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TECHNICAL AND REGULATORY REVIEWS OF THE PART B PERMIT APPLICATION

FOR THE

305-B WASTE STORAGE FACILITY

AT THE

HANFORD RESERVATION

9413137.1682

Presented to

State of Washington
Department of Ecology
Nuclear and Mixed Waste Management Program
RCRA Permit Supervision
Mail Stop PV-11
Olympia, Washington 98504

Prepared by

Brown and Caldwell Consulting Engineers
Hazardous Waste Management Division
100 West Harrison Street, Suite 205
Seattle, Washington 98119

and

Converse Consultants Northwest
3131 Elliott Avenue, Suite 550
Seattle, Washington 98121

April 6, 1990

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SPECIFIC REGULATORY REVIEW COMMENTS

1 Deficiency: Chapter 1, Introduction, Pages 1-1 to 1-3.

Guidance for the format of this application was taken from a June 30, 1987 Department of Ecology publication, "State of Washington Part B Permit Application Requirements". Numbering from this document has been included in the subject titles of the application. However, this guidance document has not been referenced in the application.

Recommendation:

Refer to this 1987 guidance document in Chapter 1 so the reader can follow along with it and will understand the numbering system provided with the subject titles.

2 Deficiency: Section 2.1.2, 305-B Storage Facility, Page 2-3.

This introduction to 305-B does not describe all the activities that occur in the building. Consequently, issues raised by these activities are not discussed within the text of the permit application. Also, there is no discussion in this introduction on the kinds of activities that generate wastes and what the wastes are. Whether extremely hazardous waste (EHW) are received at 305-B has not been discussed.

Recommendation:

Currently there are research activities occurring in part of the building that will be removed prior to permit issuance. However, these activities should be introduced here and described in more detail later so the reader is certain to note all issues related to the operation of this facility.

305-B also acts as a "clearinghouse" to reuse/recycle chemicals. This very important function should be mentioned here and described in more detail within the application. Chemicals considered to be surplus to the needs of research facilities that are tributary to 305-B should not be declared as "wastes" at their source; such materials should be declared "waste" only after it has been determined, at 305-B, that no opportunity for alternative use exists and the material is scheduled for disposal. The record system used at 305-B must be modified accordingly and described in this permit application.

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The basement area should be more accurately described as having a central area with two storage cells that are at either end and separated from the main area. Describe how materials are transported to this area.

Locations and kinds of generation, as well as materials generated, should be introduced in this general description. For example, are wastes taken to 305-B only from PNL operations, or only from the 300-area?

Discuss whether any EHW are received at 305-B.

3 Deficiency: Section 2.2.1, General Requirements, Page 2-6, line 6

Plates 2-2 through 2-7 in Appendix 2A are confusing and do not appear to represent the features described or presented on the map legends. The location of 305-B is unclear and its relationship to other buildings at Area 300 is not shown. Also, the legend shows other features, such as trees, shrubs, and fences, that were not recognizable on these maps. It is not clear to the reader that the requirement of showing an area of 1,000 feet around the facility [WAC 173-303-806(4)(a)(xviii)] has been met. Other required features under WAC 173-303-806(4)(a)(xviii) are not shown such as run-off control systems; storm, sanitary, and process sewerage systems; and barriers for flood control.

Recommendation:

Add the above-referenced material to the maps and clearly show where 305-B is in relation to each of the maps.

4 Deficiency: Section 2.3.4, Aquifer Criteria, Page 2-10, line 1

The definition of a sole source aquifer has not been provided, nor is there a showing of why the location of 305-B does not come within the definition.

Recommendation:

Provide the Safe Drinking Water Act definition of a sole source aquifer and demonstrate why the 305-B location is not over a sole source aquifer.

5 Deficiency: Section 2.4, Traffic Information, Page 2-10, line 7

This description does not describe the kinds of vehicles and quantities of waste that

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will be transported to 305-B as required under WAC 173-303-806(4)(a)(x).

Recommendation:

Describe the kinds of vehicles, the frequency of trips, and wastes that are brought to 305-B, including kinds of containers and quantities. Describe how many of these vehicles, for a given time period (week or month), use public roads.

6 Deficiency: Section 2.5.3, Surface Water, Page 2-12, lines 43-45

The text states that all waste handling activities are conducted inside of 305-B. However, it appears that some wastes are stored outside of the building. Also, measures taken to prevent degradation of surface water quality during transportation of wastes to 305-B have not been discussed (WAC 173-303-430).

Recommendation:

Discuss any storage and loading/unloading that occurs outside the building. Describe the adequacy of this area in terms of spill protection. Discuss measures taken during transportation of wastes to 305-B to prevent degradation of surface water quality.

7 Deficiency: Section 2.5.4, Flora and Fauna, Page 2-12, line 2

This description mentions grassed areas near the 305-B building but does not indicate how large these areas are or how close to 305-B they occur. WAC 173-303-806(3)(d) requires that facilities be constructed and operated to prevent destruction or impairment of flora and fauna outside the active portion of the facility.

Recommendation:

Describe the grassed areas in terms of size and proximity to 305-B. Demonstrate how any fauna attracted to these areas for food or water would not be impacted by a release at 305-B.

8 Deficiency: Section 2.5.6, Aesthetic Impacts, Page 2-13, lines 18-19

Conformance with surrounding buildings that may have been in existence prior to requirements regarding aesthetics is not sufficient. Aesthetics are a consideration if a facility can be viewed by the public. WAC 173-303-430(3)(b) also requires

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aesthetics consideration (see prior comment, number 7).

Recommendation:

Demonstrate that 305-B cannot be viewed by the public from any public areas.

9 Deficiency: Section 2.5.9, Employee Endangerment, Page 2-13

Under discussion of public access, it should be noted that public access to 305-B is closer than a mile away. Whether an airborne release would be able to impact the public has not been discussed.

Recommendation:

Describe how close the nearest public access is and summarize impacts from airborne releases and measures to protect the public. This issue should be expanded in the contingency plan, chapter 7.

10 Deficiency: Section 2.6.2, Buffer Zones, Page 2-14, line 28

An actual demonstration of how the Uniform Fire Code's "American Table of Distances for Storage of Explosives, Table 77-201" for reactive wastes buffer zones is being complied with should be provided [WAC 173-303-440(1)(b)].

Recommendation:

Describe the distances and manner of storage used for reactive wastes that comply with the Uniform Fire Code. Demonstrate that all explosives in the facility are properly stored according to these guidelines.

11 Deficiency: Section 2.8.2, Significant Discrepancies, Page 2-17, lines 39-46

This description would be more appropriate under 2.8.1. In the event a discrepancy does occur, WAC 173-303-370 requires reconciliation with the generator. Note that WAC 173-303-300(3) and (5)(g) require verification of all offsite wastes (see NOD comments 12, 14, 36). A description of how discrepancies will be resolved has not been provided.

Recommendation:

Explain how any discrepancies will be resolved including how the resolution will be

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determined. Describe how waste verification for offsite wastes is performed.

12 Deficiency: Section 3.1, Chemical, Physical, Biological Analysis, Page 3-1

This section describes the wastes generated, but does not give details as to dangerous characteristics, the basis for dangerous designation, laboratory analysis of representative samples or confirmation of offsite wastes received as required under WAC 173-303-300(3) and (5)(g) (see NOD comments 11, 14, 36).

Recommendation:

Provide the following additional information for all the wastes managed at 305-B:

- Describe dangerous characteristics.
- Describe the basis for dangerous designation.
- Provide a laboratory report detailing the chemical, biological, and physical analyses of representative samples.
- Demonstrate how content of offsite waste containers received is verified with information provided by the generator.

13 Deficiency: Section 3.2, Waste Analysis Plan, Page 3-5

This section provides justifications for current procedures at 305-B but does not provide an actual waste analysis plan, as required by WAC 173-303-300(5), that can be kept at the facility and used by staff.

Recommendation:

Turn discussion of procedures into a working plan that complies with all the requirements of section WAC 173-303-300(5).

14 Deficiency: Section 3.2, Waste Analysis Plan, Page 3-5, line 22

How verification of offsite wastes is accomplished has not been described as required by WAC 173-303-300(3) and (5)(g) (see NOD comments 11, 12, 36).

Recommendation:

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Describe the procedures for confirming that each dangerous waste received from an offsite source matches the identity of the waste specified on the accompanying manifest.

15 Deficiency: Chapter 4, Process Information, Pages 4-1 to 4-6

As discussed in NOD comment number 1, a particular format has been used for this document that enables the reader to reference an Ecology guidance document. However, Chapter 4 strays from Ecology's numbering starting with Section 4.1.1.4 through the end of the chapter.

Recommendation:

For consistency and ease of reader analysis, renumber this section to follow "State of Washington Part B Permit Application Requirements".

16 Deficiency: Section 4.1.1.1, Description of Containers, Page 4-1

More detail on a description of kinds of waste containers at 305-B should be provided [WAC 173-303-630(2), (3), (4)].

Recommendation:

Additional information should include the maximum number of each type of container and a description of construction materials, dimensions, and useable volumes of containers. Also, a description of removal or replacement of old labels when containers are emptied or reused should be provided.

17 Deficiency: Section 4.1.1.2, Container Management Practices, Page 4-1

Management practices such as specific measures taken to ensure safety and procedures for moving containers within the facility have not been described (WAC 173-303-630). Also, aisle space and storage configuration are not discussed in this section (WAC 173-303-349(3) and 173-303-630).

Recommendation:

- Describe all container management practices, including movement of containers within the facility
- Give details on aisle space maintained and maximum storage configuration (including number of containers,

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volume and stacking height of containers for each area) (see NOD comment 23).

18 Deficiency: Section 4.1.1.3, Secondary Containment Systems, Page 4-2

As required under WAC 173-303-630(7) and 806(4)(b)(i), secondary containment has not been described for other areas of the facility such as where the current research activities are taking place, where the flammable RMW is stored, or in any outdoor areas where waste may be unloaded, loaded or temporarily stored. It should be noted that any areas currently used that do not meet requirements under WAC 173-303-630 and 173-303-806 must cease operations until compliance is achieved.

Recommendation:

Submit as-builts or other available plans for the entire facility that show planned changes, such as where current research activities are taking place. Demonstrate secondary containment for all areas where wastes are or will be handled or stored. Ensure that operations cease in all areas not in compliance.

19 Deficiency: Section 4.1.1.4, Base Liner Requirements, Page 4-2

As required under WAC 173-303-630(7)(a)(i), compatibility of wastes with the base materials has not been discussed.

Recommendation:

Discuss whether the base materials are compatible with all wastes handled in the facility.

20 Deficiency: Section 4.1.1.5, Containment System Drainage, Page 4-2

Degree of sloping used in the floors has not been provided. Also, it is not clear whether floors are sloped and bermed only in the storage cells, loading bay, and ventilation hood areas, or whether other areas have adequate drainage as required under WAC 173-303-806(b)(i).

Recommendation:

Describe the slope used in all flooring and demonstrate how

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areas used for handling or storing wastes outside the storage cells, loading bays, and ventilation hood areas are drained through floor sloping and berms.

21 Deficiency: Section 4.1.1.6, Containment System Capacity, Page 4-2

There is no explanation of how the facility has been designed to provide containment capacity for 10 percent of the entire inventory of liquid wastes [see WAC 173-303-806(b) and 173-303-630(7)(a)].

Recommendation:

Give details as to containment capacity for each area of the facility (including the area of flammable RMW and outside areas) by describing the dimensions of the containment system and the maximum liquid inventory for that portion of the facility. Describe plans for the area where current research activities are taking place.

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22 Deficiency: Section 4.1.1.7, Control of Run-One, Page 4-4

Prevention of run-on and run-off have not been described in sufficient detail as required under WAC 173-303-630.

Recommendation:

Describe the slope to entry, berms and other devices to prevent run-on and run-off.

23 Deficiency: Section 6.2.1.1, Types of Problems, Page 6-3

Information on how each item will be inspected has not been provided. This information is needed to evaluate compliance under WAC 173-303-320(2).

Recommendation:

Provide information on how each item will be inspected by describing actual procedures.

24 Deficiency: Section 6.3.2, Aisle Space Requirements, Page 6-13

As required in 173-303-340(3), aisle space must be adequate to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and

decontamination equipment. The Department of Ecology has determined that a minimum of 3 feet of aisle space in working aisles is necessary to provide adequate space.

Recommendation:

Aisle spacing within the facility must be revised to meet Ecology's standards.

25 Deficiency: Section 6.4.1, Unloading Operations, Page 6-13

During a site visit, it was observed that storage of wastes may occur outside of the 305-B building. It is unclear if any loading or unloading occurs outside of the building.

Recommendation:

Discuss whether any loading or unloading occurs outside of the 305-B building.

26 Deficiency: Section 6.4.5, Personnel Protection Equipment, Page 6-14

The number of staff working in the facility at any one time has not been provided. There should be adequate protective items for the maximum number of employees present [WAC 173-303-806(4)(a)(viii)(E)].

Recommendation:

Discuss how many staff members may be working in 305-B at any one time and how the available protective clothing is adequate.

27 Deficiency: Chapter 7, Contingency Plan, Pages 7-1 to 7-20

This chapter describes a contingency plan but does not present an actual plan that is kept at the facility and used to train personnel [WAC 173-303-350, 173-303-806(4)(a)(vii)].

Recommendation:

Prepare a contingency plan that details actual procedures to be used in an emergency. Specific comments follow.

28 Deficiency: Section 7.0, Introduction, Page 7-1

There is no discussion of the site-wide contingency plan for

Hanford and how the 305-B contingency plan will be coordinated with the site-wide plan.

Recommendation:

Discuss the site-wide plan and explain how the 305-B contingency plan will be coordinated with the site-wide plan.

29 Deficiency: Section 7.4.4.4, Dangerous Waste Release, Page 7-6

In the event an evacuation is warranted, considerable time may elapse before the Building Emergency Director (BED) arrives at the scene and assesses dangers.

Recommendation:

Describe anticipated timing from the moment a release occurs to arrival of the BED. Demonstrate how this time frame will adequately protect workers in the area. Describe measures that will be taken for protection when the BED is not present.

30 Deficiency: Section 7.6.3, Medical and First Aid, Page 7-16, line 41

Agreements with offsite medical facilities have not been mentioned [WAC 173-303-350(3)(c)].

Recommendation:

Describe any agreements or special arrangements with offsite medical facilities.

31 Deficiency: Section 8.1.5, Training for Emergency Response, Page 8-3

From the information provided, it is difficult to determine if training courses are adequate as required under WAC 173-303-806(a)(xii).

Recommendation:

Provide a description of each training course that shows the subject areas covered. Identify which courses are required for which category of job at 305-B in this section since it is likely to go unnoticed in the appendix.

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32 Deficiency: Chapter 10, Waste Minimization Plan, Pages 10-1 to 10-2

This chapter does not provide an actual plan, nor does it discuss the reuse program at 305-B where chemicals are segregated from wastes to be disposed. Recycling is subject to several requirements that have not been identified in this chapter (WAC 173-303-500 et seq.).

Recommendation:

Provide an actual plan that describes in detail the reuse/recycling program being used at 305-B including information on the quantities of chemicals reused (and percentage of total volume of wastes handled at 305-B) and the distribution system. WAC 173-303-500 et seq. provide requirements for recycling of various materials. A program to comply with these requirements needs to be developed. Chapter 10 should demonstrate this compliance.

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33 Deficiency: Section 12.4.2.2, Operating Record, Page 12-11, line 6

WAC 173-303-380(f) requires record keeping of monitoring, testing, or analytical data.

Recommendation:

Include this item to the list of items within the Operating Record and provide an explanation following section 12.4.2.2.5.

34 Deficiency: Section 12.4.2.2, Operating Record, Page 12-11, line 7

This item is not given an explanation like all preceding items.

Recommendation:

Provide discussion of notices from offsite facilities following a discussion of monitoring, testing, and analytical data.

35 Deficiency: Section 12.4.2.2.1, Permit Application Plans, Page 12-11

For clarity it would be helpful to see an example of format

used to present the waste description and quantity.

Recommendation:

Provide an example of these records (see WAC 173-303-380).

36 Deficiency: Section 12.4.2.2.3, Miscellaneous Support Records, Page 12-11

This description does not provide methodology used to verify that wastes received conform to the generator's documentation. Waste analysis may be needed for verification [WAC 173-303-300(2), (3) and (5)(g)] (see comments 12, 13, 15).

Recommendation:

Describe how offsite wastes received are verified to conform with the generator's documentation. Include methodology for waste analysis of all wastes.

37 Deficiency: Section Chapter 13, Other Relevant Laws, Page 13-1

Only federal laws have been discussed. Several state laws are also applicable and should be identified pursuant to WAC 173-303-806(4)(a)(xix).

Recommendation:

Discuss applicable state air, water and other environmental laws such as the State Environmental Policy Act and WAC 173-304 Minimum Functional Standards for Solid Waste Handling.

38 Deficiency: General Requirements

Discussion of SEPA compliance has not been included in the application.

Recommendation:

Provide a completed SEPA checklist with the application.

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TECHNICAL REVIEW

The following is a summary of the technical concerns noted in the review of the Permit Application and Site Inspection of the 305-B Dangerous Waste Storage Facility:

1. There are several organizational changes which need to be made to the report itself, as specifically noted.

2. The waste inventory needs to be more clearly defined in both the Part A and Part B sections of the Permit Application document.

3. The facility is not adequately described in the text and there is not a suitable drawing of the building layout included in the text or the Appendix.

4. The physical arrangement of the main floor is not adequate for either waste barrel storage or waste material separation along with empty barrel storage..

5. The research facility needs to be removed from the waste storage facility and put in a separate location.

These specific concerns are described in greater detail in the following sections of this report.

SPECIFIC TECHNICAL COMMENTS

Foreword

1. Deficiency: Foreword, Page v.

   The Document Content page does not include any page numbers in the Table of Contents.

   Recommendation:

   The Document Content page (or Table of Contents) needs to be modified to incorporate all of the page numbers of the major sections.

2. Deficiency: Foreword, Page v.

   There are sections missing from the Appendices to the Document Control page for 1A, 3A, and 5A.

Recommendation:

The material in Appendices 1A, 3A, and 5A should be incorporated into the report if applicable.

Part A

3. Deficiency: Part A, all pages.

There are no page numbers for the Part A section. There is only a very brief overview paragraph for this section of the permit application.

Recommendation:

Page numbers need to be added to this section of the Part A application. The single overview paragraph needs to be expanded to several paragraphs to discuss the individual application and signature pages, the figures and maps, and the waste inventory page.

4. Deficiency: Part A, Application, Page 1.

The three items of system storage capacity are not sufficiently clear, and are not listed in the proper order. There is no floor diagram of the 305-B facility.

Recommendation:

The three items need to be listed as follows:

1	SO-1	30,000	G (gallons)
(X-1) 2	SO-2	600	G (gallons)
(X-2) 3	TO-3	20	E (not listed)

The waste storage capacities of the 1, 2, 3, 4, 5, 6, 7, and 8 area storage facilities should be individually listed in this table on a volumetric basis.

5. Deficiency: Part A, Application, Page 1.

The item TO-3 refers to an incineration method, but there is no incineration as a part of the present or proposed 305-B Waste Storage Facility. There is also no listing for the "E" under units, at least to the extent of legibility.

Recommendation:

The matter of the incineration needs to be clarified in the text of this application page. The "E" unit needs to be properly defined in the descriptive text.

6. Deficiency: Part A, Application, Form 1.

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The waste inventory is presented only in general terms of maximum capacities by chemical group, and does not list the individual waste components by chemical or by approximate quantity. The units of reporting are inconsistent, and do not list volume as well as weight.

Recommendation:

The waste quantities stored need to be listed in greater detail to provide a more accurate picture, such as presented in the enclosed Table 1. The chemicals need to be listed by specific material if possible. The quantities all need to be reported in the same units of either pounds or kilograms. The volumetric units also need to be reported where applicable to give a measure of capacity.

The total amount of material which might be in storage at capacity would be 179,885 kilograms, according to the material presented, or 396,288 pounds, as listed in Table 1. If this material were all in the liquid phase, and had a density equivalent to water, the volume occupied would be 47,516 gallons, exclusive of void spacing. This volume is almost 50 percent greater than the design capacity for the storage facility of 30,000 gallons.

7. Deficiency: Part A, Application, Form 1.

There is no specific chemical waste inventory presented in either Part A or Part B of the Permit Application, either for the present time or in the past. There is no specific mention of chemical compound inputs by individual compound, or by overall categories of compounds, or of average storage times.

Recommendation:

A record should be provided of actual chemical compounds stored by type, or at least by compound. A record of actual amounts of materials stored by categories should be provided as an alternative. A time record of total material quantities on site needs to be presented for different periods and years.

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Part 4A, Table 1. Dangerous Waste Inventory for 305-B Facility

Quantity Type of waste lb/yr	gal/yr	Description of waste Disposal method	kg/yr
D001 100		Ignitable	45
D002 400		Corrosive	180
K054 900		Chrome shavings	410
1,400			635
D001 22,026		Ignitable	10,000
D002 11,013		Reactive	5,000
D003 1,101		Oxidizing	500
D004 441		Arsenic	200
D005 441		Barium	200
D006 441		Cadmium	200
D007 22,026		Chromium	10,000
D008 110,132		Lead	50,000
D009 881		Mercury	400
D010 110		Selenium	50
D011 441		Silver	200
WT01 44,053		Toxic extremely hazardous wastes	20,000
WT02 22,026		Toxic dangerous wastes	10,000
WP01 11,013		Extremely hazardous halogenated hydrocarbons	5,000
WP02 2,203		Dangerous halogenated hydrocarbons	1,000
WP03 1,101		Polycyclic aromatic hydrocarbons	500
WC01 2,203		Carcinogenic extremely hazardous wastes	1,000
WC02 2,203		Carcinogenic dangerous wastes	1,000

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F001 4,405	Halogenated degreasers: TCE, $MeCl_2$	2,000
F002 4,405	Halogenated solvents: TCE, TCH	2,000
F003 6,608	Spent non-halogenated solvents: Xylene, Acetone	3,000
F004 2,203	Spent non-halogenated solvents: Cresol, Nitrobenzene	1,000
F005 4,405	Spent non-halogenated solvents: Toluenes, MEK	2,000
F027 441	Pentachlorophenols	200
W001 11,013	Polychlorinated biphenyls	5,000
287,381		130,450
U001-U247 107,066	Moderately hazardous wastes	48,600
P001-P123 441	Extremely hazardous wastes	200
107,507		48,800
Total 396,288		179,885

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8. Deficiency: Part A, Application, Form 1.

There is no specific listing of radioactive mixed wastes at the facility in terms of quantity, composition, or concentration.

Recommendation:

The quantities and compositions of the radioactive mixed wastes stored at the facility need to be identified and listed in terms of their respective radioactive isotope contents.

Facility Description

9. Deficiency: Chapter 2.0, Section 2.1.2, Page 2-3.

There is no mention of the respective heights of the storage cells, of the main floor, of the high bay, or the basement to determine capacity. There is no description of floor thicknesses or wall thicknesses of the respective cells, or of the building as a whole. There is no mention of drainage or ventilation systems from the respective storage areas, or of heating and cooling systems.

There is no mention of any details of the storage of radioactive mixed wastes in terms of volumes or containers. It is not clear whether other wastes are kept separately and then mixed in larger containers or not. There is also no mention of storage capacity or of listing of storage capacities for each cell.

Recommendation:

The height of the storage facility should be listed for the overall storage cells on the main floor and in the basement. The respective storage capacities should be listed for each cell along with the respective dimensions. The types of chemicals to be stored in the respective cells should be listed in a separate table, as shown in the enclosed Table 2. The wall thickness and dimensions should also be given. The total building dimensions need to be listed and then shown on the attached drawings.

The types and amounts of chemicals to be stored in the respective cells should be listed. The procedures for chemical mixing and disposal should be clearly delineated to avoid the possibility of confusion. It would perhaps be wise

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to have one paragraph on physical features of the storage facility, plus another separate paragraph describing its operation. The building heating and ventilation systems need to be described and illustrated.

Sample Table

Table 2. Summary of Storage Capacities and Features of the Respective Cells for the 305-B Waste Storage Facility

Liquid Cell wash, No. gallons	Dimensions, feet: Length	Width	Height	Types of chemicals placed in storage	Area, sq ft	Volume, cu ft	Ventilation, cu ft/min
1 30	14	14		Acids, oxidizers	196		
2 30	14	14		Poisons, other regulated material	196		
3 30	14	14		Caustics, non-regulated, special	196		
4 30	14	14		Organics, hydrocarbons	196		
5				Liquid bulk module			
6				Asbestos cabinet			
7 100	120	20		Radioactive mixed wastes	2,400		
8 350				High bay floor storage			
9				Flammable radioactive mixed wastes			
Total 520							1,550

10. Deficiency: Chapter 2.0, Section 2.2.1, Page 2-3.

There is no topographic map of the specific site where the 305-B Waste Storage Facility is located, either in the main text or in the Appendices to the Part B Permit Application. There is also considerable difficulty in associating the

facility with the map which is provided.

Recommendation:

There needs to be a topographic map supplied of the specific area where the 305-B Waste Storage Facility will be located which can be readily delineated and recognized.

11. Deficiency: Chapter 2.0, Section 2.2.1, Page 2-3.

There is no detailed layout diagram of the 305-B Waste Storage Building, including floor dimensions, all configurations, physical features, and related items.

Recommendation:

A drawing or series of drawings needs to be prepared for the 305-B Waste Storage Building which includes all required features and dimensions.

12. Deficiency: Chapter 2, Section 2.2.1, Page 2-3.

There is a separate research facility in the southeast corner of the building which is completely unrelated to the waste storage facility, and occupies some much needed space.

Recommendation:

The research facility needs to be completely removed from the building to prevent interference with the waste storage operation. It is understood that plans are now underway to remove the research facility prior to the end of 1990.

13. Deficiency: Chapter 2, Section 2.2.1, Page 2-3.

There is no physical separation of the empty storage drums and containers from the full drums and containers actually used for waste storage.

Recommendation:

The empty drums and containers need to be stored in a completely different room or building than for the drums and containers used for the actual waste storage, subject to space limitations.

14. Deficiency: Chapter 2, Section 2.2.1, Page 2-3.

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The ventilation system for the building is not described in the permit application for the main floor, the basement, or the hood area. There is no information on the air flow rates for either the inlet air or exhaust air systems for the building. Separate verbal presentation during a site visit indicated a total of 11 air changes per hour, or an estimated air flow rate of 2,250 cf/min.

Recommendation:

The specifications for the building ventilation systems need to be described in terms of ducting, vents, flow rates, and fan power requirements for both the inlet and exhaust air systems. These specifications need to be prepared for the main floor, hood and basement ventilation systems. Proper engineering drawings of the ventilation systems need to be prepared and included in the Permit Application.

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15. Deficiency: Chapter 2, Section 2.2.1, Page 2-3.

There is a concrete lined trench draining the research facility area through which water is flowing underneath much of the waste storage area where incompatible wastes might become mixed inadvertently during spills or other accidents.

Recommendation:

The water flow through the waste storage area needs to be eliminated by either of the following two methods: (1) rerouting of the water effluent stream; (2) closing and relocation of the research facility.

16. Deficiency: Chapter 2.0, Section 2.2.1, Page 2-6.

The wind rose data is provided for the site and mentions that the prevailing wind direction is primarily from the west. A chart of prevailing wind direction by percentage is not provided. No mention of average wind speeds is made or of ambient temperature ranges.

Recommendation:

A chart of prevailing wind direction at the site by percentage could be provided. A chart of average wind speeds at the site could also be presented. A chart showing maximum, minimum, and average monthly temperatures by month for the site would be useful.

While it is not required, a chart of average temperatures at the site by month along with maximum and minimum temperatures could also be provided as a means of showing the potential for both freezing and flammability hazards. Building heating and ventilation system factors should be described in the text as they relate to temperature variations.

17. Deficiency: Chapter 2, Section 2.7.1, Page 2-15.

There is no diking or berming of the outside soil around the building to prevent harm to ground or surface water quality in the event of a major spill.

Recommendation:

A dike needs to be built around the building in case of any major spills, which makes allowance for any loading and unloading ramps.

18. Deficiency: Chapter 2, Section 2.7.1, Page 2-15.

There are no central systems to limit the emissions of particulate matter, organic vapors, and radioactive isotopes from the exhaust gases from the main floor, hood and basement portions of the building.

Recommendation:

The respective ventilation systems could have the following air pollution emission control devices:

Main Floor vapors	Activated carbon adsorption	Organic
Particulate matter	Mesh filters	
Cabinet Hood vapors	Activated carbon adsorption	Organic
Basement Floor vapors	Activated carbon adsorption	Organic
Radioactive isotopes	HEPA filters	

The above emission control systems may be needed in the future for exhaust gas treatment.

Process Information

19. Deficiency: Chapter 4, Section 4.1.1.3, Secondary

Containment System Design, Page 4-2.

Dimensioned drawings indicating the capacities of the secondary containment system and the associated storage areas are not provided. The containment trench protecting the four storage cells along the west wall was built as a single long trench and subsequently divided by infill into sections. The containment trench in front of the exit door at the south end of the high bay appears to be of insufficient capacity to adequately protect against an overturned drum-sized spill occurring in its direction.

Recommendation:

Provide engineering drawings (as-builts) showing details of trench construction and sizing.

20. Deficiency: Chapter 4, Section 4.1.1.4, Page 4-2.

The sealant coat used for preventing chemical intrusion into the concrete floor is not specified.

Recommendation:

Provide the specification for the sealant coating used.

Hazard Prevention

21. Deficiency: Chapter 6, Section 6.3.1, Page 6-10.

There are no adequately sloped floor spaces where the eyewash and emergency showers are located at the south end of the 305-B Waste Storage Building.

Recommendation:

The floors in the areas under the eyewash and emergency shower should be properly sloped and drained to remove the excess water.

22. Deficiency: Chapter 6, Section 6.3.2, Page 6-13.

There is insufficient aisle space requirement for the barrels stored on the east side of the main floor of the building.

Recommendation:

Make more space available between barrels for ease of

walking, movement, and transfer. It would also be helpful to remove the empty barrels and containers from the main floor so that more space would be available.

23. Deficiency: Chapter 6, Section 6.4.1, Unloading Operations, Page 6-13.

It is stated that all waste unloading is accomplished in an interior bay protected by secondary containment trenches. At the time of our March 19, 1990 visit to the facility, numerous containers were on the exterior driveway, suggesting that some unloading may occur there. This driveway and a secondary driveway along the east side of the 305-B facility are weathered asphalt and have no provisions for spill containment. Whether or not the interior secondary containment trench is of sufficient capacity to prevent an interior spill from discharging outside is also questionable. There appears to be no spill containment for the secondary unloading area.

Recommendation:

Provide descriptions of containment provisions, including dimensioned layout drawings, sufficient to demonstrate capacity of containment. Describe the provisions under which external unloading occurs and any modifications of interior and external accesses necessary to correct deficiencies.

24. Deficiency: Chapter 6, Section 6.5, Page 6-16.

The individual cells for the storage of the different materials are only separated by 4-foot high concrete block walls.

Recommendation:

Raising the height of walls dividing the individual cells to a height sufficient to preclude chemicals from falling or being dropped into an adjoining cell during handling or after shelf storage would be a preferred arrangement.

Contingency Plan

25. Deficiency: Chapter 7, Section 7.5.3, Other Emergency Equipment, Page 7-13.

Supplies of absorbent pillows and other emergency spill response equipment are stored in the operating area adjacent

to the main barrel storage area where these supplies could be included within a spill and become difficult to safely access.

Recommendation:

Modify storage arrangement for spill response supplies and other emergency equipment subject to direct influence of potential spills.

Waste Minimization

26. Deficiency: Chapter 10, Section 10.4, Page 10-2.

Programs for the separate disposal of materials on-site and off-site are not defined.

Recommendation:

The separate programs for disposal and recycling need to be defined and stated. An inventory of material disposition needs to be provided.

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