b). WINCO, Photograph #82 3471, Photographic Services WCB W-1.

4. WINCO, Environmental Evaluation for disposal of WL-102 Low Level Contaminated Soil, May 17, 1984.

5. WINCO, Photograph #82-3468, Photographic Services WCB W-1.

6. WINCO, Photograph #82-4162, Photographic Services WCB W-1.

7. 1990 Surface Radiation Survey

8. 1990 - 91 Surface Radioactivity Cleanup Status

ECA 25 REFERENCE 1

(Reference Not Legible)

RECEIVED
JAN 04 1991
ER FILE COPY

RADIOACTIVITY INCIDENT REPORT

0037201

Supervisor _____ Date _____

H.P. Representative on Duty _____ Time _____

Location _____

Material Involved _____

Area Affected _____

Description _____

PERSONNEL

NAME	EGW INVOLVED

Examinations or Samples Recommended as Follows: _____

RADIATION OR CONTAMINATION

Direct Radiation _____

Contamination _____

Air Activity _____

Immediate Corrective Measures _____

Recommended Preventative Measures _____

Undesirable Conditions Remaining After Corrective Action _____

Further Action _____

(Original to Supervisor via Department Head. Copy to H. P. File via Department Head)

Signed-
H.P. Representative _____ DATE _____

Acknowledged-
Supervisor _____ DATE _____

- Bld + dirt adjacent to 604 bldg
- Bld + dirt adjacent to bldg
- Cont. 2-4 Rep/hr
- Ruptured line Cont. bldg + area around bldg

- 2-4 Rep/hr
- 2-4 Rep/hr
- None detected

[Roentgen equiv physical
87 ergs/g Sub dose — Radiation

- Nine Cubic yards of dirt removed & ____ to burial grounds, Bldg washed to reduce Cont. to acceptable levels

- Leave ___ ____ ___ open when pump is in operation.

1 rad = 100 ergs/gm
for beta & gamma low energy source
1 Rem = 1 rad
1 REP = 87 ergs/g = 1 R/hr

ECA 25 REFERENCE 2(A).

ECA 25 REFERENCE 2(A).

FORM WINCO-5027 (8-84)

Westinghouse Idaho
Nuclear Company, Inc.

MEMO OF CONVERSATION

Date Dec 17, '91 Time 8:00 am Commitment Made ☐ Yes ☐ No Date: _____

Person Calling Nielsen Burk Person Called Frank Ward started with WINCO 1978

Representing WINCO Representing WINCO

Purpose of Conversation Discuss the unloading of liquid wastes from trucks at CPP. CPP-20

Text of Conversation Unloading took place by pressurized vessel discharge. Leaks were the result of holes in the transfer line. During transfer the vessel would be pressurized to around 15 psi.

Benn was removed twice. No contamination found except one section next to valve box C-30 at 40' below grade. First 10' of back fill was < 5 mR/hr the rest was clean soil. One excavation that would have removed the burn was the installation of Valve box C-30 and transferlines. The other excavation would have been the EPFU project which installed tanks 132 and 133.

Betty Standfield should have records of contamination found. George Bruha has EPFU information. Project 2165 Low Level Waste.

Signed Nielsen Burk Date 12/17/91

ECA 25 REFERENCE 2(B).

FORM WINCO-5027 (8-84)

Westinghouse Idaho
Nuclear Company, Inc.

MEMO OF CONVERSATION

Date Dec. 18, 1991 Time _____ Commitment Made ☐ Yes ☐ No Date: _____

Person Calling Nielsen Dursti Person Called George Arnhe

Representing _____ Representing _____

Purpose of Conversation _____

Text of Conversation When did the soil come from that was used to backfill ~~over~~ @ for the EPEU project?

That fill came from a pit at Control.

Signed _____ Date 12/18/91

ECA 25 REFERENCE 2(c).

FORM WINCO-6027 (8-91)

Westinghouse Idaho Nuclear Company, Inc.

cc: Brenda Cole
George Bruha

MEMO OF CONVERSATION

For: Carol Mascareñas

Date Jan 8, 1992 Time 2:20 pm Commitment Made ☐ Yes ☐ No Date: _____

Person Calling B Cole Person Called George Bruha 6 3513 5306

Representing EP Representing Major Projects

Purpose of Conversation Find out if the Dirt @ 604

Text of Conversation East Side excavation they were allowed to use 3mR/hr dirt They backfilled with ~10 ft w/ 3mR/hr & ~30 ft with clean dirt Time frame was about 1984.

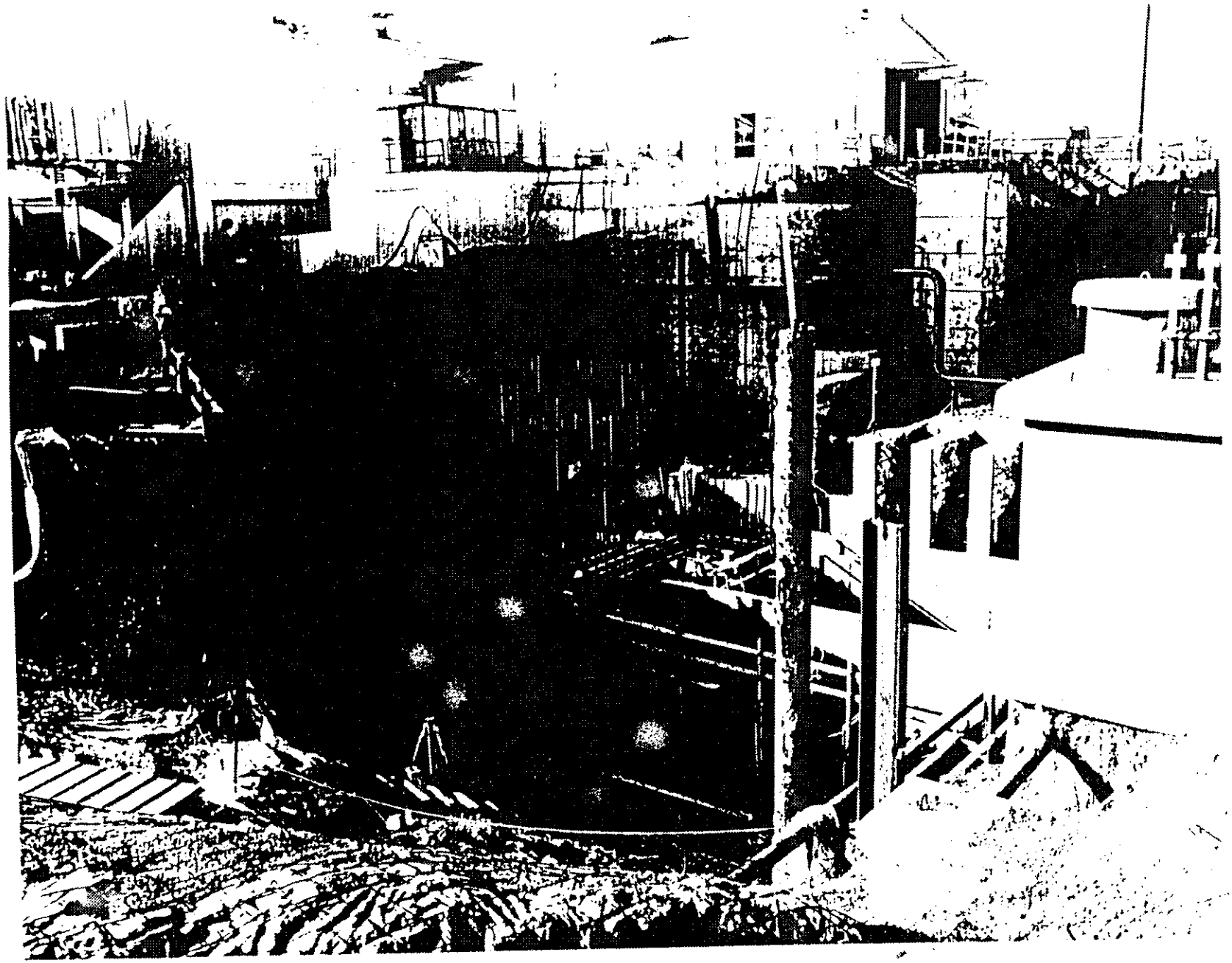
North side excavation they backfilled ~10ft with 5mR/hr dirt & then ~30 ft with clean dirt.

Post-it™ brand fax transmittal memo 7671 # of pages ▸

To Carol Mascareñas	From B. Cole
Co.	Co.
Dept.	Phone # 6 8520
Fax # 6 0165	Fax #

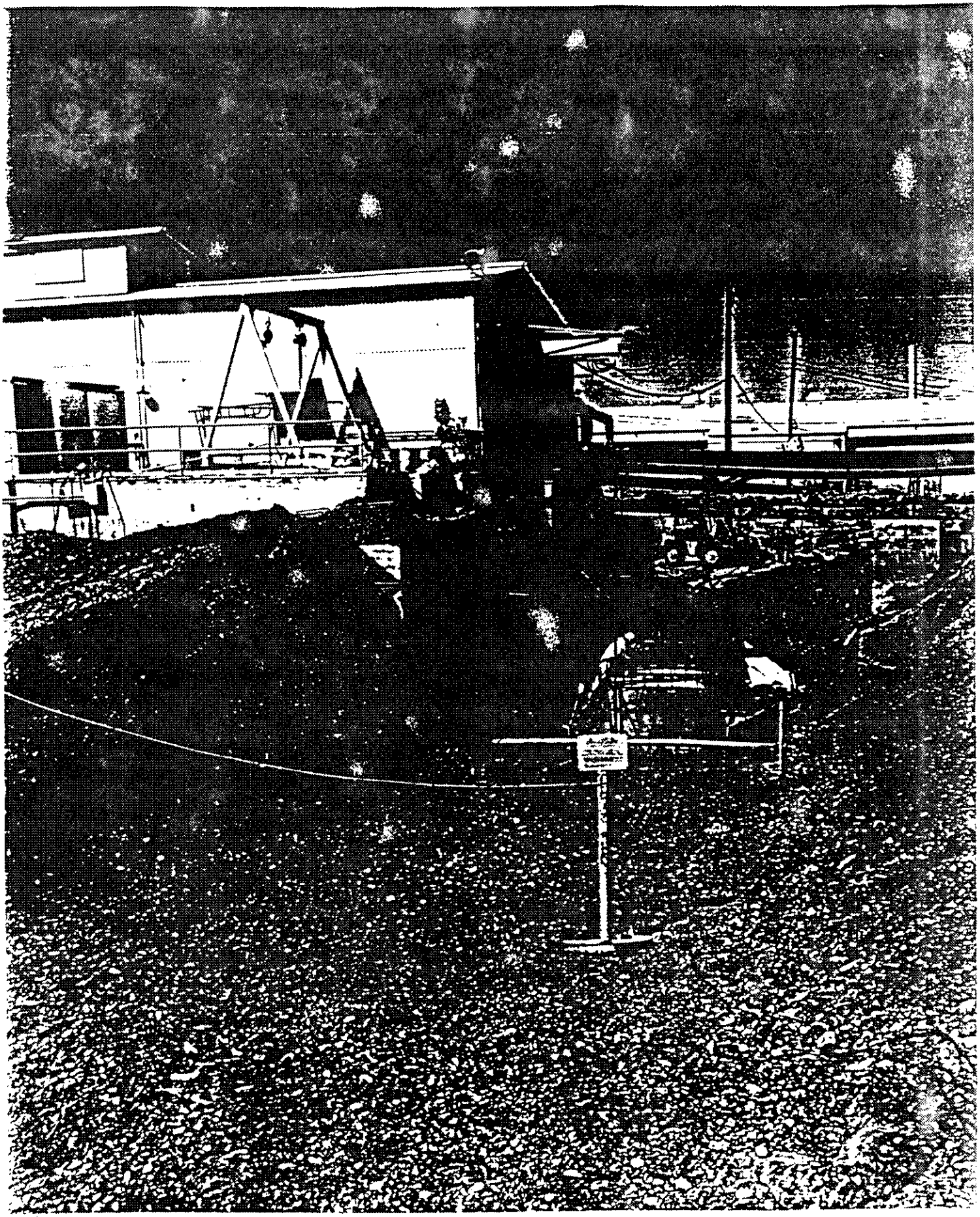
Signed Brenda Cole Date 1-8-92

ECA 25 REFERENCE 3(A).



PROJECT TITLE: FPFU - Low-Level Waste Collection System Modification
CONTRACT NO: S-2165
CONSTRUCTION CONTRACTOR: Ovard & Collins
DATE: November 11, 1983
SUBJECT: CELL WALLS TO EL-4895' 0" - 83-602-1-6

ECA 25 REFERENCE 3(B).



82 3471

ECA 25 REFERENCE 4.

Circular

CDN 685

ENVIRONMENTAL EVALUATION

for

DISPOSAL OF WL-102 LOW LEVEL CONTAMINATED SOIL

EFFLUENT MONITORING AND ENVIRONMENTAL SCIENCES

RADIATION AND ENVIRONMENTAL SAFETY SECTION

WESTINGHOUSE IDAHO NUCLEAR CO., INC.

MAY 17, 1984

1. INTRODUCTION.

During the summer of 1983, work was begun on the Fuel Processing Facility Upgrade (FPFU) at the Idaho Chemical Processing Plant (ICPP). One of the activities of this upgrade was the Low Level Waste Upgrade Project, involving replacement of the WL-102 tank. Much of the soil excavated from around the tank during replacement was found to be contaminated. Highly contaminated soil was boxed and transported to the Radioactive Waste Management Complex (RWMC). Low level contaminated soil was moved to an area east of CPP-603 (Figure 1) until a permanent means of disposal could be found. Most of the soil in the pile east of CPP-603 was transported there in August and September of 1983.

Burial of the contaminated soil on the ICPP site was chosen as the best method of disposal. Finding an appropriate site for burial, however, has been a problem. Sites previously considered include the south perimeter of the ICPP facility, the southeast perimeter, and several areas outside the ICPP boundaries. The site currently under consideration lies in the northeastern corner of the ICPP facility, as discussed in 2.2 below.

2. DESCRIPTION OF THE PROPOSED ACTION.

2.1 Objectives.

The objective of the project is to dispose of the contaminated soil in a safe, environmentally sound manner. Disposal should not impact present plant activities or future plant expansion. The soil disposal will be accomplished in a manner which will prevent or minimize local spread of contamination during loading, transport and burial.

2.2 Location.

The site now selected for disposal lies in the northeastern corner of the ICPP plant site, situated between the animal and security fences (Figure 1). The main burial area will be a trench 10 feet deep beginning on the east side of the ICPP, north of the sewage line leading to the Domestic Waste Treatment Plant (DWTP). It continues to the north perimeter, and runs west along the north fence for approximately 500 feet. A smaller area will exist further south, between the sewage line and a proposed drainage channel. Disposal in both areas will be on a one time only basis (Reference 1). The trench shall be 10 feet deep, 25 feet wide at the bottom, and 45 feet wide at the top, lying 5 feet inside the animal fence. Slope of the sides is 1:1. Drawings and coordinates of the trench shall be provided on an "as built" basis. Excavation and burial criteria are the same as outlined in Reference 2 except for the change in site location.

2.3 Project Plan.

The project calls for approximately 12,000 cubic yards of soil to be buried in the trench. Contaminated soil will be spread and compacted in the trench to a depth of 8 feet. Two feet of clean fill (approximately 4,000 cubic yards) will be placed on top to prevent dispersion of contaminated soil.

Soil will be moved from the pile east of CPP-603 to the burial area along a designated route (Figure 1). This route was chosen to minimize potential contamination spread. A contractor will supply loaders, dump trucks, compaction and earth moving equipment necessary to complete the job.

The project will basically consist of loading the trucks at the dirt pile, transporting the soil along the route to the trench, dumping the soil there for spreading and compaction, and returning to repeat the procedure. Special precautions will be taken to limit spread of contamination. These are discussed in section 4.1.1.

3. DESCRIPTION OF THE EXISTING ENVIRONMENT.

The existing environments of the INEL and ICPP have been described in detail elsewhere (References 3 and 4). As such, the environmental characteristics of the site and facility will not be detailed here.

The environment of the burial area is the same as described above. The land generally slopes gently toward the Big Lost River. Basically undisturbed high steppe lies north of the burial area. The DWTP lies to the east, and the remainder of the ICPP facility to the south and west.

4. POTENTIAL ENVIRONMENTAL EFFECTS.

4.1 Radiation Exposure.

Radionuclides found in the contaminated soil stockpiled east of CPP-603 are Co-60, Cs-134, Cs-137, Eu-154, Eu-155, Pu-238, and Pu-239/240. Average total sample activity was 1 E+3 d/s/g. Greater than 99% of the activity was due to Cs-137 and Sr-90. Plutonium is well tagged with fission products, with the average total Pu to Cs-137 ratio being 1:350.

External exposure readings from the pile are generally 2-3 mR/hr, with maximum readings being less than 30 mR/hr (Reference 2). Primary inhalation dose hazards are Pu and Sr-90. Concentrations of radionuclides in the soil are low enough so as not to present significant internal or external hazards. Special health physics precautions will be taken, however, to minimize potential exposure or spread of contamination.

4.1.1 Special Health Physics Precautions.

4.1.1.1 Transport Route.

A specific route has been designated for transporting the dirt from the pile to the burial area (Figure 1.). This route minimizes intersection of the transport route with general automobile and pedestrian traffic, reducing the probability for spread of contamination.

4.1.1.2 Loading and Transport.

The following precautions will be taken to minimize local spread of contamination during loading and transport:

The soil must be dampened prior to loading on the trucks;

No soil is to be loaded above the sideboards of the truck;

Dirt spilled on the truck during loading and dumping will be brushed off by contractor personnel before the trucks are allowed to move;

No operations will be allowed when the wind speed exceeds 25 mph;

Health physics technicians will be present at the loading and dumping sites to assure minimum possible contamination spread;

the transport route will be roped off where necessary to prevent inadvertent access to the route and prevent possible contamination spread;

areas where the transport route and general traffic routes cross will be periodically checked to insure there is no contamination present. Surveys will be performed each day after the trucks are finished and before buses are allowed into the area;

contractor personnel will be informed of the contamination present and precautions which need to be taken; and

the Operational Health Physics subsection, Radiation and Environmental Safety section (R&ES), may request changes in equipment, personnel or procedures to insure necessary contamination control is present.

4.1.1.3 Decontamination.

All equipment will be decontaminated at the completion of the project in a manner deemed appropriate by the Operational Health Physics subsection and the Projects Department.

4.1.1.4 Sampling.

Soil being buried will be sampled by health physics technicians from approximately every tenth truck which dumps. A daily composite sample will be made and submitted for radioanalysis. Radioanalyses performed on all samples will consist of a gamma-scan and a gross alpha count. If gross alpha measurements are high, qualitative and quantitative analyses for alpha emitters (mainly Pu) will be performed. Samples will need to be saved in order for EM&ES personnel to make this decision.

4.2 Ground Water.

The proposed location and shallow burial of the contaminated soil will preclude any problems with well water contamination. ICPP production wells No. 1 and 2 are located greater than 500 feet to the west of the proposed burial site, while the ICPP potable water well (No. 4) is located approximately 300 feet north of the proposed burial site. These distances are sufficient to prevent shallow migration of radionuclides to the ICPP wells, given past history of ICPP soils to adsorb fission products. According to available USGS maps of the ICPP, no abandoned wells or boreholes exist in or near the proposed burial site which could provide pathways for radionuclides to the aquifer. Future placement of wells in or near this area will require careful evaluation prior to drilling.

Formation of a perched-water body, such as that recently determined to exist under the Service Waste Percolation Pond (SWPP), is thought to be unlikely. The Projects Department has pointed out that the permeability of the soils in the northeast corner of the ICPP is 4 to 6 times greater than that of the soils at the south end of the facility. Because of this greater permeability, the northeastern burial site is not as likely to be impacted by shallow ground waters as is a southern burial site.

There is no major source of recharge upstream of the northeastern site. Furthermore, discharge to the DWTP is only 25,000 gallons/day, compared to the 1.5 million gallons discharged daily to the SWPP.

The ICPP is underlain by three shallow sedimentary layers, all of which slope southward and away from the proposed northeastern site. A perched-water body formed under the Domestic Waste Treatment Plant (DWTP) would thus be directed away from the burial area.

4.3 Surface Water.

The proposed burial area does lie topographically lower than much of the ICPP site. Drainage from the site runs to the north. As a result, problems with surface drainage could occur, particularly during the excavation and filling period. A proposed drainage system (Reference 5) will route most of the plant surface drainage away from the burial area.

The possibility of a 100 or 300 year flood disturbing the site has also been considered. There is a probability of dispersion of low-level radioactive contamination from the burial site in this instance. A greater concern, however, would be the spread of high level contamination in other parts of the plant inundated by a flood of this magnitude. The ICPP is designing a dike system to route flood waters away from the plant site.

4.4 Dispersion of Contaminated Soil.

4.4.1 Dispersion by Plants and Wildlife.

Burrowing rodents and radionuclide uptake by plants do represent potential pathways for dispersion of the buried radioactive soil. Dispersion by rodents is probably of greater concern than plant uptake. Because of the low levels of contamination present in the soil, the potential for significant spread of contamination seems to be minor.

4.4.2 Mechanical Dispersion.

One pathway for dispersion of contaminated soil is during the mechanical phase of the project. Dust raised by front-end loaders, caterpillars, graders, and blown from the beds of trucks hauling the soil could result in local spread of contamination. To prevent or minimize this situation, all phases of loading, transporting, dumping, and burying the dirt will be closely supervised by the Operational Health Physics subsection. Operational Health Physics has previous experience in moving contaminated soil, and will be responsible for determining what procedures are necessary to limit spread of contamination and provide adequate worker protection.

4.5 Other Effects.

The project is not expected to have any other environmental impacts. No long term effects are expected as long as the site is allowed to remain undisturbed.

5. ENVIRONMENTAL MONITORING AND MEASUREMENTS.

Ambient air monitoring around the CPP-603 dirt pile is currently done by the Effluent Monitoring and Environmental Sciences subsection (EM&ES). EM&ES will continue air monitoring during loading and transport phases of the project to determine the extent, if any, of contaminated dust dispersion.

As discussed in section 4 above, health physics technicians will perform periodic ground surveys along the transport route to detect and prevent spread of contaminated soil. Also, periodic sampling of the soil will be done to determine the amount of radioactivity in the soil.

6. ALTERNATIVES.

Burial of the soil is considered the only feasible alternative. Boxing and shipment to the RWMC is not cost effective, is not warranted for the low levels of radioactivity present, and would occupy a sizeable amount of the available burial volume. Leaving the pile in its present location allows dispersion by wind, leaching of radionuclides by rain and watering, and constant attention by health physics and EM&ES personnel.

Several alternative sites for burial have been considered. The most attractive site was burial along the southern perimeter of the ICPP facility (Reference 2). Transporting the soil would have been easier and faster, resulting in less potential for spreading contamination. That area, however, is potentially threatened by a perched-water body beneath the SWPP. Other perimeter sites were considered, but were rejected because of their impact on potential plant expansion. Areas outside the ICPP perimeter which were initially considered were discarded at the request of DOE-ID.

7. SUMMARY.

Environmental impacts of the project are limited. This is due primarily to the low levels of radioactive contamination in the soil. The most significant potential impact appears to result from dispersion of contaminated soil during loading and hauling operations. This dispersion can be minimized, however, with proper health physics precautions.

Movement of the dirt to the proposed disposal location and its subsequent burial has less potential environmental impact than other alternatives. Transport and burial of the contaminated soil can be accomplished without undue exposure to contractors, ICPP and INEL personnel, or the general public.

8. REFERENCES.

1. J.F. Erben, Letter JFE-13-84, to R.J. Bliss, E.W. Pottmeyer, and J.J. Volpe, "Location of Contaminated Dirt Burial" (April 16, 1984).

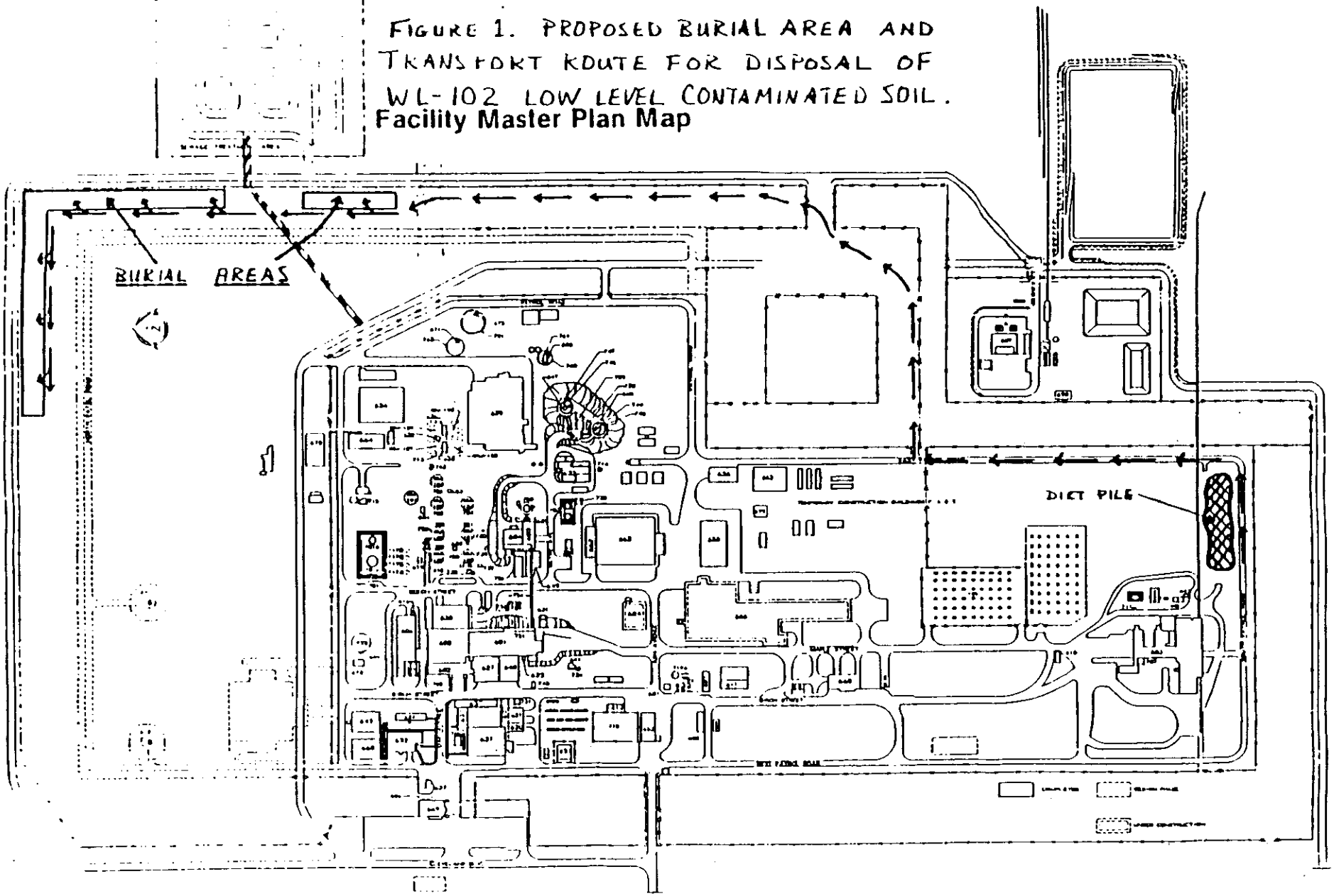
2. G.E. Bingham, WINCO, Letter BING-68-84, to M.J. Bonkoski, DOE-ID, "Disposal of Excess WL-102 Contaminated Dirt" (April 10, 1984).

3. J.H. Keller, et al., Environmental Evaluation for field measurements of Wet Deposition of Radioiodine, Exxon Nuclear Idaho Co., Inc., (June 1983).

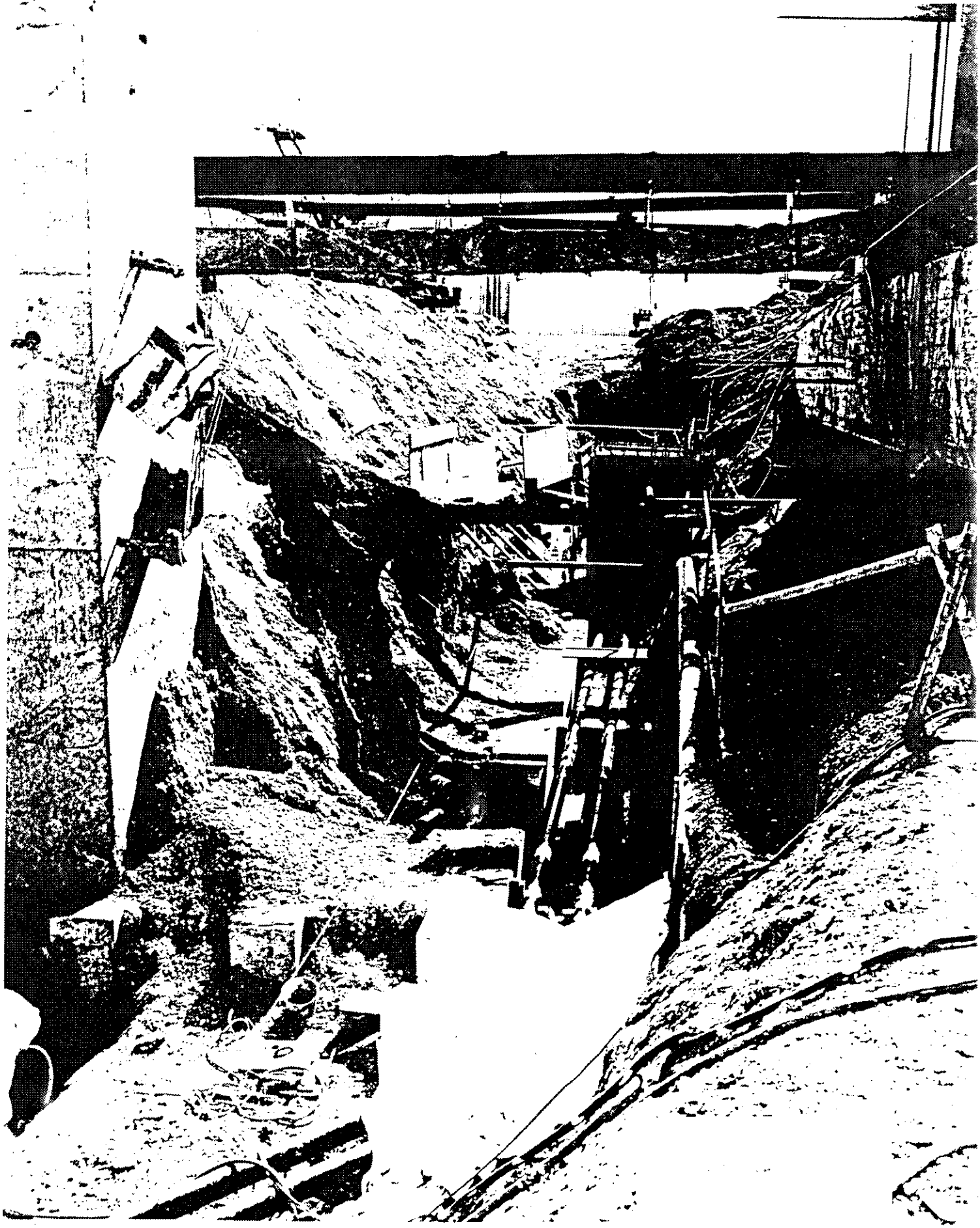
4. Environmental Sciences Section, EG&G Idaho, Inc. Environmental Evaluation for the PEW Evaporator Disposal Alternatives, EE-83-002 (May 1983).

5. Environmental Evaluation for ICPP Drainage System, ICPP, INEL, Idaho.

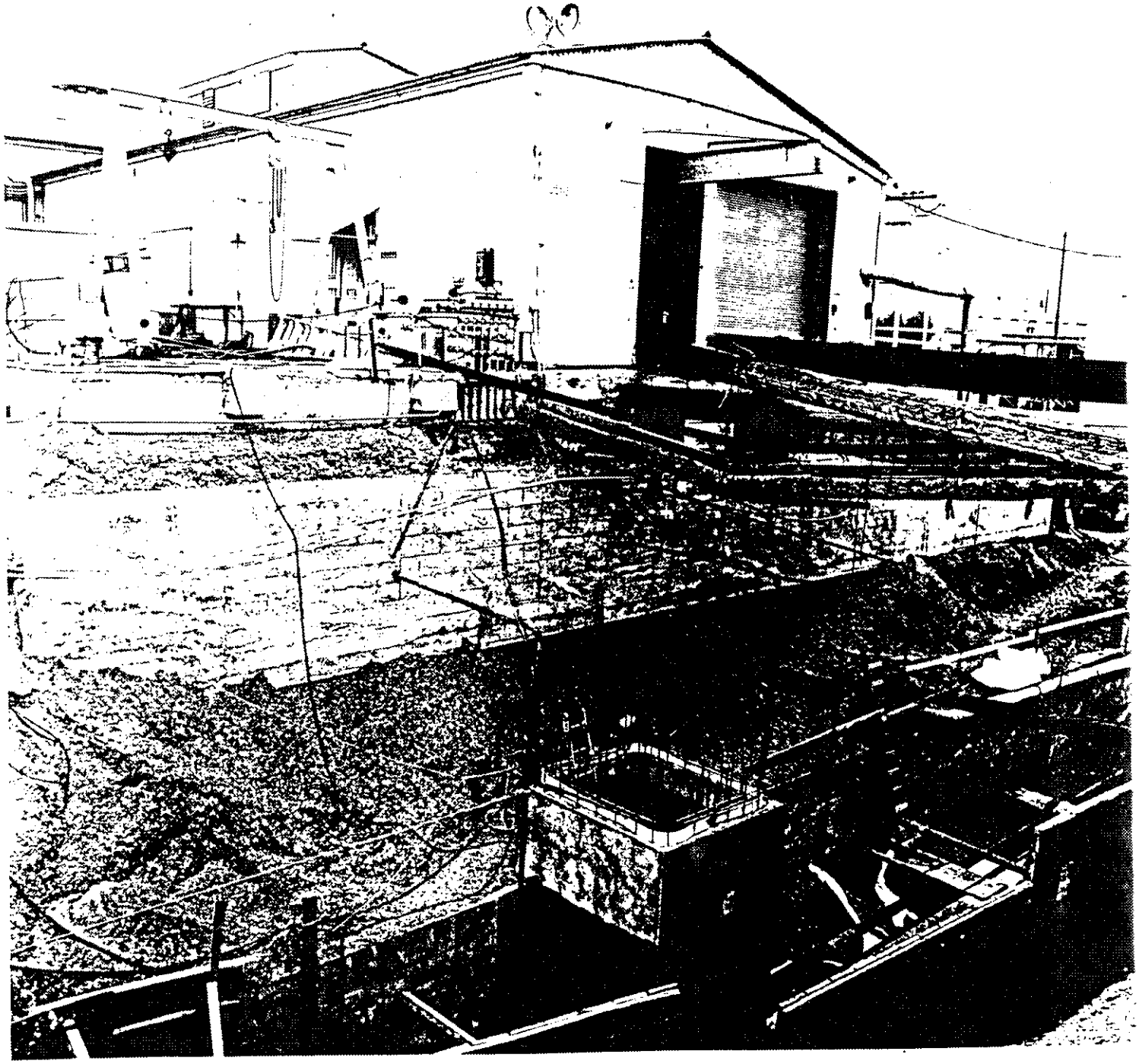
FIGURE 1. PROPOSED BURIAL AREA AND TRANSPORT ROUTE FOR DISPOSAL OF WL-102 LOW LEVEL CONTAMINATED SOIL.



ECA 25 REFERENCE 5



ECA 25 REFERENCE 6



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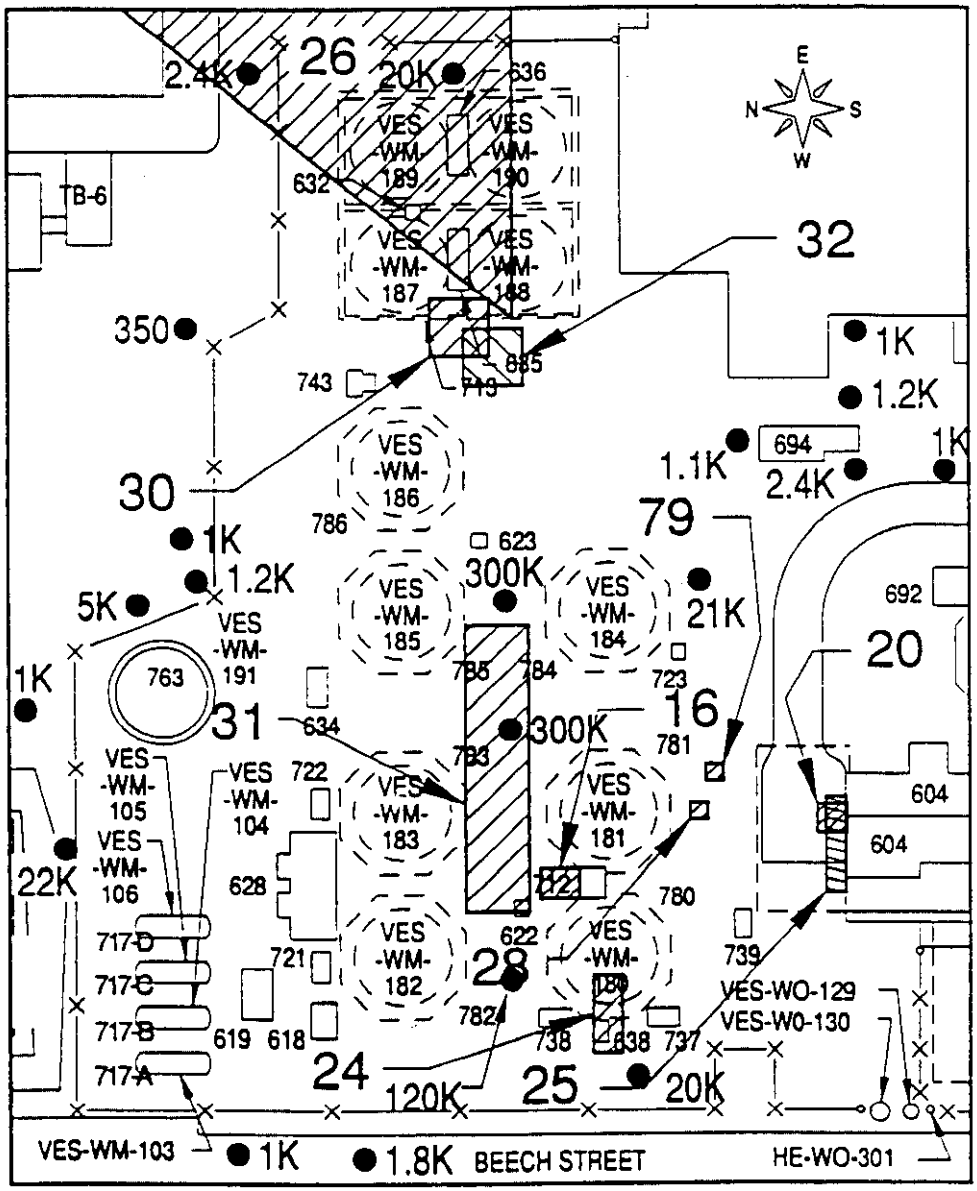
ECA 25 REFERENCE 7



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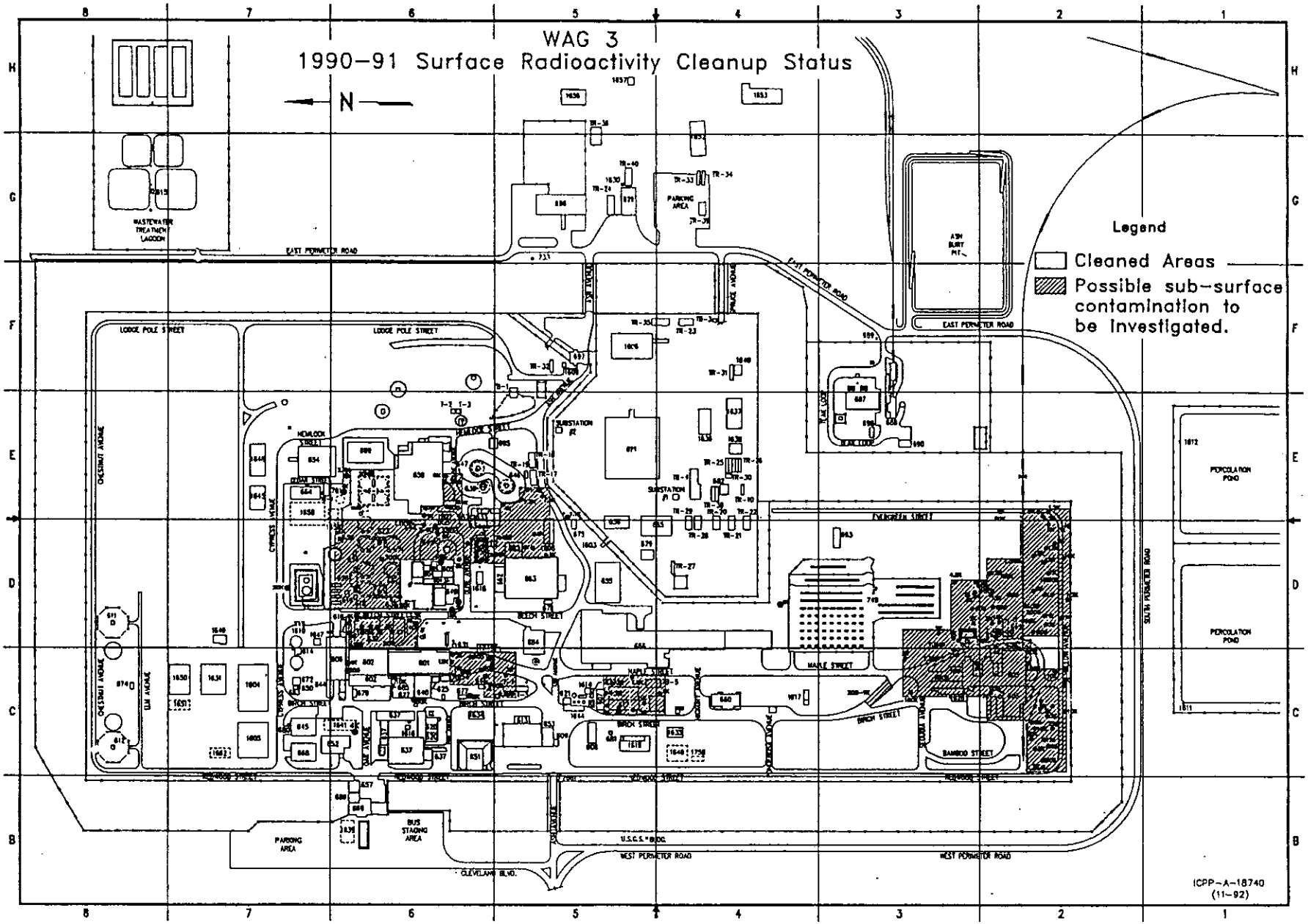
Site Locations within OU 3-07 with Rad Points

ECA 25 REFERENCE 8


WAG 3
1990–91 Surface Radioactivity Cleanup Status
N
Legend
Cleaned Areas
Possible sub–surface contamination to be Investigated.
EAST PERIMETER ROAD
WEST PERIMETER ROAD
LODGE POLE STREET
CHESTNUT AVENUE
CYPRESS AVENUE
ELM AVENUE
OAK AVENUE
BIRCH STREET
MAPLE STREET
EVERGREEN STREET
BAMBOO STREET
HEMLOCK STREET
SOUTH PERIMETER ROAD
CLEVELAND BLVD.
PARKING AREA
BUS STAGING AREA
ASH BURY PIT
PERCOLATION POND
PERCOLATION POND
WASTEWATER TREATMENT LAGOON
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