OUTGOING LTR NO:
ORDER # 5400.1
4 RF 08465

DIST.	LTR	ENC
ARAL, M. E.		
MAN, H. S.		
NCH, D. B.		
RNIVAL, G. J.		
PP, R. D.		
MS, J. G.		
RERA, D. W.		
NNI, B. J.		
RMAN, L. K.		
LY, T. J.		
DAHL, T. G.	X	X
BIG, J. G.		
TCHINS, N. M.		
L, R. E.		
BY, W. A.		
ESTER, A. W.		
HAFFEY, J. W.		
NN, H. P.		
RX, G. E.		
DONALD, M. M.		
KENNA, F. G.		
NTROSE, J. K.		
RGAN, R. V.		
TTER, G. L.	X	X
ZUTO, V. M.		
ING, T. L.	X	X
NDLIN, N. B.		
TLOCK, G. H.		
EWART, D. L.		
GER, S. G.		
LLIVAN, M. T.		
VANSON, E. R.		
LKINSON, R. B.		
LSON, J. M.		
YANT, R. D.		
NDERSON, S. A.	X	X
OKE, S. D.	X	X
RR, K. A.	X	X
CKLE, G. L.	X	X
RCHNER, K. E.	X	X
CKEOWN, T. J.	X	X
TER, K. G.	X	X
TERSELL, J. C.	X	X
HILLIPS, D. E.	X	X
NDA, C. M.	X	X
CHUBERT, A. L.	X	X
TIGER, S. G.		
ARRET, J.		
[illegible]	X	X
[illegible]	X	X
ORRES CONTROL	X	X
DMN RECORD/060		
RAFFIC		
ATS/T130G		

CLASSIFICATION:

CNI		
NCLASSIFIED	X	X
ONFIDENTIAL		
ECRET		

AUTHORIZED CLASSIFIER SIGNATURE

8/15/94
DATE

IN REPLY TO RFP CC NO:
NONE

ACTION ITEM STATUS
☐ PARTIAL/OPEN
☐ CLOSED

LTR APPROVALS:

ORIG & TYPIST INITIALS
TJM:ceszilagyi

F-46469 (Rev. 01/94)

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EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

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AUG 1994 RECEIVED

August 11, 1994

94-RF-08465

Thomas E. Lukow
Waste Management Division
DOE, RFFO

Attn: R. J. DiSalvo and W. J. Prymak

LAND DISPOSAL RESTRICTION (LDR) FEDERAL FACILITY COMPLIANCE AGREEMENT (FFCA) PROJECT MANAGER'S MEETING MINUTES FOR JULY - SAA-088-94

Enclosed for your transmittal to the Environmental Protection Agency (EPA) Region VIII are the minutes from the July LDR FFCA Project Manager's meeting. Submittal of the minutes is required under the terms of the May 10, 1991, LDR FFCA II. Because the minutes are required to be transmitted to the EPA within ten days of the meeting date, an advance copy of the minutes was provided to W. J. Prymak. Questions and comments should be directed to me at extension 9402 or Tim McKeown, LDR Waste Compliance, at extension 9410.

Scott A. Anderson, Manager
LDR Waste Compliance

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Orig. and 1 cc -T. E. Lukow

Enclosure:
As Stated

GROUP | OFFICE
Stiger

Best Available Copy

ADMIN RECCRD
SW-A-003494

LAND DISPOSAL RESTRICTION
FEDERAL FACILITY COMPLIANCE AGREEMENT
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

PROJECT MANAGER'S MEETING MINUTES

Meeting Date:	July 28, 1994
Meeting Location:	3E Group Conference Room, First Floor, Building 052, Denver West

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The meeting was convened at 1:10 p.m.

INTRODUCTIONS:

The following personnel and organizations were represented at the meeting:

Harlen Ainscough	Colorado Department of Public Health and the Environment (CDPHE)
Fred Dowsett	CDPHE
Lisa Weers	CDPHE
Joyce Williams	CDPHE
Bill Prymak	Department of Energy (DOE), Rocky Flats Field Office (RFFO) - Waste Programs (WP)
Glenn Doyle	DOE, RFFO, Non-Radioactive Waste Program
Virgene Ideker	Aguirre Engineering/RFFO, Non-Radioactive Waste Program
George Dewhirst	BDM Federal/DOE, Headquarters (HQ) EM-352
Leon Collins	EG&G, Solar Ponds Remediation Project (SPRP)
Scott Anderson	EG&G, Land Disposal Restriction Waste Compliance (LWC)
Bob Baker	EG&G, LWC
Norm P. Cypher	EG&G, Building 374 Liquid Waste Processing
Sandy Day	EG&G, LWC
John Dick	EG&G, Sample Management Office (SMO)
Ernest C. Garcia	EG&G, Technology Development (TD)
Thomas Glenn	EG&G, Environmental Technologies (ET)
Al Hohl	EG&G, LWC
Steve Keith	EG&G, SPRP
Bob Krenzer	EG&G, LWC
Tim McKeown	EG&G, LWC
Celia Moynihan	EG&G, Waste Identification and Characterization (WIC)
Bruce Palmer	EG&G, ET
Dave Phillips	EG&G, TD Waste Systems Development

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Walt Pierce	EG&G, LWC
Alec Schendzelos	EG&G, WIC
Gretchen Soule'	EG&G, LWC
Jerry Stakebake	EG&G, ET
Dennis Stull	EG&G, TD Waste Projects
Steve Tallman	EG&G, Non-Destructive Testing (NDT) Operations
Denny Weier	EG&G, Statistical Applications
Steve Felice	Dames & Moore
Michael Keller	ERM/Rocky Mountain
Geoff Asmus	S. M. Stoller Corporation
Susie Woltkamp	S. M. Stoller Corporation
Mark Doherty	Wastren, Inc.
Glenn Ennis	Wastren, Inc.
Jeff Harrison	Wastren, Inc.
Ann Quinn	Wastren, Inc.
Susan Shrader	Wastren, Inc.

The list of attendee signatures is provided as Attachment 1.

AGENDA:
The agenda for the meeting is provided as Attachment 2.

MEETING DISCUSSION:

SCOPE DISCUSSION INVOLVING FISCAL YEAR (FY) 1995 ANNUAL LAND DISPOSAL RESTRICTION PROGRESS REPORT (APR) - B.Prymak, RFFO, opened the meeting with a discussion of the current format of the APR and the plans for preparation of the document in 1995. Presentation materials prepared by Rick J. DiSalvo (who was unable to attend the meeting) were distributed that presented three options for the format of the 1995 APR: (1) the preparation of the document in the same format as the 1994 version, (2) preparation of a streamlined version of the document, and (3) not preparing the document at all (see Attachment 3). T. McKeown, EG&G, noted the recommendation in the presentation was to streamline the document and to minimize on the duplication of information currently presented in other various Rocky Flats Environmental Technology Site (RF) reports periodically submitted to CDPHE. The current schedule calls for the Site Treatment Plan (STP) to be submitted in February 1995 and the APR to be submitted in March of 1995. F. Dowsett, CDPHE, stated that the STP will not be final in February, and will require time for public comment and review by CDPHE. Additionally, the STP does not specifically address progress towards LDR compliance by RF, but instead proposes a plan for achieving compliance. Therefore, there will be a need for an update to accomplishments over the past year and progress in achieving LDR compliance. In this manner, continuity within the RF compliance program will be evident until the STP is finalized. CDPHE agreed to streamline the content of the APR document and minimize the redundancy

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of information submitted to CDPHE by multiple RF document submittals. RFFO agreed to submit a written proposal to CDPHE to change the format of the APR. CDPHE requested that RFFO specify within the proposal the other RF publications that provide the information that is to be removed from the APR.

STATUS OF SOLAR POND 207C WASTEWATER MANAGEMENT - S. Keith, EG&G SPRP, distributed a discussion paper outlining the considerations for removing 207C Pond sludges to the Building 374 Liquid Waste Process Facility (see Attachment 4). The emptying of the ponds into the temporary storage tanks will probably start next week and the pond is planned to be emptied and cleaned in this calendar year (1994). There are several barriers to the use of Building 374 for treatment of the waste from this pond, including issues involving storage, transfer and processing of the material. In order to get the material to Building 374 via pipe, clean water would need to be added to dilute the brine and dissolve the crystals. This would take approximately 1 to 1.5 million gallons of water. The material could be trucked to the building without adding water, but Building 374 has no capability to receive or process the material in this form.

F. Dowsett, CDPHE, inquired why the waste, which was originally pumped to the pond directly from Building 374 because the process in Building 374 was down, could not be sent back to Building 374 and solidified into Saltcrete. N. Cypher, EG&G, stated that the spray drying equipment in Building 374 is fifteen years old, and it is doubtful the spray dryer equipment could handle the increased processing load resulting from the transfer of Pond 207C brine to Building 374. Building 374 is currently operating at capacity and the logistics of increasing the load for Pond C wastewater is not feasible. F. Dowsett, CDPHE, inquired if the facility could potentially handle the load in six months. N. Cypher, EG&G, replied that the capital equipment upgrades that are currently planned would be completed in approximately three years based upon proposed schedules. F. Dowsett, CDPHE, said that the new schedules to treat the 207C Pond waste extend beyond two years, and if the potential exists to expedite this schedule by using Building 374, it needs to be explored. S. Keith, EG&G, noted that the potential may exist, but the increased throughput could cause the equipment to degrade, since it was not designed to handle the increased load.

F. Dowsett, CDPHE, inquired if the material could bypass the evaporator portion of Building 374 treatment and go directly to the cementation process that creates Saltcrete. S. Keith, EG&G, responded that the brine is currently more concentrated than the evaporator product, and that water would need to be added. L. Collins, EG&G SPRP, noted that based on a rough estimate, it could take 900 weeks to process the amount of material in Pond 207C. This is based on the output of the Saltcrete process of fifteen crates every three weeks. N. Cypher, EG&G, reiterated that the spray dryer is operating at capacity, and that there is only space to cure fifteen crates every three weeks. While it may be possible to produce more saltcrete crates with the existing

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cementation train, the curing space and the spray dryer capabilities constrain the rate of processing. On the current schedule, the equipment is shut down and cleaned every three to four days. F. Dowsett, CDPHE, inquired if these were the only constraints, and if more curing space were available, could the capacity and throughput be increased. N. Cypher, EG&G, remarked that it may be a possibility when capital equipment upgrades are completed and if more space to cure the newly generated saltcrete crates became available. F. Dowsett, CDPHE, repeated CDPHE's concern with storing the pond sludge in tanks for extended periods of time and the likelihood that the material will solidify within the tanks making the future transfer of the material for processing very difficult.

TOUR OF A WASTE CHARACTERIZATION REPORT - S. Day, EG&G, distributed presentation materials entitled "A Guided Tour of the Waste Characterization Report" and initiated a discussion of the strategy at Rocky Flats to characterize low level mixed (LLM) wastes (see Attachment 5). S. Day, EG&G, introduced a team of speakers to present the tour information. Waste Characterization Reports (WCR) for the LLM Lead, Roaster Oxide and Fluidized Bed Incinerator (FBI) Oil were made available at the meeting to CDPHE for reference and discussion during the waste characterization team presentations. The body of the WCRs are generally two to three pages long and include an Introduction, a discussion of the target criteria, and the current characterization of the waste form. The WCRs also include extensive Appendices, which were described in detail by members of the characterization team.

J. Harrison, Wastren, described Appendices A, B, and C of a WCR (see Attachment 6). Appendix A, Waste Identification and Characterization Reassessment, includes background information for the waste form, a description of the generating process, a summary of the analytical data available, identification of any subpopulations that are present, and a waste characterization regulatory discussion and conclusion. Appendix B, Contacts and Interviews, provides lists of waste generators, RCRA Unit custodians, operators and EG&G TD personnel. This Appendix also includes documentation of interviews that were conducted with personnel associated with the waste. Appendix C, Review Existing Data, includes an extensive review of the existing data relevant to the waste form, including: waste characterization, Land Disposal Restriction (LDR)[1] Treatment Standards, EG&G TD onsite treatment requirements, and offsite treatment waste acceptance criteria (WAC). F. Dowsett, CDPHE, said that many receiving sites are interested in radioisotope data for wastes, and that the type of radioisotopes that are present in a waste form is important characterization information for offsite treatment or disposal.

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[1] See 40 CFR 268.1, 268.43, and 268.43

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G. Ennis, Wastren, discussed Appendix D, Review Real Time Radiography (RTR) Tapes (see Attachment 7). Specifically, G. Ennis focused on the use of RTR tapes to confirm Debris Rule[2] determinations. The determination made based on viewing these tapes will confirm if, by visual inspection, more than half of the material in a container exceeds a particle size of 60 millimeters. RTR video tapes of a test drum, LLM Combustibles-Dry, and LLM Combustibles-Wet were played for the attendees by Steve Tallman, EG&G. Benefits of using RTR Tapes were presented, including cost savings and the minimization of potential worker exposures from actual sampling and drum handling activities.

S. Shrader, Wastren, presented results of a review of RTR tapes for LLM Lead (see Attachment 8). The goal of this review was to verify, through the use of RTR, which drums of Lead waste have packaged contents have a greater than ninety percent concentration of lead. Drums that meet this criteria are candidates for shipment to Scientific Ecology Group, Inc. (SEG) for treatment. Of the sixty-four tapes available for review, fifty-five drums were recommended to go to SEG, and nineteen drums were contaminated with identifiable nonlead objects. RTR video tapes from the investigation of the LLM Lead inventory were played for attendees by Steve Tallman, EG&G.

B. Baker, EG&G, discussed the status of discussions with SEG to treat Rocky Flats Lead waste. SEG receives radioactive lead from generators and decontaminates it to DOE release levels, or alternatively, will ship it back to the generating site for reuse. The WAC for SEG currently calls for the alpha radioactivity level of the waste to be below 10 nCi/g. Rocky Flats does not presently possess the capability to assay radioactive wastes to this level. SEG has stated that the 10nCi/g criteria is only a guideline and not a true permit restriction. F. Dowsett, CDPHE inquired if there was a permit limit for radioactivity. B. Baker, EG&G, responded that SEG's limits are imposed by their Nuclear Regulatory Commission (NRC) license and are based on a maximum amount of material, in grams and curies, onsite at any one time. AMES laboratory has already shipped lead waste to SEG for decontamination. The State of Tennessee may require the State of Colorado to agree to return of the untreated wastes to RF if there is a problem at SEG with processing the LLM waste.

J. Harrison, Wastren, discussed Appendix E of the WCR, Drum Walkdowns (see Attachment 9). This section includes documentation from the container files, and information from the examination of container markings. The objective of this activity is to verify the container contents to subpopulate the inventory for sampling and analysis (S&A), and to determine if the selection of easily accessible containers for S&A is random and representative of the inventory.

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[2] See 57 FR 37194, LDR for Newly Listed Waste and Hazardous Debris

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T. Glenn, Wastren, discussed Appendix F of the WCR, Waste Screening (see Attachment 10). The purpose of this event is to ensure the expected waste form is present, and to minimize the health and safety risk to the sample team. Screening technologies used include RTR, drum count, and headspace sampling. Drum count is used to verify the level of radioactivity present in the waste form. Headspace sampling is used to provide data for the correlation to lab analysis of waste samples for levels of organic compounds present in the waste and also verifies the absence of toxic gases. EG&G noted that headspace sampling on four drums of FBI ash and one drum of solidified bypass sludge has recently occurred in preparation of the upcoming sampling event.

J. Harrison, Wastren, discussed Appendix G of the WCR, Informal Sampling and Analysis (see Attachment 11). Informal S&A is performed when validated data are not needed, a representative sample is not necessary, or the data are not for waste certification purposes.

M. Doherty, Wastren, discussed Appendix H of the WCR, Formal Sampling and Analysis, focusing on the Solidified Bypass Sludge waste form (see Attachment 12). Three subpopulations were identified for the Solidified Bypass Sludge waste form. Subpopulation 1 consists of twelve drums of sludge fines generated prior to October 1992. Of these drums, five drums will be sampled. Samples will be obtained with a hand auger. Subpopulation 2 containing 1,994 drums, consists of a sludge/cement/diatomaceous earth mixture generated from 1987 to 1991. Fifteen drums will be sampled from this population, using a core-drilling machine. Subpopulation 3 consists of 123 drums of a sludge/cement/diatomaceous earth mixture with free liquids generated from 1987 to 1991. Seven from this subpopulation will be sampled. The type of sampling equipment used will depend on the amount of liquid present.

The data quality objectives for the S&A activities are based on LDR treatment standards, Nevada Test Site (NTS) WAC, and quality assurance requirements as discussed in the Waste Stream and Residue Identification and Characterization (WSRIC) Program Description. Sampling methodology development focused on how to select drums that would be representative of the entire population, and how to obtain samples that would be representative of the material in the drum. The number of drums to be sampled was based on the cube root of the number of drums in the subpopulation plus two and sampling equipment was chosen to obtain a sample that included material from all levels of the drum (top to bottom) . Analyses will be conducted for radiological parameters, F039 constituents, the remaining RCRA hazardous waste number constituents, NVO-325 (NTS WAC) parameters, and TD parameters including moisture content, metals, and other non-target criteria.

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Bruce Palmer, EG&G, discussed the selection of Solidified Bypass Sludge drums for sampling (see Attachment 13). Based on the development of sampling methodology, 15 drums of subpopulation 2 were randomly selected for sampling. Many of the randomly selected drums were hard to access, and in order to retrieve these drums, substantial delays would be incurred. An analysis was conducted to determine if drums representative of the entire population could be selected from easily accessible drums to avoid delays. The analysis concluded that the selection of easily accessible drums could be representative of the entire subpopulation.

Walt Pierce, EG&G, discussed the strategy for S&A activities designed to verify the presence or absence of F039 constituents in LLM wastes (see Attachments 14 & 15). Given the large number of constituents that need to be analyzed, a methodology has been proposed to eliminate the need to analyze for constituents that have never been used at Rocky Flats. EG&G noted that analysis for all of the F039 constituents is extremely expensive. F. Dowsett, CDPHE, said that although CDPHE is amenable to this type of strategy, the State that will eventually accept the waste needs to approve the techniques. One of the issues regarding disposal is that Utah has not been a participant in the FFC Act process because there is no DOE site in Utah. However the need for receiving sites to approve S&A activities may force Utah to get involved.

Denny Weier, EG&G, discussed the rationale behind the choice to sample four drums for the analysis of non-detect constituents (see Attachment 16). Non-detects are constituents that are present in amounts that can not be detected by laboratory analysis. Two types of errors can occur when making a hazardous determination for a waste form. A type I error occurs a waste is declared non-hazardous when it is in fact hazardous, and a type II error occurs when a waste is declared to be hazardous when it is not. The criteria for making a hazardous waste determination requires that there be less than a ten percent chance that a type I error will occur. This is the same basis used for selecting four drums for analysis of non-detect constituents. Statistical analysis of non-detects indicates a minimum of four samples are required for ninety percent confidence. If non-detects are recorded for four samples, there is a less than ten percent chance that the waste is hazardous for those constituents.

Alec Schendzelos, EG&G, discussed the sampling of FBI Oil from Tank T-103 in Building 774 (see Attachment 17). This tank has a 10,000 gallon capacity, and is filled with oils from multiple sources. These oils may be treated at the Diversified Scientific Services, Inc. (DSSI) waste furnace boiler in Tennessee. The configuration of the tank prevents mixing or sparging of the contents. In order to obtain a sample of material that was representative of the entire contents of the tank, a composite sample was created from samples obtained at successive depths. The composite sample is for analysis by DSSI and the individual samples will be subjected to "fingerprint" analyses onsite.

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A. Hodges, EG&G, discussed the sampling methodology and analytical results for the LLM waste form Roaster Oxide (see Attachment 18). Two approaches were used to determine the number of drums required for sampling. For Item Description Code (IDC) 069, the cube root of the population plus two was used. For IDC 869, non-detects are anticipated for volatile organic compounds (VOCs). As presented earlier in the meeting by D. Weier, EG&G, statistical analysis of non-detects indicates a minimum of four samples are required for ninety percent confidence. IDC 869, therefore, required four drums for sampling activities. Information distributed at the meeting contained photographs of drum contents, sample collection and sample preparation. Preliminary analytical results indicates VOCs present at levels below LDR standards.

S. Day, EG&G, presented the Comprehensive Treatment and Management Plan (CTMP) Sampling and Analysis Program Plan, designed to create a crosswalk between the WSRIC organization and S&A activities implemented under the CTMP program (see Attachment 19). The document briefly discusses the specifics of the CTMP S&A Program and references related documents that contain more detailed information on the topic. Referenced documents include the Rocky Flats Environmental Impact Statement (EIS), WCRs, the WEMS database, S&A Plans, and various Rocky Flats manuals and procedures.

F. Dowsett, CDPHE, thanked the waste characterization team for putting the presentation together and said that waste characterization at RF is a significant concern of CDPHE. Rocky Flats appears to be further along in their characterization strategy and implementation of a methodology than other DOE sites and the information presented during the meeting could be used to help standardize the collection and presentation of waste characterization data from other sites.

OTHER DISCUSSION - S. Anderson, EG&G, inquired about a statement in the Code of Colorado Regulations, Section 100.4, Permit Requirements and Conditions, 100.40, Contents of Application (Part A), number 13, which requires that a description of hazardous debris to be stored be provided (see Attachment 20). Does RF need to amend the Part A permit application to describe hazardous debris waste forms in storage? F. Dowsett, CDPHE, said that he would try to provide input on this issue to DOE and EG&G at the next meeting.

OTHER DISCUSSION - F. Dowsett inquired about a report received from Ross & Associates, a representative of the National Governors Association (NGA), containing information from the Mixed Waste Inventory Report (MWIR) database. The report discussed the "site preferred options" and "state preferred options" for each LLM waste form, and Ross & Associates noted that Rocky Flats had more discrepancies between the two types of preferred options than any other site. B. Prymak, RFFO, explained that the CTMP was used as the baseline for the selection of the state preferred options, while DOE, HQ guidance for the MWIR directed RF to evaluate technical matches at

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offsite treatment for all LLM waste forms. Therefore, offsite treatment options were presented as the "site" preferred option, and onsite treatment, the CTMP baseline, was presented as the "state" preferred option. In the Draft Site Treatment Plan (DSTP), due to the State of Colorado in August, the options will be presented as "onsite" and "offsite" preferred options as opposed to the "site" and "state" preferred options presented in the MWIR database.

Action Items:

1. CDPHE to examine Part A permit requirements regarding hazardous debris.

ADJOURNMENT

The meeting adjourned at 4:10 p.m.

Next meeting: 1:00 p.m.
Wednesday, August 24, 1994

Location: Third Floor Conference Room
EG&G Rocky Flats, Inc.
Building 051, Denver West

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LDR FFCA-II
PROJECT MANAGER'S MEETING
ATTENDANCE ROSTER

MEETING LOCATION: 1st Flr. Conf Rm., Bldg 052 DW

TIME: 1:00 p.m. **DATE:** July 28, 1994

ATTENDEE	ORGANIZATION	PHONE NUMBER
Fred Dowsett	CDPHE	692-3342
Geoff D. Thomas	S.M. Stoller	546-4426
Bob Krenzer	EG&G	273-6019
Susie Woltkamp	Stoller	546-4392
Ernest C. Gatch	EG&G	966-5980
Joyce Williams	CDPH&E	692-3362
Michael Keller	ERM	741-5050
Norm P. Cipher	EG&G	966-5782
George H Dewhirst	BDM Fed/LEM-352	301-601-5406
Lisa Weens	CDPHE	692-3451
Harlen Hengesh	CDPHE	692-3337
Leon Collins	EG&G	966 6968
Steve Keith	EG&G	966-8541
Gretchen Saulé	EG&G	966-6306
Bill Prymak	DOE	966-5979
Tim McKeown	EG&G	273-6148
Celia Meyerhans	EG&G	273-6028
Dave Phillips	EG&G	966-7104
Glenn Doyle	DOE	966-3087
Dennis Stall	EG&G	966-6340
Al Hohl	EG&G	966-3767
Virgene Baker	Aguirre / DOE	966-3487
Steve Felice	Dames & Moore	299-7881

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LDR FFCA-II
PROJECT MANAGER'S MEETING
ATTENDANCE ROSTER

MEETING LOCATION: 1st Flr. Conf Rm., Bldg 052 DW

TIME: 1:00 p.m. **DATE:** July 28, 1994

ATTENDEE	ORGANIZATION	PHONE NUMBER
Scott Anderson	LDR Waste Compliance	273-6164
Bob BAKER	LDR WASTE COMPL.	273-6177
Steve Tallman	NDT operations	966 2257
Glenn Ennis	WASTREN	450-0005
Thomas Glenn	EG&G - ET	966-2531
BRUCE PALMER	EG&G / ET	966-2075
WALT PIERCE	EG&G / FFCA	966-7425
JERRY STAKEBAKE	EG&G / ET	966-2133
Susan Schrader	WASTREN	450-0005
Mark Doherty	WASTREN	450-0005
ALEC SCHENDZELOS	EG&G/WIC	966-4224
JEFF HARRISON	WASTREN	450-0005
Ann Quinn	WASTREN	450-0005
Sandy Day	EG&G / FFCA	273-6012
Denny Weier	EG&G/Statisical Applications	
John Dick	EG&G	

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Attachment 2

LDR FFCA

MONTHLY PROJECT MANAGER'S MEETING

Thursday, July 28, 1994

3E Group Conference Room
First Floor, Building 052
Denver West

1:00 p.m.

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1. Scope Discussion involving the Fiscal Year (FY) 1995 Annual Land Disposal Restriction Progress Report (APR)

2. Status of Solar Pond 207C Wastewater Management

3. Tour of a Waste Characterization Report including:
   - Debris Rule Determination
   - Solidified Bypass Sludge Sampling and Analysis Plan
   - Analysis for EPA code F039 constituents

4. Other Discussion

Proposed Scenarios for the 1995 Annual LDR Progress Report

R.J. DiSalvo
Rocky Flats Field Office

July 22, 1994

L91/51

Proposed Scenarios for the 1995 APR

Preparation of the 1995 Annual LDR Progress Report (APR) is being re-evaluated in light of other published documents that contain much of the same information, including the Draft Site Treatment Plan, the Final Site Treatment Plan, the Mixed Waste Inventory Report, the Mixed Residue Reduction Program Quarterly and Annual Reports, and the Annual Waste Reduction Report.

Three possible preparation strategies have been identified:

Strategy 1 – Preparation of Full 1995 APR

If this option is chosen, the 1995 APR will be an update of the 1994 APR and will cover all sections that the 1994 document (and previous APRs) have covered.

Advantage: Maintenance of continuity and traceability to previous documents.

Disadvantage: Redundancy with Federal Facility Compliance Act (FFC Act) deliverables, Residue Compliance Order deliverables, and published waste minimization reports.

Strategy 2 – Preparation of a Modified 1995 APR

This option entails preparation of portions of the APR that do not duplicate information in other published documents or are useful to the program.

The following sections would remain unchanged in content and format:

- Section 1.0, Introduction
- Section 2.0, Comprehensive Storage, Inventory, and LDR Determination Report
  subsections 2.1, 2.2, 2.3, and 2.4
- Section 4.0, Comprehensive Treatment Plan Progress Report
  subsection 4.1
- Appendix A, Acronyms and Abbreviations
- Appendices C and D, FY95 Work Plan and FY96 Draft Work Plan

Strategy 2 – Preparation of a Modified 1995 APR (cont.)

The following sections would be deleted (exceptions noted):

- Section 3.0, except subsection 3.1.3, Future Waste Generation at Rocky Flats, which will be incorporated in Section 2.0
- Subsections 4.2 and 4.3, treatment option and schedule information
- Section 5.0, Waste Minimization
- Section 6.0, Residue Management Progress Report, except mixed residue inventory information, which will be incorporated in Section 2.0
- Section 7.0, Non-Radioactive Hazardous Waste Shipping Schedule, except final program accomplishments, which will be included in Section 4.0
- Appendix B, Waste Form Treatment Method Worksheet and CTMP Treatment Strategy Worksheet

Strategy 2 – Preparation of a Modified 1995 APR (cont.)

Advantage: Preparation of the 1995 APR as proposed above would allow retention of the sections useful to Rocky Flats without duplication of information readily available in other published resources. It would also provide the regulators with documentation of progress not otherwise available.

Disadvantage: None.

Strategy 3 – No 1995 APR Preparation

If this option is chosen, no document will be published at all. No provision will be made to address information not covered in FFC Act documentation.

Advantage: Significant costs will be avoided. The compliance agreement that stipulates this document is no longer enforceable, and there is no legal mandate to prepare the 1994 APR.

Disadvantage: The regulators will lose access to progress information regarding LDR compliance activities. Rocky Flats will lose a valuable program overview and resource for internal planning functions.

Recommendation

RFFO recommends Strategy 2, which calls for publication of portions of the 1995 APR that are useful to the program without creating redundancy among program documents.

July 28, 1994

AGENDA

Considerations for removing 207C Pond sludges to Bldg 374 Process Facility.

STORAGE

Current tank storage is safe and protects the environment, all ponds will be empty in calendar year 94.

Converting the sludge to saltcrete causes a stored volume increase of almost 2. Saltcrete production is not currently certifiable for offsite disposal.

Converting the sludge to dry salts greatly increases the stored volume. (Light and fluffy)

Stored dry salts are a greater personnel hazard, (airborne dusting).

TRANSFER

Need to dilute brine / dissolve crystals / add clean water to accomplish a transfer to 374 estimated at 1 to 1.5 M gallons to transfer to 374 via pipe.

Suck & Truck - concentrate from pond about 350K gallons, includes salt mush and insolubles.

374 has no capability to receive or process the mush or insoluble portion.

PROCESS

Spray evaporator @ 100% dedication is expected to take about 416 operating days @ 10 hrs/day at 100% availability. Product (spray dried salt) is expected to require additional processing for disposal.

Evaporator process. Brine currently is more concentrated than the evaporator product.

DOE & CDH are currently negotiating ultimate fate of sludge. Dispute resolution is expected to accelerate disposition of all 207 sludges by approximately 2 years.

CONCLUSION

Processing in 374 offers no improvement in safety, no improvement in disposal schedule, and would negatively impact 374 normal operations.

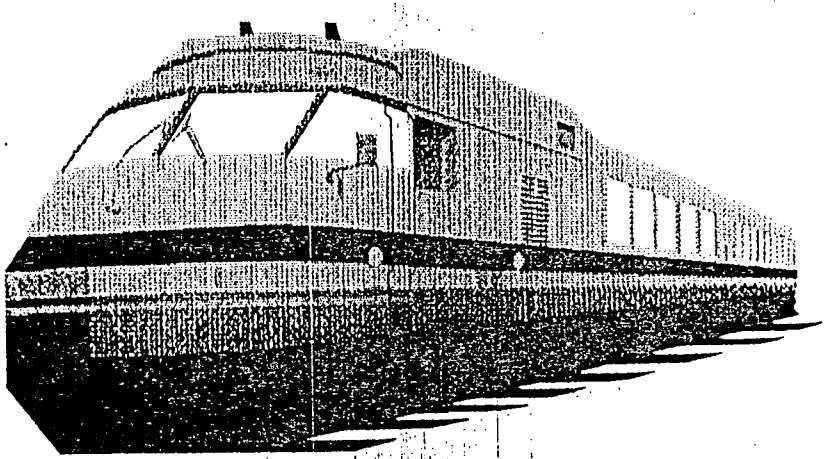
The current schedule is tied to offsite disposal availability and is expected to be improved in the current dispute resolution negotiations.

22107

A
GUIDED TOUR
OF
THE WASTE CHARACTERIZATION REPORT

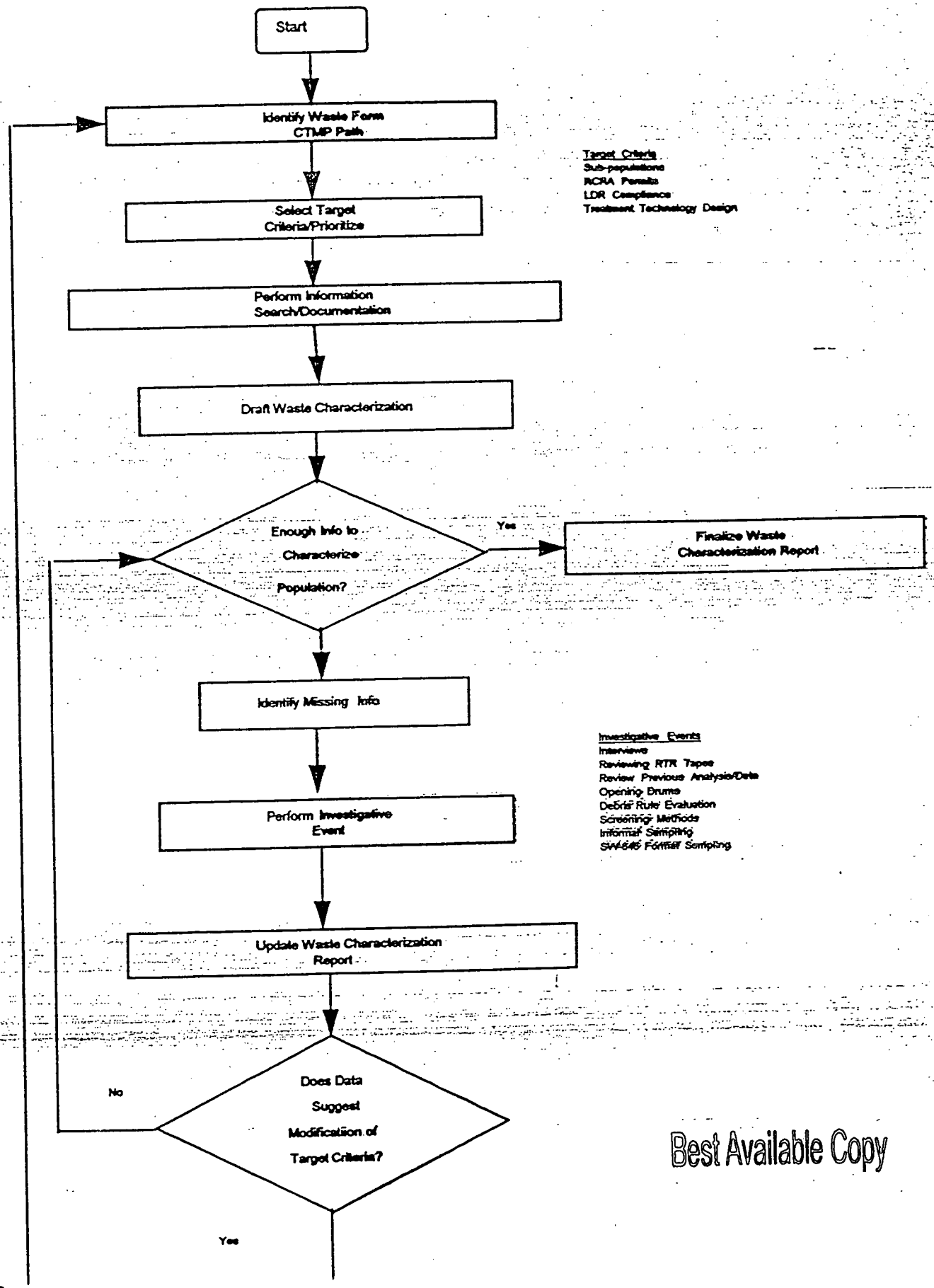
presented by

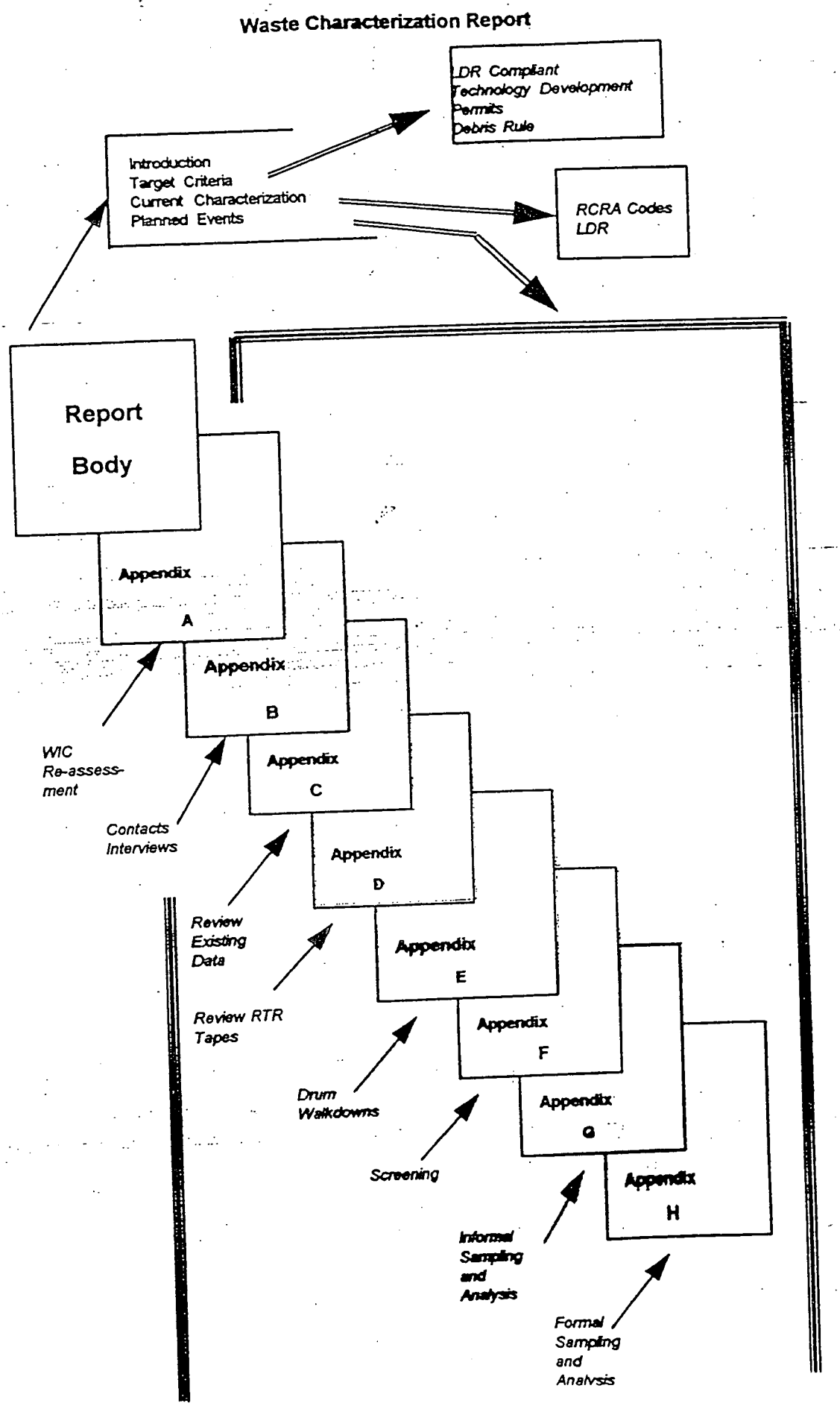
The Rocky Flats Characterization Team



Attachment 3

Waste Characterization Flow Diagram




Waste Characterization Report
LDR Compliant
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and
Analysis
Formal
Sampling
and
Analysis

Appendix A
Waste Identification and Characterization Reassessment

The Waste Identification and Characterization reassessment documentation contains:

- Background information for the waste form
- A description of the waste generating process
- Hazardous waste determination and waste characterization
  - Analytical data summary
  - Subpopulation of waste
- Waste characterization regulatory discussion and conclusion

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Appendix B—Contacts and Interviews

This section provides:

- A list, including waste generators, RCRA Unit custodians, operators, and EG&G Technology Development personnel
- Interview documentation

IDC _____ WASTE FORM INTERVIEW

CONTACT INFORMATION

Date of Interview: ____/____/____

Person Interviewed: _____

Title: _____

Group: _____ Building: _____

Phone #: _____ Pager #: _____

WASTE FORM INFORMATION

IDC: _____ Drum #: _____

Waste Description: _____

Process/Activity: _____

Gereration Bldg./Area: _____

Time Period of Generation: _____

_____

Does the waste vary with changes in the process or generation? ☐ Yes ☐ No

If so, what are the process changes and generation periods? _____

_____

_____

Physical state of waste form:

liquid ☐ Yes ☐ No

sludge ☐ Yes ☐ No

solid ☐ Yes ☐ No If it is solid, describe the size, shape, etc. _____

_____

Is the waste form expected to be:

nonradioactive ☐ Yes ☐ No

low-level ☐ Yes ☐ No

TRU ☐ Yes ☐ No

Was item used for its solvent properties? ☐ Yes ☐ No

Was item used as part of a degreasing process? ☐ Yes ☐ No

Was item an unused chemical? ☐ Yes ☐ No

Is item suspected to contain PCBs? ☐ Yes ☐ No

How is waste currently characterized? _____

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IDC _____ WASTE FORM INTERVIEW (Continued)

Estimated volume of the waste form: _____

What are the possible contaminants: _____

_____

How was the waste form packaged for disposal (individual containers, lab packs, waste poured or dumped into drum without any packaging, etc.)?

_____

_____

If the waste was packaged in individual containers, what were the containers made of (glass, plastic, stainless steel, etc.)?

_____

_____

Was absorbent added to the drum along with the waste? If so, what was it? _____

_____

Is the waste expected to be homogeneous within the containers used to dispose of it? ☐ Yes ☐ No

If no, what is included? _____

_____

_____

Is there a potential for gases to develop in the container head space? ☐ Yes ☐ No

If yes, what are the constituents? _____

_____

Supplemental Information			Supporting Documentation Attached
Are chemical analysis data available?	☐ Yes	☐ No	☐
Are standard operating procedures available?	☐ Yes	☐ No	☐
Are laboratory notes available?	☐ Yes	☐ No	☐
Are waste disposal logs available?	☐ Yes	☐ No	☐
Are chemical and radiological inventory logs available?	☐ Yes	☐ No	☐
Are instrument maintenance logs available?	☐ Yes	☐ No	☐
Are standards inventory logs available?	☐ Yes	☐ No	☐
Are MSDS available?	☐ Yes	☐ No	☐
Are lab pack forms available?	☐ Yes	☐ No	☐
Are sample tracking or log in forms available?	☐ Yes	☐ No	☐

IDC _____ WASTE FORM INTERVIEW

CONTACT INFORMATION

Date of Interview: ____/____/____

Person Interviewed: _____

Title: _____

Group: _____ Building: _____

Phone #: _____ Pager #: _____

WASTE FORM INFORMATION

IDC: _____ Drum #: _____

Waste Description: _____

Process/Activity: _____

Gereration Bldg./Area: _____

Time Period of Generation: _____

_____

Does the waste vary with changes in the process or generation? ☐ Yes ☐ No

If so, what are the process changes and generation periods? _____

_____

_____

Physical state of waste form:

liquid ☐ Yes ☐ No

sludge ☐ Yes ☐ No

solid ☐ Yes ☐ No If it is solid, describe the size, shape, etc. _____

_____

Is the waste form expected to be:

nonradioactive ☐ Yes ☐ No

low-level ☐ Yes ☐ No

TRU ☐ Yes ☐ No

Was item used for its solvent properties? ☐ Yes ☐ No

Was item used as part of a degreasing process? ☐ Yes ☐ No

Was item an unused chemical? ☐ Yes ☐ No

Is item suspected to contain PCBs? ☐ Yes ☐ No

How is waste currently characterized? _____

EG&G ROCKY FLATS

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Appendix C—Review Existing Data

Existing data may be reviewed for:

- Waste Characterization
- Land Disposal Restrictions Treatment Standards
- EG&G Technology Development On-Site Treatment Requirements
- Off-Site Treatment Waste Acceptance Criteria

Implementing Real Time Radiography (RTR) to Confirm Debris Rule Determinations

- RTR is used to confirm judgements based on process knowledge
- By visual inspection, more than half the material exceeds a particle size of 60 mm (about 2½ inches)
- Trained observers work together under a statistical protocol
- Additional information for sampling teams

Benefits of Using Real-Time Radiography

- Advantage 1: Maximizes the use of existing information
- Advantage 2: Minimizes potential worker exposures
- Advantage 3: Cost savings

A Credible Program

- Qualified RTR Technicians
- Observer Team Approach
- Cooperation with EG&G Statistical Applications

L01/96

Debris Rule Determination Training

- EG&G NDT Radiography Level IIL Operators
- Training for *WASTREN* observers
  - ☞ Vision examinations
  - ☞ Training tape
  - ☞ 60 millimeter lead strips
- Standardized written record

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EG&G ROCKY FLATS

Table 1 Routinely Monitored Analytes

Constituents	CAS Number	PQL (ppb)	REG (mg/kg)
Acetone	67-64-1	100	160*
Acenaphthalene	208-96-8	660	3.4*
Acenaphthene	83-32-9	660	4.0*
Acetophenone	96-86-2	660	9.7*
2-Acetylaminofluorene	53-96-3	1,300	140*
Acrylonitrile	107-13-1	100	84*
Aldrin	309-00-2	2	0.066*
Aniline	62-53-3	1,300	14*
Anthracene	120-12-7	660	4.0*
Aroclor 1016	12674-11-2	33	0.92*
Aroclor 1221	11104-28-2	33	0.92*
Aroclor 1232	11141-16-5	33	0.92*
Aroclor 1242	53469-21-9	33	0.92*
Aroclor 1248	12672-29-6	33	0.92*
Aroclor 1254	11097-69-1	33	1.8*
Aroclor 1260	11096-82-5	33	1.8*
alpha-BHC	319-84-6	4	0.066*
beta-BHC	319-85-7	4	0.066*
delta-BHC	319-86-8	4	0.066*
gamma-BHC	58-89-9	4	0.066*
Benzene	71-43-2	5	36*
Benz(a)anthracene	56-55-3	660	8.2*
Benzo(b)fluoranthene	205-99-2	660	3.4*
Benzo(k)fluoranthene	207-08-9	660	3.4*
Benzo(g,h,i)perylene	191-24-2	660	1.5*
Benzo(a)pyrene	50-32-8	660	8.2*
Bromodichloromethane	75-27-4	5	15*

Constituents	CAS Number	PQL (ppb)	REG (mg/kg)
Bromoform (tribromomethane)	75-25-2	5	15*
Bromomethane (methyl bromide)	74-83-9	10	15*
4-Bromophenyl phenyl ether	101-55-3	660	15*
n-Butyl alcohol	71-36-3	1,000	2.6*
Butyl benzyl phthalate	85-68-7	660	7.9*
Carbon tetrachloride	56-23-5	5	5.6*
Chlordane	57-74-9	6	0.13*
p-Chloroaniline (4-chloroaniline)	106-47-8	1,300	16*
Chlorobenzene	108-90-7	5	5.7*
Chlorodibromomethane (dibromochloromethane)	124-48-1	5	15*
Chloroethane	75-00-3	10	6.0*
bis(2-Chloroethoxy)methane	111-91-1	660	7.2*
bis(2-Chloroethyl)ether	111-44-4	660	7.2*
Chloroform	67-66-3	5	5.6*
bis(2-Chloroisopropyl)ether	39638-32-9	660	7.2*
p-Chloro-m-cresol (4-chloro-3-methyl phenol)	59-50-7	1,300	14*
Chloromethane (methyl chloride)	74-87-3	10	33*
2-Chloronaphthalene	91-8-7	660	5.6*
2-Chlorophenol	95-57-8	1,300	5.7*
3-Chloropropene (3-chloropropylene)	107-05-1	ND	28*
Chrysene	218-01-9	660	8.2*
o-Cresol (2-methylphenol)	95-48-7	1,300	5.6*
1,2-Dibromo-3-chloropropane	96-12-8	100	15*
1,2-Dibromoethane (ethylene dibromide)	106-93-4	5	15*
Dibromomethane (methylene bromide)	74-95-3	5	15*
2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	150	10*
p,p'-DDD	72-54-8	10	0.087*

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Constituents	CAS Number	PQL (ppb)	REG (mg/kg)
p,p'-DDE	72-55-9	10	0.087*
p,p'-DDT	50-29-3	12	0.087*
Dibenz(a,h)anthracene	53-70-3	660	8.2*
m-Dichlorobenzene (1,3-dichlorobenzene)	541-73-1	5	6.2*
o-Dichlorobenzene (1,2-dichlorobenzene)	95-50-1	5	6.2*
p-Dichlorobenzene (1,4-dichlorobenzene)	106-46-7	5	6.2*
Dichlorodifluoromethane	75-71-8	5	7.2*
1,1-Dichloroethane	75-34-3	5	7.2*
1,2-Dichloroethane	107-06-2	5	7.2*
1,1-Dichloroethylene (1,1-dichloroethene)	75-35-4	5	33*
trans-1,2-Dichloroethylene (trans-1,3-dichloroethene)		5	33*
2,4-Dichlorophenol	120-83-2	1,300	14*
2,6-Dichlorophenol	87-65-0	1,300	14*
1,2-Dichloropropane	78-87-5	5	18*
cis-1,3-Dichloropropene	10061-01-5	5	18*
trans-1,3-Dichloropropene	10061-02-6	5	18*
Dieldrin	60-57-1	12	0.13*
Diethyl phthalate	84-66-2	10	28*
2,4-Dimethyl phenol	105-67-9	10	14*
Dimethyl phthalate	131-11-3	20	28*
Di-n-butyl phthalate	84-74-2	10	28*
4,6-Dinitro-o-cresol (4,6-dinitro-2-methylphenol)	534-52-1	3,300	160*
2,4-Dinitrophenol	51-28-5	3,300	160*
2,4-Dinitrotoluene	121-14-2	1,300	140*
2,6-Dinitrotoluene	606-20-2	660	28*
Di-n-octyl phthalate	117-84-0	660	28*
1,4-Dioxane	123-91-1	10	170*

Constituents	CAS Number	PQL (ppb)	REG (mg/kg)
Disulfoton	298-04-4	1,300	6.2*
Endosulfan I	939-98-8	10	0.066*
Endosulfan II	33213-6-5	7	0.13*
Endosulfan sulfate	1031-07-8	7	0.13*
Endrin	72-20-8	5	0.13*
Endrin aldehyde	7421-93-4	6	0.13*
Ethyl acetate	141-78-6	ND	33*
Ethyl cyanide (propionitrile)	107-12-0	5	360*
Ethyl benzene	100-41-4	5	6.0*
Ethyl ether	60-29-7	ND	160*
bis-(2-Ethylhexyl) phthalate	117-81-7	660	28*
Ethyl methacrylate	97-63-2	660	160*
Famphur	52-85-7	660	15*
Fluoranthene	206-44-0	660	8.2*
Fluorene	86-73-7	660	4.0*
Fluorotrichloromethane (trichlorofluoromethane)	75-69-4	0.5	33*
Heptachlor	76-44-8	4	0.066*
Heptachlor epoxide	1024-57-3	5	0.066*
Hexachlorobenzene	118-74-1	660	37*
Hexachlorobutadiene	87-68-3	660	28*
Hexachlorocyclopentadiene	77-47-4	660	3.6*
Hexachlorodibenzo-furans		ND	0.01*
Hexachlorodibenzo-p-dioxins		ND	0.01*
Hexachloroethane	67-72-1	660	28*
Hexachloropropene	1888-71-7	660	28*
Indeno(1,2,3-c,d)pyrene	193-39-5	660	8.2*
Iodomethane	74-88-4	5	65*
Isobutanol	78-83-1	ND	170*

Constituents	CAS Number	PQL (ppb)	REG (mg/kg)
Isodrin	465-73-6	ND	0.066*
Isosafrole	120-58-1	660	2.6*
Kepone	143-50-8	ND	0.13*
Methacrylonitrile (methyl iodide)	126-98-7	ND	84*
Methoxychlor	72-43-5	50	0.18*
3-Methylcholanthrene	56-49-5	1,300	15*
Methylene chloride	75-09-2	5	33*
Methyl ethyl ketone (2-butanone)	78-93-3	50	36*
Methyl isobutyl ketone (4-methyl-2-pentanone)	108-10-1	50	33*
Methyl methacrylate	80-62-6	ND	160*
Methyl parathion	298-00-0	3,300	4.6*
Naphthalene	91-20-3	660	3.1*
p-Nitroaniline (4-nitroaniline)	100-01-6	3,300	28*
Nitrobenzene	98-95-3	660	14*
5-Nitro-o-toluidine	99-55-8	3,300	28*
4-Nitrophenol	100-02-7	3,300	29*
N-Nitrosodiethylamine	55-18-5	1,300	28*
N-Nitroso-di-n-butylamine	924-16-3	1,300	17*
N-Nitrosomethylethylamine	10595-95-6	1,300	2.3*
N-Nitrosomorpholine	59-89-2	1,300	2.3*
N-Nitrosopiperidine	100-75-4	1,300	35*
N-Nitrosopyrrolidine	930-55-2	1,300	35*
Parathion	56-38-2	1,300	4.6*
Pentachlorobenzene	608-93-5	660	37*
Pentachlorodibenzo-furans		ND	0.01*
Pentachlorodibenzo-p-dioxins		ND	0.01*
Pentachloronitrobenzene	82-68-8	660	4.8*
Pentachlorophenol	87-86-5	3,300	7.4*

Constituents	CAS Number	PQL (ppb)	REG (mg/kg)
Phenacetin	62-44-2	1,300	16*
Phenanthrene	85-01-8	660	3.1*
Phenol	108-95-2	1,300	6.2*
Phorate	298-02-2	1,300	4.6*
Pronamide	23950-58-5	1,300	1.5*
Pyrene	129-00-0	660	8.2*
Pyridine	110-86-1	1,300	16*
Safrole	94-59-7	660	22*
Silvex (2,4,5-TP)	93-72-1	50	7.9*
2,4,5-T	93-76-5	50	7.9*
1,2,4,5-Tetrachlorobenzene	95-94-3	660	19*
1,1,1,2-Tetrachloroethane	630-20-6	5	42*
1,1,2,2-Tetrachloroethane	79-34-6	5	42*
Tetrachlorodibenzo-furans		ND	0.01*
Tetrachlorodibenzo-p-dioxins		ND	0.01*
Tetrachloroethylene (tetrachloroethene)	127-18-4	5	5.6*
2,3,4,6-Tetrachlorophenol	58-90-2	3,300	37*
Toluene	108-88-3	5	28*
Toxaphene	8001-35-1	170	1.3*
1,2,4-Trichlorobenzene	120-82-1	5	19*
1,1,1-Trichloroethane	71-55-6	5	5.6*
1,1,2-Trichloroethane	79-00-5	5	5.6*
Trichloroethylene (trichloroethene)	79-01-6	5	5.6*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	5	28*
2,4,5-Trichlorophenol	95-95-4	1,300	37*
2,4,6-Trichlorophenol	88-06-2	1,300	37*
1,2,3-Trichloropropane	96-18-4	5	28*
Vinyl Chloride	75-01-4	10	33*

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Constituents	CAS Number	PQL (ppb)	REG (mg/kg)
Xylene(s) (*total*)		5	28*
Antimony	7440-36-0	60	0.23 mg/l**
Arsenic	7440-38-2	10	5.0 mg/l**
Barium	7440-39-3	200	52 mg/l**
Cadmium	7440-43-9	5	0.066 mg/l**
Chromium (Total)	7440-47-32	10	5.2 mg/l**
Cyanides (total)	57-12-5	ND	1.8**
Lead	7439-92-1	5	0.51 mg/l**
Mercury	7439-97-6	0.2	0.025 mg/l**
Nickel	7440-02-0	40	0.32 mg/l**
Selenium	7782-49-2	5	5.7 mg/l**
Silver	7440-22-4	10	0.072 mg/l**

* Analyte will be measured using totals analysis.
** Analyte will be measured using TCLP and totals (for TD information) analysis.
CAS Chemical Abstracts Service
ND Method Detection Limit studies have not been performed for these compounds but will be available for analysis.
mg/kg milligrams per kilogram
mg/l milligrams per liter
ppb parts per billion

The following compounds can be quantitatively measured to within one order of magnitude of the regulatory level. Upon approval of CDH, these analyses could represent the best good-faith efforts of the laboratory and be used to demonstrate that the waste meets the LDR treatment standards.

Table 2 Analyses That Are Within an Order of Magnitude of the Standards

Constituent	CAS Number	PQL (ppb)	REG (mg/kg)
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88-85-7	3300	2.5*
m-Cresol (3-methylphenol)	108-39-4	3300	3.2*
p-Cresol (4-methylphenol)	106-44-5	3300	3.2*

* Analyte will be measured using totals analysis.
CAS Chemical Abstracts Service

The following compounds are not provided in the current laboratory contract; however, it is expected that the laboratory will be able to provide data for them. Tentatively Identified Compounds (TICs), will be reported based on the laboratory's capabilities. The Desired Detection Level is set to within an order of magnitude of the regulatory limit.

Table 3 Analytes Which Will Be Monitored As TICs

Constituent	CAS Number	Regulatory Limit (mg/kg)	Desired Detection Level* (mg/kg)
o,p'-DDD	53-19-0	0.087	0.87
o,p'-DDE	3424-82-6	0.087	0.87
o,p'-DDT	789-02-6	0.087	0.87
1,4-Dinitrobenzene	100-25-4	2.3	23
Methapyrilene	91-80-5	1.5	15
4,4-Methylene-bis-(2-chloroaniline)	101-14-4	35	350

* The Desired Detection Level is set at one order of magnitude above the treatment standard, totals analysis is required.
CAS Chemical Abstracts Service

The following table is the list of F039 constituents that are not applicable to nonwastewaters. Some of these analytes will be measured to meet TD information requirements.

Table 4 F039 Constituents That Are Not Applicable To Nonwastewaters

Constituent	CAS Number
Acetonitrile	75-05-8
Acrolein	107-02-8
4-Aminobiphenyl	92-67-1
Aramite	140-57-8
Carbon disulfide	75-15-0
Chlorobenzilate	510-15-6
2-Chloro-1,3-butadiene	126-99-8
Cyclohexanone	108-94-1
Dibenzo(a,e)pyrene	192-65-4

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Constituent	CAS Number
Diphenylamine	122-39-4
1,2-Diphenyl hydrazine	122-66-7
Diphenyl nitrosamine (N-nitroso-di-n-propylnitroamine)	621-64-7
Ethylene oxide	75-21-8
Methanol	67-56-1
Methyl methansulfonate	66-27-3
2-Napthylamine	91-59-8
N-nitrosodimethylamine	62-75-9
Phthalic anhydride	85-44-9
Tris(2,3-dibromopropyl)phosphate	126-72-7
Fluoride	16964-48-8
Sulfide	8496-25-8
Beryllium	7440-41-7
Copper	7440-50-8
Thallium	7440-28-0
Vanadium	7440-62-2
Zinc	7440-66-6

CAS Chemical Abstracts Service

CRITERIA FOR ELIMINATING ANALYTES FROM FUTURE ANALYSIS

Analytes will be eliminated based on the following criteria:

1. The chemical compound has not been identified in the Excess Chemical Database, 1992 Haliburton-NUS data, the Chemical Control Database, and the information presented in the RCRA Part A Permit Application; and was not detected in the initial sampling effort.

2. The chemical compound was not detected in the initial sampling effort and is not reasonably expected to be present in the waste. This include those compounds that were not detected using the alternative demonstration of compliance rationales.

3. The chemical compound is not reported as a compound in a generally requested

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analytical method and can be justified as not expected to be present in the waste.

4. Justification can be made that the compound will be below the treatment standards. Justification can be based on previous analytical results or on methods that provide results within an order of magnitude of the treatment standard.

PROCESS KNOWLEDGE JUSTIFICATION

Process knowledge will be used as justification for elimination of analytes only as it can be verified and documented. Sources of process knowledge are

- WSRIC waste characterization and building books
- Backlog Waste Reassessment reports
- Past analytical data
- Documented sources of amounts of compounds purchased, used, or disposed of, and
- Technology Development reports documenting or evaluating the performance of treatment systems

Reports or letters may be written to specifically address process knowledge and to provide justification for the elimination of analytes from monitoring. These documents will be peer reviewed and submitted to DOE for concurrence.

INITIAL CHARACTERIZATION FOR D001 AND D002 WASTES

D001 (which is not in the High TOC Ignitable Liquids Subcategory) and D002 waste not managed in a Clean Water Act-equivalent system must be monitored for underlying hazardous constituents that are reasonably expected to be present in the waste. A D001 waste can be treated by incineration, fuel substitution, recovery of organics, or it can be deactivated and meet the F039 treatment standards. When RFP chooses deactivation, it will be required to monitor the waste for underlying constituents (the list of F039 constituents).

Because deactivation of the D001 and D002 characteristics for waste not managed in a CWA-equivalent system will not treat hazardous constituents which may be present at concentrations of concern, the deactivation standard alone did not fully comply with RCRA section 3004(m). EPA states

> *"Since each facility's ignitable or corrosive waste likely will contain only a subset of these hazardous constituents [the entire set of F039 hazardous constituents], it seems unnecessary and wasteful to routinely require monitoring of all constituents.*

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Therefore, compliance with the treatment standards promulgated in this rule for ignitable and corrosive wastes must be monitored for only those hazardous constituents 'reasonably expected to be present' in the hazardous waste." (58 Federal Register 29860)

The determination of "reasonably expected to be present" for compliance purposes may be based on process knowledge of the raw materials used, the process, and potential reaction products, or the results of a one-time analysis for the entire list of F039 constituents that may be present in the untreated waste. If a one-time analysis of the entire list is performed, subsequent analyses would be required for only those pollutants that would reasonably be expected to be present in the waste as generated, based on the sampling and analysis results. Changes to the waste stream will require recharacterization.

For many of the waste streams at Rocky Flats, it is no longer possible to sample the untreated waste. However, Rocky Flats has sufficient knowledge of waste streams, treatment processes, and generation of reaction products from those treatment systems that it will meet the monitoring requirement for underlying hazardous constituents by identifying those constituents expected to be present in the waste. These constituents will be identified as underlying constituents and listed separately from the analytes that are being monitored as part of a specific hazardous waste number (there may be constituents that appear on both lists).

SAMPLE SIZE REQUIREMENTS FOR SW846 CRITERIA

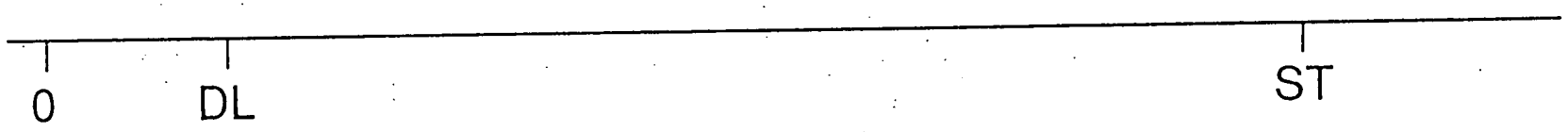
DENNY WEIER
STATISTICAL APPLICATIONS

FFCA MANAGER'S MEETING
JULY 28, 1994

EG&G ROCKY FLATS

EPA Guidelines (SW846)

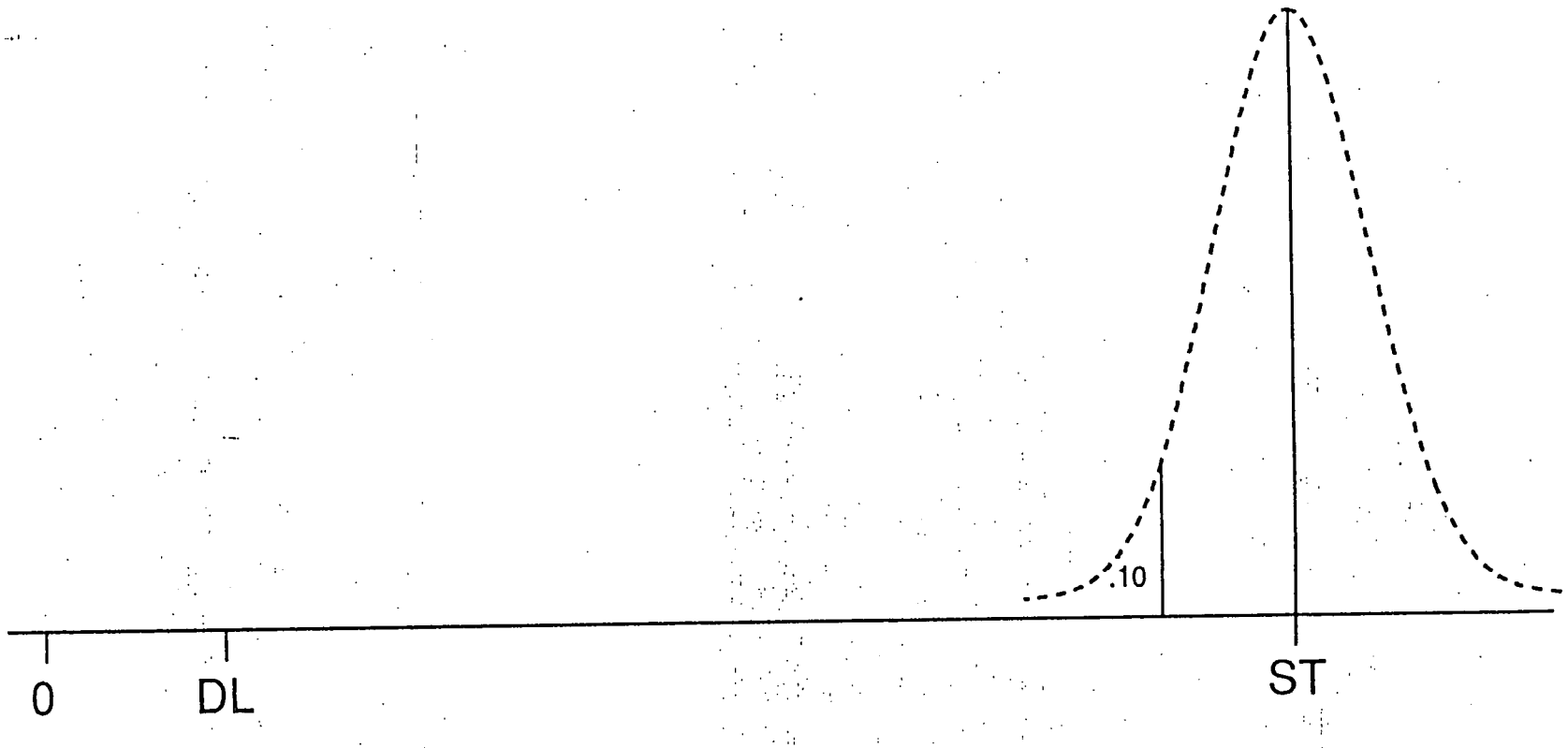
X-Bar + T * S/sqrt(n) (Eighty percent two-sided or Ninety percent one-sided upper)



DL = Detection Limit ST = Regulatory Standard

EPA Approach - assumes analyte is a contaminant until statistics show otherwise

TYPE I Error - identifying an analyte as a non-contaminant when it is a contaminant
TYPE II Error - identifying an analyte as a contaminant when it is not a contaminant



DL = Detection Limit ST = Regulatory Standard

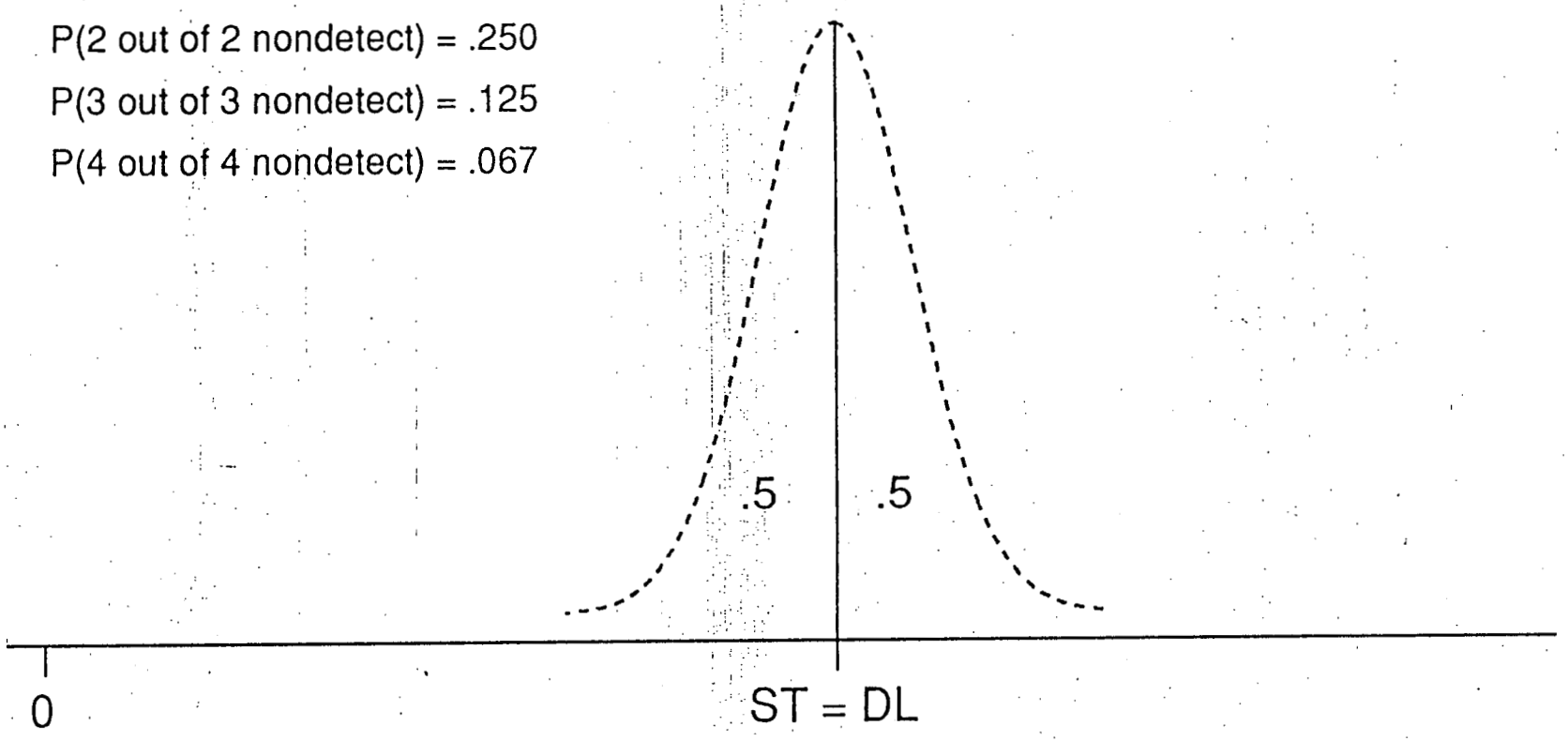
If detecting any level of an analyte makes it a contaminant

P(1 out of 1 nondetect) = .500

P(2 out of 2 nondetect) = .250

P(3 out of 3 nondetect) = .125

P(4 out of 4 nondetect) = .067



DL = Detection Limit ST = Regulatory Standard

RTR ASSESSMENT

CONTAINER INFORMATION

Request Number: 001 WE

IDC: 853

Waste Container ID: D 7912

Waste Type: Plastic

Dru : Report Available? ☐ Yes ☐ No

Tape ID: 6L0910

RTR Date: 1/27/92

Start/Stop: 36711

1. WASTE CONTAINER FILL PERCENTAGE

Is void space observable: ☑ Yes ☐ No

If yes, describe: 10% at top

Waste Volume Estimate (100 % - Void %) _____ %

2. PACKAGING DESCRIPTION

Is a liner present: ☑ Yes ☐ No

If yes, type: ☑ Rigid Liner, ☑ Poly Liners, ☐ Fiberboard Liner

3. DEBRIS ASSESSMENT

Material > 60mm: ☑ >50% ☐ <50%

Pass ☑ Fail by particle size ☐ Fail by poor visibility ☐ Additional review requested ☐

5. LIQUIDS

Are liquids present: ☐ Yes ☑ No

If yes, describe container type, location, amount, etc.: _____

Estimate the volume: _____ mls

6. WASTE DESCRIPTION

Plastic tubing, coveralls, large rail, connectors for supplied air

8. COMPONENT ESTIMATES

WASTE ITEMS AND RESIDUAL MATERIAL									
DESCRIPTION	VOLUME %								
	<1	1-2	2-5	5-10	10-25	25-50	50-75	75-90	>90
METAL		✓							
PLASTICS							✓		
PAPER									
CLOTH						✓			
OTHER									

EVALUATORS

Print Name	Signature	Employee/SSN #	Date
WYNN EAKINS		461-88-4682	6/27/94
T.E. NEIHART		57109	6/27/94

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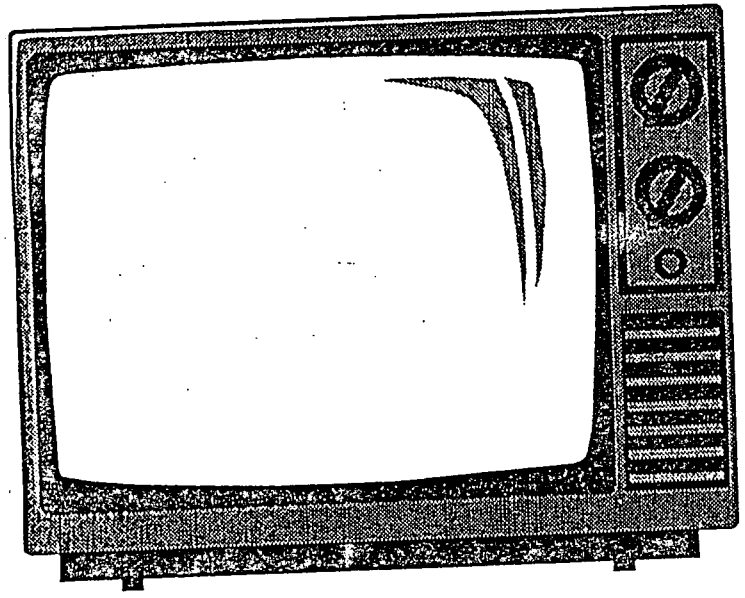
L01/25

Take-Home Message

This...



Not This...

WASTREN, Inc.
A Multi-Service Corporation

EG&G ROCKY FLATS

RTR Review for Lead Waste Form

Goal of Review

To use RTR to determine which drums of backlog IDC 321 lead waste contain > 90% lead and are candidates for shipment to Scientific Ecology Group, Inc. (SEG) for treatment.

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Result of review

- Sixty-four tapes were available for review
- Fifty-five drums were recommended to go to SEG
- Nineteen drums were contaminated with identifiable nonlead objects
- RTR reduced the number of drums that had to be opened and visually inspected

L91/55

In the lead waste drums, RTR can be used to:

- Distinguish between lead other waste forms
- Identify the objects in the drum if the drum contains void space
- Observe the number and type of drum liners
- Observe free liquids and particulates in the drums

LA11/25

RTR cannot be used to:

- See through a lead liner
- See through lead objects to the center of the drum
- Distinguish between lead and heavy metals in all cases
- Identify objects in the drum if the drum contains no void space
- Distinguish between objects that are solid lead and those that are painted with lead in some cases

Appendix E—Drum Walkdowns

This section may include:

- Documentation from container files
- Information from examination of the container markings

The objectives of this activity are to:

- Verify the container contents to subpopulate the inventory for sampling and analysis
- Determine if the selection of easily accessible containers for sampling and analysis is random and representative of the inventory

IDC ____ DRUM MARKINGS

INFORMATION ON THE SIDE OF DRUM:

Bar Code: _____

HAZARDOUS WASTE LABEL

Number in Upper Right Corner (Original No.): _____

Container #: _____

Accumulation Start Date: ____/____/____

Waste Description: _____

EPA Waste Codes: _____ Compatibility Code: _____

Custodian: _____ Building: _____

Other Information: _____

_____

RADIOACTIVE WASTE LABEL

ID Number: _____

Content Description: _____

Radiation Levels (MREM/HR):	Surface	30 cm	1 meter
Gamma:			
Neutron:			
Total:			

RPTs Name: _____

Employee #: _____ Date: _____

INFORMATION ON THE TOP OF DRUM:

LSA: Yes _____ No _____ Comment: _____

Traveler: Yes _____ No _____ Comment: _____

MISCELLANEOUS DRUM MARKINGS/TAGS/LABELS (Top or Side):

Weight: _____ Other: _____

_____

GENERAL DRUM CONDITION OBSERVATIONS: _____

_____

Note: Copy LSA, Traveler or any other removable documentation if possible.

WASTREN, Inc.
A Multi-Service Corporation

EG&G ROCKY FLATS

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WASTE SCREENING

- **Purpose:**

  Before sampling, drums are "screened" to:

  (1) Ensure the expected wasteform is present.

  (2) Minimize risk to sample team.

- **Screening Technologies:**

  (1) Real Time Radiography

  (2) Drum Count

  (3) Headspace Sampling

EG&G ROCKY FLATS

Appendix G—Informal Sampling and Analysis

Informal sampling and analysis is done when:

- Validated data are not needed
- A representative sample is not necessary
- The data are not for waste certification

Examples of data included in this section are:

- Fingerprint analyses
- Informational data for developing sampling and analytical methodology and treatment

SAMPLING AND ANALYSIS PLAN

Building 374 Solidified Sludge
Item Description Codes 007 and 807

- **Process generating waste**

  The slurry from Building 374 Aqueous Waste Radioactive Decontamination Treatment System is filtered and either dried (IDC 007) or cemented (IDC 007 and 807).

- **Characterization of the Waste—WIC Reassessment**

  The Building 374 Aqueous Waste Treatment System receives inputs from a number of buildings on the plant site as well as ITS water. These include EPA Hazardous Waste Codes D007, D010, F001, F002, F005, F006, F007, F009, and F039.

Solidified Bypass Sludge Subpopulations

- Subpopulation 1—Dried Sludge Fines Generated Prior to October 1982
  - 12 drums in Building 776
  - 5 drums to be sampled

- Subpopulation 2—Sludge/Cement/Diatomaceous Earth Parfait Generated from 1987 to 1991
  - 1,994 drums in Building 964
  - 15 drums to be sampled

- Subpopulation 3—Sludge/Cement/Diatomaceous Earth Parfait with Free Liquids Generated from 1987 to 1991
  - 123 drums in Buildings 964 and 374
  - 7 drums to be sampled

L91/05

Data Quality Objectives

- Does the sludge meet LDR treatment standards?
- Does the sludge meet NTS WAC?
- Quality assurance requirements as discussed in the WSRIC Program Description

Sampling Methodology

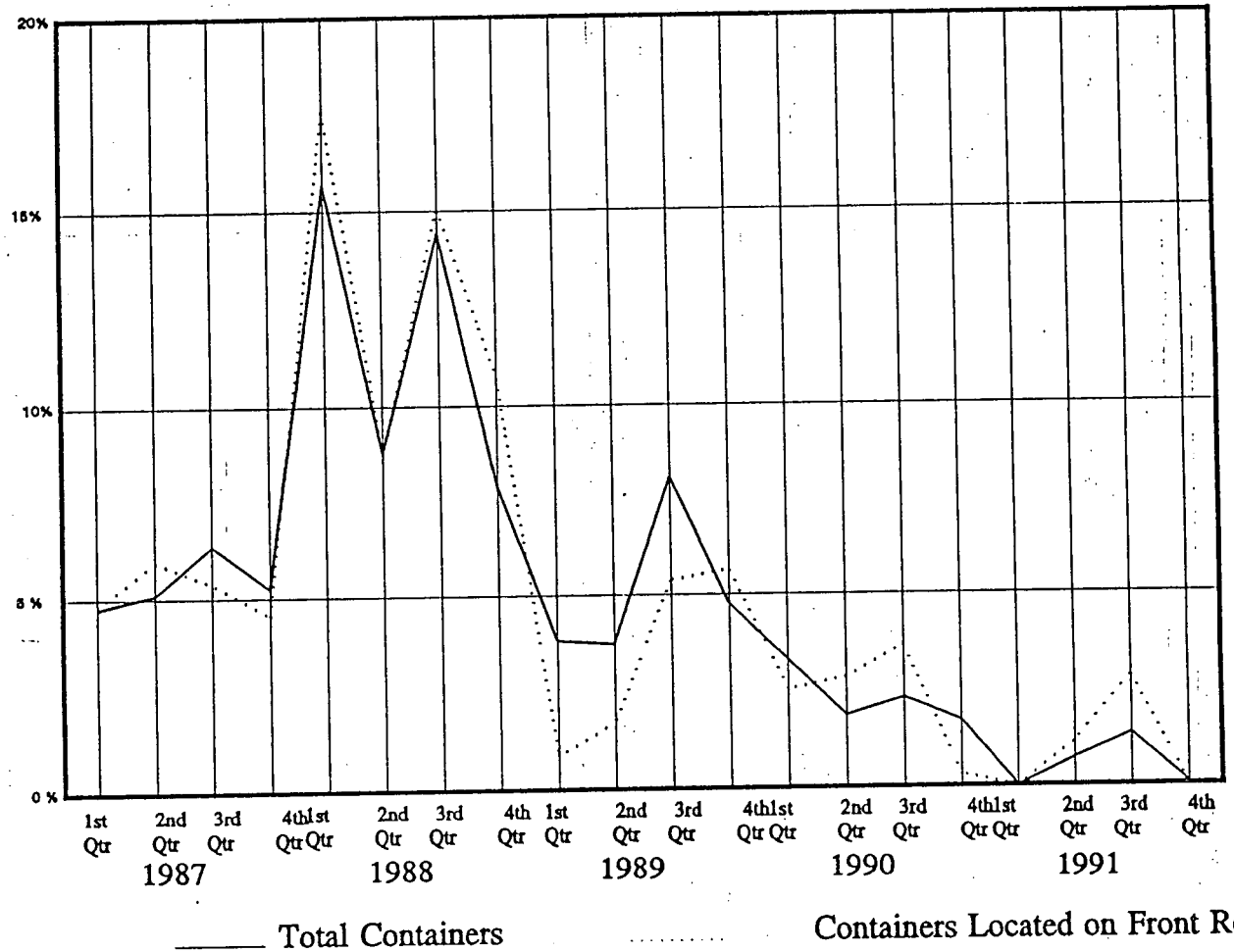
- **Drums selected to demonstrate compliance with F039 treatment standards**
- **Remaining drums to demonstrate compliance with the remaining Hazardous Waste Numbers**
- **Sampling Equipment**
  - Subpopulation 1—hand auger
  - Subpopulation 2—core-drilling machine
  - Subpopulation 3—Dependent upon amount of liquid present

L 01/95

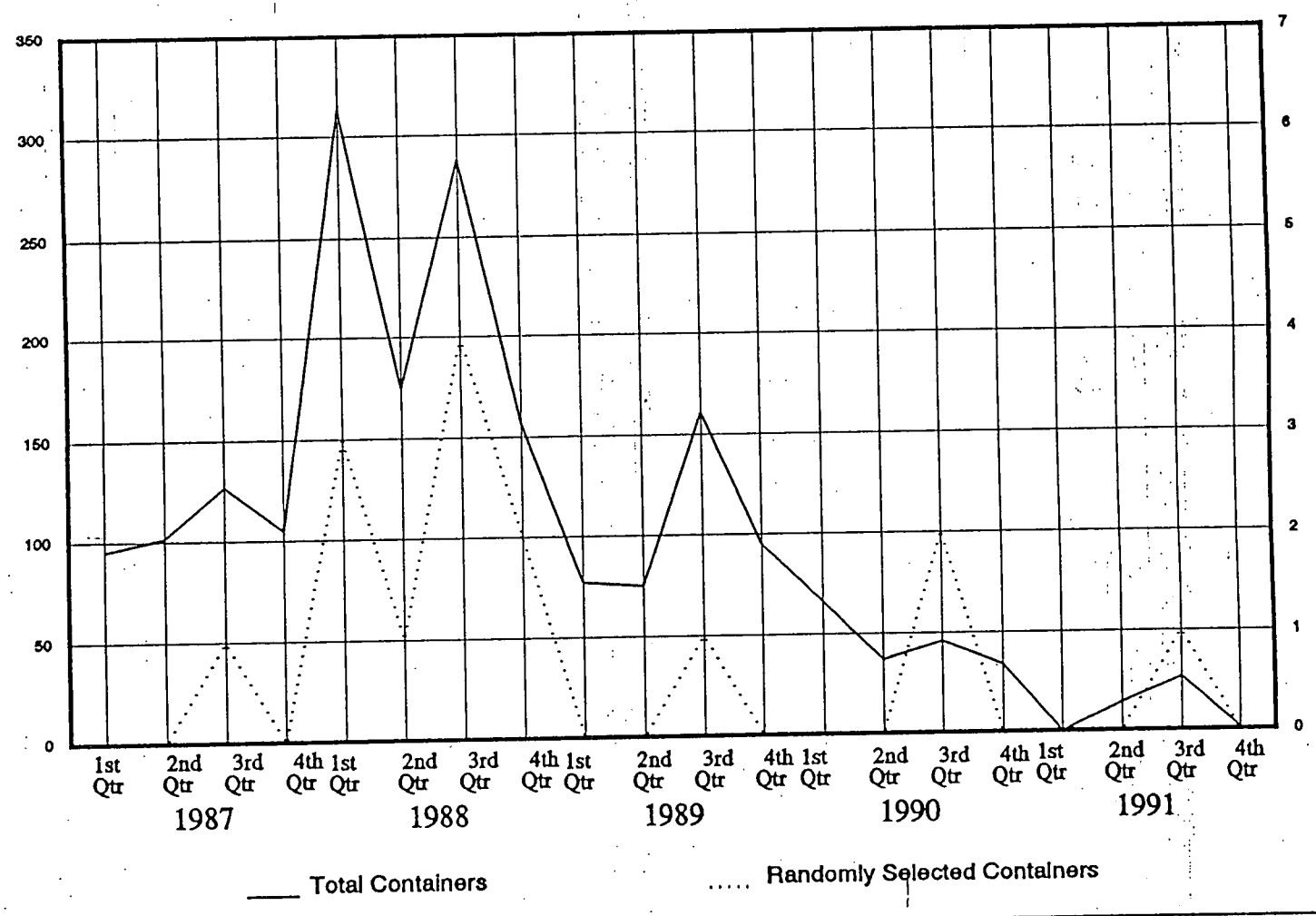
Analyses

- Radiological
- RCRA analysis for F039 constituents
- RCRA analysis for remaining hazardous waste number constituents
- NVO-325 parameters
- Technology development parameters

Graph 1: % of Containers per Qtr. vs. % of Containers located in Front Row per Qtr.



Graph 2: Total Containers/Qtr. vs. Randomly Selected Containers/Qtr.



Characterization Strategy for Hazardous Waste Number F039

Purpose

- Establish a strategy for the analysis of waste forms that must meet F039 treatment standards
  - Initially measure F039 constituents
  - Identify the criteria for ongoing monitoring of F039 waste
  - Identify the rationale for eliminating constituents from the ongoing monitoring program

Background

- Application of F039 at the Rocky Flats Plant
  - Waste forms that have commingled with Interceptor Trench System (I.T.S.) water
    - —Pondcrete
    - —Saltcrete
    - —By-Pass Sludge
  - D001 (ignitable) and D002 (corrosive) waste forms not managed in a Clean Water Act equivalent system

Evaluation Strategy

F039 = 212 constituents

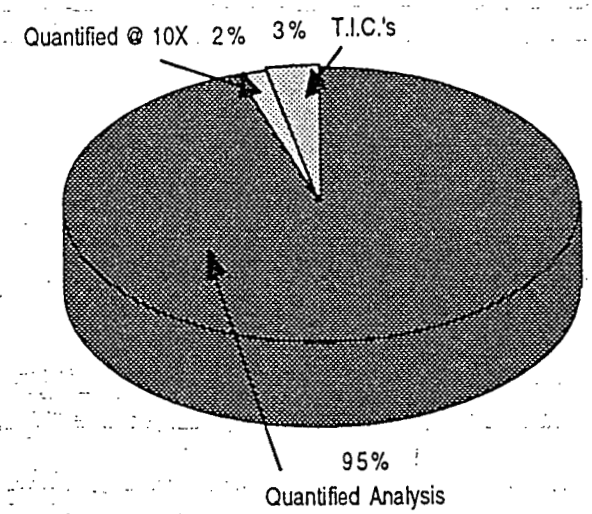
- 26 constituents not applicable to non-wastewaters (186 remaining)
- Set of analytes which quantitative analysis not reasonably possible
  - I.D. as Tentatively Identified Compounds (T.I.C.'s)
    - —"Best good faith effort"
    - —within an order of magnitude of regulatory limit

Evaluation Strategy (cont.)

- Analytes that cannot be measured within a magnitude of the treatment standards
  - Universal Treatment Standards (58 FR 48092)
    - —Divides organic compounds into "like chemical groups"
    - —Non-detect of chemical in group demonstrates compliance of another chemical in same group

Rationale for Elimination of Constituents from Ongoing Monitoring

- Chemical Compound not identified at Rocky Flats Plant
- Chemical Compound not detected in the initial sampling effort
- Justification that chemical compound will be below treatment standards
  - analytical results
  - process knowledge



July 12, 1994

F039 CHARACTERIZATION STRATEGY

PURPOSE

The purpose of this paper is to establish a strategy for sampling and analysis of waste forms that must meet the F039 treatment standards. These waste forms fall into two categories; those which are assigned the F039 Hazardous Waste Number, and those D001 and D002 wastes with technology-based treatment standards that include meeting the F039 treatment standards. This strategy will be used to determine the extent of sampling necessary to

- Initially measure F039 constituents;
- Establish the underlying constituents which will require monitoring after treatment of certain D001 and D002 wastes;
- Identify the criteria for ongoing monitoring of F039 waste; and
- Identify the rationale for eliminating constituents from the ongoing monitoring program.

BACKGROUND

F039 is the U.S. Environmental Protection Agency (Agency) Hazardous Waste Number applied to leachate that has percolated through more than one listed, land-disposed hazardous waste. Leachate is any liquid that has percolated through hazardous waste. This hazardous waste number has been assigned to waste forms that have been commingled with Interceptor Trench System (ITS) water. Such waste forms include Pondcrete, Saltcrete, and Bypass Sludge. Compliance with the F039 treatment standards can be demonstrated by analytical results from samples taken at the point of generation of the waste (the ITS wastewater) or the downstream waste forms can be analyzed. In the preamble to the Third Third waste-specific prohibitions, the Agency stated that it is unnecessary and wasteful to monitor for constituents that are not present. Working out which constituents to monitor is a site-specific determination. The Agency believes that to ensure compliance with the Land Disposal Restrictions, the generator should obtain an initial analysis of all regulated constituents for F039. Based on analyses and any other information that should be considered, the generator should develop a list of constituents to be analyzed for at regular intervals, (55 FR 22621).

In addition, technology based treatment standards mandates meeting F039 standards for some D001 and D002 waste forms not managed under Clean Water Act-equivalent treatment systems. These wastes are required to be monitored for underlying hazardous constituents reasonably expected to be present in the D001 or D002 waste. Underlying hazardous constituents are defined as "any regulated constituent present at levels above the F039 constituent-specific

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treatment standard at the point of generation of the hazardous waste (40 CFR 268.2)." This paper will define the necessary characterization requirements, both analytical and process knowledge, which will be used to verify regulatory compliance.

INITIAL CHARACTERIZATION FOR F039 WASTES

Each waste form assigned the F039 hazardous waste number will be analyzed for LDR compliance with the F039 treatment standards. This analysis will consist of four samples. The results of the four samples will identify those compounds that will not require further evaluation. Those compounds that are reasonably expected to be present in the waste, and which are analytes assigned through characteristic or listed codes, will be evaluated using the number of samples required to adequately characterize the waste (this assumes these compounds may be detected). The analytical results will then allow the list of analytes to be reduced by eliminating those that are not expected to be present in the waste. This reduction in the number of analytes will be based on the analytical results, the list of analytes that have never been identified as present at RFP, analytes that were present on the plant site in negligible amounts, and those that are not expected to have survived the path taken from disposal, collection in the ITS, and eventual treatment. This set of analytes will be fully justified prior to elimination from the characterization efforts. Justification will be based on evaluation of the disposal methods of individual compounds, the actual amount of material disposed of at any one time, and through evaluation of analytical results from the initial sampling effort.

The 212 constituents listed as F039 in 6 CCR 1007-3, Part 268, were compared to the Excess Chemical database, 1992 Haliburton-NUS data, the Chemical Control System Database, and the information presented in the Part A RCRA Permit Application. Twenty-six of those constituents are not applicable to nonwastewaters (as stated in 268.41 and 268.43). This leaves 186 compounds which need to be addressed.

ONGOING MONITORING OF WASTES COMMINGLED WITH INTERCEPTER TRENCH SYSTEM WATER

Once the initial characterization of newly generated saltcrete and ITS water have been performed and the set of analytes that will be dropped from further analysis has been approved (by RFFO-DOE and CDH), other waste forms assigned the F039 hazardous waste number because of ITS water will use this reduced list to verify compliance with the F039 treatment standards. Each waste form must be compared to this characterization to ensure that the rationale used to pare the analyte list is equally applicable. The list of analytes that will be measured may be adjusted for each waste form based on this evaluation. The number of samples will be determined on a case-by-case basis and may be more than four.

ANALYTES FOR INITIAL CHARACTERIZATION

Those analytes that are currently provided under the analytical services contracts in place at Rocky Flats will be measured. This set of analytes will include some compounds that are not

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on the F039 list. These compounds will be of interest to Technology Development and, as long as there is no additional or unreasonable cost incurred, will be reported.

Those analytes that can be added to the analytical services contract will also be measured. These compounds will be measured at levels that will allow confidence interval calculations to be performed on the validated results.

There is expected to be a set of compounds for which quantitative measurement is not reasonably possible. 6 CCR 1007-3, Part 268.43, allows demonstration of compliance under certain circumstances by using "best good-faith efforts." This is defined as establishing detection limits within an order of magnitude of the regulated limit. Treatment by the Best Demonstrated Available Technology is required to invoke this strategy. Incineration is not used for the applicable waste forms. In those instances where Rocky Flats can identify no laboratory that can meet the analytical requirements for listed compounds in a radioactive waste matrix, CDH will be requested to approve the use of "best good-faith efforts" for the treatment systems used to treat waste commingled with ITS water. These compounds will be measured as "Tentatively Identified Compounds" (TICs) and reported as such. It is expected that the laboratory will be able to report the concentration of these compounds within an order of magnitude of the regulatory limit. Compounds identified as TICs will require further analysis to determine if detected compounds meet the treatment standards. This will require additional sampling.

There may also be a set of analytes that cannot be measured at a level within an order of magnitude of the treatment standards. In this case, the provisions outlined in the draft Universal Treatment Standards will be adopted. The Universal Treatment Standards divide the organic compounds into a number of like chemical groups (58 FR 48092). A nondetect of a chemical (at any level) in a group will have been demonstrated as compliant with the treatment standards if there is another chemical in the same group that was not detected at the treatment level. While the Universal Treatment Standards and the logic behind the alternative demonstration of compliance have not been accepted or approved, this methodology will be applied in those instances where there is no way to demonstrate compliance.

EVALUATION STRATEGY BY ANALYTE

Each of the F039 constituents are addressed below. The analytes are grouped by the methods that will be used to measure them.

Of the 212 F039 hazardous constituents, 26 do not apply to nonwastewaters. These 26 are listed at the end of this section for reference. Technology Development has specifically requested a number of these analytes; therefore, they will be included as required analytes in Sampling and Analysis Plans. Some of these analytes will be included as a part of an analytical method. Although not required, these analytes will be reported. This list of analytes is presented in Table 4-6. The Practical Quantitation Limit (PQL) is the analytical limit as specified in the current laboratory contract. These values are for a soil matrix; the waste matrix is expected to be similar. "REG" provides the regulatory limit for that compound.

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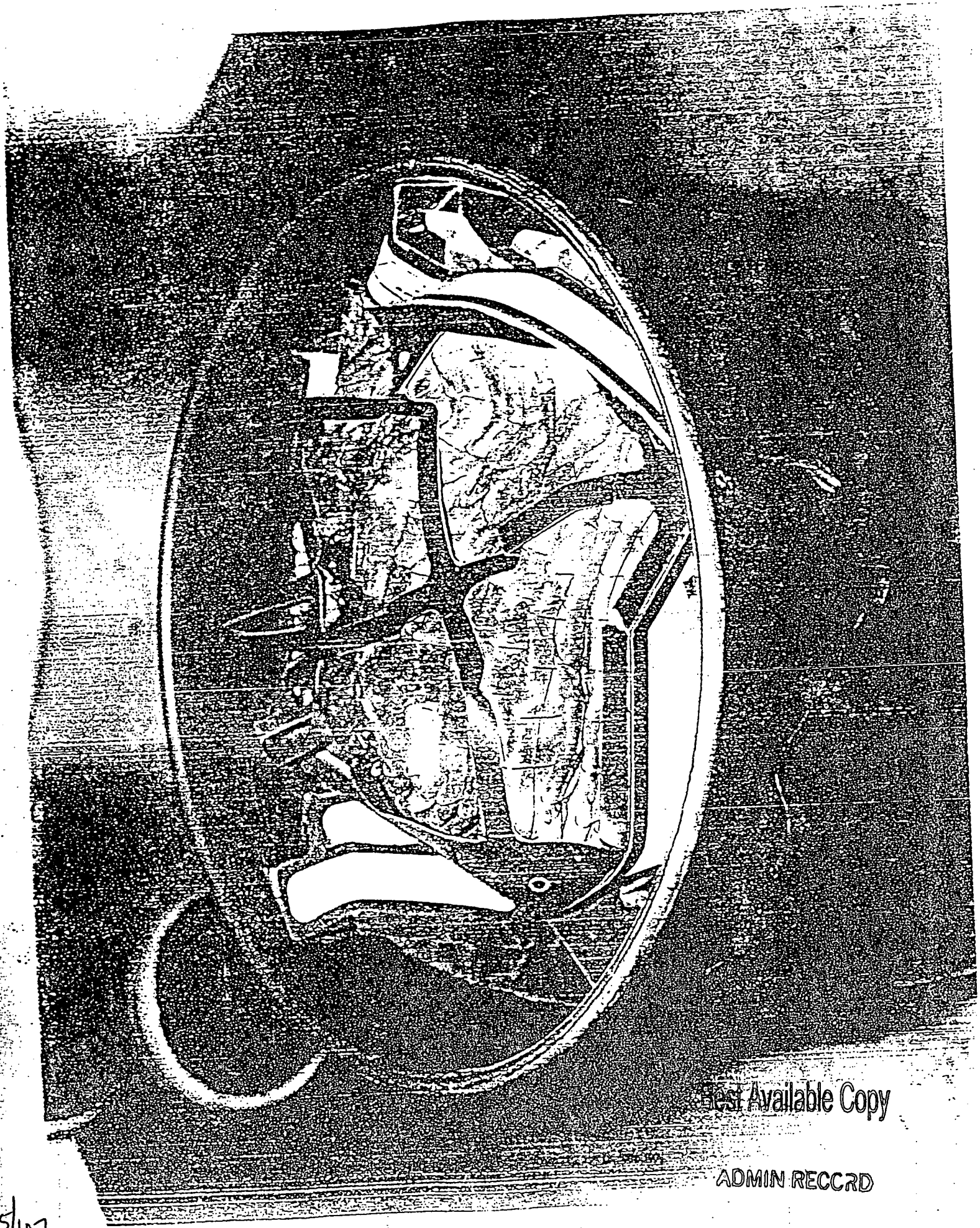
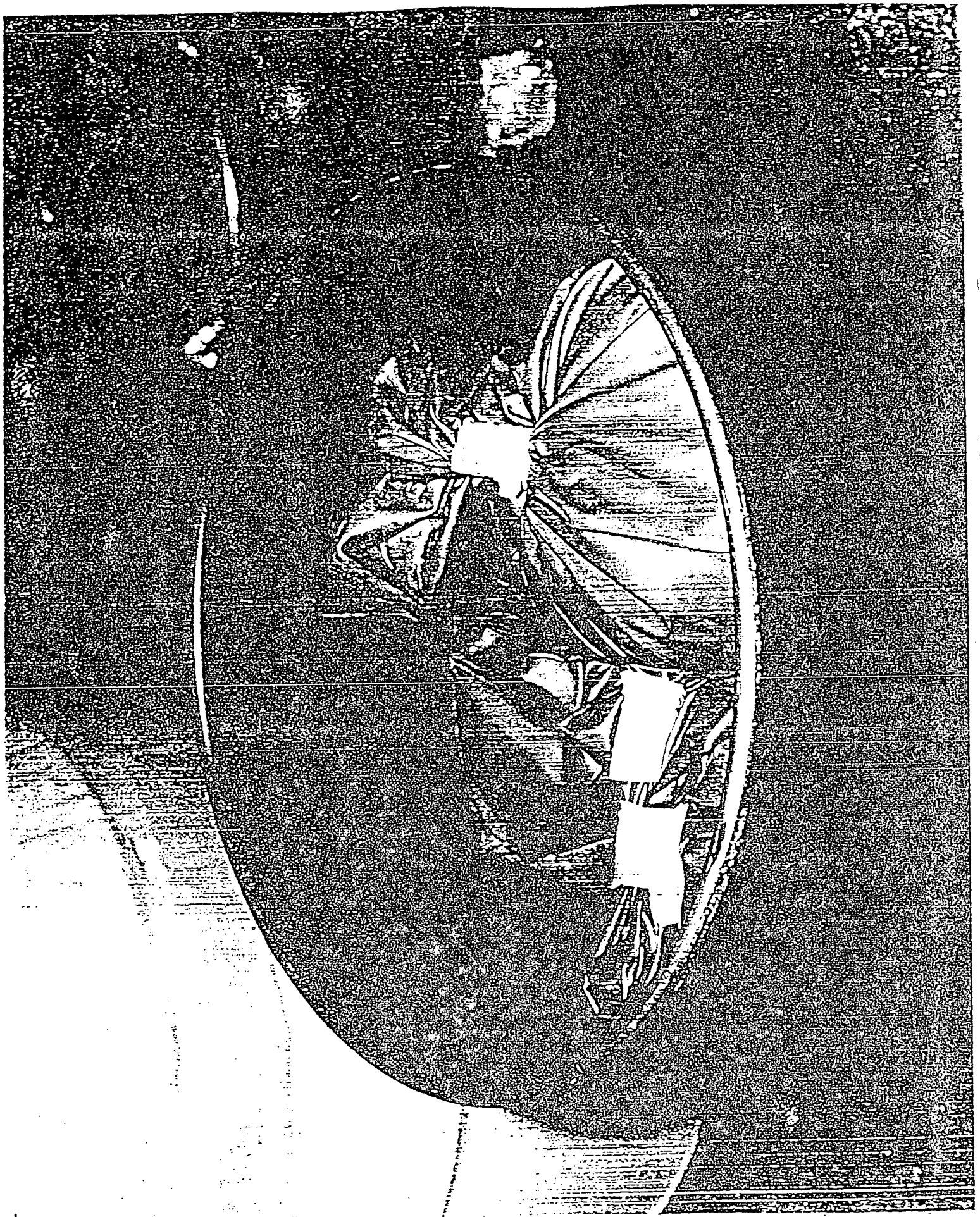
SELECTED DRUMS
(CONTINUED)

IDC 869

SELECTED DRUM	RTR OBSERVATIONS	DISPOSITION
D60269	ALL OXIDE, NO VISIBLE DEBRIS, 80% FULL	SAMPLED
D61018	OXIDE WITH ROOM AIR FILTER ON TOP OF OXIDE, 80% FULL	SAMPLED
D56220	NONE, DRUM WEIGHT >800 LBS. AND NOT ACCEPTABLE FOR RTR REVIEW	REPLACED BY D58045
D55988	ALL OXIDE, NO VISIBLE DEBRIS, 75% FULL	SAMPLED
D64246	CONTAINED PLASTIC BAGS OF UNKNOWN MATERIAL	VISUALLY EXAMINED, REPLACED BY D60269
D58045	OXIDE WITH FILTER AND DEBRIS ON TOP, 75% FULL	SAMPLED

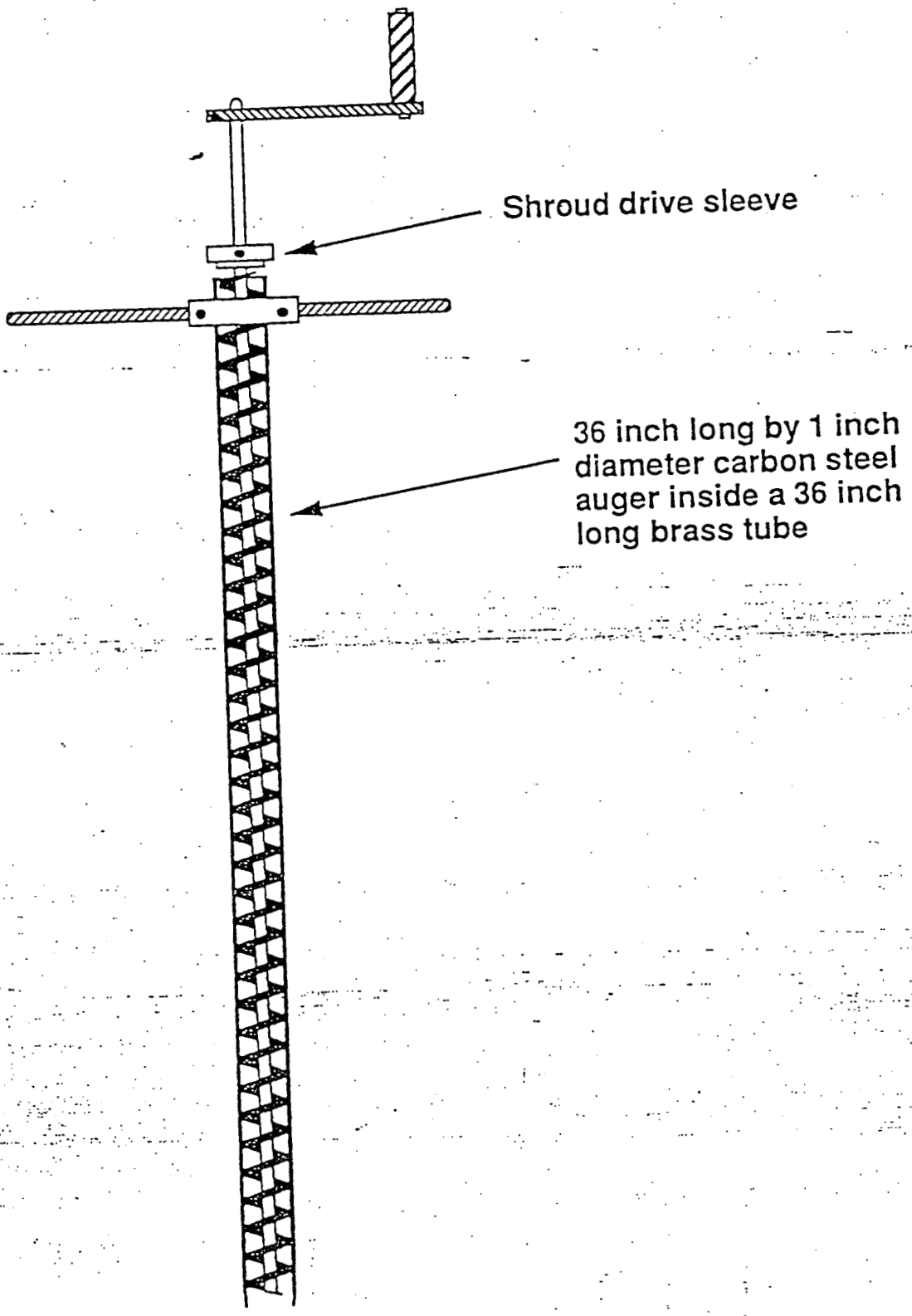


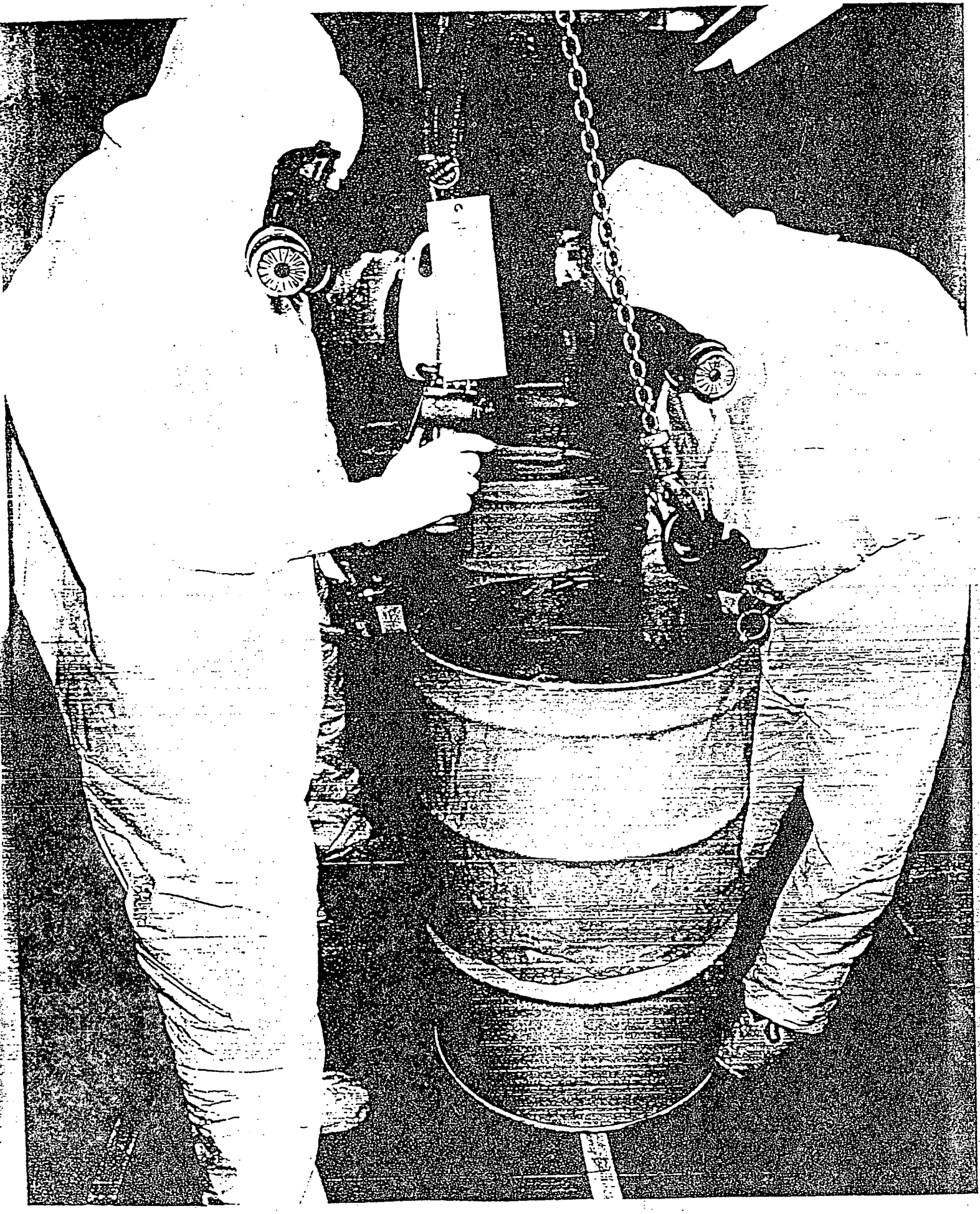


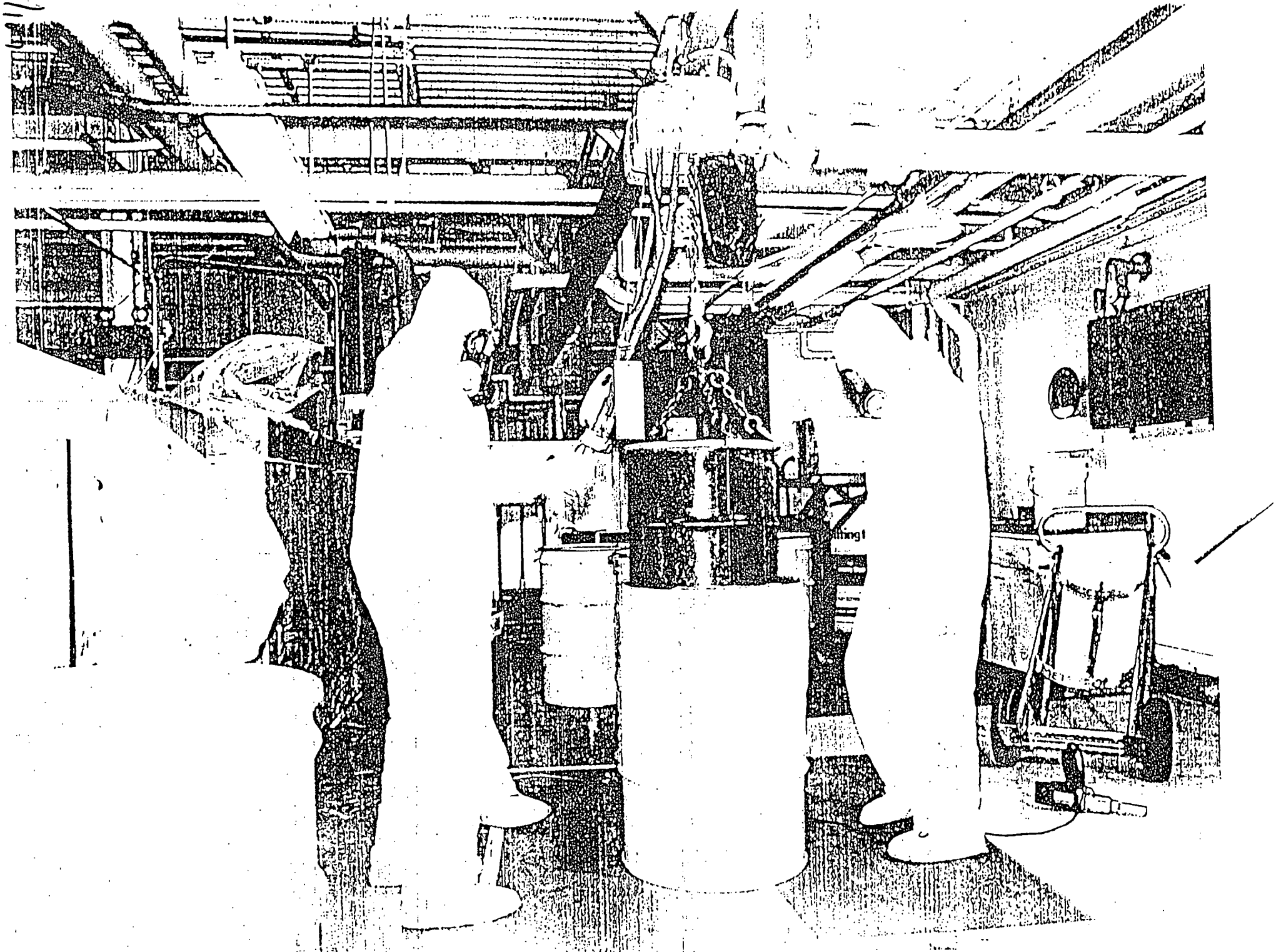
SAMPLING

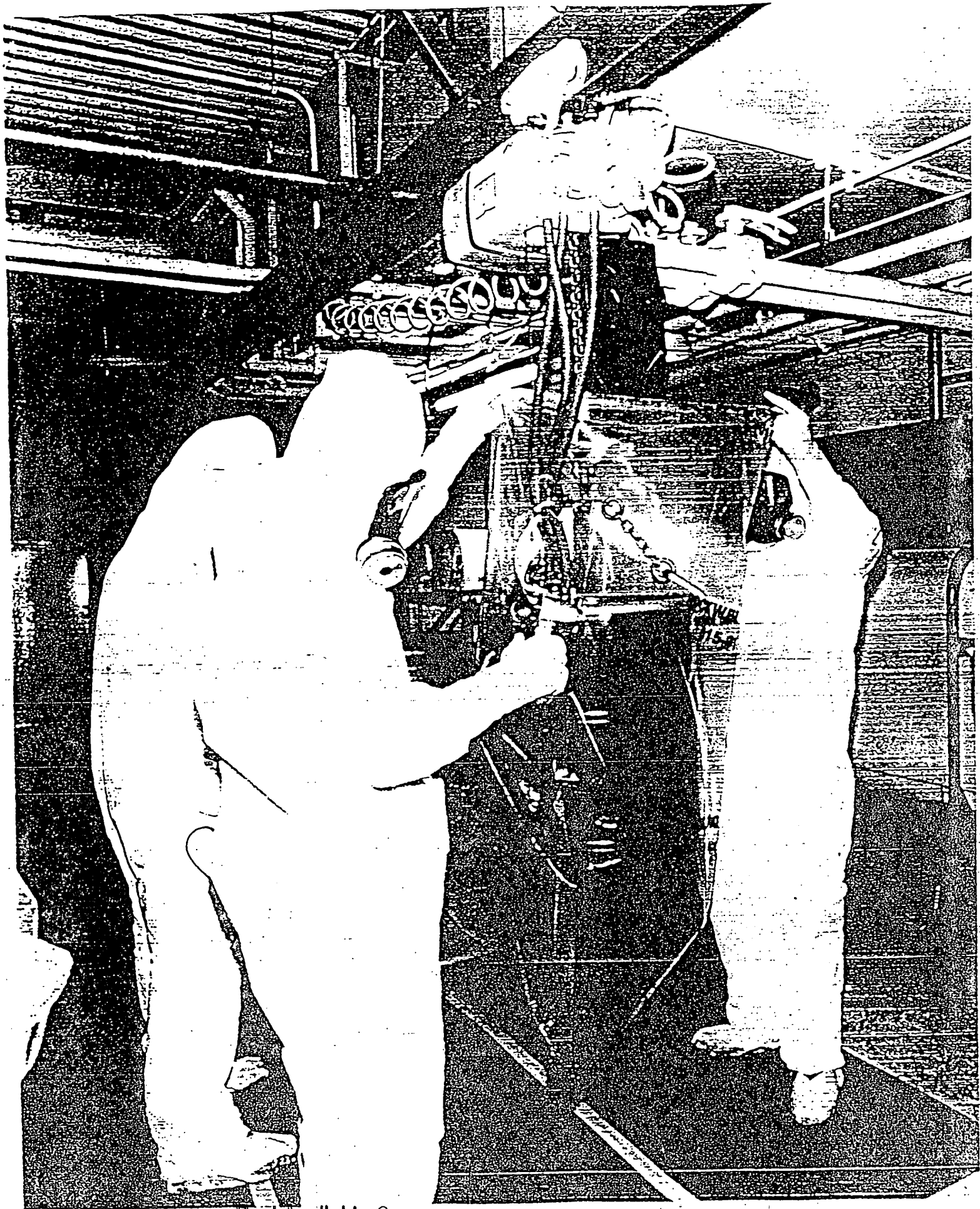
- SAMPLE ACQUISITION
  - SHROUDED AUGER USED TO SAMPLE ROASTER OXIDE
  - OXIDE SAMPLES PLACED IN PRE-LABELED 2 LITER POLYETHYLENE BOTTLES
    - ENOUGH MATERIAL WAS REMOVED FOR A DRUM TO FILL BOTTLES APPROXIMATELY 30%
    - EACH BOTTLE ALSO CONTAINED 20 PORCELAIN ROLLER MILL BALLS TO HELP MIX THE SAMPLES
- SAMPLE PREPARATION
  - EACH SAMPLE WAS HOMOGENIZED UTILIZING A ROLLER MILL FOR 5 MINUTES
    - THE PORCELAIN BALL INSURED GOOD MIXING
  - SAMPLES WERE SPLIT USING RIFFLE SPLITTER
    - THE NUMBER OF SPLITS AND SAMPLE SIZES WERE PRE-DETERMINED AND WERE DIFFERENT FOR EACH IDC.
    - A SPECIAL SCREEN PREVENT PORCELAIN BALLS FROM ENTERING RIFFLE SPLITTER

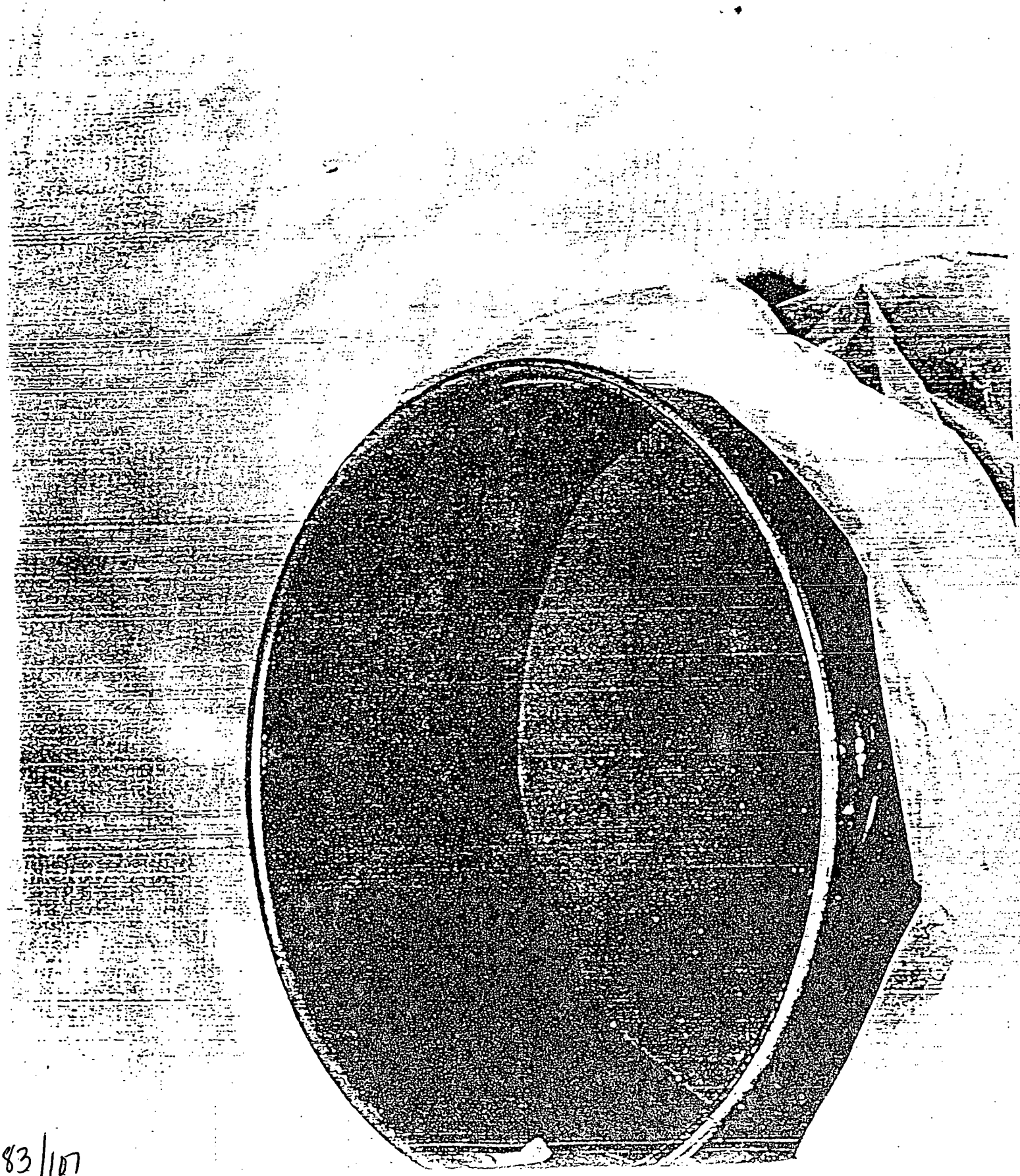
Shrouded Auger

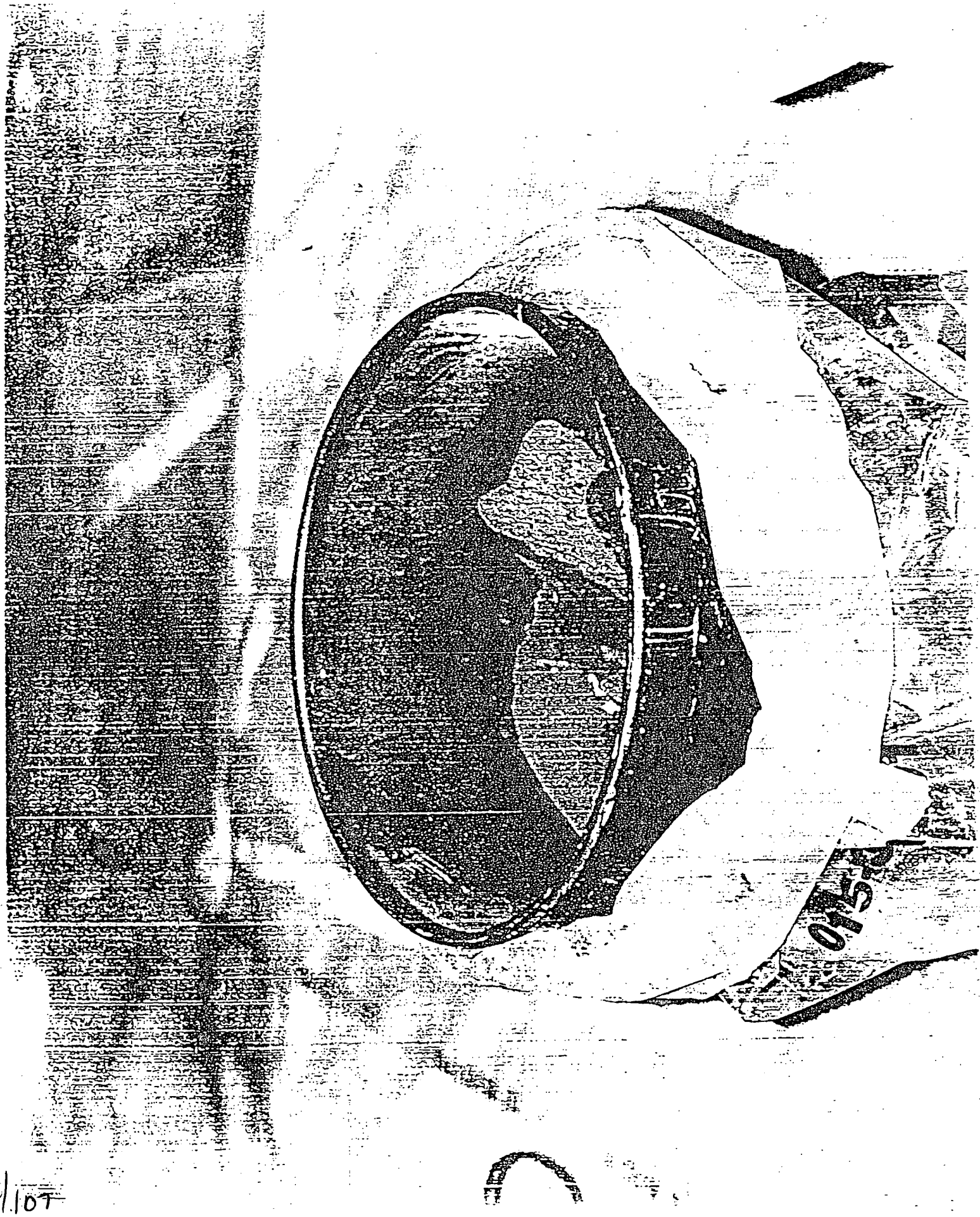












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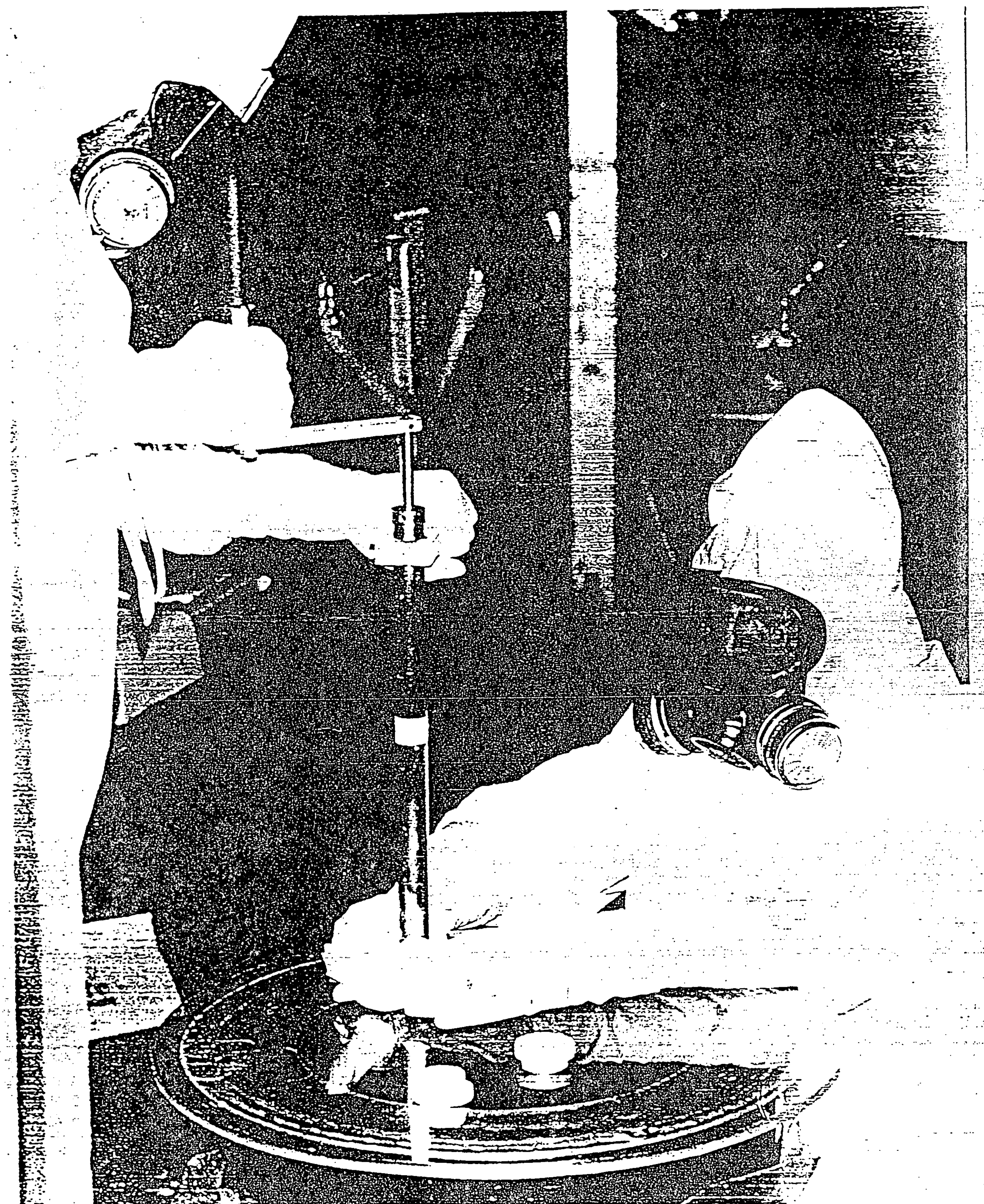

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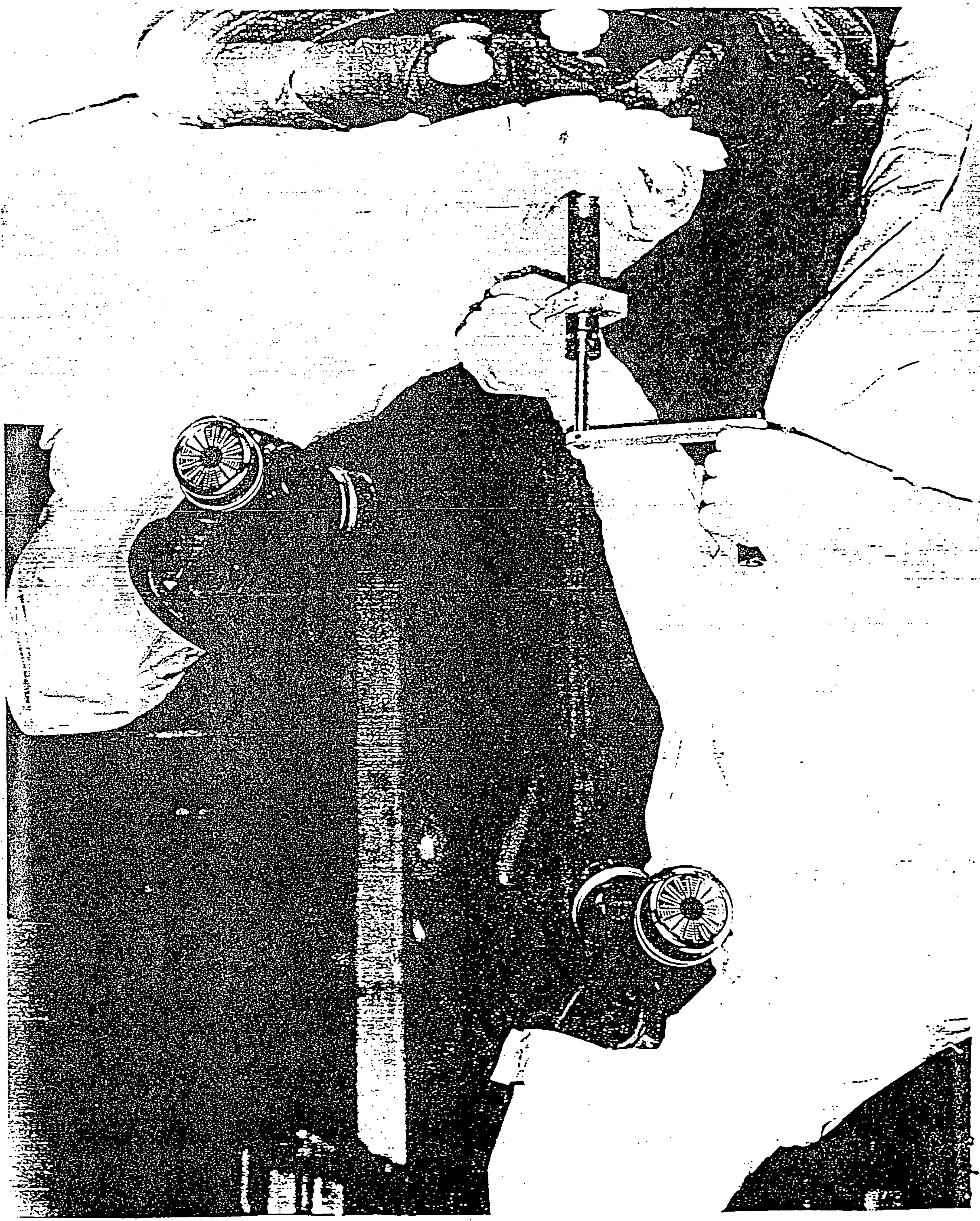

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SUMMARY OF SAMPLE SIZE REDUCTION AND SPLITTING

IDC 869 (ALL DRUMS)

SAMPLE SOURCE	SAMPLE TYPE	SAMPLE SIZE	DESTINATION
DRUM SAMPLE	VOC	20 ML BOTTLE (FULL)	OFF-SITE LAB
DRUM SAMPLE	SVOC, METAL, AND ISOTOPIC	20 ML BOTTLE (FULL)	OFF-SITE LAB

IDC 069 (ALL DRUMS)

SAMPLE SOURCE	SAMPLE TYPE	SAMPLE SIZE	DESTINATION
DRUM SAMPLE	VOC	20 ML BOTTLE (FULL)	OFF-SITE LAB
DRUM SAMPLE	TGA	~2 GRAMS	BLDG. 559 LAB

IDC 069 COMPOSITE

COMPOSITE SAMPLE	SVOC, METAL AND ISOTOPIC	20 METAL BOTTLE (FULL)	OFF-SITE LAB
COMPOSITE SAMPLE	SVOC, METAL AND ISOTOPIC	20 METAL BOTTLE (FULL)	OFF-SITE LAB

L91/06

SAMPLE ANALYSIS RESULTS
VOCs and SVOCs

DETECTED ANALYTE	SAMPLE QUANTIFICATION LIMIT (µg/Kg)	DRUM NUMBER	OBSERVED CONCENTRATION (µg/Kg)	TREATMENT STANDARD (mg/Kg)
Toluene	5.0	D61018	150.0	28.0
		D58045	13.0	
		D60269	7.2	
		D54927	11.0	
		D44635	16.0	
		D54737	21.0	
		D54737 (dup)	30.0	
		D58067	12.0	
Acetone	10.0	D54927	27.0	160.0
		D54737 (dup)	30.0	
1,1,1-Trichloroethane	5.0	D57764	5.5	5.6
Trichlorotrifluoroethane	5.0	D57764	74.0	28.0
Bis(2-Ethylhexyl)Phthalate	670.0	Composite	1100.0	N/A*

* Not Regulated under RCRA for F001 and F002

The CTMP Sampling and Analysis Program Plan

WASTREN, Inc.
A Multi-Service Corporation

EG&G ROCKY FLATS

DISCUSSION	REFERENCE DOCUMENT
DESCRIPTION OF THE SITE	
• Describe the site facility, or area, using names of buildings and maps to describe the source of the waste and its present location.	• Rocky Flats Environmental Impact Statement • Waste Characterization Report • WEMS
• Describe the sampling location.	• Sampling Procedures/IWCP/JSA • Waste Characterization Report
• If the waste is in containers, state the total number of containers in inventory and the number of containers to be sampled at each sampling location.	• Waste Characterization Report • Sampling and Analysis Plan • WEMS

DISCUSSION	REFERENCE DOCUMENT
OBJECTIVE OF SAMPLING AND ANALYSIS PLAN	
• Establish sampling, analytical, and data objectives. (The primary objective of an NVO-325 Sampling and Analysis Plan is to determine if a waste complies with NVO-325 WAC).	• Comprehensive Treatment and Management Plan • WSRIC Program Description

WASTREN, Inc.
A Multi-Service Corporation

EG&G ROCKY FLATS

DISCUSSION	REFERENCE DOCUMENT
• Other objectives will be generated through questions left unanswered by process knowledge such as: ○ What regulatory requirements are applicable? ○ Should the waste inventory be stratified? ○ Which waste parameters should be characterized and why? ○ When should the waste be sampled? When it is generated, stabilized, or packaged? ○ What analysis will be performed on previously generated waste if historical data are insufficient or unavailable to guide the analysis process?	• Waste Characterization Report

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DISCUSSION	REFERENCE DOCUMENT
USE OF PROCESS KNOWLEDGE AND EXISTING ANALYTICAL DATA	
• Include a discussion on how process knowledge and existing analytical data are used to determine what information is needed to meet the objectives of the plan. Document sources of process knowledge.	• Waste Characterization Report

DISCUSSION	REFERENCE DOCUMENT
SAMPLING HANDLING	
• The Sampling and Analysis Plan must include procedures for handling samples from the time they are collected in the field until they arrive at the laboratory for testing. SOPs shall be included as an attachment or in the appendices to the plan.	• WSRIC Program Description • RFP Procedures, such as SOP L-3306, SOP L-3004 • Sampling Procedures/IWCP/JSA
• Sample preservation	• WSRIC Program Description
• Holding times	• WSRIC Program Description
• Shipping—ensure that materials listed in the DOT Hazardous Materials Table are shipped according to the specified DOT requirements in 49 CFR 172.101.	• RFP Shipping Procedures • RFP Transportation Safety Manuals

DISCUSSION	REFERENCE DOCUMENT
FIELD QUALITY CONTROL	
• Quality control procedures in the field are used to document the accuracy and precision of sampling methods. Quality control samples such as trip blanks, field blanks, and field duplicates must accompany each set of samples. SOPs for addressing the following quality control requirements shall be included in the sampling and analysis plan.	• WSRIC Program Description • Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN

WASTE FORM: _____ SUBPOPULATION: _____

Containers to be Sampled:

	Field Duplicate Required?	
_____	☐ Yes	☐ No
_____	☐ Yes	☐ No
_____	☐ Yes	☐ No
_____	☐ Yes	☐ No

Subsamples from each Container:

Subsample Number	Analytical Method(s)	Subsample Size	Preservation	Shipping Container	Shipping Location
1					
2					
3					

Notes:

1) Two samples will be taken from the containers that require field duplicates. The subsamples will be required for each of the samples.
2) Field, equipment, and trip blanks must be collected and shipped per WSRIC Program Description requirements.

Analytes/Properties to be Tested:

Analyte/Property	CAS Number	Decision Level	Required Detection Level	Validated Data Required?	Analytical Method

Applicable Procedures:

Sample Procedure Number(s): _____

Analytical Procedure Number(s): _____

IWCP/JSA: _____

Requestor: _____ Date: _____

Section 100.4 PERMIT REQUIREMENTS AND CONDITIONS

100.40 CONTENTS OF APPLICATION (PART A).

(a) Information requirements.

In accordance with Section 100.11(a) and (c) all owners and operators of hazardous waste management facilities who are required to submit Part A of a permit application shall provide the following information to the Director, using the application form provided by the Director.

(1) Name, mailing address, and location of the facility for which the application is submitted, including the latitude and longitude of the facility, and whether the facility is located on Indian lands.

(2) An indication of whether the facility is new or existing and whether it is a first or revised application.

(3) The operator's name, address, telephone number, ownership status, and status as Federal, State, private, public or other entity.

(4) The name, address and telephone number of the owner of the facility.

(5) A brief description of the nature of the business.

(6) Up to four SIC codes which best reflect the principal products or services provided by the facility.

(7) A listing of all permits or construction approvals received or applied for under any of the following programs:

(i) Hazardous Waste Management program under RCRA.

(ii) UIC program under SDWA.

(iii) NPDES program under CWA.

(iv) Prevention of Significant Deterioration (PSD) program under the Clean Air Act.

(v) Nonattainment program under the Clean Air Act.

(vi) National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act.

(vii) Ocean dumping permits under the Marine Protection Research and Sanctuaries Act;

(viii) Dredge or fill permits under Section 404 of CWA.

(ix) Other relevant environmental permits, including State permits.

(x) A copy of the contingency plan required by Part 264, Subpart D. Include, where applicable, as part of the contingency plan specific requirements 264.227, 264.255, and 264.200.

(8) The activities conducted by the applicant which require it to obtain a State RCRA permit, including a description of the processes to be used for treating, storing, and disposing of hazardous waste, and the design capacity of these items.

(9) A specification of the hazardous wastes listed or designated under Part 261 of these regulations to be treated, stored, or disposed at the facility; an estimate of the quantity of such wastes to be treated, stored, or disposed annually; and a general description of the processes to be used for such wastes.

(10) For existing HWM facilities, a scale drawing of the entire facility showing the location of all past, present, and future treatment, storage and disposal areas.

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(11) For existing HWM facilities, photographs of the entire facility clearly delineating all existing structures; existing treatment, storage, and disposal areas; and sites of future treatment, storage, and disposal areas.

(12) A topographic map (or other map if a topographic map is unavailable) extending one mile beyond the property boundaries of the source depicting the facility and each of its intake and discharge structures; each of its hazardous waste treatment, storage, or disposal facilities; each well where fluids from the facility are injected underground; and those wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within one quarter mile of the facility property boundary.

(13) For hazardous debris, a description of the debris category(ies) and ~~containment~~ CONTAINANT category(ies) to be treated, stored, or disposed of at the facility.

Fluidized Bed Incinerator Oil "FBI Oil"

Alec Schendzelos

EG&G Rocky Flats
Waste Identification and Characterization

July 28, 1994

EG&G ROCKY FLATS

FBI Oil

- Tank T-103, Building 774
- 10,000 gal tank capacity
- Collection from multiple sources

FBI Oil Sampling Approach

- Tank configuration prohibits mixing/sparging
- Successive depth samples using "bailer"
- Composite sample for analysis by DSSI
- Individual samples for "fingerprint"analysis onsite

SAMPLING METHODOLOGY AND ANALYTICAL RESULTS

ENVIRONMENTAL TECHNOLOGIES TECHNOLOGY DEVELOPMENT

WORK PACKAGE: 32402

ANGELO E. HODGES

DRUM SELECTION

TWO SELECTION APPROACHES UTILIZED

FOR 069 HAZARDOUS IDC

— CUBIC ROOT OF POPULATION PLUS 2 AS THE AGREED UPON SAMPLE SIZE FOR INITIAL SAMPLING

- FOR ROASTER OXIDE 069, CUBIC ROOT + 2 = 6

— 15 DRUMS RANDOMLY SELECTED FROM BACKLOG

- EXTRA DRUMS TO REPLACE DRUMS DETERMINED TO BE UNACCEPTABLE FOR SAMPLING

— FIRST 6 DRUMS SELECTED WERE DESIGNATED FOR SAMPLING

DRUM SELECTION
(CONTINUED)

FOR 869 NON-HAZARDOUS IDC

NOTE: CUBED ROOT APPROACH NOT UTILIZED

— NON-DETECTS ARE ANTICIPATED FOR VOCs

- PROCESS KNOWLEDGE INDICATES CHIP ROASTING WAS CONDUCTED AT TEMPERATURES >600 °C
- ANAYTICAL RESULTS FROM INITIAL ROASTER OXIDE SAMPLING CONDUCTED IN NOVEMBER, 1993 REVEALED NON-DETECTS FOR VOCs

— STATISTICAL ANALYSIS OF NON-DETECTS INDICATE A MINIMUM OF 4 SAMPLES REQUIRED FOR 90% CONFIDENCE

— 15 DRUMS RANDOMLY SELECTED FROM BACKLOG

- EXTRA DRUMS TO REPLACE DRUMS DETERMINED TO BE UNACCEPTABLE FOR SAMPLING

— FIRST 4 DRUMS SELECTED WERE DESIGNATED FOR SAMPLING

SELECTED DRUMS

IDC 069

SELECTED DRUM	RTR OBSERVATIONS	DISPOSITION
D56711	MISCELLANEOUS DEBRIS, PROBABLY FILTERS, NO OXIDE, 95% FULL	VISUALLY EXAMINED, REPLACED BY D54730
D54927	MOSTLY OXIDE WITH SOME DEBRIS, 75% FULL	SAMPLED
D55635	ALL OXIDE, NO VISIBLE DEBRIS, 80% FULL	SAMPLED
D54723	NONE, STORAGE LOCATION INACCESSIBLE	REPLACED BY D57764
D54737	ALL OXIDE, NO VISIBLE DEBRIS, 50% FULL	SAMPLED
D58067	ALL OXIDE, NO VISIBLE DEBRIS, 66% FULL	SAMPLED
D57764	ALL OXIDE, NO VISIBLE DEBRIS, 75% FULL	SAMPLED
D54730	FIRE BRICK, METAL BRACKETS, AND OTHER UNIDENTIFIED ITEMS	REMOVED FROM SAMPLING LIST, WAS NOT REPLACED