March 1, 1978

SECY-78-123

[redacted]

COMMISSIONER ACTION

For: The Commissioners

From: James R. Shea, Director, Office of International Programs

Thru: Executive Director for Operations

Subject: PENDING RETRANSFER FROM SWITZERLAND TO FRANCE FOR REPROCESSING

Purpose: Commission review and approval of proposed MB-10 retransfer action.

Discussion: The Department of Energy has requested NRC views regarding the retransfer of 80 irradiated fuel assemblies from the Muehleberg power reactor in Switzerland to Cap-la-Hague, France, for reprocessing (see attached February 16 memorandum at Appendix C).

The circumstances regarding the proposed retransfer are similar to the recently approved Beznau retransfer (SECY 77-634) in that the irradiated fuel will be removed in order to facilitate the reracking and expansion of the Muehleberg spent fuel storage pool (see letter from the Swiss Embassy to DOE attached to Appendix C). As noted in the Swiss Embassy's letter:

1. The basic reracking plan has been approved by the Swiss authorities.

2. There is no alternative for storage of the spent fuel in Switzerland since Muehleberg is the only boiling water reactor in Switzerland and no other reactor of this type is near completion. No storage pools exist in Switzerland outside of nuclear power plants.

3. For the new nuclear power reactors, planned or under construction, a storage capacity of several cores is foreseen. The old American concept of 1.25 cores capacity of the storage pool used at Muehleberg and Beznau has been abandoned.

Contact:
M. A. Guhin, IP 492-7866
M. R. Peterson, IP 492-8155

[redacted]

[redacted]

U.S. NRC Declassification Review

1075 0115

2430

DETERMINATION [CIRCLE NUMBER(S)]
1. CLASSIFICATION [illegible]
2. CLASSIFICATION [illegible] TO:
3. CONTAINS [illegible]
4. COORD [illegible]
5. DECLASSIFIED
6. CLASSIFIED INFO BRACKETED
7. OTHER (SPECIFY):

AUTHORITY: DD

[redacted]

[redacted]

Discussion:
(Continued)

4. Safe accomplishment of the proposed reracking program is only possible if the pool contains no more than one discharge (the pool contains one discharge now and another discharge is scheduled for August).

5. The whole reracking program, then, requires that the 80 irradiated assemblies presently in the pool be removed and transported to La Hague between April and June.

6. If the 80 assemblies cannot be transferred according to the program, this will render the expansion of the pool capacity impossible.

In contrast to the Beznau retransfer, the plutonium to be recovered from the Muehleberg fuel has a designated end use: namely, use in the Kalkar and Superphenix experimental breeder reactors in West Germany and France. It is also planned to have the recovered uranium reenriched in the US for eventual reuse in light water reactors.

All interested Executive Branch agencies have approved the retransfer since (1) the affected nations are generally cooperative in nonproliferation and nuclear fuel cycle evaluation efforts, and (2) it is US policy not to interrupt foreign advanced reactor programs during INFCE (which is to take an open-minded view of all nuclear fuel cycles). Finally, any retransfer of the recovered material outside of EURATOM would require US approval.

In view of the above, I believe our position should be that we have no objection to the proposed retransfer with the conditions set forth in DOE's draft approval letter at Appendix B.

[redacted]

Recommendation: That the Commission approve the proposed response to DOE at Appendix A.

Coordination: OELD has no legal objection.

James R. Shea

James R. Shea, Director
Office of International Programs

Enclosures:
1. Appendix A - Proposed ltr to Nelson Sievering
2. Appendix B - Draft ltr to Swiss Embassy
3. Appendix C - Memo dtd 2/16/78 D.J. Shiller, DOE to Multiple Addressees (CONF)

NOTE: Commissioner comments should be provided directly to the Office of the Secretary by c.o.b. Monday, March 6, 1978.

Commission staff office comments, if any, should be submitted to the Commissioners NLT Friday, March 3, with an information copy to the Office of the Secretary.

DISTRIBUTION:
Commissioners
Commission Staff Offices
Exec. Dir. for Opers.
Secretariat

APPENDIX A

DRAFT

Mr. Nelson F. Sievering, Jr.
Deputy Assistant Secretary
for International Programs
U.S. Department of Energy
Washington, D.C. 20545

Dear Mr. Sievering:

This letter will inform you that the Nuclear Regulatory Commission has no objection to the proposed retransfer from Switzerland to France of 80 irradiated fuel assemblies (MB-10 AG/1074/2), provided it is subject to the conditions contained in your draft approval letter as attached to Mr. Shiller's memorandum of February 16, 1978. In taking this position, the Commission notes the Swiss plans for reracking at the Muehleberg reactor to expand its spent fuel storage capacity.

Sincerely,

James R. Shea, Director
Office of International Programs

APPENDIX A

APPENDIX B

DRAFT:DShiller:JK
2/15/78

Dr. Christian Favre
Scientific Counselor
Embassy of Switzerland
2900 Cathedral Avenue, N.W.
Washington, D.C. 20008

Dear Dr. Favre:

Receipt is acknowledged of your letter of February 14, 1978, describing the proposed disposition of the special nuclear material to be recovered from the irradiated fuel assemblies covered by the MB-10 retransfer approval document AG/1074/2 which was signed by B. Hausherr on behalf of Switzerland on December 23, 1977, for the transfer of 80 irradiated fuel assemblies from the Muehleberg BWR Power Plant (KKM) to Cap-La-Hague, France, for reprocessing.

As you are aware, it is current U.S. policy to approve retransfers of U.S.-origin spent fuel for reprocessing only on a case-by-case basis upon a clear showing of vital need for such retransfer. In this instance under circumstances we are approving the retransfer based upon the statements and data in your letter of February 14th and the attachments thereto, which show the vital need in this case, the expeditious schedule for the storage pool reracking, and the contemplated end uses of the separated special nuclear material.

The present approval, of course, should not be considered in any way to set a precedent for U.S. action on future retransfer requests for reprocessing; since under our current policy each must be considered on its individual merits.

Furthermore, and as we have explained in our discussions, this retransfer approval is conditioned upon the following understandings:

1. That, if prior to actual reprocessing the International Fuel Cycle Evaluation leads to international agreement on new fuel supply arrangements including reprocessing or other disposition of irradiated fuel, the parties will consult to determine whether the new arrangements should be applicable to this ~~Beznau~~ OBRIGHEIM fuel. Please be assured that the U.S. will not revoke this approval, although it would be possible, of course, for the parties concerned to agree that new arrangements should become applicable.

2. That you will notify us if it appears that the situation set forth in your letter may change. Also, as you appreciate, any actual retransfer of these recovered materials outside of EURATOM also will be subject to prior U.S. approval, through the MB-10 form, and in accordance with the applicable agreements for cooperation.

Sincerely,

Harold D. Bengelsdorf
Director for Nuclear Affairs
International Programs

APPENDIX B-2

cc: Mr. Spaak, EURATOM
Washington Liaison Office
Mr. P. Zaleski, Embassy of France

bcc: N. Sievering
W. McDonald
H. Bengelsdorf
P. Brush
V. Hudgins
J. Garrett
D. Hoyle (State)
R. Williamson (ACDH)
M. Gruber (NRC)

DAS/P	GC	ISA	DAS/P
DShiller:jk	PBrush	VHudgins	HBengelsdorf
1/26/78	1/ /78	1/ /78	1/ /78

APPENDIX C

[redacted]

Department of Energy
Washington, D.C. 20545

FEB 16 1978

D. Hoyle, OES/NET, Department of State
R. Williamson, ACDA, Department of State
M. Guhin, NRC [redacted]
P. Brush, GC
V. Hudgins, ISA

AG/1074/2 - TRANSFER OF 80 IRRADIATED FUEL ELEMENTS FROM MUEHLEBERG TO THE COGEMA REPROCESSING PLANT OF LA HAGUE, FRANCE

Enclosed are a letter of February 14, 1978 from the Swiss Embassy, a draft reply, and a copy of this MB-10. I have used the pragmatic approach as the recovered material is covered by the BKW/STEAG contract.

Please let me know if you concur by 12:00 noon, Tuesday, February 21, 1978.

Daniel J. Shiller
Office of Nuclear Affairs
International Programs

Enclosures:
1. Letter, dtd Feb 14, 78
2. Draft Reply
3. MB-10

SUBJECT TO GENERAL DECLASSIFICATION SCHEDULE OF EXECUTIVE ORDER 11652 AUTOMATICALLY DOWNGRADED AT TWO YEAR INTERVALS AND DECLASSIFIED ON DEC. 31 1984 (insert year)

[redacted] document

NATIONAL SECURITY INFORMATION
Unauthorized Disclosure Subject To minal Sanctions.

APPENDIX C

[redacted]

[redacted]

U.S. NRC Declassification Review

20250715	DETERMINATION (CIRCLE NUMBER(S))
5970	1. CLASSIFICATION RETAINED
	2. CLASSIFICATION CHANGED TO:
	3. CONTAINS RESTRICTED DATA
	4. CONTAINS FORMERLY RESTRICTED DATA
	5. CONTAINS NATIONAL SECURITY INFORMATION
	6. CONTAINS CLASSIFIED INFORMATION NOT OWNED
	7. OTHER (SPECIFY):

[redacted]

EMBASSY OF SWITZERLAND
SCHWEIZERISCHE BOTSCHAFT
AMBASSADE DE SUISSE

[redacted]

WASHINGTON D.C. 20008,
2900 Cathedral Avenue N.W.
Telephone 462-1811/7

Ref.: 651.513 BKW - CF/or

February 14, 1978

[redacted]

Mr. Nelson F. Sievering, Jr.
Deputy Assistant Secretary
for International Programs
U.S. Department of Energy
Washington, D.C. 20545

Subject: Transfer of irradiated fuel elements from Bernische Kraftwerke AG (BKW) Switzerland to the COGEMA Reprocessing Plant of Cap-la-Hague, France

Dear Mr. Sievering:

This is in reference to the MB-10 retransfer approval document AG/1074/2 which was signed by B. Hausherr on behalf of Switzerland, December 23, 1977, for the transfer of 80 irradiated fuel assemblies from the Mühleberg BWR Power Plant (KKM), Switzerland, to Cap-la-Hague, France, for reprocessing.

It is my pleasure to confirm by this letter the information Mr. Grandchamp, Fuel Manager for BKW, and the undersigned presented to your staff at a meeting at DOE Headquarters on February 6, 1978. It is our understanding that this letter as well as the technical data diagram plans provided are given in strict confidence for national security reasons. This information should not fall into the hands of potential saboteurs.

Information concerning the KKM reactor and storage pool:

- US design - Containment General Electric Mark 1
- Core capacity - 240 fuel assemblies
- Present storage pool arrangement - 300 spaces
- Fuel assemblies presently in the pool - 80
- Extension of the pool in two phases to a maximum capacity of 672 spaces

[redacted]

The first phase of reracking is to take place between February and March 1979. The second one at the end of 1979. The enclosed planning chart (Enclosure 1) presents the schedule of the reracking operations, taking into account that shutdowns for discharge and reloading are foreseen for August 1978 and May 1979.

The storage pool of KKM is located on an upper level of the reactor building, which means that for safety (seismic protection), racks must be fastened very tightly. The new racks must be adjusted with great precision to the old fixation. The very precise measurement required has to be taken by a diver in the pool. Radioactivity diagrams shown by Mr. Grandchamp (Enclosure 2) clearly indicate that safe diving is only possible if the pool contains no more than one discharge. The whole reracking program then requires that the 80 irradiated assemblies presently in the pool be removed and transported to La Hague between April and June (11 transports necessary).

The basic reracking plan, as presented, has been approved by the Swiss nuclear safety authorities.

There is no alternative for storage of the spent fuel in another place in Switzerland since KKM is the only BWR in operation, and no other reactor of this type is near completion. No storage pools exist in Switzerland outside of nuclear power plants.

It is to be noted that for the new nuclear power reactors, planned or under construction, a storage capacity of several cores is foreseen. The old American concept of 1,25 cores capacity of the storage pool used at KKM and Beznau has been abandoned.

As you know from our previous correspondence (concerning MB-10 form RTD/EU(SD)-19, especially my letter of September 22, 1977), the recovered material will be used by STEAG, Essen (FRG), under the existing contract of June 30, 1975, which concerns eight annual discharges. STEAG has contacted potential customers. It is anticipated that the Plutonium as before will be employed in the SNR/Kalkar (FRG), Superphenix and also in Phenix (France), and Prova per Elementi di Combustibili, (Italy). The irradiated uranium will be recycled in Light Water Reactors. It is presently anticipated to re-enrich the uranium in the United States. Contractual agreements will be concluded as soon as a delivery program for the uranium as UF-6 has been established.

This information concerning ongoing commercial negotiations is, of course, proprietary to STEAG and is given in confidence.

The requirement of a full core discharge capacity in the storage pool must be met for operational - and partly - safety reasons. In case repairs to the internal part of the reactor or the primary recirculation loop should become necessary - for example because of leakage of a valve requiring the dumping of the primary water - the entire core must be unloaded. Unavailability of the full core discharge capacity would require the shipment of numerous fuel assemblies to another country. This would be very difficult, if not impossible, to achieve in a reasonable amount of time in the case of Switzerland, and thus could create safety-related problems.

The safety evaluation report of the Mühleberg nuclear power plant, on which the issuance of the operation permit by the Swiss nuclear regulatory authorities is based, mentions explicitely that full core discharge capacity has to be available in the fuel storage pool.

For this reason it is an absolute necessity for KKM to increase without delay the pool storage capacity. If the 80 fuel elements presently in the pool cannot be transported according to the program, this will render the expansion of the pool capacity impossible. The operation of KKM could then not be continued for a long period of time.

Sincerely yours,

Dr. Christian Favre
Scientific Counselor

Enclosures
As stated

cc. Ambassador Fernand Spaak
Head of the Delegation of the
Commission of the European Communities
Washington, D.C. 20037

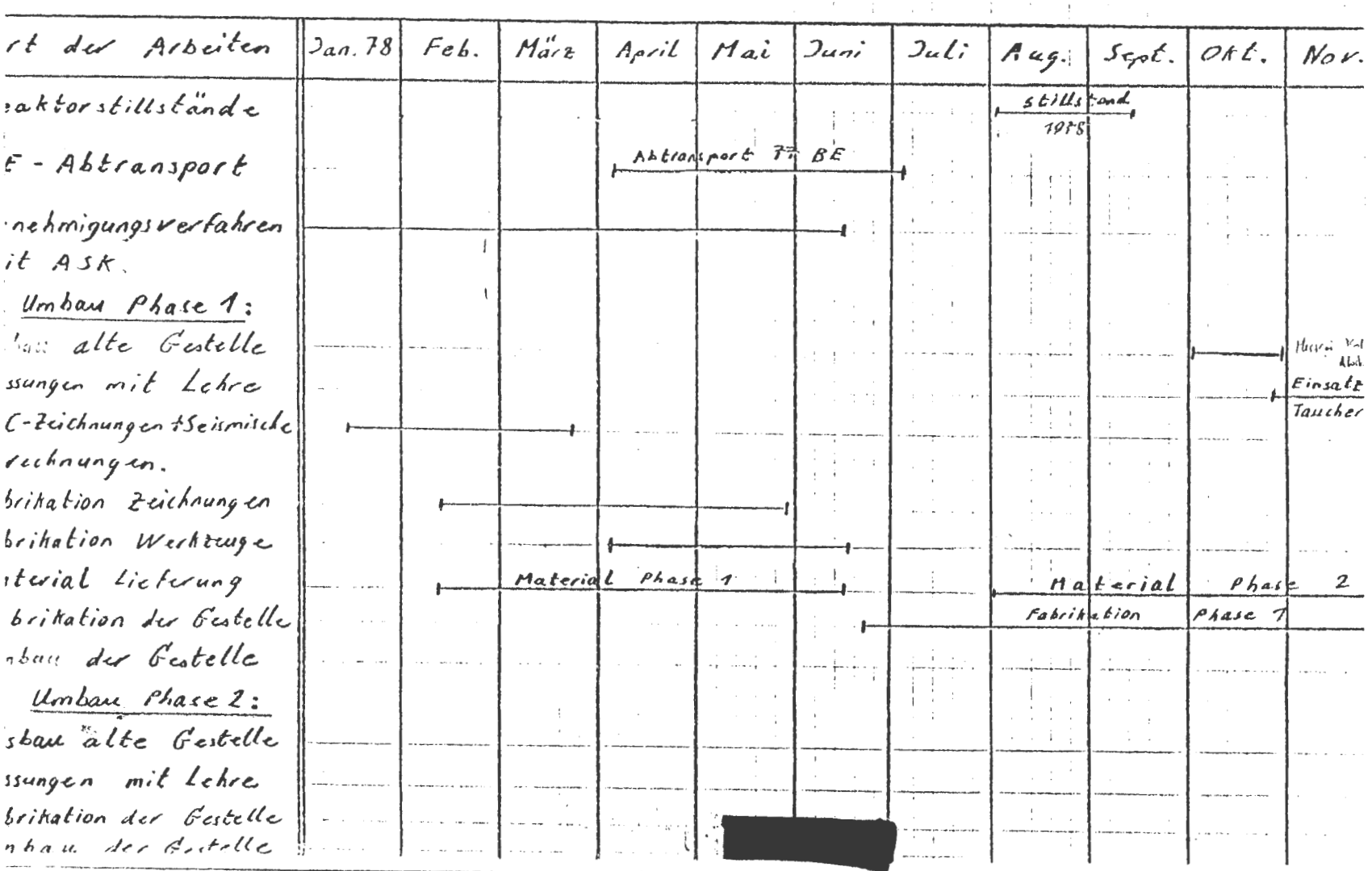
cc. Mr. P. Zaleski, Nuclear Attaché
Embassy of France
Washington, D.C. 20008

[redacted]

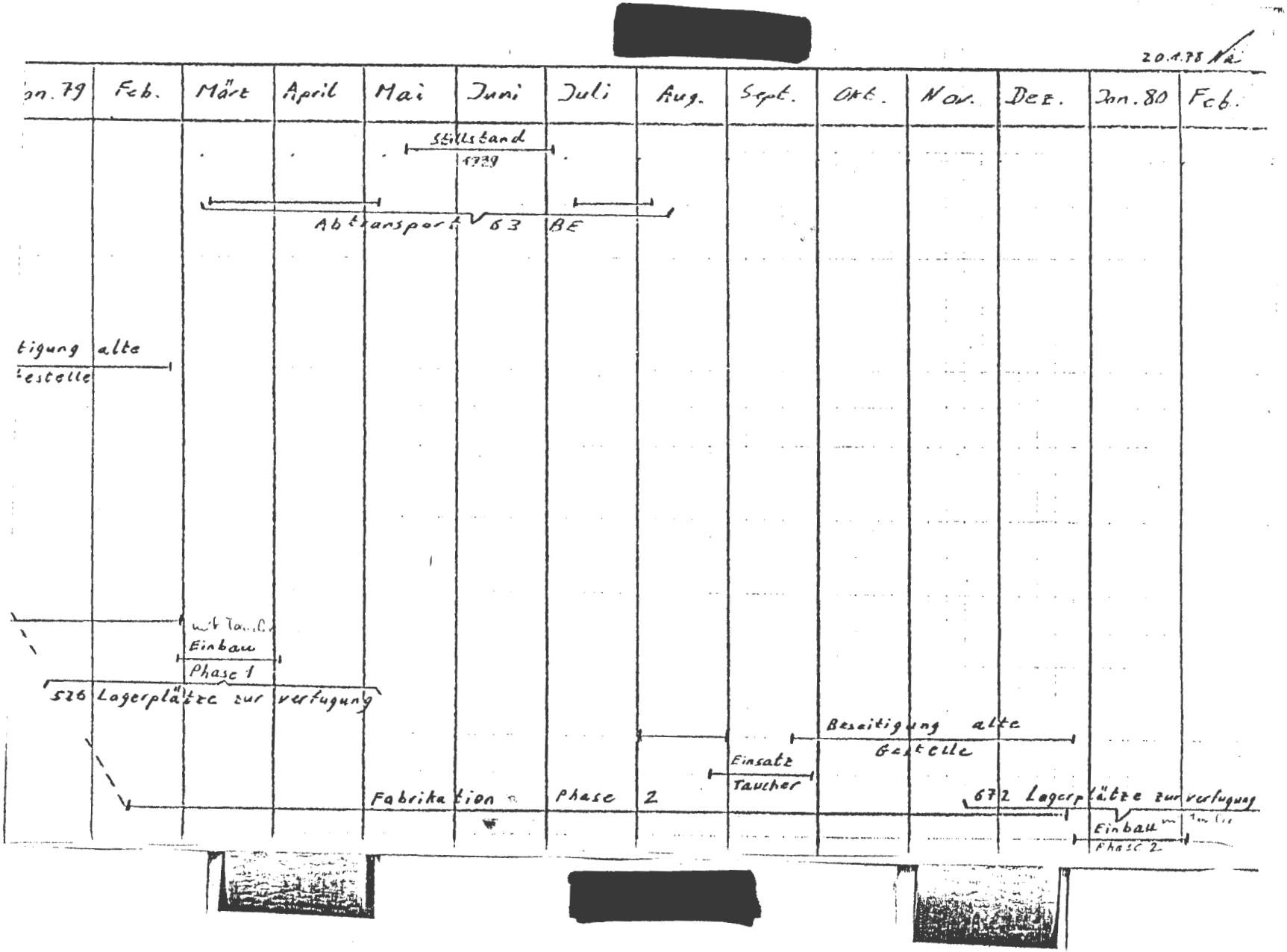
Enclosure 1

[redacted]

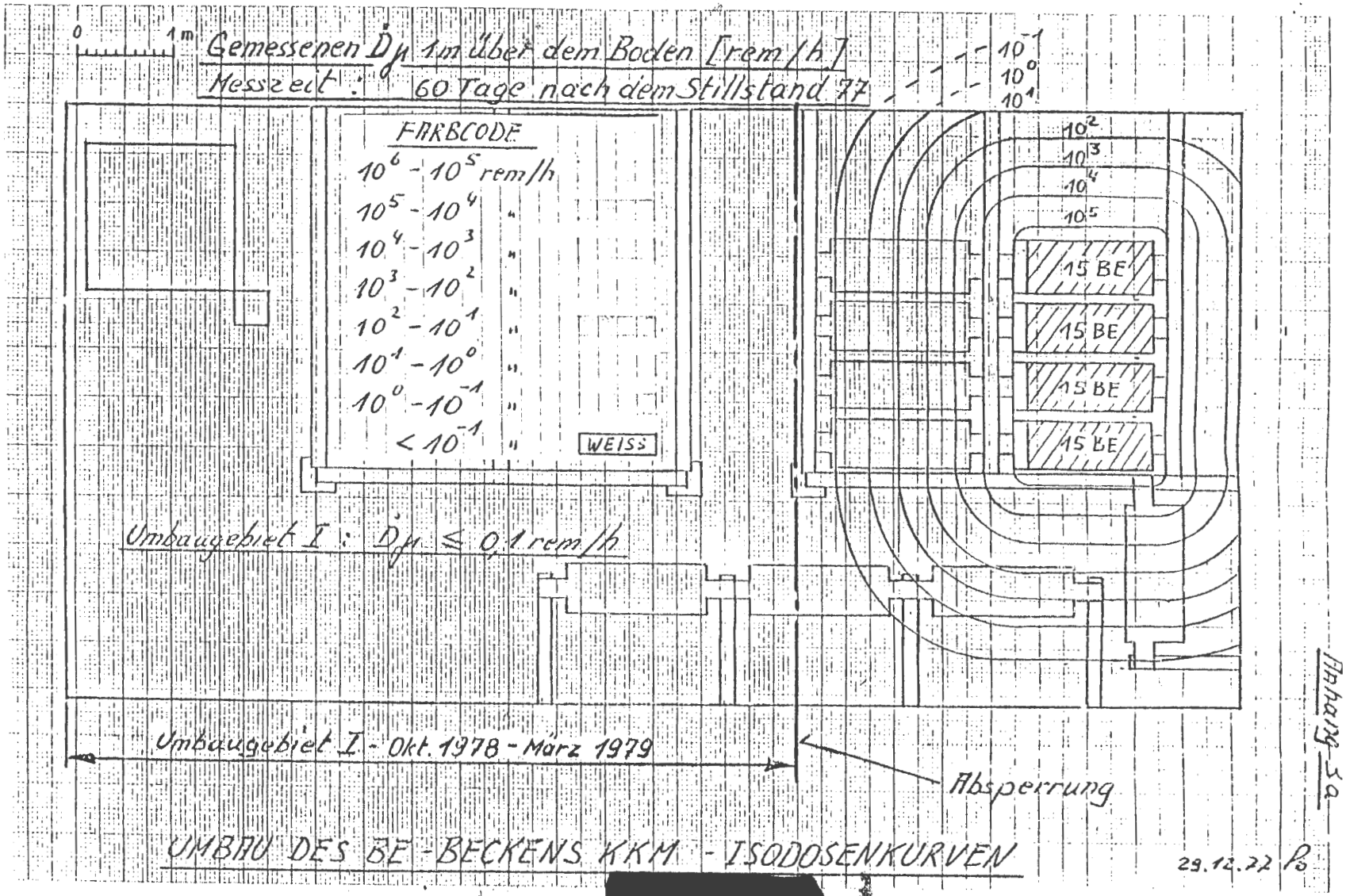
:mbau BE-Becken: Planung Phase 1 und 2



[redacted]

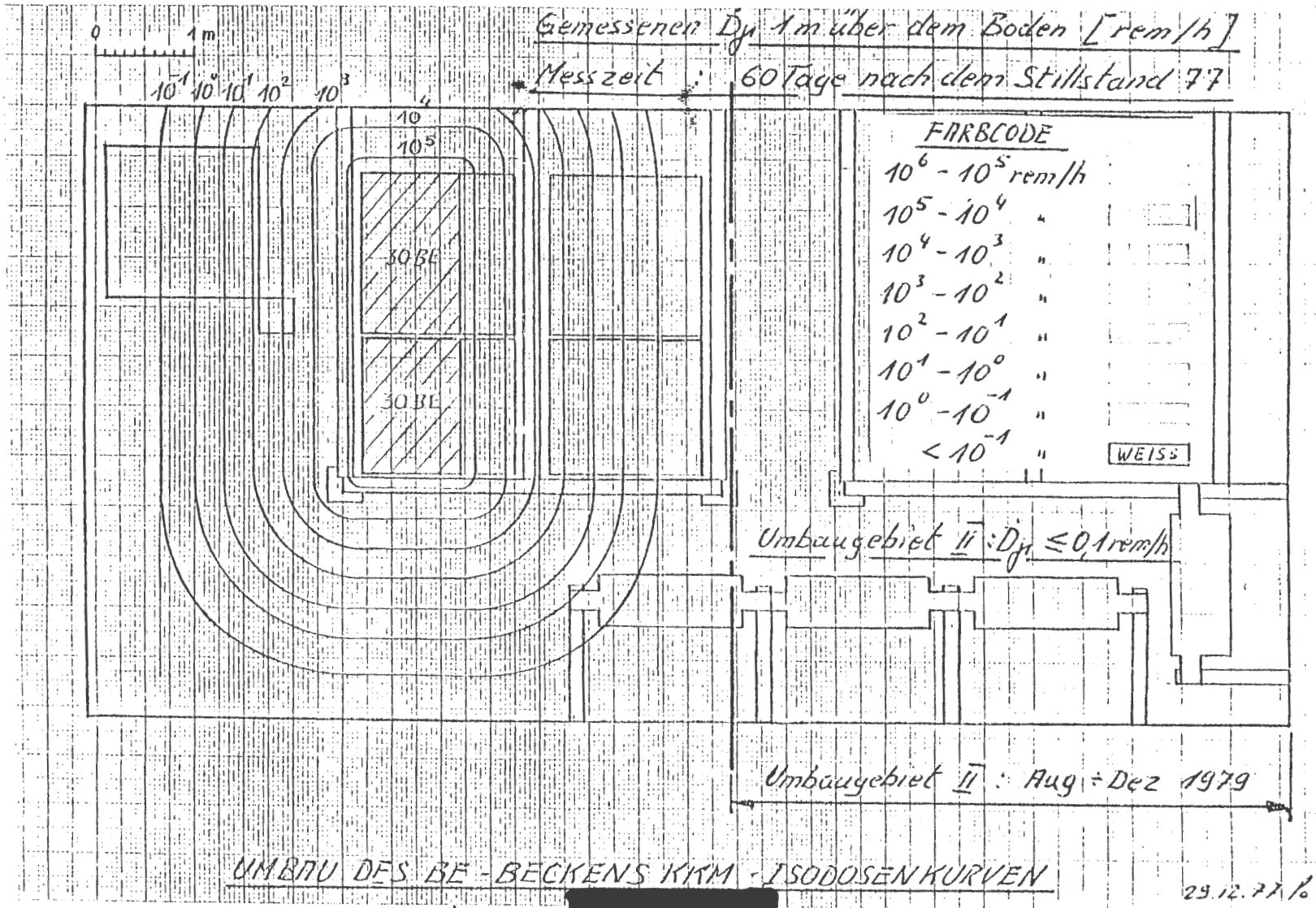

20.4.78
Jan. 79
Feb.
März
April
Mai
Juni
Juli
Aug.
Sept.
Okt.
Nov.
Dez.
Jan. 80
Feb.
Stillstand
1739
Abtransport 63 BE
tigung alte
estelle
mit Tau
Einbau
Phase 1
526 Lagerplätze zur verfügung
Beseitigung alte
Gestelle
Einsatz
Taucher
Fabrikation Phase 2
672 Lagerplätze zur verfügung
Einbau
Phase 2

Enclosure 2



Anhang 3a

[redacted]



UMBAU DES BE-BECKENS KKM - ISODOSENKURVEN

29.12.77/6

Anhang 3b

[redacted]

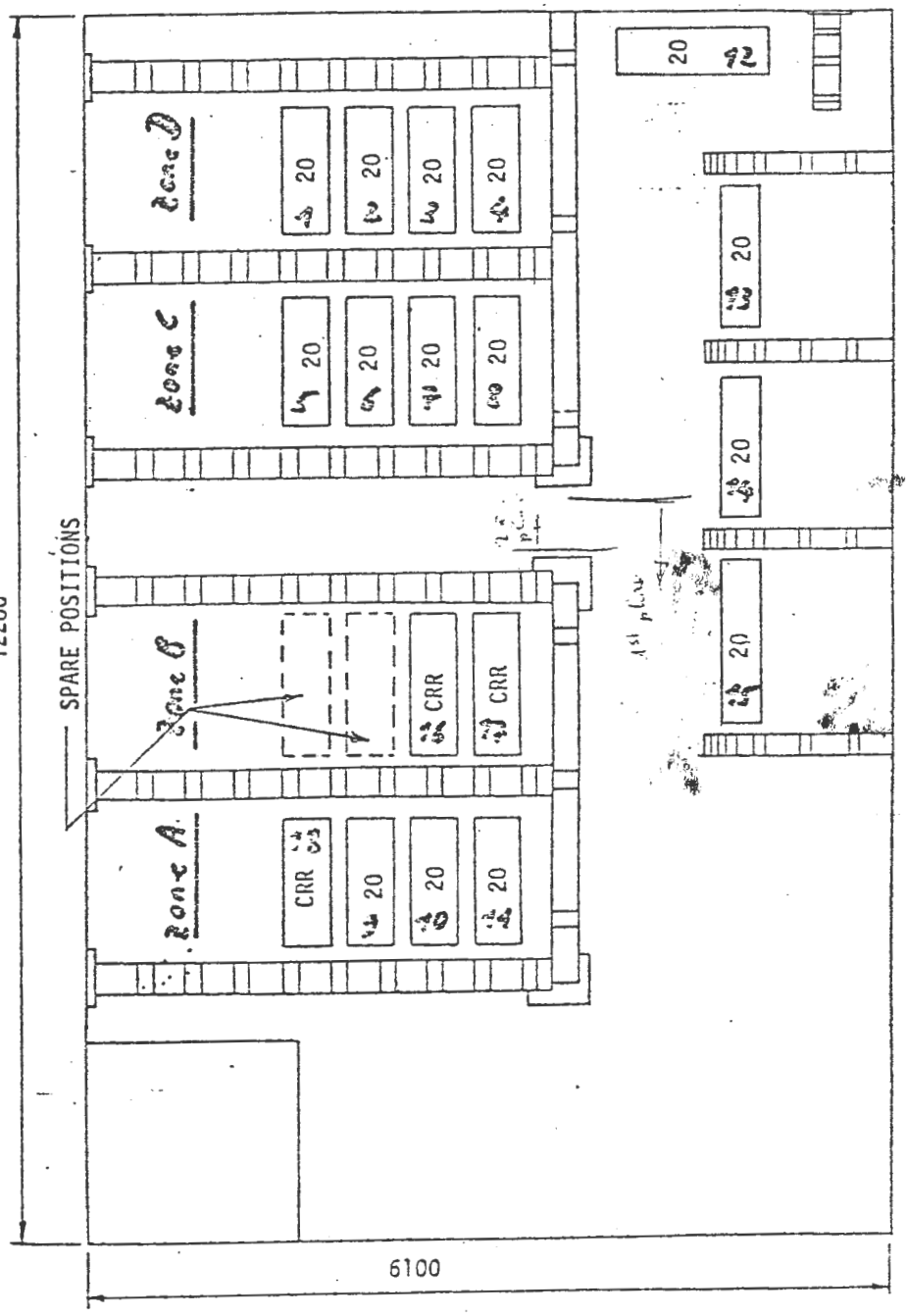


Figure 3-1. Muhleberg Station
Storage Pool Arrangement
(As Built) 300 Spaces

[redacted]

[redacted]

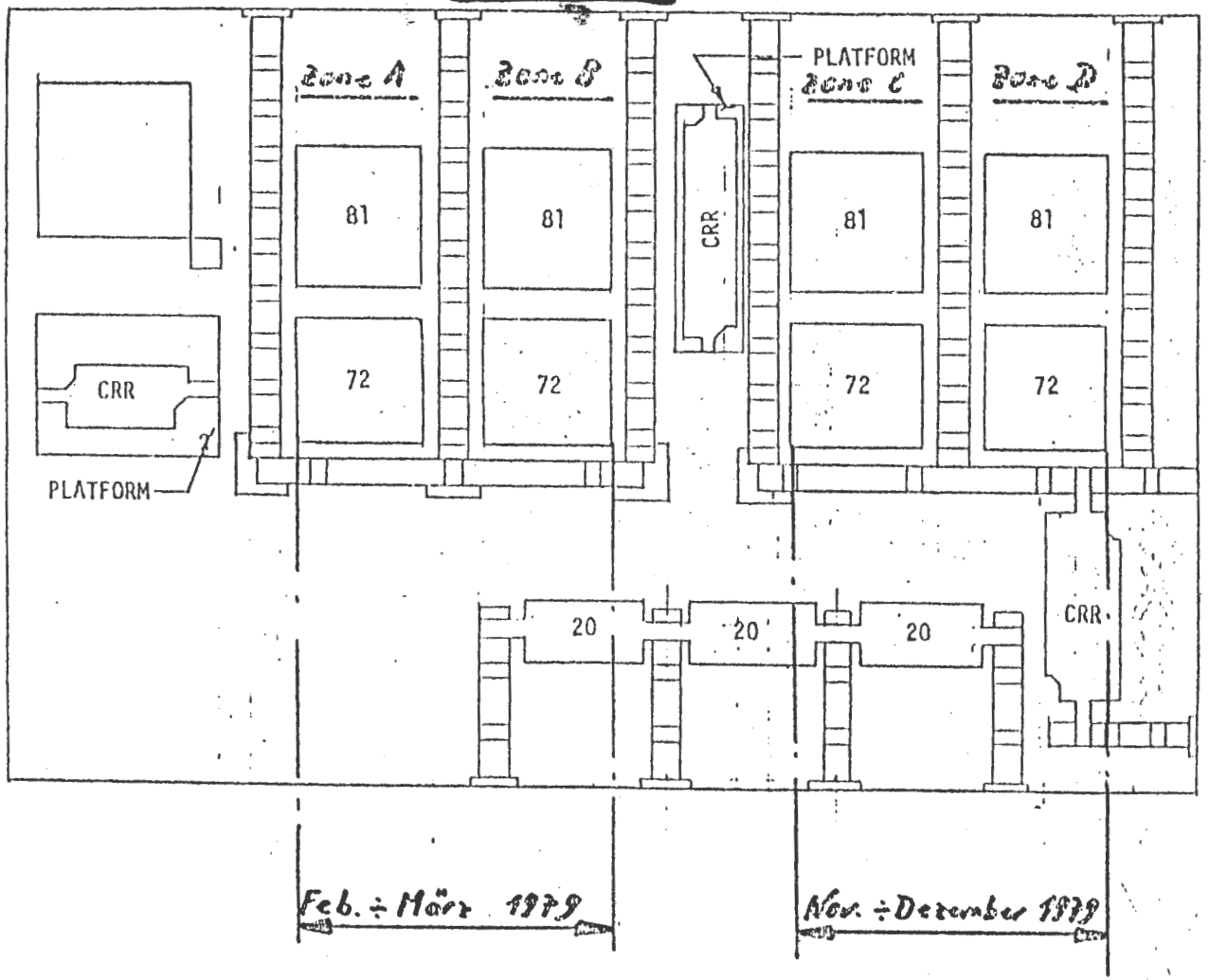


Figure 3-1. Muhlaberg Station
Storage Pool Arrangement
(New Design) 672 Spaces

[redacted] Umbau im :

MB-10

Number AG/1074/2

APPROVAL FOR RETRANSFER OF SPECIAL NUCLEAR MATERIAL
OF UNITED STATES ORIGIN

The approval of the United States Department of Energy is hereby requested to the transfer

from Bernische Kraftwerke AG, Kernkraftwerk Mühleberg, Switzerland
(Transferor)

to COGEMA, Plant of La Hague, France
via EURATOM SUPPLY AGENCY (Transferee)

of United States supplied special nuclear material in the quantity and meeting the specifications described below (hereinafter called "specified material") which the transferor obtained pursuant to its Agreement for Cooperation for Civil Uses with the United States Government. Material was originally obtained by transferor from US-ERDA, under Contract or Order Number AT(49-14)UES/SD/2.

SPECIFIED MATERIAL
(Fill in where applicable)

Identification					
Fuel Type	Marking, No., etc.	Total U (In Grams)	U-235, ~~or Pu~~ (In Grams)	~~Pu~~ (In Grams)	~~Isotopic Percent U-235, U-233, or P~~
80 irrad. assemblies type BWR	see attached list	14,364,862.	136,454.	105,167.	

The specified material, which is now located at Kernkraftwerk Mühleberg, will upon approval hereby by the United States Department of Energy be transferred on or about February 1978 - July 1978 for use at Reprocessing plant of La Hague, France and will be accepted for the following specified purpose: REPROCESSING

END USE: Uranium and plutonium will be sold under existing contract to STEAG AG (ref: MB-10 approval nb RTD/EU(SD)-19). It is planned to use the material in the THTR, SNR and Super Phenix reactors.

The transferor, with the concurrence of the transferee, will notify within 30 days after the aforesaid date the United States Department of Energy of the actual date and quantity of material transferred. It is agreed by the transferor and transferee that as of that date the specified material will cease to be subject to the Agreement for Cooperation and contract indicated above and will be subject to the transferee's Agreement for Cooperation for Civil Uses with the United States Government.

Bernische Kraftwerke AG
Swiss Federal Office of Energy Dec. 23, 1977
(Transferor) (Date)

EURATOM SUPPLY AGENCY
5 JAN. 1978
(Transferee) (Date)
J.B. HENNICKEN, Director general

Above requested transfer under Article of transferee's Agreement for Cooperation for Civil Uses with the United States Government approved, provided physical transfer is consummated by

(For the United States Department of Energy)

BERNISCHE KRAFTWERKE AG

Attachment to MB-10 form
dated December 23, 1977

Identification of the irradiated fuel assemblies

4 assemblies type AM(7x7) announced under Approval nb RTD/EU(SD)-19 but not transferred in 1977:

AM	113	
	182	
	212	
HX	358 (earlier AM 174)	N8: Change of number in accordance with IAEA because of change of upper tie plate

8 assemblies type GED (improved 7x7)

GED	011
	015 - 016
	018 - 020
	053
	057

68 assemblies type AMA (8x8)

AMA	001 - 007	AMA	063 - 064
	009 - 012		066
	014		068 - 069
	016		071 - 072
	019		074 - 078
	022 - 029		080 - 083
	031		085 - 089
	036		093 - 094
	039 - 040		096
	042		099 - 100
	044 - 049		102 - 103
	053 - 055		108
	059 - 061		