

*Private Fuel Storage, L.L.C.*

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John L. Donnell, P.E., Project Director

Director  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

June 15, 1998

**SUPPLEMENTAL RESPONSE TO RAIs  
PRIVATE FUEL STORAGE FACILITY  
DOCKET NO. 72-22 / TAC NO. L22462  
PRIVATE FUEL STORAGE L.L.C.**

- References: 1) NRC Letter, Delligatti to Parkyn, Request for Additional Information, dated April 1, 1998  
2) PFSLLC Letter, Parkyn to Director, Office of Material Safety and Safeguards, Response to Request for Additional Information, dated April 29, 1998  
3) PFSLLC Letter, Parkyn to Director, Office of Material Safety and Safeguards, Responses to Request for Additional Information, dated May 19, 1998

Please find enclosed Private Fuel Storage responses (original plus 15 copies) to the NRC Request for Additional Information (Ref. 1) for three of the four responses scheduled for June 15, 1998 in accordance with Reference 2. The fourth response scheduled for June 15, 1998, LA 1-6, is expected to be transmitted later this week. These responses supplement the information provided in Reference 3.

If you have any questions regarding this response, please contact me at 303-741-7009.

<sup>for</sup> John Donnell  
Project Director  
Private Fuel Storage L.L.C.

Enclosure

c: Mr. Leon Bear  
Ms. Denise Chancellor

Mr. Mark Delligatti  
Mr. Jay Silberg

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C PDR

## **SAR CHAPTER 2 - SITE CHARACTERISTICS**

### **Section 2.5.1 Regional Characteristics**

- 2-3 Provide the following information relative to the withdrawal and use of water on or near the proposed Private Fuel Storage Facility (PFSF):
- (a) A map that shows where water withdrawal is occurring on or in the vicinity of the PFSF site with particular reference to the proposed storage pad. At the least, include all wells located within a minimum 8-km (5 mi) radius of the PFSF.
  - (b) For each identified well-
    - Depth to water
    - Formation from which water is withdrawn
    - Quantity of water withdrawn annually and pumping rates
    - Discussion of use of the water from each well with particular reference to any consumption by humans or animals
  - (c) If no water wells are located within the specified 8-km radius of the proposed PFSF site, include a specific statement such as "No groundwater is extracted within the 8-km (5 mi) radius of the proposed PFSF."
  - (d) Potentiometric contours of groundwater at and around the proposed PFSF site (if relevant).
  - (e) Classification of the aquifer beneath the PFSF site based on class of use and water quality (if relevant).
    - NUREG-1567 (Section 2.4.5), Subsurface Hydrology, indicates this information should be provided.

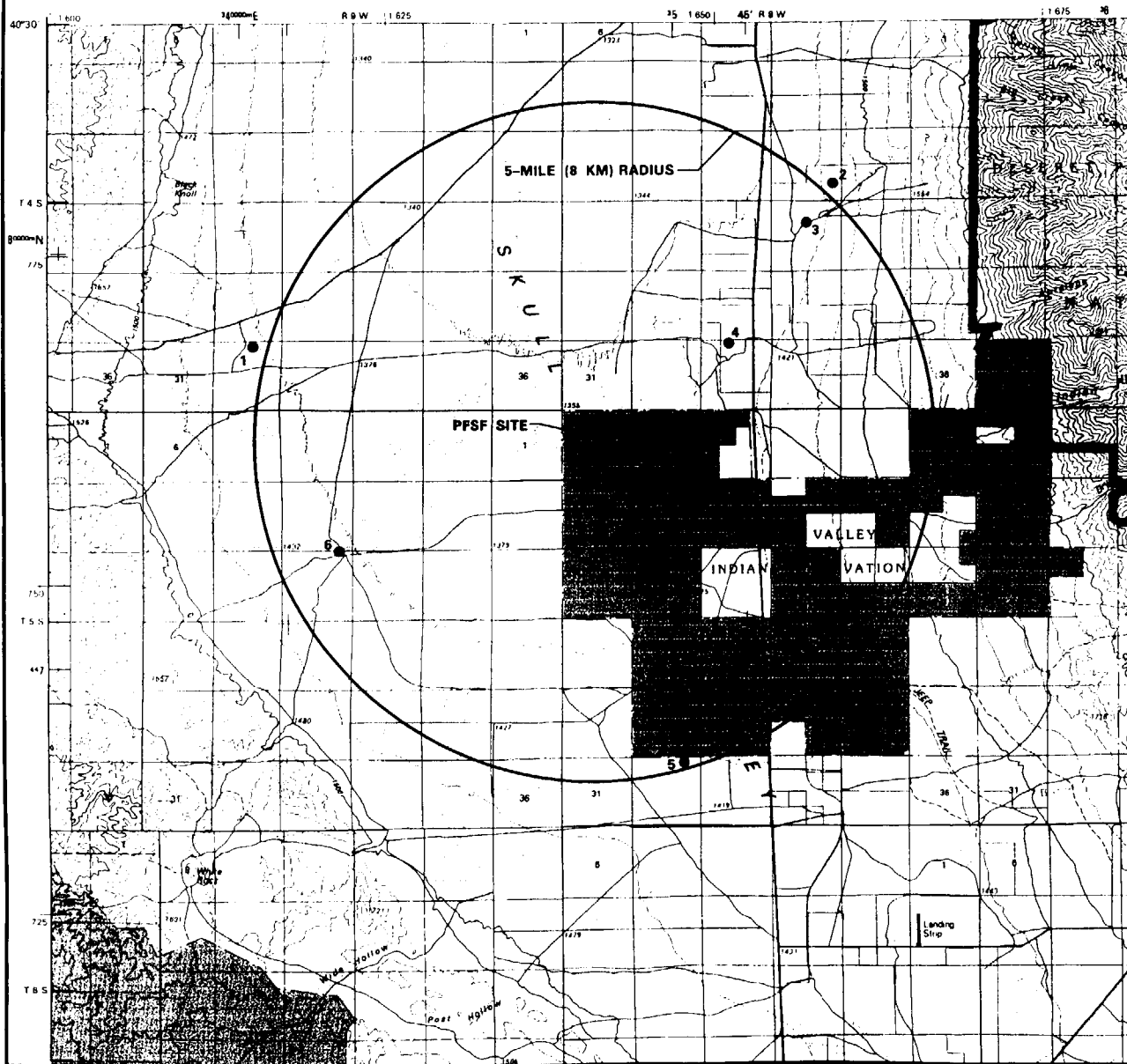
### **RESPONSE**

- (a) The enclosed figure indicates the locations of all known water wells within 5 miles (8 km) of the PFSF. Other off-Reservation wells may have been drilled within five miles of the PFSF but they do not have a current water right on-file with the State's Division of Water Rights. Some of the wells in the table appear to be abandoned or have not been utilized in many years, such as the wells to the west and south of the Reservation, but the water right has been maintained.
- (b) The enclosed figure includes a table listing the requested information, where available. No crops for human consumption are grown with water from irrigation wells listed in the table.

- (c) See response to (a), above.
- (d) The potentiometric map (Plate 1) from Hood and Waddell is included as part of this response.
- (e) The State has not applied an aquifer classification system to the aquifer in Skull Valley. A water quality map (Plate 2) from Hood and Waddell is included as part of this response.

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Hood, J.W., and Waddell, K.M., Hydrologic Reconnaissance of Skull Valley,  
Tooele County, Utah, DNR Tech Pub. No. 18, 1968

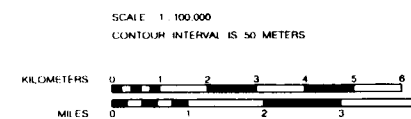


WELL MAP NO	OWNER	TOTAL DEPTH	DATE DRILLED	USE	DEPTH TO WATER	YIELD	CURRENT WATER RIGHT
1	SKULL VALLEY CO. LTD.	340'	1956	STOCK WATERING		35 gpm	
2	ISLAND RANCHING CO. INC.	325'	NO INFO	IRRIGATION, STOCK		NO DATA	c/s
3	ISLAND RANCHING CO. INC.	347'	19--	IRRIGATION, STOCK		NO DATA	YES (1954) 1.228 c/s
4	ANSCHUTZ LAND CO. LTD.	408'		IRRIGATION, STOCK		NO DATA	YES (1960) 0.7487 c/s
5	ANSCHUTZ LAND CO. LTD.	209'		STOCK WATERING		20 gpm	YES (1948) 0.015 c/s
6	ANSCHUTZ LAND CO. LTD.	292'		STOCK WATERING		12 gpm	YES (1940)
7	SKULL VALLEY INDIAN RESERV.	401'		DOMESTIC, INDUSTRIAL		15 gpm	NOT REQUIRED
8	SKULL VALLEY INDIAN RESERV.	651'		DOMESTIC		60 gpm	NOT REQUIRED
9	SKULL VALLEY INDIAN RESERV.	NO DATA		DOMESTIC		NO DATA	NOT REQUIRED

SOURCES: BASE MAP IS RUSH VALLEY, UT. BUREAU OF LAND MANAGEMENT SPECIAL EDITION SURFACE MANAGEMENT STATUS 1:100,000 SCALE. METHIC 1981. WELL DATA ARE FROM STATE OF UTAH DIVISION OF WATER HEIGHTS AND HOOD AND WADDELL (1968).

#### LEGEND:

● WATER WELL LOCATION



REQUEST FOR ADDITIONAL INFORMATION NO. 1  
QUESTION 2-3  
WATER WELLS WITHIN 5 MILES (8 KM)  
OF PFSF SITE  
PRIVATE FUEL STORAGE FACILITY

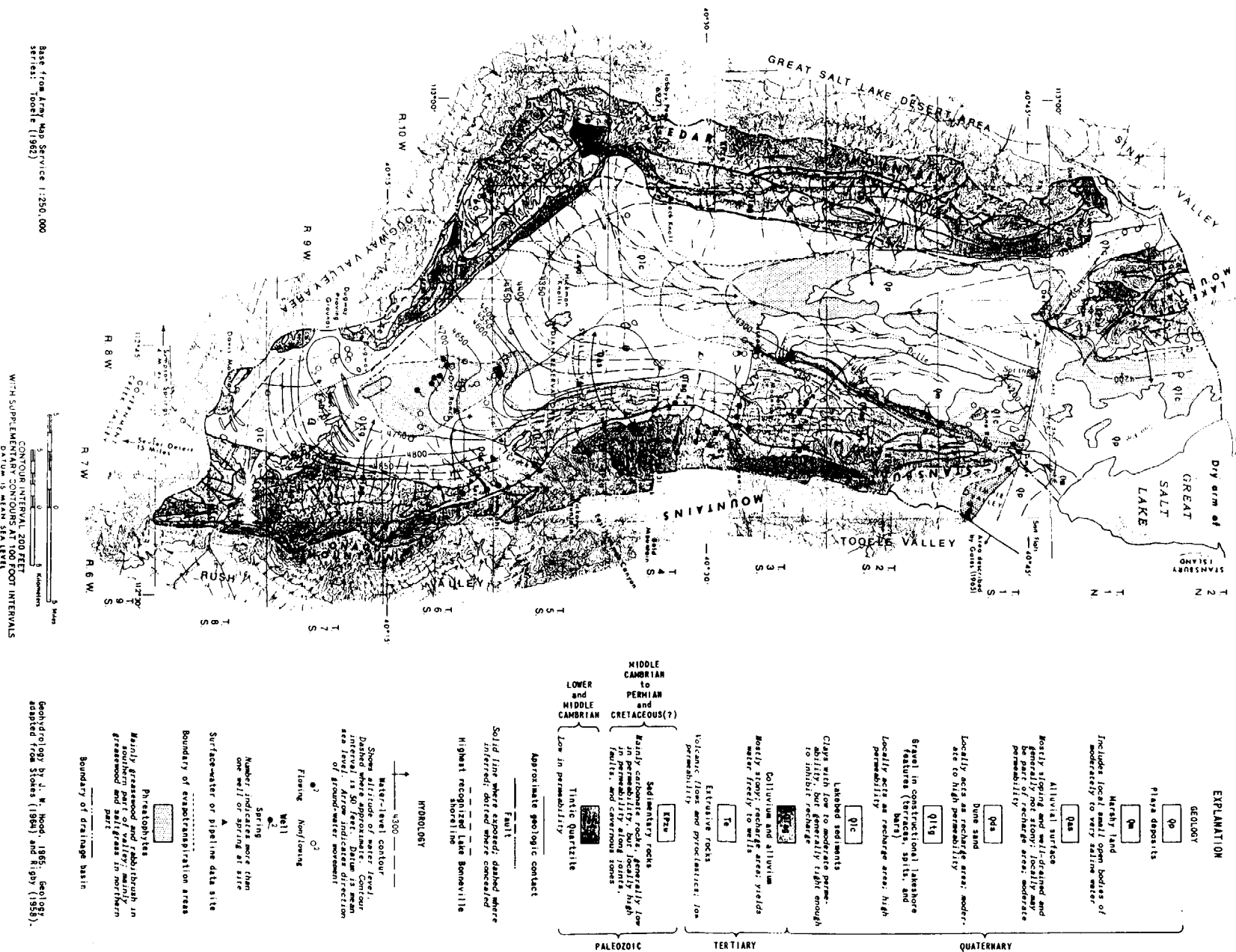


Plate 1. — GENERALIZED GEOHYDROLOGIC MAP OF SKULL VALLEY, TOOELE COUNTY, UTAH

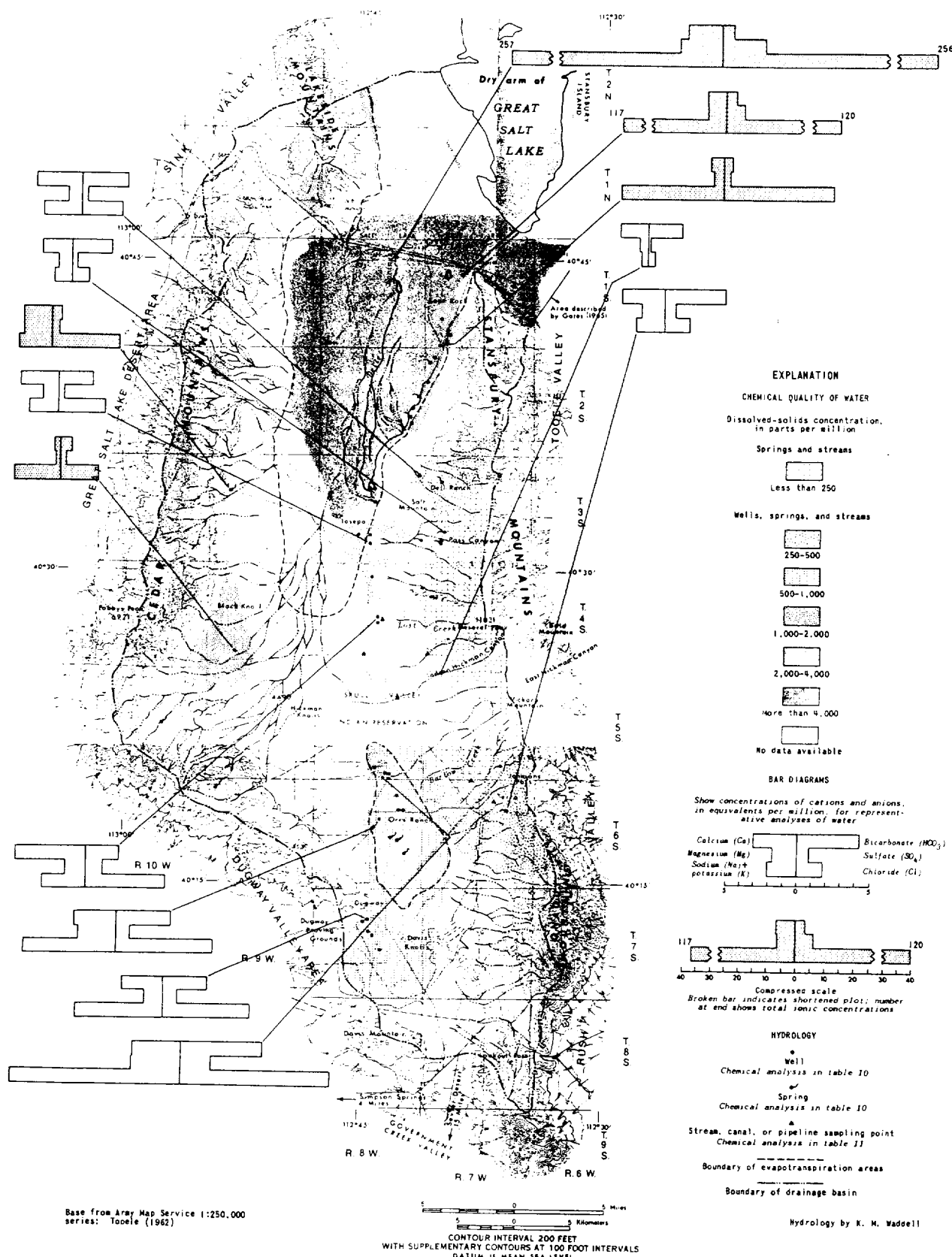
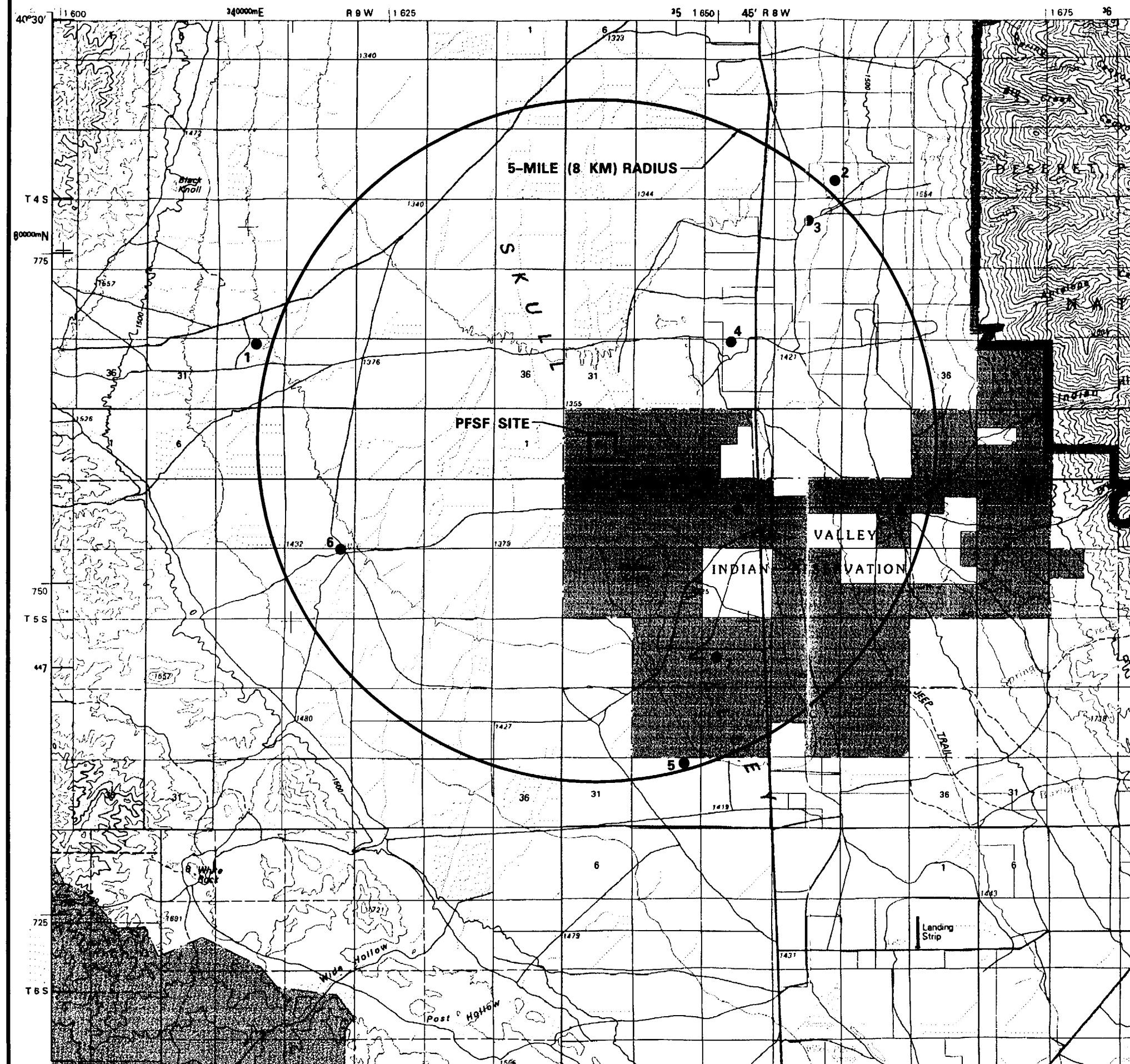


Plate 2. — MAP SHOWING THE GENERALIZED DISTRIBUTION OF DISSOLVED SOLIDS IN GROUND AND SURFACE WATERS, THE CHEMICAL CHARACTER OF REPRESENTATIVE WATER SOURCES, AND THE RELATION OF QUALITY TO THE SOURCES OF RECHARGE AND THE AREAS OF DISCHARGE IN SKULL VALLEY, TOOELE COUNTY, UTAH



# ANSTEC APERTURE CARD

Also Available on  
Aperture Card

WELL MAP NO.	OWNER	TOTAL DEPTH	DATE DRILLED	USE	DEPTH TO WATER	YIELD	CURRENT WATER RIGHT
1	SKULL VALLEY CO., LTD.	340'	1956	STOCK WATERING		35 gpm	
2	ISLAND RANCHING CO., INC.	325'	NO INFO.	IRRIGATION, STOCK		NO DATA	cfs
3	ISLAND RANCHING CO., INC.	347'	195	IRRIGATION, STOCK		NO DATA	YES (1954) 1.226 cfs
4	ANSCHUTZ LAND CO., LTD.	408'		IRRIGATION, STOCK		NO DATA	YES (1960) 0.7487 cfs
5	ANSCHUTZ LAND CO., LTD.	209'		STOCK WATERING		20 gpm	YES (1948) 0.015 cfs
6	ANSCHUTZ LAND CO., LTD.	292'		STOCK WATERING		12 gpm	YES (1940) 0.015 cfs
7	SKULL VALLEY INDIAN RESERV.	401'		DOMESTIC, INDUSTRIAL		15 gpm	NOT REQUIRED
8	SKULL VALLEY INDIAN RESERV.	651'		DOMESTIC		60 gpm	NOT REQUIRED
9	SKULL VALLEY INDIAN RESERV.	NO DATA		DOMESTIC		NO DATA	NOT REQUIRED

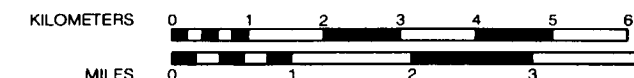
**SOURCES:** BASE MAP IS RUSH VALLEY, UT, BUREAU OF LAND MANAGEMENT SPECIAL EDITION, SURFACE MANAGEMENT STATUS, 1:100,000 SCALE, METRIC, 1981. WELL DATA ARE FROM STATE OF UTAH, DIVISION OF WATER RIGHTS AND HOOD AND WADDELL (1968).

## LEGEND:

● WATER WELL LOCATION

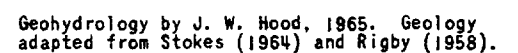
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SCALE 1:100,000  
CONTOUR INTERVAL IS 50 METERS



REQUEST FOR ADDITIONAL INFORMATION NO. 1  
QUESTION 2-3  
WATER WELLS WITHIN 5 MILES (8 KM)  
OF PFSF SITE  
PRIVATE FUEL STORAGE FACILITY





**ANSTEC  
APERTURE  
CARD**



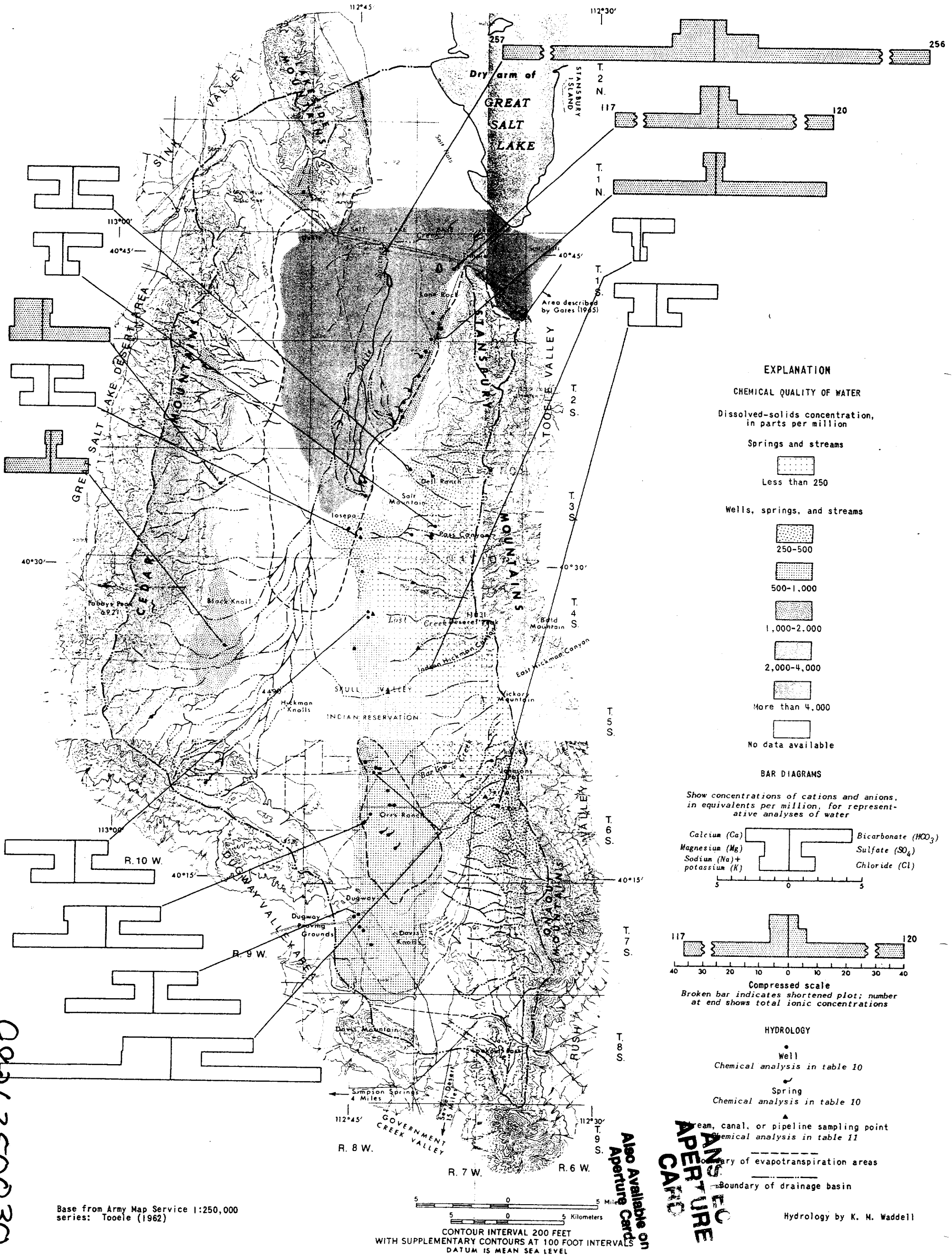


Plate 2. — MAP SHOWING THE GENERALIZED DISTRIBUTION OF DISSOLVED SOLIDS IN GROUND AND SURFACE WATERS, THE CHEMICAL CHARACTER OF REPRESENTATIVE WATER SOURCES, AND THE RELATION OF QUALITY TO THE SOURCES OF RECHARGE AND THE AREAS OF DISCHARGE IN SKULL VALLEY, TOOELE COUNTY, UTAH

## **SAR CHAPTER 2 - SITE CHARACTERISTICS**

### **Section 2.6.1 Basic Geologic and Seismic Information**

2-4 Provide a column with geologic descriptions summarizing the eastern Great Basin stratigraphy.

- NUREG-1567 (Section 2.4.6.1), Basic Geology and Seismic Information, indicates this information should be included.

### **RESPONSE**

A stratigraphic column for the Skull Valley area is shown in the attached figure.

# CEDAR MOUNTAINS

		Feet	
CENOZOIC	Alluvial & Lake Bonneville sediments		0-200
	Valley fill in Skull Valley		0-5000?
	Rhyolite plug		
	Basalt		50-100
	Basaltic andesite		0-1000
	Unnamed sandstone		300+
	North Horn ? Formation		800+
TERTIARY	Gerster Limestone		320
	Phympton Formation		2400
	Meads Pk Mbr. Phosphoria Fm		230
	Grandeur Formation		1850
	Unnamed unit		3950
MESOZOIC	Oquirrh Group	Unit 5	1950-2750
		Wolfcampian	
		Unit 4	2760-3000
		Virgilian	
		Mo	
	Desmoines	Unit 3	2560-3000+
		Mor-Alok	
		Unit 2	715-1400
		Unit 1	435
	PALEOZOIC	Manning Canyon Shale	
Great Blue Limestone		2440+	
Humburg Formation		1015+	

# STANSBURY MOUNTAINS

Geologic Period	FORMATION		Feet
	FORMATION	FORMATION	
CENOZOIC	Alluvial, glacial & Lake Bonneville sediments		0-300
	Salt Lake Formation		0-1300
	Basalt flows & dikes		0-130
	Andesite flows, breccia, tuff		0-1800
	Andesite, breccia, tuff		0-400
	post-thrusting conglomerate		
	Thaynes Limestone		1100
	Woodside Shale		100
	Park City / Phosphoria Formation		500
	Kirkman Limestone & Diamond Creek Sh. undivided		500+
MESOZOIC	Oquirrh Group	Wolfcampian	3000±
		Virgilian & Mesourian	
		Oquirrh - Bingham Mine Formation equivalent	8700±
		Desmoinesian & Aulian	
		Oquirrh - Butterfield Peaks Formation equivalent	6000±
		West Canyon Ls	0-840
	Manning Canyon Shale		200-1600
	Great Blue Limestone		980-1300
	Humburg Formation		710-900
	Deseret Formation		650-750
Paleozoic	Gardison Limestone		700-1100
	Fitchville Formation		130-650
	Pinyon Peak Limestone		0-215
	Stansbury Formation		0-1700
	Simonson? Dolomite		0-230
	Sevy Dolomite		0-80
	Laketown Dolomite		0-660
	Frank Hevies Dolomite		0-260
	Kangash Shale		0-270
	Garden City Limestone		1100-1300
CENOZOIC	Ajax Dolomite		750-910
	Corset Spring Shale		20-150
	Opex Formation		450-500
	Colo Canyon & Bluebird Dolo		320-450
	Bowman Herkimer-Dagmar Fms		100-600
	Tectonic Limestone		800-1100
	Ophi Formation		800-1200
	Proche Formation		300
	Tintic Quartzite		4200

Faulted Contact

Major Unconformity

# CENOZOIC

## Quaternary

Alluvial, glacial, and Lake Bonneville sediments - unconsolidated sand, gravel, silt, and clay with some ash beds and marl.

## Miocene-Pliocene

Salt Lake Formation (or Group) - valley fill deposits - semi to unconsolidated sand, gravel, silt, clay, tuff and freshwater limestone.  
Basalt flows and dikes - olivine basalts believed to mark beginning of Basin and Range rifting.

## Eocene-Oligocene

Andesite flows, breccia, tuffs - widespread, voluminous rhyolite, dacite, latite, andesite, and welded tuff.  
Unnamed post-thrusting conglomerate (= North Horn? Formation?) - reddish pebble conglomerate with argillaceous and calcareous matrix.

# MESOZOIC

## Triassic

Theynes Limestone - light gray limestone with red-brown to light gray shaley siltstone and sandstone, minor dolomite.  
Woodside Shale - reddish-brown, shaley siltstone and cross-bedded, fine to medium-grained sandstone.

# PALEOZOIC

## Permian

Park City/Phosphoria Formation - light gray to pink, thin to thick bedded limestone with brown-black cherty limestone, phosphorite and phosphatic siltstone.

Kirkman Limestone and Diamond Creek Sandstone - Kirkman is light to medium-gray, thin to thick-bedded limestone with chert; Diamond Creek Sandstone is red-brown to light brown, cross-bedded sandstone with some intercalated limestone.

## Penn to Perm

Oquirrh Group - cyclic alternation of sandy limestone, brown sandstone and minor shale, siltstone, and quartzite, fossiliferous.

## Miss to Penn

Manning Canyon Shale - (lower) black shale, (middle) dark gray limestone, and (upper) black shale and quartzite, with some pyrite nodules and chert.

## Mississippian

Great Blue Limestone - medium to massive bedded, nearly pure, gray to dark gray limestone with some chert, dark green calcareous shale near top.

Humburg Formation - alternating beds of limy sandstone, ortho-quartzite, crinoidal limestone, and sandy limestone, yellow to red-brown and gray alternations.

Deseret Formation - dark gray and blue, somewhat clastic limestone with chert banding and blebs (eyes).

Gardison Limestone - dense, bluish-gray limestone, fossiliferous.

# PALEOZOIC (CONT.)

## Devonian Miss

Fitchville Formation - massive to thin-bedded light to dark gray dolomite and gray to buff clastic limestone.

## Devonian

Pinyon Peak Limestone - thin, platy, silty, or argillaceous limestone.  
Stansbury Formation - highly variable conglomerate, sandstone, and quartzite with thin beds of gray limestone and dolomite.  
Simonson (?) Dolomite - dark gray with minor light gray, medium to coarse crystalline, weakly bedded dolomite.  
Sevy Dolomite - very fine crystalline, light gray dolomite with well-defined bedding. Sand layer or dolomitic conglomerate marks the top of the formation.

## Silurian

Laketown Dolomite - alternating light to dark gray well-bedded dolomite in lower part and coarse crystalline, massive to obscurely thick-bedded gray dolomite in upper part.

## Ordovician

Fish Haven Dolomite - dark gray to black dolomite with some interbeds of light to medium gray dolomite.

Kangsh Shale - green to black, graptolitic shale with interbeds of argillaceous sandstone and limestone or dolomite.

Garden City Limestone - cherty limestone and dolomite, medium gray, argillaceous limestone, interbedded gray argillaceous limestone and green to brown shale or siltstone, sandy limestone with chert and siltstone bands.

## Cambrian

Ajax Limestone - thick-bedded, dark gray, ledge-forming dolomite with psolites, oolites, and chert nodules.

Corset Spring Shale (= Dunderberg Shale?) - thinly bedded, argillaceous limestone and dolomite interbedded with olive to brown-green silty shale.

Opex Formation - gray to black oolitic dolomite, interbedded limestone, dolomite, and shale, light gray to tan dolomite at top.

Colo Canyon and Bluebird Dolomites - thick to massive bedded, dark gray, medium to fine crystalline dolomite (Bluebird), laminated light and dark gray dolomite (Colo Canyon).

Bowman Herkimer Dagmar Formations - medium gray, crystalline, laminated dolomite (Dagmar), thin to medium bedded gray limestone, interbedded light and dark gray dolomite (Herkimer), olive and tan shale with interbedded blue-gray limestone (Bowman).

Tetonic Limestone - blue-gray to dark gray dolomite, thinly interbedded shale and limestone, massive gray dolomite, and argillaceous limestone.

Ophi Formation - calcareous sandstone and sandy limestone, psolitic limestone, green shale, dark gray limestone.

Proche Formation - interbedded green phyllitic shale, shale, maroon graywacke and quartzite with prominent cross bedding.

Tintic Quartzite - light colored (white, light gray, reddish brown), medium grained, medium bedded quartzite, with a few beds of micaceous shale in the upper part and pebble conglomerate.

# SOURCES

Heylman, E.B., 1965. Reconnaissance of the Tertiary Sedimentary Rocks in Western Utah. Utah Geological and Mineralogical Survey Bulletin 75, 38 pp.

Hintze, L.F., 1968. Geologic History of Utah. Brigham Young University Geology Studies, Spec. Pub. 7, 203 pp.

Rigby, J.K., 1958. Geology of the Stansbury Mountains, Tooele County, Utah. Utah Geological Society Guidebook 13, 134 pp.

Tercher, J.A., 1959. Geology of the Southern Stansbury Range, Tooele County, Utah. Utah Geological and Mineralogical Survey, Bulletin 65, 75 pp.

Witkind, I.J., 1983. Overthrusts and Salt Diapirs, Central Utah, in D.M. Miller et al., editors, Tectonic and Stratigraphic Studies in the Eastern Great Basin. Geological Society of America, Memoir 157, pp. 45-59.

REQUEST FOR ADDITIONAL INFORMATION NO. 1  
QUESTION 2-4

STRATIGRAPHIC COLUMN FOR  
SKULL VALLEY AREA

PRIVATE FUEL STORAGE FACILITY

CEDAR MOUNTAINS

O	Alluvial & Lake Bonneville sediments		Feet
			0-200
K ? - T E R T I A R Y	M I O - P L I O	Valley fill in Skull Valley	0-5000?
		Rhyolite plug	-
		Basalt	50-100
		Basaltic andesite	0-1000
		Unnamed sandstone	300+
		North Horn ? Formation	800+
		Gerster Limestone	320
		Plympton Formation	2400
		Meade Pk Mbr, Phosphoria Fm	230
		Grandeur Formation	1850
P E R M I A N	P E R M I A N	Unnamed unit	3950
		Unit 5	1950-2750
		Unit 4	2760-3000
		Unit 3	2560-3000+
		Unit 2	715-1400
		Unit 1	435
		Manning Canyon Shale	1500-2000
		Great Blue Limestone	2440+
		Humbag Formation	1015+
P E N N S Y L V A N I A N	P E N N S Y L V A N I A N	Wolfcampian	
		Virgilian	
		Mo	
		Desmoines	
		Mor-Alok	
M I S S I S S I P P I A N	M I S S I S S I P P I A N		

STANSBURY MOUNTAINS

O	Alluvial, glacial & Lake Bonneville sediments		Feet
			0-300
M I O - P L I O	M I O - P L I O	Salt Lake Formation	0-1300
		Basalt flows & dikes	0-130
		Andesite flows, breccia tuff	0-1800
		post-thrusting conglomerate	0-400
		Thaynes Limestone	1100
		Woodside Shale	100
		Park City / Phosphoria Formation	600
		Kirkman Limestone & Diamond Creek Ss undivided	500+
		Wolfcampian Oquirrh	3000±
		Virgilian & Missourian Oquirrh - Bingham Mine Formation equivalent	8700±
P E R M I A N	P E R M I A N	Desmoinesian & Atokan Oquirrh - Butterfield Peaks Formation equivalent	6000±
		West Canyon Ls	0-840
		Manning Canyon Shale	200-1600
		Great Blue Limestone	980-1300
		Humbag Formation	710-900
		Deseret Formation	650-750
		Gardison Limestone	700-1100
		Fitchville Formation	130-650
		Pinyon Peak Limestone	0-215
		Stansbury Formation	0-1700
P E N N S Y L V A N I A N	P E N N S Y L V A N I A N	Simonson ? Dolomite	0-230
		Sevy Dolomite	0-80
		Laketown Dolomite	0-660
		Fish Haven Dolomite	0-260
		Kanosh Shale	0-270
		Garden City Limestone	1100-1300
		Ajax Dolomite	750-910
		Corset Spring Shale	20-150
		Opex Formation	450-500
		Cole Canyon & Bluebird Dolo	320-450
M I S S I S S I P P I A N	M I S S I S S I P P I A N	Bowman-Herkimer-Dagmar Fms	100-600
		Teutonic Limestone	800-1100
		Ophir Formation	800-1200
		Pioche Formation	300
		Tintic Quartzite	4200
D E V	D E V		
O R D	O R D		
C A M B R I A N	C A M B R I A N		

CENOZOIC

Quaternary  
Alluvial, glacial, and Lake Bonneville sediments - unconsolidated sand, gravel, silt, and clay with some ash beds and marl.  
Miocene-Pliocene  
Salt Lake Formation (or Group) - valley fill deposits - semi to unconsolidated sand, gravel, sil., clay, tuff and freshwater limestone.  
Basalt flows and dikes - olivine basalts believed to mark beginning of Basin and Range rifting.  
Eocene-Oligocene  
Andesite flows, breccia tuffs - widespread, voluminous rhyolite, dacite, latite, andesite, and welded tuff.  
Unnamed post-thrusting conglomerate (= North Horn? Formation?) - reddish pebble conglomerate with argillaceous and calcareous matrix.

MESOZOIC

Triassic  
Thaynes Limestone - light gray limestone with red-brown to light gray shaley siltstone and sandstone, minor dolomite.  
Woodside Shale - reddish-brown, shaley siltstone and cross-bedded, fine to medium-grained sandstone.

PALEOZOIC

Permian  
Park City/Phosphoria Formation - light gray to pink, thin to thick-bedded limestone with brown-black cherty limestone, phosphorite and phosphatic siltstone.  
Kirkman Limestone and Diamond Creek Sandstone - Kirkman is light to medium-gray, thin to thick-bedded limestone with chert; Diamond Creek Sandstone is red-brown to light brown, cross-bedded sandstone with some intercalated limestone.  
Penn. to Perm.  
Oquirrh Group - cyclic alternation of sandy limestone, brown sandstone and minor shale, siltstone, and quartzite; fossiliferous.  
Miss. to Perm.  
Manning Canyon Shale - (lower) black shale, (middle) dark gray limestone, and (upper) black shale and quartzite, with some pyrite nodules and chert.  
Mississippian  
Great Blue Limestone - medium to massive bedded, nearly pure, gray to dark gray limestone with some chert; dark green calcareous shale near top.  
Humbag Formation - alternating beds of limey sandstone, ortho-quartzite, crinoidal limestone, and sandy limestone; yellow to red-brown and gray alternations.  
Deseret Formation - dark gray and blue, somewhat clastic limestone with chert banding and blebs (eyes).  
Gardison Limestone - dense, bluish-gray limestone, fossiliferous.

PALEOZOIC (CONT.)

Devonian-Miss.  
Fitchville Formation - massive to thin-bedded, light to dark gray dolomite and gray to buff clastic limestone  
Devonian  
Pinyon Peak Limestone - thin, platy, silty, or argillaceous limestone.  
Stansbury Formation - highly variable conglomerate, sandstone, and quartzite with thin beds of gray limestone and dolomite.  
Simonson (?) Dolomite - dark gray with minor light gray, medium to coarse crystalline, weakly bedded dolomite.  
Sevy Dolomite - very fine crystalline, light gray dolomite with well-defined bedding. Sand layer or dolomitic conglomerate marks the top of the formation.  
Silurian  
Laketown Dolomite - alternating light to dark gray well-bedded dolomite in lower part and coarse crystalline, massive to obscurely thick-bedded gray dolomite in upper part.  
Ordovician  
Fish Haven Dolomite - dark gray to black dolomite with some interbeds of light to medium gray dolomite.  
Kanosh Shale - green to black, graptolitic shale with interbeds of argillaceous sandstone and limestone or dolomite.  
Garden City Limestone - cherty limestone and dolomite; medium gray, argillaceous limestone; interbedded gray argillaceous limestone and green to brown shale or siltstone; sandy limestone with chert and siltstone bands.  
Cambrian  
Ajax Limestone - thick-bedded, dark gray, ledge-forming dolomite with pisolites, oolites, and chert nodules.  
Corset Spring Shale (= Dunderberg Shale?) - thinly bedded, argillaceous limestone and dolomite interbedded with olive to brown-green silty shale.  
Opex Formation - gray to black oolitic dolomite, interbedded limestone, dolomite, and shale, light gray to tan dolomite at top.  
Cole Canyon and Bluebird Dolomites - thick to massive bedded, dark gray, medium to fine crystalline dolomite (Bluebird); laminated light and dark gray dolomite (Cole Canyon).  
Bowman-Herkimer-Dagmar Formations - medium gray, crystalline, laminated dolomite (Dagmar); thin to medium-bedded gray limestone, interbedded light and dark gray dolomite (Herkimer); olive and tan shale with interbedded blue-gray limestone (Bowman).  
Teutonic Limestone - blue-gray to dark gray dolomite, thinly interbedded shale and limestone, massive gray dolomite, and argillaceous limestone.  
Ophir Formation - calcareous sandstone and sandy limestone, pisolitic limestone, green shale, dark gray limestone.  
Pioche Formation - interbedded green phyllitic shale, shale, maroon graywacke and quartzite with prominent cross-bedding.  
Tintic Quartzite - light colored (white, light gray, reddish brown), medium grained, medium-bedded quartzite, with a few beds of micaceous shale in the upper part and pebble conglomerate.

SOURCES

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REQUEST FOR ADDITIONAL INFORMATION NO. 1  
QUESTION 2-4

STRATIGRAPHIC COLUMN FOR  
SKULL VALLEY AREA  
PRIVATE FUEL STORAGE FACILITY

9806250030-04

## **CHAPTER 9—CONDUCT OF OPERATIONS**

### **Emergency Plan Section 4 Organization**

- 9-14 Provide a discussion in the EP explaining how radiation monitoring teams and the fire brigade will be staffed by available staff during an alert.

The EP provides insufficient information regarding the staffing of radiation teams and the fire brigade. Staffing requirements for the Emergency Response Organization below the supervisory positions for both normal working hours and off-hours should be provided to support an NRC evaluation of whether or not sufficient staffing is available for functions such as radiological assessment, fire fighting, and security control, among others.

### **RESPONSE**

The response teams for off-normal events requiring radiation monitoring or firefighting will be staffed through a system of call-in personnel. During normal working hours, the response for a radiological assessment need will be met by maintaining a member of the health physics staff at the site at all times during the weekday day-shift. For off-hours events (weekday nights and evenings and weekends) one member of the health physics staff shall carry a response beeper. Training in emergency procedure techniques will be provided to the security force to ensure the capability for immediate emergency assessment. Members of the security force will always be at the site in accordance with the Security Plan.

Personnel trained in firefighting will provide the response to fires within the facility or approaching the facility. The facility will have two fire trucks available; one on the facility premises and one on the reservation which is within four miles of the facility. All members of the maintenance staff, health physics staff, and security staff will receive firefighting training. For the purposes of firefighting, at least two members of the staff trained in firefighting will be on-call with paging devices. For security control events the on-duty base security staff can be supplemented by an additional security person who will be provided a paging device. This security person will be available for either firefighting or security related response needs. Further supplementation of staff for security control issues, firefighting, or events requiring radiological assessment will be provided through a phone tree with automatic dial capability to ensure the ability to maximize the personnel response available to an off-normal event. It should be noted that the potential for fire (per Emergency Plan Section 3.2, D) is greatest during fuel deliveries (i.e., diesel fuel in trucks or train engines) and, during these deliveries, extra personnel are available for firefighting.