

HWMA/RCRA PART B PERMIT
FOR THE
IDAHO NATIONAL LABORATORY

BOOK 1 OF 1

PER-140 – MATERIALS AND FUELS COMPLEX
SODIUM PROCESS FACILITY AND
SECONDARY SODIUM SYSTEM

ATTACHMENT 1

SECTION B – MFC FACILITY DESCRIPTION

MODIFICATION DATE: June 4, 2013

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1 **B. MFC FACILITY DESCRIPTION [IDAPA 58.01.05.012; 40 CFR 270.14(b)(1)]**

2 In accordance with the requirements of Idaho Administrative Procedures Act
3 (IDAPA) 58.01.05.012 and 40 Code of Federal Regulations (CFR) 270.14(b), this
4 section of the Materials and Fuels Complex (MFC) Hazardous Waste Management
5 Act/Resource Conservation and Recovery Act (HWMA/RCRA) Permit contains
6 facility description, topography, and the traffic-related information for MFC Sodium
7 Process Facility (SPF) and the Secondary Sodium System (SSS) piping/components
8 HWMA/RCRA units (herein referred to as HWMA units) on the MFC site.

9 Information on the location of the MFC site on the Idaho National Laboratory (INL)
10 and each of the SPF/SSS HWMA units on the MFC site along with a detailed
11 facility description (including photographs of the exterior/interior of the units found
12 in the Permit Application, Attachment B floor and foundation plans are provided in
13 Attachment B of this permit. A brief overview of the types of hazardous
14 waste/mixed waste (HW/MW) received and managed at the HWMA units and the
15 HW/MW services provided are also provided in this section. Detailed information
16 on the types of HW/MW received and managed, and the HW/MW services
17 performed at the HWMA units, is provided in this Permit in Attachment 2,
18 Section C, Waste Analysis Plan, and Attachments 1 and 1a, Section D, Process
19 Description.

20 The information provided in this section is organized by subsection as follows:

- 21 • Subsection B-1, MFC Facility Description
- 22 • Subsection B-2, MFC HWMA Unit Overview
- 23 • Subsection B-3, MFC HWMA Unit Description
- 24 • Subsection B-4, MFC Topographical Map
- 25 • Subsection B-5, MFC Traffic Information.

26 **B-1 MFC Site Description [IDAPA 58.01.05.012; 40 CFR 270.14(b)(1)]**

27 The MFC site is located on the southeastern corner of the INL in Bingham County,
28 Idaho. MFC is operated for the United States (U.S.) Department of Energy (DOE)
29 by the INL through the U.S. DOE Idaho Operations Office (DOE-ID). The location
30 of MFC on the INL site and the MFC administrative boundaries are shown in
31 Attachment B-1. Additional detailed MFC facility information regarding the
32 topography of the site, well locations, floodplain, and traffic information is provided
33 in Subsections B-4 and B-5.

1 **B-2 MFC HWMA Unit Overview**

2 This HWMA/RCRA Permit includes the SPF and SSS HWMA units located at the
3 MFC. The location of each of the HWMA units, and a listing of the EPA Process
4 Codes associated with each HWMA unit, are shown on the MFC Plot Plan in
5 Attachment B-2. A map of MFC showing the transfer routes between all the MFC
6 HWMA units and routes off- of the complex is provided in Attachment B-2 and
7 Permit Application, Attachment B-4.

8 Brief descriptions of the HW/MW to be received/managed at the HWMA units, and
9 the services (processes) to be performed in each HWMA unit, are provided in
10 Subsections B-2(a) and B-2(b). Detailed descriptions of each of the HWMA units
11 are provided in Subsection B-3.

12 **B-2(a) HW/MW Received/Managed and Services Provided at MFC HWMA Units**

13 The MFC HWMA units will receive/manage solid, liquid, and debris HW/MW and
14 are used to perform a variety of services for on-Site¹ and off-Site HW/MW
15 generators and/or owners.

16 Ongoing receipt, management, and processing of on-Site and off-Site HW/MW will
17 ensure compliance with federal- and state-mandated HW/MW treatment and
18 disposal plans, schedules, and stipulations set forth in the INL Site Treatment
19 Plan (INL STP), the Federal Facilities Compliance Act (FFC Act) and the State of
20 Idaho and DOE Settlement Agreement.

21 MFC HWMA units will be used to store, repackage, and/or treat the following
22 wastes (categorized by EPA processes and shown by waste type and associated
23 hazardous waste numbers [HWN]):

- 24 • Receive/manage the following HW/MW types:
 - 25 — Ignitable waste (D001)
 - 26 — Corrosive waste (D002)
 - 27 — Reactive waste (D003)
 - 28 — Toxic-metal inorganic waste (D004-D011)
- 29 • Store, verify/sample, repackage and/or treat the following HW/MW types:
 - 30 — Container/debris storage (S01)
 - 31 — Tank storage (S02)

¹ On-Site means HW/MW generated at a facility physically located on the INL site or HW/MW from a generator that is a contractor or subcontractor, physically located on the INL site, of the INL Management and Operations contractor.

- 1 — Container/debris treatment (T04)
- 2 — Tank treatment (T01).

3 The forms of HW/MW to be received/managed at the MFC HWMA units includes
4 solids, liquids, and/or debris waste that are currently in storage in the HWMA units
5 or that will be received from on-Site and/or off-Site facilities. The forms of
6 HW/MW to be received include the following:

- Solids — Process waste and residuals
 - Laboratory waste
 - Treatment residuals
 - Sludges
- Liquids — Process waste and residuals
 - Laboratory waste
 - Treatment residuals
- Debris² — Metal debris
 - Inorganic/organic debris
 - Paper/plastic/rubber/rags
 - Ceramic/brick
 - Heterogeneous debris.

7 On-site and off-site facilities may transfer HW/MW to SPF/SSS for future storage
8 and treatment if the waste is in compliance with the unit waste acceptance criteria.

9 Estimated maximum storage capacities for each of the SPF/SSS HWMA units and
10 the annual quantities of the HW/MW to be managed (stored, verified/sampled,
11 repackaged and/or treated) at the HWMA units are provided in Attachment 1,
12 Part A.

13 A matrix of the EPA HWNs that can be received/managed at the SPF HWMA units,
14 the HW/MW services (processes) performed in the SPF HWMA units, and the types
15 of HW/MW is provided in Table B-1.

² As defined in IDAPA 58.01.05.008 and 40 CFR 268.2(g).

Table B-1. HW/MW processes, waste types, services, and limits provided by MFC HWMA units.

| Facility | | SPF | SSS |
|------------------------------------------------|-----------------------------------------|------------|------------|
| D001 | Ignitable | X | X |
| D002 | Corrosive | X | X |
| D003 | Reactive | X | X |
| D004-D011 | Toxicity characteristic (inorganic) | X | D007 |
| S01 | Container/debris storage ¹ | 9386 | |
| S02 | Tank storage ¹ | 11960 | 9,452 |
| T01 | Tank treatment ² | 1080 | 785 |
| T04 | Container/debris treatment ² | 440 | |
| Solids | | X | X |
| Liquids | | X | X |
| Debris | | X | |
| Verification/sampling [solids/liquids/debris] | | X | X |
| Repackaging [solids/liquids/debris] | | X | |
| Absorption [free liquids] | | X | |
| Deactivation [ignitable/reactives] | | X | X |
| Melt/drain [reactive metals] | | X | |
| Neutralization [corrosives] | | X | X |
| Solidification [immobilize liquids/inorganics] | | X | |
| Water washing/spraying [debris surfaces] | | X | |

1. Maximum storage amount at anytime in gal.

2. Maximum treatment amount per day in gal.

1 B-3 MFC HWMA Unit Facility Descriptions

2 B-3(a) Sodium Process Facility (SPF)—Buildings 799 and 799A

3 The SPF, Building 799, (ref. Permit Application, Attachment B-1), consists of one
4 building with two designated areas used for HW/MW container and tank storage,
5 repackaging, and/or treatment (S01, S02, T01, T04). The two areas in 799 are the
6 following:

- 7 • Sodium Process Area (SPA)
- 8 • Carbonate Process Area (CPA).

9 A description of the SPF, Building 799, is provided below. A number of SPF
10 photographs, schematics, and drawings are provided as follows:

- 1 • Permit Application, Attachment B-17, Photograph of the Exterior, SPF,
2 Building 799
- 3 • Attachment B-3, Schematic Showing Facility Arrangement and Maximum
4 Storage Capacity, SPF, Building 799
- 5 • Permit Application, Attachment B-19, Photographs of the Interior, SPF,
6 Building 799.

7 **B-3(a)(1) Sodium Process Area (SPA)**

8 The SPA is used for the storage and treatment of HW/MW in both containers and
9 tanks (ref. Permit Application, Attachment B-19). This area consists of an original
10 four-roomed L-shaped structure and a later-constructed enclosed, covered, carbon-
11 steel-lined concrete pad upon which process equipment is located. The building is
12 supported on a thickened-edge, reinforced-concrete pad. There are three rooms in
13 the SPA used for HW/MW storage and/or treatment: the Barrel Holding Room,
14 Sodium Melting and Draining Room, and Sodium Process Equipment Room. The
15 fourth room is the SPF Control Room. Each of these rooms is described briefly
16 below. The approximate overall dimensions of the present enclosed SPA area are
17 65 x 57 ft. Most of the exterior of the SPF is constructed of galvanized-steel siding
18 and roof panels on a structural-steel frame. However, the Sodium Melting and
19 Draining Room (the central room along the north wall) has 12-in. thick reinforced-
20 concrete block walls and an 8-in. thick reinforced-concrete slab roof.

21 ***Barrel Holding Room:*** The Barrel Holding Room is used to receive (store up to)
22 32 drums of HW/MW. The dimensions of the room are 20 ft 6 in. x 25 ft. The
23 HW/MW is brought into this area through a 10 x 10-ft sliding service door (east
24 exterior wall), removed from the skid upon which they were received, and placed
25 onto individual barrel dollies. Once placed on the dollies, the drums are moved into
26 the Sodium Melting and Draining Room (SPF typically processes sodium [Na] and
27 sodium-potassium alloy [NaK] waste but may process other alkali metals) through a
28 6 x 6-ft sliding door on the west wall of the Barrel Holding Room. In addition, the
29 Barrel Holding Room is also the pathway for removal of the drained drums from the
30 Sodium Melting and Draining Room as discussed below. A 1000-lb lift capacity jib
31 crane is available for moving full drums (as needed) for sodium processing activities
32 and maintenance support.

33 ***Sodium Melting and Draining Room:*** The Sodium Melting and Draining Room is
34 used to melt and drain drums of alkali metal HW/MW. The dimensions of the room
35 are 25 x 22 ft. There are eight barrel container assemblies used to hold the drums of
36 HW/MW (typically Na and NaK) while they are melted and drained. There is a

1 bridge crane used to transfer the drums into the barrel container assemblies. The
2 crane has a capacity of 1,000 lb and coverage of 15 ft laterally and 18 ft along the
3 rail. The barrel container assemblies are arranged in two banks of four (ref. Permit
4 Application, Attachments B-21 and B-22).

5 A barrel draining manifold, which is insulated, serves each of the two banks of four
6 barrel assemblies. A flexible, stainless-steel line is provided at each barrel container
7 assembly to connect the drum to the manifold. Each manifold is constructed of
8 3/4-in. Series-300 stainless-steel pipe. A nitrogen purge is provided for each of the
9 flexible barrel drain lines.

10 The two barrel draining manifolds are combined into an insulated 1-in. Series-300
11 stainless-steel pipe, and in turn, connected to the 5000-gal sodium storage tank. The
12 manifolds and 1-in. pipe are all sloped to drain into the 5000-gal sodium storage
13 tank. One drum can be drained through each manifold simultaneously.

14 ***Sodium Process Equipment Area:*** The Sodium Process Equipment Area is used to
15 store and treat alkali metal HW/MW. There are several major components in the
16 sodium process area including a 5000-gal sodium storage tank, two 730-gal sodium
17 day tanks, sodium reaction vessel, 1000-gal caustic cooling tank, 4000-gal caustic
18 storage tank (located in building 799A), and the caustic off-gas system. The
19 dimensions of the area are approximately 20 x 57 ft in an L-shaped configuration.
20 The process area floor is a concrete pad and the process area secondary containment
21 pits are lined with welded carbon-steel plate. The building is supported on a
22 thickened-edge, reinforced-concrete pad.

23 The sodium storage tank is a carbon-steel tank that receives alkali metal from the
24 barrel drain stations. The storage tank fills the day tanks, which feeds the alkali
25 metal to the reaction vessel at a rate of approximately 0.75 to 1.0 gal/min. The
26 reaction vessel converts the alkali metal to a liquid hydroxide waste form, which is
27 then loaded into drums and allowed to cool to solidify. The caustic cooling tank and
28 the caustic storage tank allow for storage of caustic during reaction vessel
29 shutdowns. The caustic storage tank is used for backup storage only. The caustic
30 storage tank is located in a separate building, just west of the Sodium Process
31 Equipment Area.

32 The caustic off-gas system is composed of several components designed to remove
33 moisture, entrained caustic, caustic vapor and provides a vent path for hydrogen
34 from the reaction vessel. The caustic off-gas system is located on the wall, in the
35 southwest corner of the Sodium Process Equipment Area.

1 **Control Room:** The dimensions of the Control Room are approximately 20 x 10 ft.
2 The SPF Control Room houses the control computer and input/output front-end
3 computer. An operator is in attendance whenever the process system is in operation.

4 The control computer is programmed to provide the control and operator interface
5 for the SPF that will allow control of system pressures, valves, temperatures, etc.
6 More detailed information as to interlocks, pressure, level, and temperature controls
7 is provided in this Permit in Attachment 1, Process Description, Subsection D-2(d).

8 **B-3(a)(2) Carbonate Process Area (CPA)**

9 The CPA is an addition to the SPF and is adjoined to the original structure to the
10 south. Doors allow access between the original SPF and the CPA. The CPA
11 accommodates equipment for filling drums and provides storage of the hydroxide
12 solution while it solidifies. The CPA includes:

- 13 • Approximately 23 x 25 ft of main processing area with an associated upper
14 mezzanine level
- 15 • A shielded staging area of approximately 17 x 16 ft.

16 The building height in the main processing and staging areas is approximately 31 ft.
17 The other wing of the L-shaped structure adds approximately 30 x 72 ft of drum
18 storage and handling area with room for forklift operations. There are two 5-ton
19 trolley cranes in this area that are used for supporting maintenance operations. The
20 building height in this second wing is approximately 12 ft. The building is placed on
21 a reinforced-concrete pad capable of supporting a uniform live load of 500 lb/ft². All
22 sections of SPF meet the requirements of the UBC and Seismic Zone 2 or 2B.

23 Storage of filled hydroxide drums is provided by two storage bays in the southeast
24 area of the CPA. The storage bays are placed on a reinforced concrete pad with
25 cinder block walls. Roll-up doors provide access to the CPA side of each bay, and
26 an external roll-up door is available on the west bay. Permanent carbon-steel pans
27 provide secondary containment for the liquid caustic drums stored in the bays. Poly
28 platforms are placed inside the pans to allow forklift operation in the secondary
29 containment areas and to elevate the caustic drums off the floor.

1 **B-3(b) Secondary Sodium System (SSS) Piping/Components**

2 The EBR-II SSS piping/components unit includes the EBR-II secondary sodium
3 system components and piping (associated ancillary equipment). Major secondary
4 sodium system components include the following:

- 5 • Sodium Surge Tank
- 6 • Main Sodium Linear Induction Pump
- 7 • “Shell sides” of the nine heat exchangers (seven evaporators and two
8 superheaters)
- 9 • Piping and valves of the secondary cooling and drain systems.

10 The purpose of the secondary sodium system was to provide a nonradioactive heat
11 transfer medium for transferring heat from the primary sodium system to the steam
12 system. The flow in the secondary sodium system was regulated to remove all
13 primary system heat in excess of that required to maintain the bulk Na at the desired
14 temperature (normally 700°F). The secondary sodium system served the following
15 purposes:

- 16 • Minimized radiation levels in the Sodium Boiler Building by allowing
17 highly radioactive primary Na to remain in the reactor building
- 18 • Kept water and/or steam out of the reactor building
- 19 • Supplied heat to the water in the steam generating system to produce steam
- 20 • Superheated the steam for use in the turbine generator.

21 The secondary sodium system drain tank has undergone treatment for sodium/NAK
22 residuals, closure of the tank has been completed, and approved by the DEQ.

23 **B-3(b)(1) EBR-II HWMA/RCRA Storage and Treatment**

24 The EBR-II primary and secondary sodium systems have been placed in an
25 industrially and radiologically safe condition. Industrial and radiological safe
26 condition is defined as the placement of equipment and facility in a condition that
27 does not pose a contamination or radiation risk beyond normal MFC levels for
28 controlled-access areas. The HWMA/RCRA storage and treatment tasks previously
29 performed for placing the primary and secondary coolant systems in an industrially

1 and radiologically safe condition included: 1) Draining of bulk Na and NaK from
2 the primary and secondary coolant systems, 2) Passivation of residual Na and NaK
3 with moist CO₂ to form a sodium carbonate (Na₂CO₃) and/or sodium bicarbonate
4 (NaHCO₃), 3) Steam treatment of residual sodium in the Secondary Sodium Drain
5 Tank, 4) Removal of the Cover Gas Cleanup System, 5) Removal of the Radioactive
6 Sodium Chemistry Loop, 6) Treatment of NaK and passivated Na with citric acid
7 solution within the EBR-II Primary Tank and Intermediate Heat Exchanger. The
8 removal of bulk Na and NaK was accomplished through heated pipeline transfers
9 from EBR-II facilities to the SPF. The SPF was used to treat radiologically-
10 contaminated Na and NaK to a non-HWMA/RCRA low-level radioactive waste.
11 The non-HWMA/RCRA low-level radioactive waste, in the form of sodium
12 hydroxide and/or potassium hydroxide, was sealed in 71-gal drums and ultimately
13 disposed of in the RWMC at the INL. Note that references to sodium bicarbonate in
14 this Permit includes sodium carbonate.

15 **B-3(b)(2) Sodium Storage**

16 The SSS piping/components are in the basement (east wing) of MFC-766. The
17 12,000-gal capacity system was constructed in 1974. The system is constructed of
18 stainless steel and is located in secondary containment. An inert gas atmosphere
19 (argon or nitrogen) covers the residual Na currently in the SSS piping/components.
20 More detailed description of the SSS piping/components is found in this Permit, in
21 Attachment 1a, Section D, Process Description.

22 **B-3(b)(3) Removal and Treatment Schedule**

23 A report shall be provided to the State of Idaho Department of Environmental
24 Quality (IDEQ) on removal and treatment activities that were accomplished at the
25 EBR-II Complex in the prior fiscal year (FY) and expected accomplishments for the
26 current FY. The accomplishment of these activities is dependent on the funding
27 provided by the DOE each FY. This report will be included with the February
28 Permit Condition I.U. submittal.

29 **B-3(b)(4) Current Facility Status**

30 On August 31, 2009, the EBR-II Complex Permit and operational control of the
31 permitted units (located in MFC-766, -767, -795, -793E and -793F) were transferred
32 to the Idaho Cleanup Project contractor for closure and decontamination and
33 decommissioning of these facilities. RCRA clean closure of buildings MFC-793E
34 and -793F has been completed, approved by the DEQ, and information on these
35 buildings has been removed from the permit. The closure activities for the SSdT

1 and EBR-II Primary Tank (MFC-766 westside), MFC-767, and MFC-795, have
2 been completed, certified by a professional engineer, and approved by the DEQ.

3 RCRA closure of the remaining permitted units will be completed in two phases.
4 The 45-day notification for initiation of closure activities was submitted on
5 January 28, 2010. Phase I involves the treatment/removal of sodium, sodium
6 passivation residuals, and sodium potassium (NaK) alloy currently in the system.
7 Although completion of the sodium treatment is now under closure, the Closure
8 Plan (Section I) refers back to the treatment requirements specified in Section D for
9 the treatment of the sodium/residuals remaining in the system. System
10 modifications will be included in the P.E. closure certification, as described in
11 Section I-2(a). Treatment will involve addition of water/steam into the system
12 under controlled conditions to react the remaining sodium. In addition, additives
13 (e.g., citric acid, sodium citrate) will be used to remove the sodium passivation
14 residuals and neutralize the resulting treatment solutions. Waste characterization of
15 the treatment residuals will be completed via sampling prior to disposition of the
16 residuals. Monitoring of the treatment residuals for pH will be used as an indicator
17 parameter that treatment is completed as designed. Following waste determination,
18 the treatment residuals may be dispositioned to the ICDF evaporation pond if they
19 meet the WAC for the evaporation pond or disposed at another appropriate disposal
20 facility. If the closure performance standards have been met, the liquids will be
21 nonhazardous and may be used in the grout formulation for the final end state of the
22 unit.

23 Phase II will consist of the activities described in Attachment 8, the RCRA Closure
24 Plan for the permitted systems.

25 In conjunction with the Phase I closure activities, the EBR-II Complex is also
26 undergoing decontamination and decommissioning (D&D) under the
27 Comprehensive Environmental Response, Compensation, and Liability Act
28 (CERCLA) program. D&D activities include isolation of the buildings from all
29 MFC Complex systems (e.g., electrical, communication, alarms, etc.), removal of
30 hazardous materials (e.g., asbestos, lead, etc.), and other activities as necessary to
31 facilitate preparation of the EBR-II Complex for its final end state as determined
32 under the CERCLA process. As these activities are completed, compensatory
33 measures will be instituted and documented in the operating record to maintain
34 compliance with the permit. For example, as the electrical isolation of the buildings
35 is completed, temporary power will be provided and the outages necessary to
36 complete the changeover will be recorded in the operating log.

1 **B-4 Topographical Map**

2 **B-4(a) General Requirements [IDAPA 58.01.05.012; 40 CFR 270.14(b)(19)]**

3 Topographical maps with informational requirements of this section (i.e.,
4 topographical relief of the required interval, date, clearly enunciated map orientation
5 and locations of access control barriers, buildings, structures, sewers, loading and
6 unloading areas, fire control facilities, flood control or drainage barriers, run-off
7 control systems and HWMA units) are provided as follows:

- 8 • Permit Application, Attachment B-26, United States Geological Survey
9 (USGS) 7.5 Minute Series Little Butte SW Quadrangle that shows general
10 topography of the MFC site
- 11 • Permit Application, Attachment B-27, MFC site-specific topographical maps
12 (1/200 and 1/500 scale) that include all required detail and an MFC wind
13 rose
- 14 • Permit Application, Attachment B-28, a Flood Insurance Rate Map (FIRM)
15 for Bingham County, Idaho (which details 100-year floodplain areas)
- 16 • Permit Application, Attachment B-29, a map of surrounding land uses
- 17 • Attachment B-4, USGS Miscellaneous Investigation Map I-2330, Geologic
18 Map of the Idaho National Engineering Laboratory and Adjoining Areas,
19 Eastern Idaho, 1994.

20 **B-5 Location [IDAPA 58.01.05.012 and 58.01.05.008; 40 CFR 270.14(b)(11)(i) and**
21 **(ii) and 264.18(a)]**

22 **B-5(a) Seismic Standard [IDAPA 58.01.05.012 and 58.01.05.008;**
23 **40 CFR 270.14(b)(11)(i) and (ii) and 264.18(a)]**

24 The MFC site is located in Bingham County, Idaho. Because the county in which
25 the MFC site is located is listed in IDAPA 58.01.05.008 and 40 CFR 264,
26 Appendix VI, MFC must demonstrate compliance with the seismic standard (ref.
27 IDAPA 58.01.05.008; 40 CFR 264.18). MFC will demonstrate compliance with this
28 standard using USGS data, which indicates there are no faults or other known
29 evidence of Holocene horizon motion within 3000 ft of the SPF HWMA units.

1 **B-5(b) Floodplain Standard [IDAPA 58.01.05.012 and 58.01.05.008;**
2 **40 CFR 270.14(b)(11)(iii) and 264.18(b)]**

3 As detailed in the previously referenced Flood Insurance Rate Map (FIRM) for
4 Bingham County, Idaho (ref. B-4(a)), the MFC site is entirely located in a Zone-C
5 floodplain area (floods less frequent than every 500 years). The MFC SPF HWMA
6 units are located in the area addressed in Panel 1600 18 0050B; the footnote to the
7 map indicates that this panel is not published, but the area is designated Zone C.
8 Also, for Bingham County, Map Panel No. 25 of 750, section 11, includes a small
9 part of the west side of the MFC area designated as Zone C. Subsections B-3(b)(1)
10 through B-3(b)(3) are not applicable to this permit as MFC is not in a 100-year
11 floodplain.

12 **B-6 Traffic Information [IDAPA 58.01.05.012; 40 CFR 270.14(b)(10)]**

13 U.S. Route 20 is the general access route for MFC. Taylor Boulevard intersects
14 U.S. 20 south of MFC and is the direct access road leading to the personnel security
15 and control area. Taylor Boulevard is a 5.6 km paved roadway. A right turn off
16 Taylor Boulevard leads to the MFC entrance. The busiest traffic on the roads to
17 MFC occurs between 6:00 and 8:30 a.m. and from 4:00 to 6:30 p.m., Monday
18 through Friday. The morning traffic consists primarily of employee-driven personal
19 or government vehicles, contractor vehicles, and passenger buses transporting
20 employees to work from various communities near the INL. The evening traffic is
21 primarily the same vehicles leaving the work area. The maps provided in Permit
22 Application, Attachments B-1 and Attachment B-2 of this Permit show
23 U.S. Route 20 and the roadways within the MFC site.

24 MFC is located within a security fence. All access is attained through a security
25 station located at the MFC entrance. Vehicles must pass through a two-gate
26 arrangement that allows security personnel to conduct thorough inspections.
27 Personnel must pass through the security station to obtain proper dosimetry and
28 verify they have proper identification and access credentials. Personnel or visitors
29 without the proper credentials must be escorted while at the MFC.

30 Access to the HWMA units and facilities within MFC is provided by a network of
31 paved and gravel roadways. Any one of these roadways may be used to transport
32 HW/MW among MFC facilities. Transport from MFC facilities to other facilities on
33 the INL site is done via U.S. 20. The roads accessing MFC are constructed of
34 asphalt, with load-bearing capacities of 68 metric tons (75 tons). Roads within the
35 MFC area, used to transport HW/MW, have been tested to 45,000 kg (100,000 lb)
36 single-axle leading. Traffic is limited, consisting of a stop sign at one blind

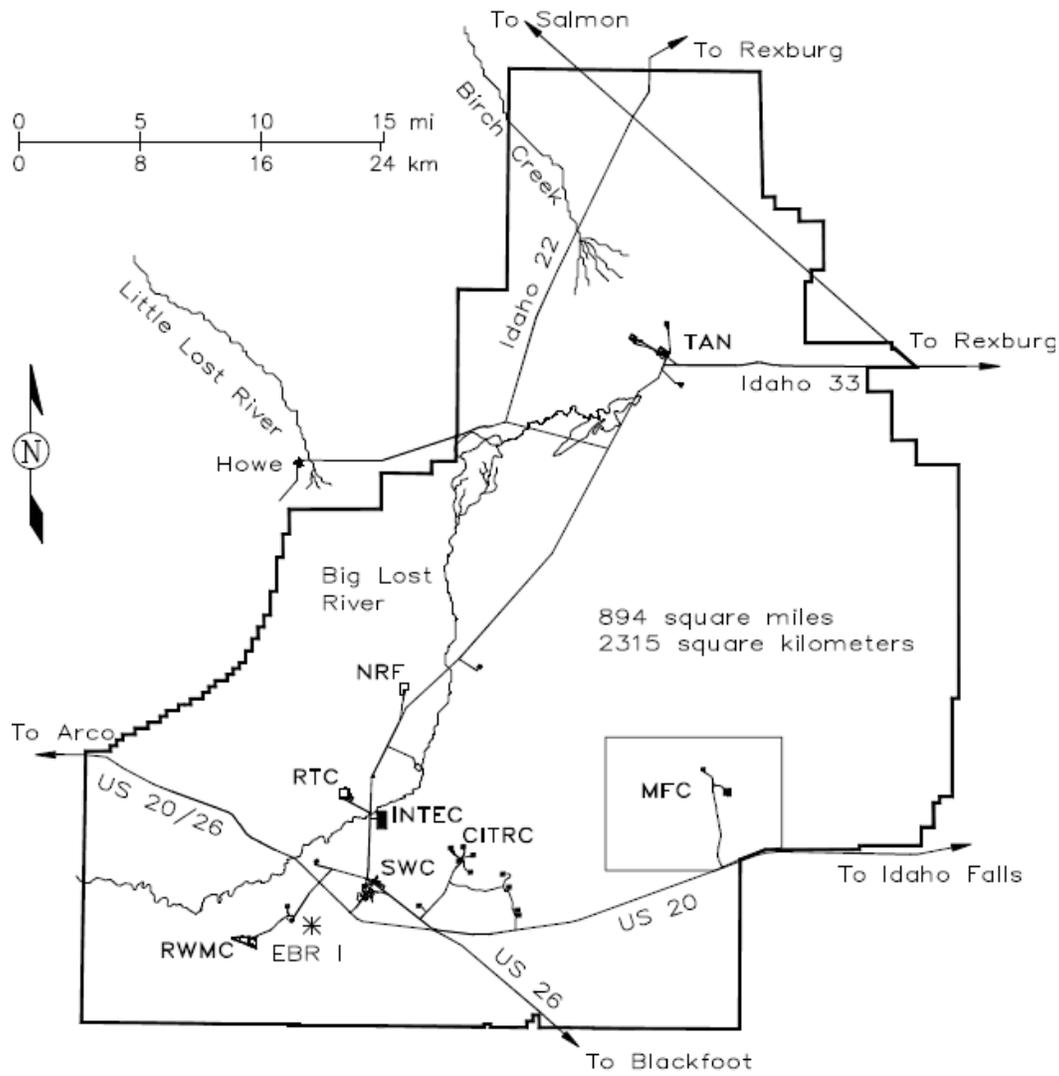
1 intersection, a yield sign at another intersection, and a 15-mph speed limit
2 throughout the site. Traffic is limited to a few government vehicles assigned to MFC
3 for maintenance and material movement.

Attachment B-1

Schematic Showing MFC Administrative Boundaries

- CITRC Critical Infrastructure Test Range Complex
- * EBR-I Experimental Breeder Reactor I
- INTEC Nuclear Technology & Environmental Center
- MFC Materials and Fuels Complex
- NRF Naval Reactor Facility
- RTC Reactor Technologies Complex
- RWMC Radioactive Waste Management Complex
- SWC Sitewide Complex
- TAN Test Area North

- * National Landmark

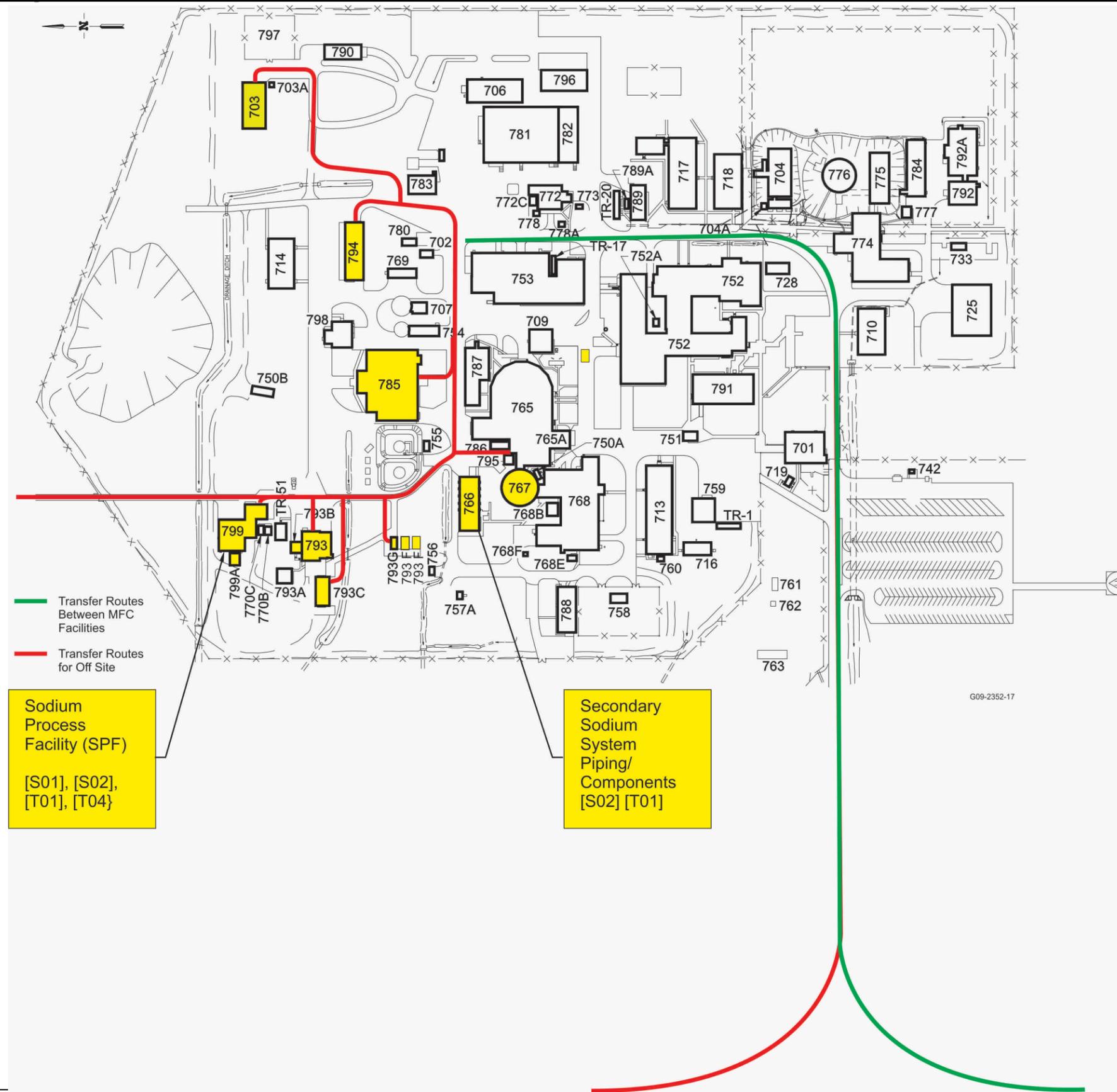


LOCATION OF MFC
ON THE INL SITE

Attachment B-2

MFC Plot Plan: Location of HWMA Units, Process Codes, and Transfer

Routes Between all MFC HWMA Permitted Units and Off-site

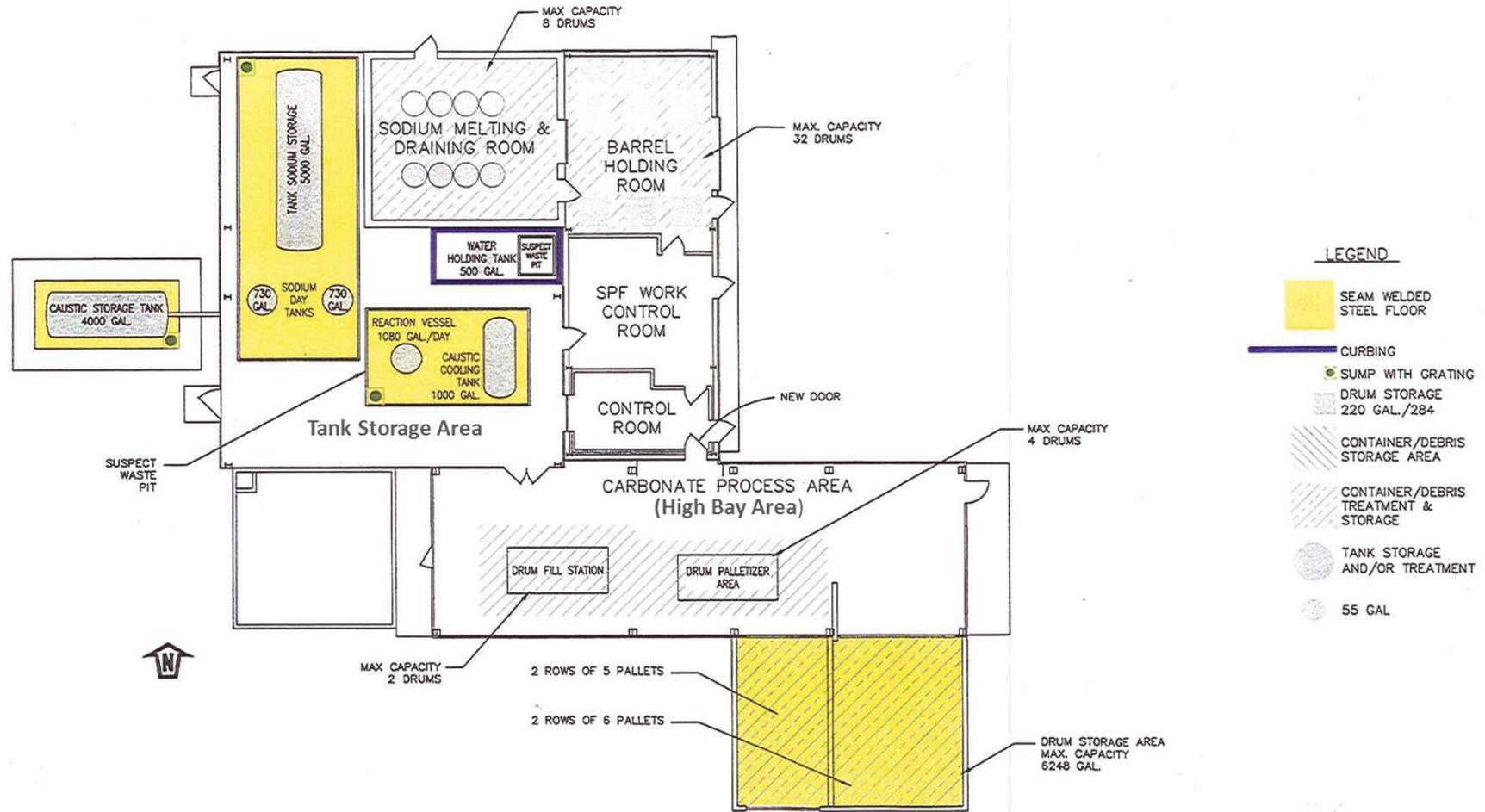


Attachment B-3

Schematic Showing Facility Arrangement and

Maximum Storage Capacity

SPF Building 799



SPF - BUILDING 799
 FLOOR PLAN SHOWING FACILITY ARRANGEMENT, MAXIMUM STORAGE CAPACITY AND SECONDARY CONTAINMENT FLOORS

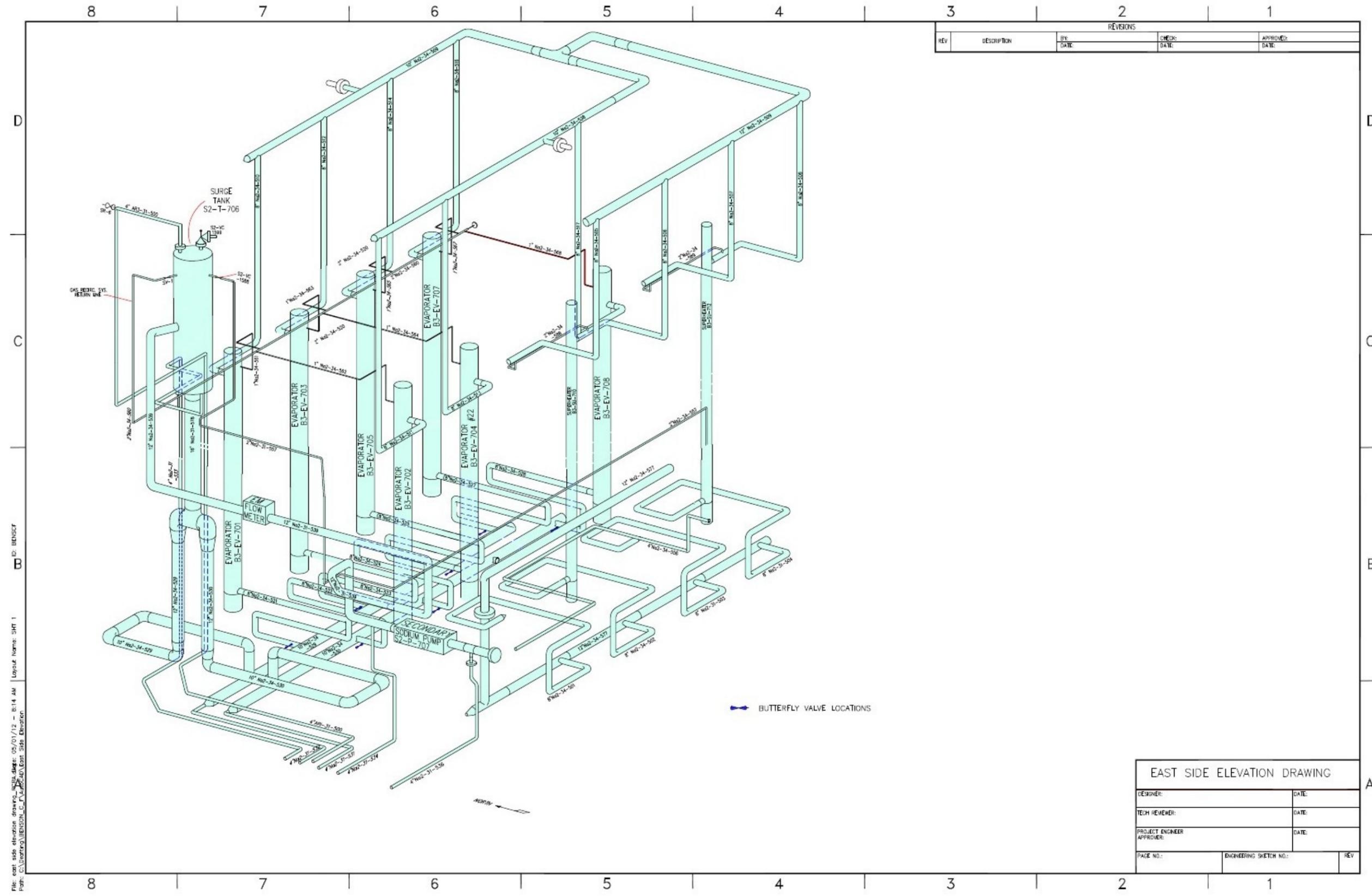
799-019.DWG
 D. Olson 9-7-2007

Attachment B-4

Schematic Showing SSS Piping/Components

Located in the Eastside of Building MFC-766

| | | REVISIONS | | |
|-----|-------------|-----------|------------|---------------|
| REV | DESCRIPTION | BY DATE | CHECK DATE | APPROVED DATE |
| | | | | |

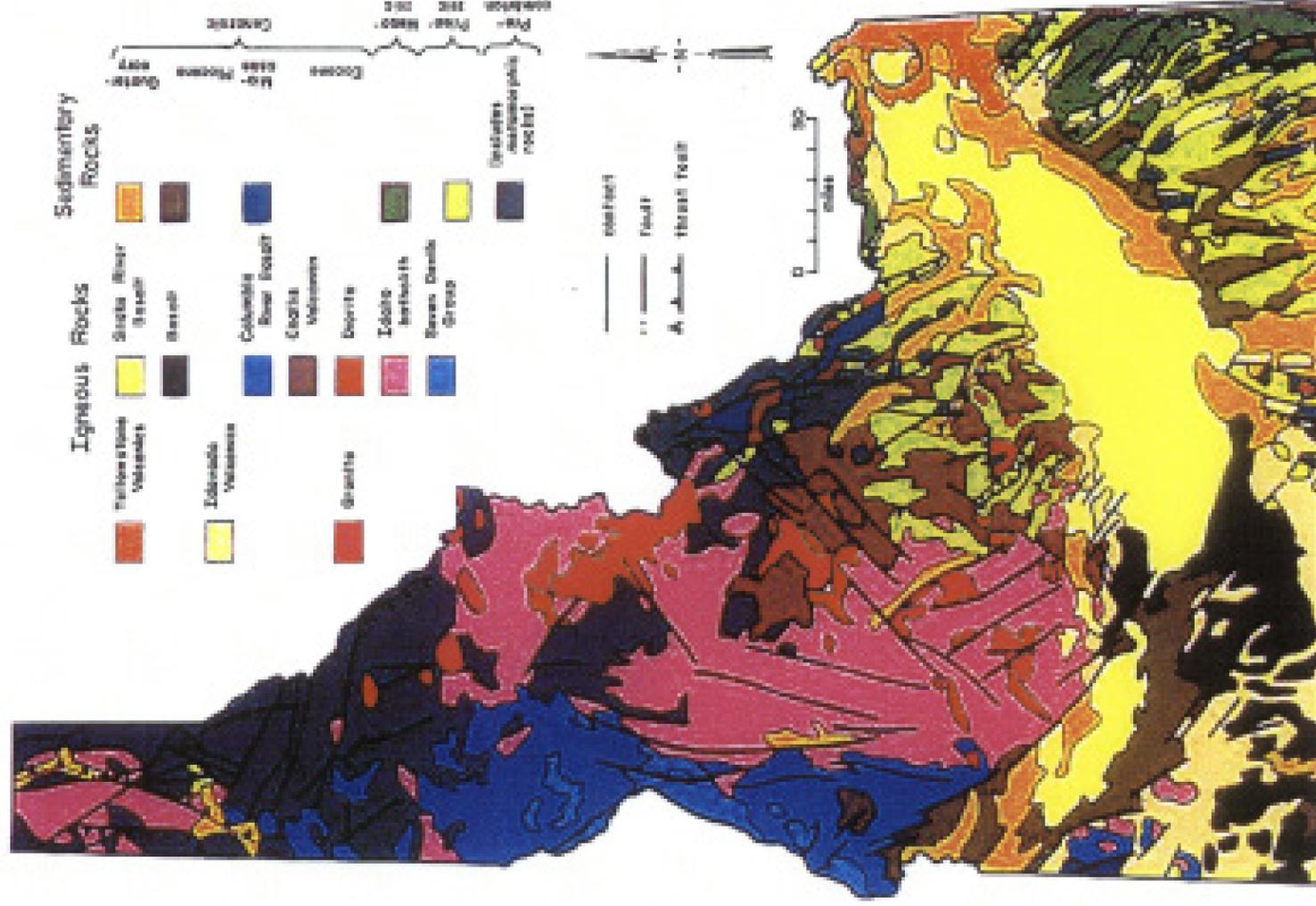


File: east side elevation drawing.dwg, Date: 05/01/12 - 8:14 AM, Layout Name: SHT 1
 Path: C:\working\INL\HWMA\RCRA\SPF\SSS\East Side Evaporator

Attachment B-5

USGS Miscellaneous Investigation Map

Geological Map of Idaho



This map was modified from an Idaho Geological Image. A copy of the full survey is provided in the Controlled Administrative Copy of this document.