

# Mapping of IHFS and FASTETC to the RFC Archive Database System

For more information on tables and fields in the RFC Archive DB System, see the IHFS and/or Archive System data dictionary.

Note: There are a several items which should be noted with regard to the database design and implementation. First, this document reflects the FASTETC database as documented on the CBRFC website in January, 2002, and version 5.2.2 of the IHFS database. Second, in future versions of the archive database there are a few issues which it may be beneficial to address. One example is whether or not the value field in the mod tables is consistently null or not null from table to table. Another example is naming conventions for tables and fields. The team had chosen a basic standard that the more familiar IHFS names would be used and in its absence, FASTETC names or what seemed most logical for each context, and removing underscores when possible. Now that a static version is being delivered, it is easier to see where the broadness of this approach does not provide enough guidance for a standard to be observed. Another example is explicitly constraining fields in the primary key to be not null, for any table. Foreign keys, indexes, fragmentation plans, and db space allocation and other dba management topics are also issues that should be at least reviewed with some regularity. However, for the first version, this database is a tremendous achievement for the team.

NBR = not being retained

X = eliminated

IHFS	FASTETC	Archive DB	Comment/Definition
Admin		X	
AgencyInvolved		X	
Agricultural	rawval	pedrsep	
AlertAlarmVal		X	
Benchmark		X	
City		X	
ColorName		X	
ColorOverlay		X	
ColorValue		X	
CommentValue		commentvalue	
Contacts		X	
ContingencyValue		pedcsep	
CoopComms		X	
CoopRecip		X	
CoopSpons		X	
Counties	cou	counties	
CountyTransmit		X	
Countynum		X	
Crest	peaks	crest	parametric information
CurPrecip	rawval	pedrsep	

DPARadar		X	
DamBreak		X	
DamBrkFcstPoint		X	
DamBrkImpact		X	
DamBrkModelType		X	
DamTypes		X	
DataLimits		datalimits	
Datum		X	
Dcp		X	
DcpOwner		X	
Descrip		X	
Discharge	rawval	pedrsep	
DpaAdapt		X	
Eligzon		X	hydroview table
Evaporation	rawval	pedrsep	
FFMPThreat		X	
FcstDischarge	fval	pedfsep	
FcstHeight	fval	pedfsep	
FcstOther	fval	pedfsep	
FcstPrecip	fval	pedfsep	
FcstTemperature	fval	pedfsep	
FishCount	rawval	pedrsep	
Flood		X	
FloodTs		X	
Floodcat		X	
Floodstmt		X	
FpPrevProd		X	
Gage		X	
GageMaint		X	
GageOwner		X	
GageRadarLoc		X	
GageType		X	
GateDam	rawval	pedrsep	
GeoArea		X	
GeoLine		X	
Ground	rawval	pedrsep	
Height	rawval	pedrsep	
Hsa		wfo_hsa	
HvAbsDesiredProd		X	

HvRelDesiredProd		X
Ice	rawval	pedrsep
Images		X
IngestFilter	sens	ingestfilter
InvolvementType		X
Lake	rawval	pedrsep
LatestAccumGrid		X
LatestBiasLong		X
LatestBiasShort		X
LatestObsValue		X
LineSegs		X
LocDataLimits		locdatalimits
LocExtAgency		X
LocImages		X
Location	stn	location
Lowwater		X
Moisture	rawval	pedrsep
NIDDamType		X
NIDFedAgency	agency	agency
NIDHazard		X
NIDOwnerType		X
NIDPlanCode		X
NIDPurpose		X
NIDSpillwayType		X
NWRTransmitter		X
NatCounty		X
NatDamAdmin		X
NatDamLocation		X
NatRfc		X
NatState		X
NatWfo		X
NationalDam		X
Network		X
OFSDataTrans		ofsdatatrans
OFSStnTrans		ofsstntrans
Observer		X
PairedValue		pairedvalues
PerfLog		X
Power	rawval	pedrsep

Precip	rawval	pedrsep	
PrecipAccum		X	
Pressure	rawval	pedrsep	
ProcPrecip		pedpsep	
ProcValue		pedpsep	
ProductLink		X	
Proximity		X	
PseudoGageRadarVal		X	
Pub		X	
PurgeDynData		X	Would need if allowing for automatic deleting data of selected tables
PurgeProduct		X	
RWBiasDyn		X	
RWBiasStat		X	
RWParams		X	
RWPrefs		X	
RWRadarResult		X	
RWResult		X	
RWVerif		X	
RadarLoc		X	
RadarResp		X	
Radiation	rawval	pedrsep	
Rating	rattbl	rating	
Refer		X	
RejectedData		X	Need only if rejected data not written to pedRsep table
ResOwner		X	
Rescap		X	
Reservoir		reservoir	
Rfc		rfc	
RiverStatus		X	
Riverstat		riverstat	
RpfFcstGroup		X	
RpfFcstPoint		X	
RpfParams		X	
S2BiasCalcParams		X	
S2GageRadarVal		X	
S2GeneralParams		X	
S2ggGridParams		X	
S2mlGridParams		X	

S3GridManip		X	
S3PostAnalParams		X	
S3PostAnalPrefs		X	
ShefDur	shef_dur	shefdur	
ShefEx	shef_e	shefex	
Shef PETrans		shefpetrans	
ShefPe	shef_pe	shefpe	
ShefProb	shef_p	shefprob	
ShefQc	qual_code	shefqc	
ShefTs	shef_ts	shefts	
Snow	rawval	pedrsep	
Stage2Result		X	
Stage3Params		X	
Stage3Prefs		X	
Stage3Result		X	
State	st	state	
StnClass		X	
Telem		X	
TelmOwner		X	
TelmPayor		X	
TelmType		X	
Temperature	rawval	pedrsep	
TextProduct		X	
UnitGraph		X	
UnkStn		X	
UnkStnValue		unkstnvalue	
UserPrefs		X	
WaterQuality	rawval	pedrsep	
Weather	rawval	pedrsep	
Wfo		wfo_hsa	
WfoDamInterest		X	
Wind	rawval	pedrsep	
YUnique	rawval	pedrsep	
Zonenum		X	
	al_help	alhelp	
	alias_id	aliasid	
	area	area	parametric table
	area_sens	areasens	parametric table
	avg	avg	

b_avg	X	
caldly	pedpsep	
calfmahrly	pehfsep	
calfmaqtrly	peqfsep	
calhrly	pehpsep	
calmaqtrly	peqpsep	
calmonly	pempsep	
calqtrly	peqpsep	
cgroup	cgroup	parametric table
damcat	X	
drain	drain	parametric table
est	X	
fgroup	fgroup	
fgroup_seg	fgroupseg	
flashflood	flashflood	
fmahrly	pehfsep	
fmaqtrly	peqfsep	
fvar	X	
gage_hg	X	
gage_p	X	
huc_2	huc2	
huc_4	huc4	
huc_6	huc6	
huc_8	huc8	
huc_avg	X	
huc_sens	X	
mahrly	pehpsep	
mamonly	pempsep	
maqtrly	peqpsep	
mod_aescchnng	modaescchnng	
mod_chgblend	modchgblend	
mod_ctrl	modctrl	
mod_ignorets	modignorets	
mod_matchng	modmatchng	
mod_mfc	modmfc	
mod_rainsnow	modrainsnow	
mod_romult	modromult	
mod_rrichng	modrrichng	
mod_rrimult	modrrimult	

mod_sacbasef	modsacbasef	
mod_sacco	modsacco	
mod_setmsng	modsetmsng	
mod_setqmean	modsetqmean	
mod_tschng	modtschng	
mod_uadj	moduadj	
mod_uhgadj	moduhgadj	
mod_uhgchnng	moduhgchnng	
mod_weadd	modweadd	
mod_wechnng	modwechnng	
mod_zerodiff	modzerodiff	
oper_sacsma	opersacsma	
oper_snow17	opersnow17	
oper_type	opertype	
oper_unithg	operunithg	
peak	X	
pos	pos	
prod	prod	parametric table
prodly	pedpsep	
prohrly	pehpsep	
promonly	pempsep	
proqtrly	peqpsep	
qadjust	qadjust	used for monthly data
ratshift	ratingshift	
rawmonly	pemrsep	
rawval96	pecrsep	
seg	seg	parametric table
seg_oper	segoper	parametric table
sensok	sensok	
shef_code	X	
shef_pe1	shefpe1	parametric table
states_sacsma	statessacsma	
states_snow17	statessnow17	
sws_mail	swsmail	
usgsmap	X	
wsh	wshistorical	
wsn	wsequation	
wso	wsfcst	
wsp	wsperstats	

country  
rivercrit  
slopeprofile  
slopelookup  
vlocation  
vrivergageloc  
vaddadjust  
modtsadd  
modtsmult  
modtsrepl  
modswitchts  
modxinco  
modssarreg  
modbulblshft  
modqcshift  
modqpshift  
modrochnng  
modaeicqn  
modaiadj  
modapicbasf  
modapicco  
vfypairs  
peoosep

from vdb1\_1xxx database, as is  
from vdb1\_1xxx database, as is

obsd SHEF PE tables (agricultural, curprecip, discharge, evaporation, fishcount, gatedam, ground, height, ice, lake, moisture, power, precip, pressure, radiation, snow, temp, waterquality, weather, wind, yunique )	rawval	pedrsep	
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lid	char(8)	id	char(5)	lid	char(8)	not null	location identifier
pe	char(2)	pe1	char(1)	pe1	char(1)	not null	SHEF Physical Element codes
		pe2	char(1)	pe2	char(1)	not null	



dur	integer	dur	char(1)	dur	char(1)	not null	SHEF duration code
				idur	smallint	not null	SHEF duration value
ts	char(2)	t	char(1)	t	char(1)	not null	SHEF type-source codes
		s	char(1)	s	char(1)	not null	
extremum	char(1)	e	char(1)	e	char(1)	not null	SHEF extremum code
		p	char(1)	p	char(1)	not null	SHEF probability code
obstime	datetime year to second	cal_yr	integer	obstime	datetime year to second	not null	observation date and time, fastetc used separate columns while ihfs_db uses single column
		mon	integer				
		zday	integer				
		ztime	integer				
value	float	value	float	value	float		
shef_qualifier_code	char(1)	info	char(1)	shef_qualifier_code	char(1)		SHEF data qualifier code
quality_code	integer			quality_code	integer		An integer number that is attached to each data value in the database that holds all results of Q/C testing performed on the data value. The results of the tests are bit-packed into this computer word.
revision	char(1)			revision	char(1)		SHEF revision flag
product_id	char(10)			product_id	char(10)		
producttime	datetime year to second			producttime	datetime year to second		
postingtime	datetime year to second			postingtime	datetime year to second		
				pathname	char(50)		
primary key	(lid,pe,dur,ts,extremum,obstime)	primary key	(id,pe1,pe2,dur,t,s,e,p,cal_yr,mon,zday,ztime)	primary key	(lid,pe1,pe2,dur,idur,t,s,e,p,obstime)		

commentvalue		commentvalue		commentvalue		
lid	char(8)	lid	char(8)	not null		location identifier
pe	char(2)	pe1	char(1)	not null		SHEF Physical Element codes
		pe2	char(1)	not null		
dur	integer	dur	char(1)	not null		SHEF duration code
		idur	smallint	not null		SHEF duration value
ts	char(2)	t	char(1)	not null		SHEF type-source codes
		s	char(1)	not null		
extremum	char(1)	e	char(1)	not null		SHEF extremum code
probability		p	char(1)	not null		SHEF probability code
validtime	datetime year to second	validtime	datetime year to second	not null		
basistime	datetime year to second	basistime	datetime year to second	not null		creation dt and time of date value
value	float	value	float			
shef_qual_code	char(1)	shef_qualifier_code	char(1)			SHEF data qualifier code
revision	char(1)	revision	char(1)			SHEF revision flag
product_id	char(10)	product_id	char(10)			
producttime	datetime year to second	producttime	datetime year to second			
postingtime	datetime year to second	postingtime	datetime year to second			
shef_comment	char(80)	shef_comment	char(80)			
primary key (lid,pe,dur,ts,extremum, probability, validtime, basistime)		primary key (lid,pe1,pe2,dur,idur,t,s,e,p, validtime, basistime)				

contingencyvalue		pedcsep			
lid	char(8)	lid	char(8)	not null	location identifier

pe	char(2)		pe1	char(1)	not null	SHEF Physical Element codes
			pe2	char(1)	not null	
dur	integer		dur	char(1)	not null	SHEF duration code
			idur	smallint	not null	SHEF duration value
ts	char(2)		t	char(1)	not null	SHEF type-source codes
			s	char(1)	not null	
extremum	char(1)		e	char(1)	not null	SHEF extremum code
probability			p	char(1)	not null	SHEF probability code
validtime	datetime year to second		validtime	datetime year to second	not null	
basistime	datetime year to second		basistime	datetime year to second	not null	creation dt and time of date value
value	float		value	float		
shef_qual_code	char(1)		shef_qualifier_code	char(1)		SHEF data qualifier code
quality_code	Integer		quality_code	integer		
revision	char(1)		revision	char(1)		SHEF revision flag
product_id	char(10)		product_id	char(10)		
producttime	datetime year to second		producttime	datetime year to second		
postingtime	datetime year to second		postingtime	datetime year to second		
processed_code	smallint					
primary key (lid,pe,dur,ts,extremum, probability, validtime, basistime)			primary key (lid,pe1,pe2,dur,idur,t,s,e,p, validtime, basistime)			

counties		cou		counties		
county	char(20) not null	name	char(30)	county	char(20) not null	county name
state	char(2) not null	st	char(2)	state	char(2) not null	geographic state abbreviation
				countryfips	char(2) default 'US' not null	
countynum	char(4)	fips	char(3)	countyfips	char(3) not null	county fips code

wfo char(3) not null  
 primary\_back char(3) not null  
 secondary\_back char(3) not null

primary key (county,state)

zon char(4)  
 primary key (st, fips)

wfo char(3) not null  
 NBR  
 NBR

zon char(4)  
 primary key (state,countyfips)

nws forecast zone

crest	peaks	crest	
lid char(8) not null datecrst date not null cremark char(80) timerst char(5) not null stage float		lid char(8) not null datecrst date not null NBR crstdatetime datetime hour to minute stage float stg_qual char(1) flow float flow_qual char(1)	location identifier month,day & year of crest  time of crest if known crest stage quality indicator for stage crest flow quality indicator for flow
hw char(1)		hw char(1)	True/False flag, stage from high water mark
jam char(1)		jam char(1)	True/False flag, stage affected by ice jam
old integer  q integer suppress char(1) primary key(lid,datecrst,timerst)		old char(1)  prelim char(1) NBR NBR primary key (lid,datecrst)	True/False flag, stage based on site and datum then in use True/False flag, preliminary

datalimits		datalimits	
pe char(2) not null  dur smallint not null		pe1 char(1) not null pe2 char(1) not null dur char(1) not null idur smallint not null	
monthdaystart datetime month to day not null monthdayend datetime month to day not null		monthdaystart datetime month to day not null null monthdayend datetime month to day not null	
gross_range_min float gross_range_max float reason_range_min float		gross_range_min float gross_range_max float reason_range_min float	

reason\_range\_max float  
 roc\_max float  
 alert\_limit float  
 alert\_roc\_limit float  
 alarm\_limit float  
 alarm\_roc\_limit float  
 primary key (pe,dur,monthdaystart)

reason\_range\_max float  
 roc\_max float  
 alert\_limit float  
 alert\_roc\_limit float  
 alarm\_limit float  
 alarm\_roc\_limit float  
 primary key  
 (pe1,pe2,dur,idur,monthdaystart)

fcst SHEF PE tables (fcstdischarge, fcstheight, fcstother, fcstprecip, fcsttemperature)		fval		pedfsep			
lid	char(8)	id	char(5)	lid	char(8)	not null	location identifier
pe	char(2)	pe1	char(1)	pe1	char(1)	not null	SHEF Physical Element codes
		pe2	char(1)	pe2	char(1)	not null	
dur	integer	dur	char(1)	dur	char(1)	not null	SHEF duration code
				idur	smallint	not null	SHEF duration value
ts	char(2)	t	char(1)	t	char(1)	not null	SHEF type-source codes
		s	char(1)	s	char(1)	not null	
extremum	char(1)	e	char(1)	e	char(1)	not null	SHEF extremum code
probability		p	char(1)	p	char(1)	not null	SHEF probability code
validtime	datetime year to second	vcal_yr	integer	validtime	datetime year to second	not null	valid date and time for data value, fastetc used separate columns while ihfs_db uses single column
		vmon	integer				
		vzday	integer				
		vtime	integer				
basistime	datetime year to second	ccal_yr	integer	basistime	datetime year to second	not null	creation date and time of data value
		cmon	integer				
		czday	integer				
		ctime	integer				
value	float	value	float	value	float		
shef_qual_code	char(1)	info	char(1)	shef_qualifier_code	char(1)		SHEF data qualifier code

quality\_code integer  
 revision char(1)  
 product\_id char(10)  
 producttime datetime year to second  
 postingtime datetime year to second  
 primary key  
 (lid,pe,dur,ts,extremum,  
 probability, validtime, basistime)

primary key  
 (id,pe1,pe2,dur,t,s,e,p,  
 vcal\_yr,vmon,vzday,vtime, ccal\_yr,cmon,  
 czday, ctime)

quality\_code integer  
 revision char(1) SHEF revision flag  
 product\_id char(10)  
 producttime datetime year to second  
 postingtime datetime year to second  
 primary key (lid,pe1,pe2,dur,idur,t,s,e, p,  
 validtime, basistime)

wfo/hsa		wfo_hsa	
wfo char(3) not null primary key (wfo)		wfo_hsa char(3) not null primary key (wfo_hsa)	valid values for wfo/hsa field

ingestfilter		sens		ingestfilter			
lid char(8)		id char(5)		lid char(8)	not null		location identifier
pe char(2)		pe1 char(1) pe2 char(1)		pe1 char(1)	not null		SHEF Physical Element code
				pe2 char(1)	not null		
dur integer		dur char(1)		dur char(1)	not null		SHEF duration code
				idur smallint	not null		SHEF duration value
ts char(2)		t char(1) s char(1)		t char(1)	not null		SHEF type-source code
				s char(1)	not null		
extremum char(1)		e char(1)		e char(1)	not null		SHEF extremum code
		p char(1)		p char(1)	not null		SHEF probability code
ts_rank smallint				ts_rank smallint			numerical ranking of alternate SHEF TS codes for the same location and parameter.

	type	char(1)	NBR	sensor_type		
	des	char(50)	NBR	name		
	det	char(40)	det	char(40)	descriptive detail, begin and end date should be entered into this field	
ingest	char(1)	post	char(1)	ingest	integer	post data to database, fastetc 0 - no & 1 - yes ihfs_db F - no & T - yes
	new_report	char(1)	new_report	char(1)	new entry? Y or N	
	active	char(1)	active	char(1)	active sensor? Y or N	
ofs_input	char(1)	rfs	char(1)	ofs_input	char(1)	feed data to OFS, 0 - no & 1 - yes
	obstime	integer	obstime	datetime	hour to second	nominal obstime for daily data, primarily for coop stations
	prod	char(9)	NBR	primary	product_id	data sent with
	prod2ary	char(9)	NBR	secondary	product	id
	obsag	char(6)	NBR	observing	agency	
	obsloc	char(3)	NBR	observing	location	
	prov_avail	char(1)	NBR	provisional	available	flag
	final_avail	char(7)	NBR	source	of	finalized data
	ownag	char(6)	ownag	char(6)	owner	agency
	ownloc	char(3)	ownloc	char(3)	owner	agency location
	maintag	char(6)	NBR	maintenance	agency	
	maintloc	char(3)	NBR	maintenance	agency	location
	init	char(8)	NBR	rfc	initilization	source documentation

	dbsource	char(3)	NBR	PRIME dbsource, internal use
stg2_input	char(1)		mpe_input	char(1)
				feed data to stage II, ihfs_db F - no/0 & T - yes/1
primary key (lid,pe,dur,ts,extremum)		primary key (id,pe1,pe2,dur,t,s,e,p)	primary key	(lid,pe1,pe2,dur,idur,t,s,e,p)

Notes:  
 additional difference between IHFS\_db and fastetc is that entries in the IHFS\_db are required in order for data to post to database, post flag in location set to 1 is not sufficient. Where as the fastetc database depending on the value of the post flag in stn table determines if entry in the sens table is necessary.

locdatalimits	locdatalimits
lid char(8) not null	lid char(8) not null
pe char(2) not null	pe1 char(1) not null
	pe2 char(1) not null
dur smallint not null	dur char(1) not null
	idur smallint not null
monthdaystart datetime month to day not null	monthdaystart datetime month to day not null
monthdayend datetime month to day not null	monthdayend datetime month to day not null
gross_range_min float	gross_range_min float
gross_range_max float	gross_range_max float
reason_range_min float	reason_range_min float
reason_range_max float	reason_range_max float
roc_max float	roc_max float
alert_limit float	alert_limit float
alert_roc_limit float	alert_roc_limit float
alarm_limit float	alarm_limit float
alarm_roc_limit float	alarm_roc_limit float
primary key (pe,dur,monthdaystart)	primary key



(lid,pe1,pe2,dur,idur,monthdaystart)

location		stn		location		
lid	char(8) not null	id	char(5)	lid	char(8) not null	location or station identifier
goes	char(8) (in the dcp table)	plat	char(8)	goes	char(8)	dcp platform id
name	char(50)	des	char(50)	name	char(60)	for fastetc - station name ihfs_db - name is city name with no state, distance or direction and des is a station name field for rfc use for archive system will include the value from the IFS detail field
des+	char(30)					
det+	char(30)	det	char(40)	det	char(40)	additional station description info
		init	char(8)		not being retained (NBR)	initialization source documentation
lat	float	lat	char(6)	lat	float	latitude
lon	float	lng	char(7)	lon	float	longitude
elev	float	elev	integer	elev	integer	elevation in ft msl
state	char(2) not null	stat	char(2)	state	char(2)	2-char PO state code
hu	char(8)	huc	char(8)	huc	char(8)	hydrologic unit code
countynum	char(4) (in the counties table)	cou	char(3)	countyfips	char(3)	county fips code
		zon	char(4)	zon	char(4)	NWS zone code
hsa	char(3)	hsa	char(3)	hsa	char(3)	hydrologic service area/WFO id

waro char(3)	cwa char(3)	wfo char(3)	wfo - WFO identifier
wfo char(3) not null			cwa/waro - county warning area
			wfo in ADS - county warning area indicator
			for archive system, the wfo value is being kept and the waro is not
post integer not null	post integer	post integer	post flag, have slightly different definitions with each database
	dbsource char(3)	dbsource char(3)	
county char(20) not null	name char(30) (cou table)	NBR	county name
coe char(3)		NBR	USACE office identifier
cpm char(3)		NBR	WFO id for office w/ cpm resp.
detail char(10)		NBR	distance and direction from main city post office
hdatum char(9)		NBR	horizontal datum
lremark char(255)		NBR	remarks
lrevise date		NBR	date data added or revised
network char(3) not null		NBR	COOP network
rb char(30)		NBR	river basin
rfc char(5) not null		rfc char(2)	RFC acronym, ex. MBRFC
sbd date		sbd date not null	station begin date
sn char(10)	id8 char(8) (alias_id table)	NBR	COOP station number
wsfo char(3)		NBR	old WSFO identifier
type char(4)		NBR	generic type attribute

stntype char(4)

NBR

station type

sed date

station end date

countryfips char(2)

FIPS country code

primary key (lid)

primary key (id)

primary key (lid, sbd)

Notes:

+ While some consider these two columns obsolete, some RFCs use them to put in RFC specific "station description information" that is used by local/regional applications; my office is one of those.

nidfedagency	agency	agency	
agencycode char(9) not null	agcode char(6) agloc char(3)	agcode char(6) not null agloc char(3) not null	agency/org code/abbrev agency/org location code/abbrev
agencyname char(40)	des char(20) persons char(30) voiceph char(20) faxph char(20) email char(20)	des char(20) NBR NBR NBR NBR	verbose name of agency names of contact persons voice phone # fax phone # e-mail address
primary key(agencycode)	primary key (agcode,agloc)	primary key (agcode,agloc)	

OFSDDataTrans		ofsdatatrans	
pe char(2) not null		pe1 char(1) not null pe2 char(1) not null	
dur smallint not null		dur char(1) not null idur smallint not null	
extremum char(1) not null		extremum char(1) not null	
ofs_data_type char(4)		ofs_data_type char(4)	
fwd_time_window smallfloat		fwd_time_window smallfloat	
bkw_time_window smallfloat		bkw_time_window smallfloat	
primary key (pe,dur,extremum)		primary key (pe1,pe2,dur,idur,extremum)	

OFSStnTrans		ofsstntrans	
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lid char(8) not null  
ofs\_data\_type char(4) not null  
shef\_source\_code char(1) not null  
ofs\_lid char(8)

lid char(8) not null  
ofs\_data\_type char(4) not null  
shef\_source\_code char(1) not null  
ofs\_lid char(8)

pairedvalues		pairedvalues	
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lid char(8) not null  
pe char(2) not null  
dur smallint not null

lid char(8) not null location identifier  
pe1 char(1) not null 1st char of SHEF PE code  
pe2 char(1) not null 2nd char of SHEF PE code  
dur char(1) not null SHEF duration code  
idur smallint not null integer value of SHEF duration code

ts char(2) not null

t char(1) not null SHEF type code for fcst value  
s char(1) not null SHEF source code for fcst value

extremum char(1) not null  
probability smallfloat not null  
validtime datetime year to second not null  
basistime datetime year to second not null

e char(1) not null SHEF extremum code  
p char(1) not null SHEF probability code  
validtime datetime year to second not null valid date & time of value  
basistime datetime year to second not null creation date & time of value

ref\_value integer  
value float  
shef\_qual\_code char(1)  
quality\_code integer  
revision smallint  
product\_id char(10)  
producttime datetime year to second  
postingtime datetime year to second  
primary key  
(lid,pe,dur,ts,extremum,probability,validtime,basistime)

ref\_value integer  
value float  
shef\_qualifier\_code char(1)  
quality\_code integer  
revision smallint  
product\_id char(10)  
producttime datetime year to second  
postingtime datetime year to second  
primary key  
(lid,pe1,pe2,dur,idur,t,s,e,p,validtime,basistime)

rating	rattbl	rating	
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lid char(8) not null  
id char(5)  
pe1 char(1)

lid char(8) not null  
pe1 char(1) not null

	pe2 char(1)	pe2 char(1) not null	
	tbl integer	tbl integer not null	
	valid_date integer	valid_date datetime year to day	
	gs integer	usgs char(16)	
	src integer	src integer	
		ofs_input char(1)	
	fix integer	NBR	
	datacol integer	NBR	
	ver5 integer	NBR	
	fld float	NBR	
	wrn float	NBR	
	hist_stg float	NBR	
	hist_q integer	NBR	
	hist_date integer	NBR	
	spil integer	NBR	
	ded integer	NBR	
	cap integer	NBR	
stage float not null	stg001-stg100 float	stg001-stg100 float	
	q001- q100 integer	q001- q100 integer	
discharge float		NBR	
primary key (lid,stage)	primary key (id,pe1,pe2,tbl)	primary key (lid,pe1,pe2,tbl)	

rfc		rfc	
rfc char(5) not null		rfc char(2) not null	
primary key (rfc)		primary key (rfc)	

riverstat		riverstat	
lid char(8) not null		lid char(8) not null	
		sbd date not null	
		sed date	
primary_pe char(2)		primary_pe char(2)	
bf float		bf float	bank full stage
cb float		cb float	check bar reading
da float		da float	drainage area
response_time float		response_time float	typical basin response time (hrs)
threshold_runoff ???float???		threshold_runoff float	used by Site-Specific model
fq float		fq float	flood flow

fs float  
 gsno char(10)  
 level char(20)  
 mile float  
 pool float  
 por char(30)  
 rated char(20)  
 lat float  
 lon float  
 remark char(255)  
 rrevise date  
 rsource char(20)  
 stream char(32)  
 tide char(8)  
 backwater char(8)  
 vdatum char(20)  
 action\_flow float  
 wstg float  
 zd float  
 ratedat date  
 uhgdur integer  
 use\_latest\_fcst char(1)  
 primary key (lid)

fs float  
 gsno char(10)  
 level char(20)  
 mile float  
 pool float  
 por char(30)  
 rated char(20)  
 lat float  
 lon float  
 remark char(255)  
 rrevise date  
 rsource char(20)  
 stream char(32)  
 tide char(8)  
 backwater char(8)  
 vdatum char(20)  
 action\_flow float  
 wstg float  
 zd float  
 ratedat date  
 uhgdur integer  
 use\_latest\_fcst char(1)  
 primary key (lid)

flood stage  
 USGS stream gage number  
 leveling agency  
 river mile  
 normal pool elevation  
 period of record  
 rating agency  
 latitude, north lats are +  
 longitude, west lons are +  
 general remarks  
 revision date of river gage info  
 source of lat/lon  
 river or stream name  
 degree of tidal effects  
 degree of backwater effects  
 reference vertical datum  
  
 action stage  
 elevation of the gage zero  
 rating date  
 unit hydrograph duration

Reservoir		reservoir	
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lid char(8) not null

name char(20)  
 type char(10) not null  
 owner char(10) not null  
 deadpool float  
 conserpool float  
 floodpool float  
 spillway float  
 sill float  
 top float  
 surchg float  
 elev float

lid char(8) not null

sbd date not null  
 sed date  
 name char(20)  
 type char(10) not null  
 owner char(10) not null  
 deadpool float  
 conserpool float  
 floodpool float  
 spillway float  
 sill float  
 top float  
 surchg float  
 elev float

gates integer  
 impounded date  
 uses char(8)  
 damids char(2)  
 damidn char(5)  
 primary key (lid)

gates integer  
 impounded date  
 uses char(8)  
 NBR  
 NBR  
 primary key (lid,sbd)

shefdur			shef_dur			shefdur			
dur	smallint	not null				idur	smallint	not null disabled	SHEF duration value
durcode	char(1)		dur	char(1)		dur	char(1)	not null disabled	SHEF duration code
name	char(20)		desc	char(30)		name	char(20)		description
				primary key (dur)				primary key(dur)	

shefex			shef_e			shefex			
extremum	char(1)	not null	e	char(1)		e	char(1)	not null	SHEF extremum code
name	char(20)		desc	char(30)		name	char(20)		description
				primary key (e)				primary key(e)	

shefPETrans			shefpetrans			shefpetrans			
pe	char(3)	not null				pe1	char(1)	not null	SHEFpe1 code
						pe2	char(1)	not null	SHEFpe2 code
						code_position	char(1)		code position
coded_value	integer	not null				coded_value	integer	not null	description
value_trans	char(80)					value_trans	char(80)		
								primary key(pe1, pe2, code_position, coded_value)	

shefpe			shef_pe			shefpe			
pe	char(2)	not null	pe1	char(1)		pe1	char(1)		1st char of SHEF phys element
			pe2	char(1)		pe2	char(1)		2nd char of SHEF phys element
name	char(20)		desc	char(30)		name	char(30)		description
eng_unit	char(8)					eng_unit	char(8)		
met_unit	char(8)					met_unit	char(8)		
	primary key(pe)			primary key (pe1,pe2)				primary key (pe1,pe2)	

shefprob		shef_p		shefprob		
probcode	char(1) not null	p	char(1)	p	char(1) not null	SHEF probability code
probability	smallfloat			probability	smallfloat	
name	char(20)	desc	char(30)	name	char(20)	description
			primary key (p)		primary key (p)	
shefqc		qual_code		shefqc		
shef_qual_code	char(1) not null	q	char(1)	shef_qualifier_code	char(1) not null	SHEF data quality code
name	char(20)	des	char(40)	name	char(20)	description
		power	integer not null	power	integer not null	relative power or confidence in the code (0=lowest)
		oldwsup	char(1)	NBR		old wsup dbase qual flag equiv.
			primary key (power)		primary key (power)	
shefts		shef_ts		shefts		
ts	char(2) not null	t	char(1)	t	char(1) not null	SHEF type code
		s	char(1)	s	char(1) not null	SHEF source code
name	char(20)	desc	char(30)	name	char(20)	description
			primary key (t,s)		primary key (t,s)	
state		st		state		
state	char(2) not null	st	char(2)	state	char(2) not null	geographic state abbreviation
name	char(20)	name	char(20)	name	char(20)	state name
		ncdc	char(2)	ncdc	char(2)	NCDC 2 letter numeric code
		fips	char(2)	statefips	char(2)	fips code
			primary key (state)	countryfips	char(2) not null	country fips code
			primary key (st)		primary key (state, countryfips)	
UnkStnValue				unkstnvalue		
lid	char(8) not null			lid	char(8) not null	location identifier
pe	char(2)			pe1	char(1) not null	SHEF Physical Element codes
				pe2	char(1) not null	
dur	integer not null			dur	char(1) not null	SHEF duration code



		idur	smallint	not null	SHEF duration value
ts	char(2) not null	t	char(1)	not null	SHEF type-source codes
		s	char(1)	not null	
extremum	char(1) not null	e	char(1)	not null	SHEF extremum code
		p	char(1)	not null	SHEF probability code
obstime	datetime year to second not null	validtime	datetime year to second not null		valid date and time for data value
		basistime	datetime year to second not null		creation date and time of data value
value	float	value	float		
shef_qual_code	char(1)	shef_qualifier_code	char(1)		SHEF data qualifier code
		quality_code	integer		
revision	smallint	revision	char(1)		SHEF revision flag
product_id	char(10)	product_id	char(10)		
producttime	datetime year to second	producttime	datetime year to second		
postingtime	datetime year to second	postingtime	datetime year to second		
primary key (lid,pe,dur,ts,extremum,obstime)		primary key (lid,pe1,pe2,dur,idur,t,s,e, p,validtime, basistime)			

	alias_id	aliasid	
	id8 char(8)	altid char(16) not null	1 to 8 char station identifier
	id char(5) not null	lid char(8) not null	1 to 5 char Handbook 5 stn id
	ag char(6)	ag char(6)	agency/org code
	agloc char(3)	agloc char(3)	agency/org location code
	primary key (id8)	primary key (altid)	

	area	area	

id char(5)	lid char(8) not null
drain char(1)	NBR
pos char(1)	NBR
desc char(20)	desc char(20)
primary key (id,drain,pos)	primary key (lid)

	area_sens	areasens	
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id char(5)	lid char(8) not null
pe1 char(1)	pe1 char(1) not null
pe2 char(1)	pe2 char(1) not null
dur char(1)	dur char(1) not null
	idur smallint not null
t char(1)	t char(1) not null
s char(1)	s char(1) not null
e char(1) default 'Z'	e char(1) default 'Z' not null
p char(1) default 'Z'	p char(1) default 'Z' not null
drain char(1)	NBR
pos char(1)	NBR
cgroup char(1) default 'F'	NBR
rfs_id char(8)	rfs_id char(8)
defined char(1)	defined char(1)
derived char(1)	derived char(1)
regional char(1) default 'N'	regional char(1) default 'N'
desc char(20)	desc char(20)
size_mi2 integer	size_mi2 integer
elev_brk1 integer default -9999 not null	elev_brk1 integer default -9999 not null
elev_brk2 integer default -9999 not null	elev_brk2 integer default -9999 not null
wfo_resp char(3)	wfo_resp char(3)
num_stn integer	num_stn integer
num_area integer	num_area integer
segid char(8)	segid char(8)
primary key (id,pe1,pe2,dur,t,s,e,p,drain,pos,cgroup)	primary key (lid,pe1,pe2,dur,idur,t,s,e,p)

	avg	avg	
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id char(5) not null	lid char(8) not null
pe1 char(1) not null	pe1 char(1) not null
pe2 char(1) not null	pe2 char(1) not null

dur char(1) not null

t char(1) not null

s char(1) not null

e char(1) not null

p char(1) not null

jant float

febt float

mart float

aprt float

mayt float

junt float

jult float

augt float

sept float

octt float

novt float

dect float

janp float

febp float

marp float

aprp float

mayp float

junp float

julp float

augp float

sepp float

octp float

novp float

decp float

jan25 float

feb25 float

mar25 float

apr25 float

may25 float

jun25 float

jul25 float

aug25 float

sep25 float

dur char(1) not null

idur smallint not null

t char(1) not null

s char(1) not null

e char(1) not null

p char(1) not null

jan float

feb float

mar float

apr float

may float

jun float

jul float

aug float

sep float

oct float

nov float

dec float

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

NBR

oct25 float	NBR
nov25 float	NBR
dec25 float	NBR
jantm float	NBR
febtm float	NBR
martm float	NBR
aprtm float	NBR
maytm float	NBR
juntm float	NBR
jultm float	NBR
augtm float	NBR
septm float	NBR
octtm float	NBR
novtm float	NBR
dectm float	NBR
janpm float	NBR
febpm float	NBR
marpm float	NBR
aprpm float	NBR
maypm float	NBR
junpm float	NBR
julpm float	NBR
augpm float	NBR
seppm float	NBR
octpm float	NBR
novpm float	NBR
decpm float	NBR
lock char(1)	NBR
	calcdte date
primary key (id,pe1,pe2,dur,t,s,e,p)	primary key (lid,pe1,pe2,dur,idur,t,s,e,p)

	b_avg		
id	char(5) not null		1 to 8 char station identifier
pe1	char(1) not null		1st char of shef physical element
pe2	char(1) not null		2nd char of shef physical element
dur	char(1) not null		shef dur code shef duration value

t char(1) not null  
 s char(1) not null  
 e char(1) not null  
 p char(1) not null  
 jan float  
 feb float  
 mar float  
  
 apr float  
 may float  
  
 jun float  
 jul float  
 aug float  
 sep float  
 oct float  
 nov float  
  
 dec float  
 calcdte date

primary key (id,pe1,pe2,dur,t,s,e,p)

shef type code  
 shef source code  
 shef extremum code  
 shef probability code  
 measure of cent tend (avg)/jan  
 measure of cent tend (avg)/feb  
 measure of cent tend  
 (avg)/mar  
 measure of cent tend (avg)/apr  
 measure of cent tend  
 (avg)/may  
 measure of cent tend (avg)/jun  
 measure of cent tend (avg)/ jul  
 measure of cent tend (avg)/aug  
 measure of cent tend (avg)/sep  
 measure of cent tend (avg)/oct  
 measure of cent tend  
 (avg)/nov  
 measure of cent tend (avg)/dec  
 the date the value was  
 calculated

	caldly, prodly	pedpsep	
id	char(5)	lid	char(8) not null
pe1	char(1)	pe1	char(1) not null
pe2	char(1)	pe2	char(1) not null
dur	char(1)	dur	char(1) not null
		idur	smallint not null
t	char(1)	t	char(1) not null
s	char(1)	s	char(1) not null
e	char(1)	e	char(1) not null
p	char(1)	p	char(1) not null
cal_yr	integer	obstime	datetime year to month not null
mon	integer		
zday01- zday31	float	zday01- zday31	float
qzday01- qzday31	char(1)	qzday01- qzday31	char(1)
	primary key		primary key
	(id,pe1,pe2,dur,t,s,e,p,cal_yr,mon)		(lid,pe1,pe2,dur,idur,t,s,e,p,obstime)

calfmahrly, fmahrly		pehfsep			
id	char(5)	lid	char(8)	not null	location identifier
drain	char(1)	NBR			used to identify ofs info connected to fcst group and segment
pos	char(1)	NBR			ditto
cgroup	char(1)	NBR			ditto
pe1	char(1)	pe1	char(1)	not null	SHEF Physical Element codes
pe2	char(1)	pe2	char(1)	not null	
dur	char(1)	dur	char(1)	not null	SHEF duration code
		idur	smallint	not null	SHEF duration value
t	char(1)	t	char(1)	not null	SHEF type-source codes
s	char(1)	s	char(1)	not null	
e	char(1)	e	char(1)	not null	SHEF extremum code
p	char(1)	p	char(1)	not null	SHEF probablity code
vcal_yr	integer	validtime	datetime year to day not null		time is implied by slot value is stored in
vmon	integer				
vzday	integer				
ccal_yr	integer	basistime	datetime year to second not null		creation dt and time of date value
cmon	integer				
czday	integer				
cztime	integer				
zhr00 thru zhr23	float	zhr00 thru zhr23	float		
qzhr00 thru qzhr23	char(1)	qzhr00 thru qzhr23	char(1)		SHEF data qualifier code
		quality_code	integer		
		revision	char(1)		SHEF revision flag
		product_id	char(10)		

producttime datetime year to second

postingtime datetime year to second

primary key (id, drain, pos, cgroup, pe1,  
pe2, dur, t, s, e, vcal\_yr, vmon, vzday,  
ccal\_yr, cmon, czday,ctime)

primary key (lid,pe1,pe2,dur,idur,t,s,e,p,  
validtime, basistime)

	calfmaqrtly, fmaqtrly	peqfsep	
	id char(5)	lid char(8)	not null
	drain char(1)	NBR	
	pos char(1)	NBR	
	cgroup char(1)	NBR	
	pe1 char(1)	pe1 char(1)	not null
	pe2 char(1)	pe2 char(1)	not null
	dur char(1)	dur char(1)	not null
		idur smallint	not null
	t char(1)	t char(1)	not null
	s char(1)	s char(1)	not null
	e char(1)	e char(1)	not null
	p char(1)	p char(1)	not null
	vcal_yr integer not null	validtime	datetime year to day not null
	vmon integer not null		
	vzday integer not null		
	ccal_yr integer not null	basistime	datetime year to second not null
	cmon integer not null		
	czday integer not null		
	ctime integer		
	z00 float	z00 float	
	z06 float	z06 float	
	z12 float	z12 float	
	z18 float	z18 float	
	qz00 char(1)	qz00 char(1)	
	qz06 char(1)	qz06 char(1)	
	qz12 char(1)	qz12 char(1)	
	qz18 char(1)	qz18 char(1)	
	primary key (id,drain,pos,cgroup, pe1,pe2,dur,t,s,vcal_yr,vmon, vzday,ccal_yr,cmon,czday,ctime)	primary key (lid,pe1,pe2,dur,idur,t,s, validtime,basistime)	

	calhrly, ,mahrly, prohrly	pehpsep	
	id char(5)	lid char(8)	not null
	pe1 char(1)	pe1 char(1)	not null
	pe2 char(1)	pe2 char(1)	not null
	dur char(1)	dur char(1)	not null
		idur smallint	not null
	t char(1)	t char(1)	not null
	s char(1)	s char(1)	not null
	e char(1)	e char(1)	not null
	p char(1)	p char(1)	not null
	cal_yr integer	obstime	datetime year to day not null
	mon integer		
	zday integer		
	zhr00- zhr23 float	zhr00- zhr23 float	
	qzhr00-qzhr23 char(1)	qzhr00-qzhr23 char(1)	
	primary key	primary key	
	(id,pe1,pe2,dur,t,s,e,p,cal_yr,mon,zday)	(lid,pe1,pe2,dur,idur,t,s,e,p,obstime)	

	calmaqtrly, calqtrly, maqtrly, proqtrly	peqpsep	
	id char(5)	lid char(8)	not null
	pe1 char(1)	pe1 char(1)	not null
	pe2 char(1)	pe2 char(1)	not null
	dur char(1)	dur char(1)	not null
		idur smallint	not null
	t char(1)	t char(1)	not null
	s char(1)	s char(1)	not null
	e char(1)	e char(1)	not null
	p char(1)	p char(1)	not null
	cal_yr integer not null	obstime	datetime year to day not null
	mon integer not null		
	zday integer not null		
	z00 float	z00 float	
	z06 float	z06 float	
	z12 float	z12 float	
	z18 float	z18 float	
	qz00 char(1)	qz00 char(1)	
	qz06 char(1)	qz06 char(1)	



qz12 char(1)	qz12 char(1)
qz18 char(1)	qz18 char(1)
primary key	primary key
(id,pe1,pe2,dur,t,s,e,p,cal_yr,mon,zday)	(lid,pe1,pe2,dur,idur,t,s,e,p,obstime)

	calmonly, mamonly, promonly	pempsep	
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id char(5) not null	lid char(8) not null
pe1 char(1) not null	pe1 char(1) not null
pe2 char(1) not null	pe2 char(1) not null
dur char(1) not null	dur char(1) not null
	idur smallint not null
t char(1) not null	t char(1) not null
s char(1) not null	s char(1) not null
e char(1) not null	e char(1) not null
p char(1) not null	p char(1) not null
cal_yr integer not null	obstime datetime year to year not null
jan float	jan float
feb float	feb float
mar float	mar float
apr float	apr float
may float	may float
jun float	jun float
jul float	jul float
aug float	aug float
sep float	sep float
oct float	oct float
nov float	nov float
dec float	dec float
janq char(1)	janq char(1)
febq char(1)	febq char(1)
marq char(1)	marq char(1)
aprq char(1)	aprq char(1)
mayq char(1)	mayq char(1)
junq char(1)	junq char(1)
julq char(1)	julq char(1)
augq char(1)	augq char(1)
sepq char(1)	sepq char(1)
octq char(1)	octq char(1)
novq char(1)	novq char(1)

decq char(1)	decq char(1)
primary key (id,pe1,pe2,dur,t,s,e,p,cal_yr)	primary key (lid,pe1,pe2,dur,idur,t,s,e,p,obstime)

	cgroup	cgroup	
	cgroupid char(8)	cgroupid char(8) not null	
	cgroup_abbr char(1)	cgroup_abbr char(1)	
	desc char(20)	desc char(20)	
	cgroupnum integer	cgroupnum integer	
	numfgroups integer	numfgroups integer	
	primary key (cgroupid)	primary key (cgroupid)	

	drain	drain	
	drain char(1)	drain char(1)	watershed drainage: H=headwater, L=local description
	desc char(30)	desc char(30)	
	primary key (drain)	primary key (drain)	

	fgroup	fgroup	
	fgroupid char(8)	fgroupid char(8) not null	
	desc char(20)	desc char(20)	
	cgroupid char(8)	cgroupid char(8)	
	fgroupnum integer	fgroupnum integer	
	numsegs integer	numsegs integer	
	primary key (fgroupid)	primary key (fgroupid)	

	fgroup_seg	fgroupseg	
	fgroupid char(8)	fgroupid char(8) not null	
	segnum integer	segnum integer not null	
	segid char(8)	segid char(8)	
	primary key (fgroupid,segnum)	primary key (fgroupid,segnum)	

	flashflood	flashflood	
	name_river_stream char(25)	name_river_stream char(25)	
	name_city_location char(25)	name_city_location char(25)	
	location_detail char(30)	location_detail char(30)	

distance_dir char(10)	distance_dir char(10)
latitude smallfloat	latitude smallfloat
longitude smallfloat	longitude smallfloat
county_name char(20)	county_name char(20)
state char(2)	state char(2)
wfo char(3)	wfo char(3)
elevation integer	elevation integer
began_year integer	begantime datetime year to second
began_month integer	
began_day integer	
began_time integer	
peak_year integer	peaktime datetime year to second
peak_month integer	
peak_day integer	
peak_time integer	
end_year integer	endtime datetime year to second
end_month integer	
end_day integer	
end_time integer	
precip_gage1_name char(20)	precip_gage1_name char(20)
precip_gage1_amt smallfloat	precip_gage1_amt smallfloat
precip_gage1_dur smallint	precip_gage1_idur smallint
precip_gage2_name char(20)	precip_gage2_name char(20)
precip_gage2_amt smallfloat	precip_gage2_amt smallfloat
precip_gage2_dur smallint	precip_gage2_idur smallint
precip_gage3_name char(20)	precip_gage3_name char(20)
precip_gage3_amt smallfloat	precip_gage3_amt smallfloat
precip_gage3_dur integer	precip_gage3_idur smallint
precip_radar_amt smallfloat	precip_radar_amt smallfloat
precip_radar_dur integer	precip_radar_idur smallint
ffg_1_hr smallint	ffg_1_hr smallint
ffg_3_hr smallint	ffg_3_hr smallint
ffg_6_hr smallint	ffg_6_hr smallint
flow smallfloat	flow smallfloat
stage smallfloat	stage smallfloat
deaths integer	deaths integer
damage_dollars float	damage_dollars float
source char(25)	source char(25)
comments char(512)	comments char(512)

	huc_2	huc2	
	code_2 char(2) not null code_12 char(2) des_reg char(25) not null primary key (code_12)	code2 char(2) not null code12 char(2) not null desreg char(60) not null primary key (code12)	USGS region  description of region
	huc_4	huc4	
	code_4 char(2) not null code_12 char(2) code_34 char(2) des_subreg char(25) not null primary key (code_12,code_34)	code4 char(2) not null code12 char(2) not null code34 char(2) not null dessubreg char(60) not null primary key (code12,code34)	USGS subregion  description of subregion
	huc_6	huc6	
	code_6 char(2) not null code_12 char(2) code_34 char(2) code_56 char(2) des_acct char(20) not null primary key (code_12,code_34,code_56)	code6 char(6) not null code12 char(2) not null code34 char(2) not null code56 char(2) not null desacct char(60) not null primary key (code12,code34,code56)	USGS accounting code  description of accounting code
	huc_8	huc8	
	code_8 char(2) not null code_12 char(2) code_34 char(2) code_56 char(2) code_78 char(2) des_cat char(20) not null primary key (code_12,code_34,code_56)	code8 char(8) not null code12 char(2) not null code34 char(2) not null code56 char(2) not null code78 char(2) not null descat char(60) not null primary key (code12,code34,code56,code78)	USGS cataloging unit  description of cataloging unit
	mod_aeicqn	modaeicqn	
	id1 char(8) id2 char(8) default 'NONE' s_or_f char(1) default 'S'	id1 char(8) id2 char(8) default 'NONE' s_or_f char(1) default 'S'	

operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
value float  
primary key (id1,operid,sdate)

operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
value float  
primary key (id1,operid,sdate)

	mod_aescchng	modaescchng	
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id1 char(8)  
id2 char(8) default 'NONE'  
s\_or\_f char(1) default 'S'  
operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
value float  
primary key (id1,operid,sdate)

id1 char(8)  
id2 char(8) default 'NONE'  
s\_or\_f char(1) default 'S'  
operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
value float  
primary key (id1,operid,sdate)

	mod_aiadj	modaiadj	
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id1 char(8)  
id2 char(8) default 'NONE'  
s\_or\_f char(1) default 'S'  
operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
value integer  
primary key (id1,operid,sdate)

id1 char(8)  
id2 char(8) default 'NONE'  
s\_or\_f char(1) default 'S'  
operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
value float  
primary key (id1,operid,sdate)

	mod_apicbasf	modapicbasf	
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id1 char(8)  
id2 char(8) default 'NONE'  
s\_or\_f char(1) default 'S'  
operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
value float  
primary key (id1,operid,sdate)

id1 char(8)  
id2 char(8) default 'NONE'  
s\_or\_f char(1) default 'S'  
operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
value float  
primary key (id1,operid,sdate)

	mod_apicco	modapicco	
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id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 keyword char(4) default 'API'  
 sdate datetime year to hour,  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,sdate)

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 keyword char(4) default 'API'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,keyword,sdate)

	mod_chgblend	modchgblend	
--	--------------	-------------	--

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value integer  
 primary key (id1,operid,sdate)

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value integer  
 primary key (id1,operid,sdate)

	mod_ctrl	modctrl	
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mod\_name char(30) not null  
 load integer not null  
 fetch\_oper integer not null  
 fetch\_spin integer not null  
 primary key (mod\_name)

mod\_name char(30) not null  
 load integer not null  
 fetch\_oper integer not null  
 fetch\_spin integer not null  
 primary key (mod\_name)

	mod_ignorets	modignorets	
--	--------------	-------------	--

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 keyword char(5) default 'INST'  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 primary key

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 keyword char(5) default 'INST'  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 primary key

(id1,operid,keyword,sdate,edate)

(id1,operid,keyword,sdate,edate)

	mod_matchng	modmatchng	
--	-------------	------------	--

id1 char(8)

id2 char(8) default 'NONE'

s\_or\_f char(1) default 'S'

operid char(8) default 'ALL'

sdate datetime year to hour

vdate datetime year to hour

slot integer

rdate datetime year to hour

value float not null

primary key (id1,operid,sdate,vdate,slot)

id1 char(8)

id2 char(8) default 'NONE'

s\_or\_f char(1) default 'S'

operid char(8) default 'ALL'

sdate datetime year to hour

vdate datetime year to hour

slot integer

rdate datetime year to hour

value float not null

primary key (id1,operid,sdate,vdate,slot)

	mod_mfc	modmfc	
--	---------	--------	--

id1 char(8)

id2 char(8) default 'NONE'

s\_or\_f char(1) default 'S'

operid char(8) default 'ALL'

sdate datetime year to hour

edate datetime year to hour

value float

rdate datetime year to hour

primary key (id1,operid,sdate,edate)

id1 char(8)

id2 char(8) default 'NONE'

s\_or\_f char(1) default 'S'

operid char(8) default 'ALL'

sdate datetime year to hour

edate datetime year to hour

value float

rdate datetime year to hour

primary key (id1,operid,sdate,edate)

	mod_rainsnow	modrainsnow	
--	--------------	-------------	--

id1 char(8)

id2 char(8) default 'NONE'

s\_or\_f char(1) default 'S'

operid char(8) default 'ALL'

sdate datetime year to hour

edate datetime year to hour

rdate datetime year to hour

keyword char(1) not null

primary key (id1,operid,sdate,edate)

id1 char(8)

id2 char(8) default 'NONE'

s\_or\_f char(1) default 'S'

operid char(8) default 'ALL'

sdate datetime year to hour

edate datetime year to hour

rdate datetime year to hour

keyword char(1) not null

primary key (id1,operid,sdate,edate)

	mod_romult	modromult	
--	------------	-----------	--

id1 char(8)	id1 char(8)
id2 char(8) default 'NONE'	id2 char(8) default 'NONE'
s_or_f char(1) default 'S'	s_or_f char(1) default 'S'
operid char(8) default 'ALL'	operid char(8) default 'ALL'
sdate datetime year to hour	sdate datetime year to hour
edate datetime year to hour	edate datetime year to hour
vdate datetime year to hour	vdate datetime year to hour
rdate datetime year to hour	rdate datetime year to hour
value float not null	value float not null
primary key (id1,operid,sdate,edate,vdate)	primary key (id1,operid,sdate,edate,vdate)

	mod_rrichng	modrrichng	
--	-------------	------------	--

id1 char(8)	id1 char(8)
id2 char(8) default 'NONE'	id2 char(8) default 'NONE'
s_or_f char(1) default 'S'	s_or_f char(1) default 'S'
operid char(8) default 'ALL'	operid char(8) default 'ALL'
sdate datetime year to hour	sdate datetime year to hour
vdate datetime year to hour	vdate datetime year to hour
rdate datetime year to hour	rdate datetime year to hour
slot integer	slot integer not null
value float not null	value float not null
	no_timeperiods integer
primary key (id1,operid,sdate,vdate,slot)	primary key (id1,operid,sdate,vdate,slot)

	mod_rrimult	modrrimult	
--	-------------	------------	--

id1 char(8)	id1 char(8)
id2 char(8) default 'NONE'	id2 char(8) default 'NONE'
s_or_f char(1) default 'S'	s_or_f char(1) default 'S'
operid char(8) default 'ALL'	operid char(8) default 'ALL'
sdate datetime year to hour	sdate datetime year to hour
edate datetime year to hour	edate datetime year to hour
vdate datetime year to hour	vdate datetime year to hour
rdate datetime year to hour	rdate datetime year to hour
value float not null	value float not null
primary key (id1,operid,sdate,edate,vdate)	primary key (id1,operid,sdate,edate,vdate)

	mod_sacbasef	modsacbasef	
--	--------------	-------------	--



id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,sdate)

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,sdate)

	mod_sacco	modsacco	
--	-----------	----------	--

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 keyword char(5) default 'LZFPC'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,keyword,sdate)

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 keyword char(5) default 'LZFPC'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,keyword,sdate)

	mod_setmsng	modsetmsng	
--	-------------	------------	--

id1 char(8)  
 id2 char(8)  
 datatype char(5)  
 timeint integer  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 primary key  
 (id1,id2,datatype,timeint,sdate,edate)

id1 char(8)  
 id2 char(8)  
 datatype char(5)  
 timeint integer  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 primary key  
 (id1,id2,datatype,timeint,sdate,edate)

	mod_setqmean	modsetqmean	
--	--------------	-------------	--

id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 vdate datetime year to hour

id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 vdate datetime year to hour

rdate datetime year to hour	rdate datetime year to hour
slot integer	slot integer
no_timeperiods integer	no_timeperiods integer
value float not null	value float not null
primary key (id1,operid,sdate,vdate,slot)	primary key (id1,operid,sdate,vdate,slot)

	mod_tschng	modtschng	
	id1 char(8)	id1 char(8)	
	id2 char(8)	id2 char(8)	
	datatype char(5)	datatype char(5)	
	timeint integer	timeint integer	
	opertype char(8) default 'ALL'	opertype char(8) default 'ALL'	
	operid char(8) default 'ALL'	operid char(8) default 'ALL'	
	sdate datetime year to hour	sdate datetime year to hour	
	vdate datetime year to hour	vdate datetime year to hour	
	rdate datetime year to hour	rdate datetime year to hour	
	slot integer	slot integer	
	value float not null	value float not null	
	primary key	primary key	
	(id1,id2,datatype,timeint,opertype,operid,sdate,vdate,slot)	(id1,id2,datatype,timeint,opertype,operid,sdate,vdate,slot)	

	mod_uadj	moduadj	
	id1 char(8)	id1 char(8)	
	id2 char(8) default 'NONE'	id2 char(8) default 'NONE'	
	s_or_f char(1) default 'S'	s_or_f char(1) default 'S'	
	operid char(8) default 'ALL'	operid char(8) default 'ALL'	
	sdate datetime year to hour	sdate datetime year to hour	
	edate datetime year to hour	edate datetime year to hour	
	rdate datetime year to hour	rdate datetime year to hour	
	value float	value float	
	primary key (id1,operid,sdate,edate)	primary key (id1,operid,sdate,edate)	

	mod_uhgadj	moduhgadj	
	id1 char(8)	id1 char(8)	
	id2 char(8) default 'NONE'	id2 char(8) default 'NONE'	

s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 keyword char(5) default 'HADJ'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,keyword,sdate)

s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 keyword char(5) default 'HADJ'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,keyword,sdate)

	mod_uhgchn	moduhgchn	
--	------------	-----------	--

id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 slot integer  
  
 primary key (id1,operid,sdate,slot)

id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 slot integer  
 no\_timeperiods integer  
 primary key (id1,operid,sdate,slot)

	mod_weadd	modweadd	
--	-----------	----------	--

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,sdate)

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float  
 primary key (id1,operid,sdate)

	mod_wechn	modwechn	
--	-----------	----------	--

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float

id1 char(8)  
 id2 char(8) default 'NONE'  
 s\_or\_f char(1) default 'S'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 rdate datetime year to hour  
 value float

primary key (id1,operid,sdate)

primary key (id1,operid,sdate)

	mod_zerodiff	modzerodiff	
--	--------------	-------------	--

id1 char(8)  
id2 char(8) default 'NONE'  
operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
primary key (id1,operid,sdate)

id1 char(8)  
id2 char(8) default 'NONE'  
operid char(8) default 'ALL'  
sdate datetime year to hour  
rdate datetime year to hour  
primary key (id1,operid,sdate)

	oper_snow17	opersnow17	
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opid char(8)  
segid char(8)  
desc char(20)  
units char(1)  
compint integer default 6  
elev float  
lat float  
prntout char(4) default null  
sums\_sc char(4) default 'SUMS'  
update char(6) default null  
use\_carry char(4) default null  
use\_avse char(4) default null  
dt\_mass integer default 6  
pxadj float default 1.0000000000000000  
dt\_temp integer default 6  
taelev float  
maxlapse float default  
0.9000000000000000  
minlapse float default  
0.4000000000000000  
numpts integer  
minelev float  
maxelev float  
elevunit char(4)  
elev1 float  
fract1 float  
elev2 float

opid char(8) not null  
segid char(8) not null  
desc char(20)  
units char(1)  
compint integer default 6  
elev float  
lat float  
prntout char(4) default null  
sums\_sc char(4) default 'SUMS'  
update char(6) default null  
use\_carry char(4) default null  
use\_avse char(4) default null  
dt\_mass integer default 6  
pxadj float default 1.0000000000000000  
dt\_temp integer default 6  
taelev float  
maxlapse float default  
0.9000000000000000  
minlapse float default  
0.4000000000000000  
numpts integer  
minelev float  
maxelev float  
elevunit char(4)  
elev1 float  
fract1 float  
elev2 float

fract2 float  
elev3 float  
fract3 float  
elev4 float  
fract4 float  
elev5 float  
fract5 float  
elev6 float  
fract6 float  
elev7 float  
fract7 float  
elev8 float  
fract8 float  
elev9 float  
fract9 float  
elev10 float  
fract10 float  
elev11 float  
fract11 float  
elev12 float  
fract12 float  
scf float  
mfmax float  
mfmin float  
uadj float  
si float  
seas\_mf integer default 0  
janmf float  
febmf float  
marmf float  
aprmf float  
maymf float  
junmf float  
julmf float  
augmf float  
sepmf float  
octmf float  
novmf float  
decmf float

fract2 float  
elev3 float  
fract3 float  
elev4 float  
fract4 float  
elev5 float  
fract5 float  
elev6 float  
fract6 float  
elev7 float  
fract7 float  
elev8 float  
fract8 float  
elev9 float  
fract9 float  
elev10 float  
fract10 float  
elev11 float  
fract11 float  
elev12 float  
fract12 float  
scf float  
mfmax float  
mfmin float  
uadj float  
si float  
seas\_mf integer default 0  
janmf float  
febmf float  
marmf float  
aprmf float  
maymf float  
junmf float  
julmf float  
augmf float  
sepmf float  
octmf float  
novmf float  
decmf float

nmf float	nmf float
tipm float	tipm float
mbase float	mbase float
pxtemp float	pxtemp float
plwhc float	plwhc float
daygm float	daygm float
cover0 float default 0.0500000000000000	cover0 float default 0.0500000000000000
cover1 float	cover1 float
cover2 float	cover2 float
cover3 float	cover3 float
cover4 float	cover4 float
cover5 float	cover5 float
cover6 float	cover6 float
cover7 float	cover7 float
cover8 float	cover8 float
cover9 float	cover9 float
cover10 float default 1.0000000000000000	cover10 float default 1.0000000000000000
updtwe float default 0.0000000000000000	updtwe float default 0.0000000000000000
updtcov float default 0.0000000000000000	updtcov float default 0.0000000000000000
primary key (opid,segid)	primary key (opid,segid)

	oper_sacsma	opersacsma	
	opid char(8)	opid char(8)	not null
	segid char(8)	segid char(8)	not null
	desc char(20)	desc char(20)	
	units char(1)	units char(1)	
	compint integer	compint integer	
	pxadj float	pxadj float	
	peadj float	peadj float	
	uztwm float	uztwm float	
	uzfwm float	uzfwm float	
	uzk float	uzk float	
	pctimp float	pctimp float	
	adimp float	adimp float	
	riva float	riva float	
	efc float	efc float	

dailyet char(7)  
 pbase float  
 zperc float  
 rexp float  
 lztwm float  
 lzfsm float  
 lzfpn float  
 lzsk float  
 lzpk float  
 pfree float  
 rserv float  
 side float  
 etjan float  
 etfeb float  
 etmar float  
 etapr float  
 etmay float  
 etjun float  
 etjul float  
 etaug float  
 etsep float  
 etoct float  
 etnov float  
 etdec float  
 primary key (opid,segid)

dailyet char(7)  
 pbase float  
 zperc float  
 rexp float  
 lztwm float  
 lzfsm float  
 lzfpn float  
 lzsk float  
 lzpk float  
 pfree float  
 rserv float  
 side float  
 etjan float  
 etfeb float  
 etmar float  
 etapr float  
 etmay float  
 etjun float  
 etjul float  
 etaug float  
 etsep float  
 etoct float  
 etnov float  
 etdec float  
 primary key (opid,segid)

	oper_type	opertype	
--	-----------	----------	--

opertype char(10)  
 desc char(40)  
 primary key (opertype)

opertype char(10)  
 desc char(40)  
 primary key (opertype)

	oper_unithg	operunithg	
--	-------------	------------	--

opid char(8)  
 segid char(8)  
  
 desc char(20)  
 units char(1)  
 compint integer

opid char(8) not null  
 segid char(8) not null  
 slot integer not null  
 desc char(20)  
 units char(1)  
 compint integer

darea float  
 numord integer  
 q1 float  
 q2 float  
 q3 float  
 q4 float  
 q5 float  
 q6 float  
 q7 float  
 q8 float  
 q9 float  
 q10 float  
 q11 float  
 q12 float  
 q13 float  
 q14 float  
 q15 float  
 primary key (opid,segid)

darea float  
 numord integer  
 q1 float  
 NBR  
 NBR  
 NBR  
 NBR  
 NBR  
 NBR  
 NBR  
 NBR  
 NBR  
 NBR  
 NBR  
 NBR  
 primary key (opid,segid)

	pos	pos	
--	-----	-----	--

pos char(1)

pos char(1) not null

area position within watershed:  
 G=glacial,U=upper,L=lower,  
 M=middle,O=only  
 description

desc char(30)  
 primary key (pos)

desc char(30)  
 primary key (pos)

	prod	prod	
--	------	------	--

id char(9)  
 max integer  
 pap integer

id char(9) not null  
 max integer  
 pap integer

afos product identifier  
 number of versions to store  
 parse & post flag: 0=no,  
 1=yes  
 p&p error print flag: -  
 1=no,0=yes if errors,1=yes  
 graphic product: Y=yes, N=no  
 print for device 1: Y=yes,  
 N=no

err integer

err integer

gra char(1)  
 pr1 char(1)

gra char(1)  
 pr1 char(1)



net char(1)

net char(1)

inrnet disseminator:Y=yes,  
N=no

primary key (id)

primary key (id)

	qadjust	qadjust	
id char(5)	id char(5)	lid char(8) not null	1 to 8 character area identifier
pe1 char(1)	pe1 char(1)	pe1 char(1) not null	1st char of shef physical element
pe2 char(1)	pe2 char(1)	pe2 char(1) not null	2nd char of shef physical element
dur char(1)	dur char(1)	dur char(1) not null	shef duration code (character)
t char(1)	t char(1)	idur smallint not null	shef duration value
s char(1)	s char(1)	t char(1) not null	shef type code
e char(1)	e char(1)	s char(1) not null	shef source code
p char(1)	p char(1)	e char(1) not null	shef extremum code
slot integer	slot integer	p char(1) not null	shef probability code
adjid char(5)	adjid char(5)	slot integer not null	
adjpe1 char(1)	adjpe1 char(1)	adjid char(5)	
adjpe2 char(1)	adjpe2 char(1)	adjpe1 char(1)	1st char of shef physical element
adjdur char(1)	adjdur char(1)	adjpe2 char(1)	2nd char of shef physical element
adjt char(1)	adjt char(1)	adjdur char(1)	shef duration code (character)
adjs char(1)	adjs char(1)	adjt char(1)	shef type code
adje char(1)	adje char(1)	adjs char(1)	shef source code
adjp char(1)	adjp char(1)	adje char(1)	shef extremum code
sign char(1)	sign char(1)	adjp char(1)	shef probability code
b_cal_yr integer	b_cal_yr integer	sign char(1)	addition (+) or subtraction (-)
b_mon integer	b_mon integer	b_date datetime year to month	beginning calyear adj is valid
e_cal_yr integer	e_cal_yr integer	e_date datetime year to month	beginning month adj is valid
e_mon integer	e_mon integer		
comment char(50)	comment char(50)	comment char(50)	comment
primary key (id,pe1,pe2,dur,t,s,e,p,slot)	primary key (id,pe1,pe2,dur,t,s,e,p,slot)	primary key (lid,pe1,pe2,dur,idur,t,s,e,p,slot)	

	ratshift	ratingshift	
id char(5)	id char(5)	lid char(8) not null	
pe1 char(1)	pe1 char(1)	pe1 char(1) not null	

pe2 char(1)  
 begin\_date integer  
 tbl\_ver integer not null  
 val\_a float  
 sh\_a float  
 val\_b float  
 sh\_b float  
 val\_c float  
 sh\_c float  
 val\_d float  
 sh\_d float  
 datum\_adj float  
 primary key (id,pe1,pe2,begin\_date)

pe2 char(1) not null  
 begin\_date datetime year to day not null  
 tbl\_ver integer not null  
 val\_a float  
 sh\_a float  
 val\_b float  
 sh\_b float  
 val\_c float  
 sh\_c float  
 val\_d float  
 sh\_d float  
 datum\_adj float  
 primary key (lid,pe1,pe2,begin\_date)

	rawmonly	pemrsep		
	id char(5) not null pe1 char(1) not null pe2 char(1) not null dur char(1) not null  t char(1) not null s char(1) not null e char(1) not null p char(1) not null cal_yr integer not null jan float feb float mar float apr float may float jun float jul float aug float sep float oct float nov float dec float janq char(1) febq char(1)	lid char(8) not null pe1 char(1) not null pe2 char(1) not null dur char(1) not null idur smallint not null t char(1) not null s char(1) not null e char(1) not null p char(1) not null cal_yr datetime year to year not null jan float feb float mar float apr float may float jun float jul float aug float sep float oct float nov float dec float janq char(1) febq char(1)		

marq char(1)	marq char(1)
aprq char(1)	aprq char(1)
mayq char(1)	mayq char(1)
junq char(1)	junq char(1)
julq char(1)	julq char(1)
augq char(1)	augq char(1)
sepq char(1)	sepq char(1)
octq char(1)	octq char(1)
novq char(1)	novq char(1)
decq char(1)	decq char(1)
primary key (id,pe1,pe2,dur,t,s,e,p,cal_yr)	primary key (lid,pe1,pe2,dur,idur,t,s,e,p,cal_yr)

obsd SHEF PE tables		rawval96		pecrsep			
lid	char(8)	id	char(5)	lid	char(8)	not null	location identifier
pe	char(2)	pe1	char(1)	pe1	char(1)	not null	SHEF Physical Element codes
		pe2	char(1)	pe2	char(1)	not null	
dur	integer	dur	char(1)	dur	char(1)	not null	SHEF duration code
				idur	smallint	not null	SHEF duration value
ts	char(2)	t	char(1)	t	char(1)	not null	SHEF type-source codes
		s	char(1)	s	char(1)	not null	
extremum	char(1)	e	char(1)	e	char(1)	not null	SHEF extremum code
		p	char(1)	p	char(1)	not null	SHEF probablity code
obstime	datetime year to second	cal_yr	integer	obstime	datetime year to day	not null	observation date and time
		mon	integer				
		zday	integer				
value	float	z0000 thru z2345	float	z0000 thru z2345	float		fastetc uses an “array” to store multi values for the same prime key. Prime key does not include time (hh:mm:ss)
shef_qual_code	char(1)	qz0000 thru qz2345	char(1)	qz0000 thru qz2345	char(1)		SHEF data qualifier code
quality_code	integer			NBR			

revision	char(1)		NBR	SHEF revision flag
product_id	char(10)		NBR	
producttime second	datetime year to second		NBR	
postingtime second	datetime year to second		NBR	
primary key (lid,pe,dur,ts,extremum,obstime)	primary key (id,pe1,pe2,dur,t,s, e,p,cal_yr,mon,zday,ztime)		primary key (lid,pe1,pe2,dur,idur,t,s,e,p,obstime)	

	seg	seg	
	segid char(8) desc char(20) numoper integer compint integer note1 char(50) note2 char(50) note3 char(50) note4 char(50) primary key (segid)	segid char(8) not null desc char(20) numoper integer compint integer note1 char(50) note2 char(50) note3 char(50) note4 char(50) primary key (segid)	

	seg_oper	segoper	
	segid char(8)  opernum integer opertype char(10) operid char(8) desc char(20) compint integer primary key (segid,opernum)	segid char(8) not null  opernum integer not null opertype char(10) operid char(8) desc char(20) compint integer primary key (segid,opernum)	current segment id in NWSRFS

	sensok	sensok	
	id char(5)	lid char(8) not null	1 to 8 character station identifier
	pe1 char(1) element	pe1 char(1) not null	1st char of shef physical

pe2	char(1)	pe2	char(1) not null	element
				2nd char of shef physical element
dur	char(1)	dur	char(1) not null	shef duration code (character)
		idur	smallint not null	shef duration value
t	char(1)	t	char(1) not null	shef type code
s	char(1)	s	char(1) not null	shef source code
e	char(1)	e	char(1) not null	shef extremum code
p	char(1)	p	char(1) not null	shef probability code
cal_yr	integer	oktime	datetime year to second not null	ccyy
mon	integer			mm
zday	integer			dd on ZULU clock
ztime	integer			start time (hhmmss) for OK
ok	char(1) not null	ok	char(1) not null	status change (ZULU)
				status of data from sensor: Y = good N = no
reason	char(80)	reason	char(80)	text desc of reason for change
init	char(3) not null	init	char(3) not null	staff person initiating entry
agcode	char(6)	agcode	char(6)	notified agency code
agloc	char(3)	agloc	char(3)	agency location code
comment	char(40)	comment	char(40)	comment re: notif. outcome
	primary key		primary key (lid,pe1,pe2,dur,t,s,e,p,oktime)	
	(id,pe1,pe2,dur,t,s,e,p,cal_yr,mon,zday,ztime)			

	shef_pe1	shefpe1	
pe1	char(1)	pe1	char(1) not null
			1st char of shef physical element
	primary key (pe1)	name	char(20)
			primary key (pe1)

	states_sacsma	statessacsma	
opid	char(8)	opid	char(8) not null
segid	char(8)	segid	char(8) not null
cal_yr	integer	obstime	datetime year to hour not null
mon	integer		
zday	integer		
ztime	integer		

units char(1)  
 uztwd float  
 lztwd float  
 uztwc float  
 uzfwc float  
 lztwc float  
 lzfsc float  
 lzfpcc float  
 adimc float  
 fgix float  
 primary key  
 (opid,segid,cal\_yr,mon,zday,ztime)

units char(1)  
 uztwd float  
 lztwd float  
 uztwc float  
 uzfwc float  
 lztwc float  
 lzfsc float  
 lzfpcc float  
 adimc float  
 fgix float  
 primary key (opid,segid,obstime)

	states_snow17	statesnow17	
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opid char(8)  
 segid char(8)  
 cal\_yr integer  
 mon integer  
 zday integer  
 ztime integer  
 units char(1)  
 swe float  
 cover float  
 maxswe float  
 aeadj float  
 heatdef float  
 tindex float  
 liquid float  
 primary key  
 (opid,segid,cal\_yr,mon,zday,ztime)

opid char(8) not null  
 segid char(8) not null  
 obstime datetime year to hour not null  
  
 units char(1)  
 swe float  
 cover float  
 maxswe float  
 aeadj float  
 heatdef float  
 tindex float  
 liquid float  
 primary key (opid,segid,obstime)

	sws_mail	swsmail	
--	----------	---------	--

id char(9)  
  
 name char(40)  
 address1 char(40)  
 address2 char(35)

id char(9) not null  
  
 name char(40)  
 address1 char(40)  
 address2 char(35)

1 to 10 char recipient  
 identifier  
 1 to 40 char name  
 1 to 40 char street address  
 1 to 35 char street address line  
 2

city char(35)  
state char(10)

zip char(11)  
voice char(12)  
fax char(12)  
active char(1)  
ucpub char(1)

ucsurvey char(1)  
lcpub char(1)

lcsurvey char(1)  
gbpub char(1)

gbsurvey char(1)  
peakpub char(1)  
peaksurvey char(1)

city char(35)  
state char(10)

zip char(11)  
voice char(12)  
fax char(12)  
active char(1)  
ucpub char(1)

ucsurvey char(1)  
lcpub char(1)

lcsurvey char(1)  
gbpub char(1)

gbsurvey char(1)  
peakpub char(1)  
peaksurvey char(1)  
primary key (id)

1 to 35 char city name  
1 to 10 char state (but use 2  
letter abbrev)

1 to 11 char zipcode  
1 to 12 char voice phone #  
1 to 12 char fax phone #  
still active? Y or N  
receives Uppr Colorado  
pub?Y/N

receives Lowr Colorado  
pub?Y/N

receives Great Basin pub?  
Y/N

receives Peak Flow pub? Y/N

	wsh	wshistorical	
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id char(5) not null  
pe1 char(1) not null  
pe2 char(1) not null  
dur char(1) not null

t char(1) not null  
s char(1) not null  
e char(1) not null  
p char(1) not null  
bper integer not null  
eper integer not null  
wyr integer not null  
janmp float  
febmp float  
marmp float  
aprmp float  
maymp float  
junmp float  
julmp float

lid char(8) not null  
pe1 char(1) not null  
pe2 char(1) not null  
dur char(1) not null  
idur small int not null  
t char(1) not null  
s char(1) not null  
e char(1) not null  
p char(1) not null  
bper integer not null  
eper integer not null  
wyr integer not null  
janmp float  
febmp float  
marmp float  
aprmp float  
maymp float  
junmp float  
julmp float

SHEF duration value

augmp float  
 sepmp float  
 octmp float  
 novmp float  
 decmp float  
 janmx float  
 febm float  
 marmx float  
 aprmx float  
 maymx float  
 junmx float  
 julmx float  
 augmx float  
 sepmx float  
 octmx float  
 novmx float  
 decmx float  
 janmn float  
 febm float  
 marmn float  
 aprmn float  
 maymn float  
 junmn float  
 julmn float  
 augmn float  
 sepmn float  
 octmn float  
 novmn float  
 decmn float  
 primary key  
 (id,pe1,pe2,dur,t,s,e,p,bper,eper,wyr)

augmp float  
 sepmp float  
 octmp float  
 novmp float  
 decmp float  
 janmx float  
 febm float  
 marmx float  
 aprmx float  
 maymx float  
 junmx float  
 julmx float  
 augmx float  
 sepmx float  
 octmx float  
 novmx float  
 decmx float  
 janmn float  
 febm float  
 marmn float  
 aprmn float  
 maymn float  
 junmn float  
 julmn float  
 augmn float  
 sepmn float  
 octmn float  
 novmn float  
 decmn float  
 primary key  
 (lid,pe1,pe2,dur,idur,t,s,e,p,bper,eper,wyr)

	wsn	wsequation	
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id char(5) not null  
 pe1 char(1) not null  
 pe2 char(1) not null  
 dur char(1) not null  
  
 t char(1) not null

lid char(8) not null  
 pe1 char(1) not null  
 pe2 char(1) not null  
 dur char(1) not null  
 idur small int not null  
 t char(1) not null

SHEF duration value



s char(1) not null	s char(1) not null
e char(1) not null	e char(1) not null
p char(1) not null	p char(1) not null
bper integer not null	bper integer not null
eper integer not null	eper integer not null
pub1 char(4) not null	pub1 char(4) not null
pub2 char(1) not null	pub2 char(1) not null
cal char(5)	vcal char(5)
dat integer	dat integer
hyd char(3)	hyd char(3)
sse float	sse float
sr2 float	sr2 float
jse float	jse float
jr2 float	jr2 float
prc integer	prc integer
dgf integer	dgf integer
num integer not null	NBR
int float not null	NBR
ytrans char(2)	ytrans char(2)
cse float	cse float
vid1 char(5) not null	vid1 char(5) not null
vid2 - vid15 char(5)	vid2 - vid15 char(5)
vpd1 char(7) not null	vpd1 char(7) not null
vpd2 - vpd15 char(7)	vpd2 - vpd15 char(7)
vbm1 integer not null	vbm1 integer not null
vbm2 - vbm15 integer	vbm2 - vbm15 integer
vem1 integer not null	vem1 integer not null
vem2 - vem15 integer	vem2 - vem15 integer
vcf1 float not null	vcf1 float not null
vcf2 float	vcf2 - vcf15 float
primary key	primary key (lid,pe1,pe2,dur,
(id,pe1,pe2,dur,t,s,e,p,bper,eper,pub1,pub2)	idur,t,s,e,p,bper,eper,pub1,pub2)
)	)

	ws0	wsfcst	
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id char(5) not null	lid char(8) not null
pe1 char(1) not null	pe1 char(1) not null
pe2 char(1) not null	pe2 char(1) not null
dur char(1) not null	dur char(1) not null

t char(1) not null	idur small int not null	SHEF duration value
s char(1) not null	t char(1) not null	
e char(1) not null	s char(1) not null	
p char(1) not null	e char(1) not null	
bper integer not null	p char(1) not null	
eper integer not null	bper integer not null	
fdtday integer not null	eper integer not null	
fdtmon integer not null	fcstdate datetime year to day not null	
fdtyr integer not null		
post char(5)	post char(5)	
mid char(2)	mid char(2)	
cp1 float	cp1 float	
cp2 float	cp2 float	
cmp float	cmp float	
crx float	crx float	
crn float	crn float	
nws float	nws float	
cag float	cag float	
jse float	jse float	
dgf float	dgf float	
cagr float	cagr float	
cagr float	cagr float	
errbounds char(4)	errbounds char(4)	
primary key	primary key	
(id,pe1,pe2,dur,t,s,e,p,bper,eper,fdtmon, fdtday,fdtyr)	(lid,pe1,pe2,dur,idur,t,s,e,p,bper,eper, fcstdate)	

	wsp	wspersstats	
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id char(5) not null	lid char(8) not null	
pe1 char(1) not null	pe1 char(1) not null	
pe2 char(1) not null	pe2 char(1) not null	
dur char(1) not null	dur char(1) not null	
	idur small int not null	SHEF duration value
t char(1) not null	t char(1) not null	
s char(1) not null	s char(1) not null	
e char(1) not null	e char(1) not null	
p char(1) not null	p char(1) not null	
bper integer not null	bper integer not null	

eper integer not null  
 avg25 float  
 med25 float  
 std25 float  
 avg30 float  
 med30 float  
 std30 float  
 avgpor float  
 medpor float  
 stdpor float  
 mx float  
 ymx integer  
 mn float  
 ymn integer  
 primary key  
 (id,pe1,pe2,dur,t,s,e,p,bper,eper)

eper integer not null  
 avg25 float  
 med25 float  
 std25 float  
 avg30 float  
 med30 float  
 std30 float  
 avgpor float  
 medpor float  
 stdpor float  
 mx float  
 ymx integer  
 mn float  
 ymn integer  
 primary key  
 (lid,pe1,pe2,dur,idur,t,s,e,p,bper,eper)

		country	
		country char(20) not null	country name
		countryfips char(2) not null	country fips code

		rivercrit	
		lid char(8) not null	
		pe1 char(1) not null	
		pe2 char(1) not null	
		vdttime datetime year to day not null	
		lowscreen float	lowest allowed value
		sigrate float	significant rate of change
		screenrate float	highest allowed rate of change
		fis float	forecast issuance stage
		action float	action stage
		alert float	alert stage
		bank float	bankfull stage
		flood float	flood stage
		modflood float	moderate flood stage
		majflood float	major flood stage
		record float	flood of record

highscreen float  
damscreen float

highest allowed value  
highest allowed value in  
dambreak situation

lowscreenf float  
sigratef float  
screenratef float  
fisf float  
actionf float  
alertf float  
bankf float  
floodf float  
modfloodf float  
majfloodf float  
recordf float  
highscreenf float  
damscreenf float  
sigratet float

time for significant rate of  
change  
time for screen rate of change

screenratet float  
lowscreenq char(1)  
sigrateq char(1)  
screenrateq char(1)  
fisq char(1)  
actionq char(1)  
alertq char(1)  
bankq char(1)  
floodq char(1)  
modfloodq char(1)  
majfloodq char(1)  
recordq char(1)  
highscreenq char(1)  
damscreenq char(1)  
primary key (lid,pe1,pe2,vdtime)

		slopeprofile	
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lid char(8) not null  
marker char(1) not null  
begdate datetime year to day not null  
enddate datetime year to day

distance01- distance30 smallfloat  
elevation01 - elevation30 smallfloat  
primary key (lid, marker, begdate)

		slopelookup	
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lid char(8) not null  
primary key(lid)

valid location for slope profile

		vlocation	
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lid char(8) not null  
county char(20) not null  
hsa char(3) not null  
rfc char(5) not null  
state char(2) not null  
wfo char(3) not null  
elev float  
lrevise date  
name char(25)  
rb char(30)  
region char(20)  
primary key (lid)

		vrivergaugeloc	
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lid char(8) not null  
bankfull\_stg float  
warn\_stg float  
action\_stg float  
fld\_stg float  
mod\_fld\_stg float  
maj\_fld\_stg float  
rec\_fld\_stg float  
bankfull\_flow float  
warn\_flow float  
action\_flow float  
fld\_flow float  
mod\_fld\_flow float  
maj\_fld\_flow float

rec\_fld\_flow float  
 flow\_size char(6)  
 sensor\_1 char(2)  
 sensor\_2 char(2)  
 sensor\_3 char(2)  
 pe\_1 char(2)  
 pe\_2 char(2)  
 pe\_3 char(2)  
 pe\_4 char(2)  
 primary key (lid)

		vaddadjust	
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lid char(8) not null  
 pe1 char(1) not null  
 pe2 char(1) not null  
 dur char(1) not null  
 idur smallint not null  
 t char(1) not null  
 s char(1) not null  
 e char(1) not null  
 adjustment float  
 primary key(lid,pe1,pe2,dur,idur,t,s,e)

	mod_tsadd	modtsadd	
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<p>           id1 char(8)            id2 char(8)            datatype char(5)            timeint integer            opertype char(8) default 'ALL'            operid char(8) default 'ALL'            sdate datetime year to hour            edate datetime year to hour            vdate datetime year to hour            rdate datetime year to hour            value float not null            primary key            (id1,id2,datatype,timeint,opertype,operid,s            date,edate,vdate)         </p>	<p>           id1 char(8)            id2 char(8)            datatype char(5)            timeint integer            opertype char(8) default 'ALL'            operid char(8) default 'ALL'            sdate datetime year to hour            edate datetime year to hour            vdate datetime year to hour            rdate datetime year to hour            value float not null            primary key            (id1,id2,datatype,timeint,opertype,operid,sda            te,edate,vdate)         </p>
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	mod_tsmult	modtsmult	
	id1 char(8) id2 char(8) datatype char(5) timeint integer opertype char(8) default 'ALL' operid char(8) default 'ALL' sdate datetime year to hour edate datetime year to hour vdate datetime year to hour rdate datetime year to hour value float not null primary key (id1,id2,datatype,timeint,opertype,operid,sdate,edate,vdate)	id1 char(8) id2 char(8) datatype char(5) timeint integer opertype char(8) default 'ALL' operid char(8) default 'ALL' sdate datetime year to hour edate datetime year to hour vdate datetime year to hour rdate datetime year to hour value float not null primary key (id1,id2,datatype,timeint,opertype,operid,sdate,edate,vdate)	

	mod_switchts	modswitchts	
	id1 char(8) id2 char(8) default 'NONE' s_or_f char(1) default 'S' operid char(8) default 'ALL' keyword char(5) default 'PCPN' sdate datetime year to hour edate datetime year to hour vdate datetime year to hour rdate datetime year to hour primary key (id1,operid,keyword,sdate,edate,vdate)	id1 char(8) id2 char(8) default 'NONE' s_or_f char(1) default 'S' operid char(8) default 'ALL' keyword char(5) default 'PCPN' sdate datetime year to hour edate datetime year to hour vdate datetime year to hour rdate datetime year to hour primary key (id1,operid,keyword,sdate,edate,vdate)	

	mod_xinco	modxinco	
	id1 char(8) id2 char(8) default 'NONE' s_or_f char(1) default 'S' operid char(8) default 'ALL' keyword char(6) default 'WUC' subarea integer	id1 char(8) id2 char(8) default 'NONE' s_or_f char(1) default 'S' operid char(8) default 'ALL' keyword char(6) default 'WUC' subarea integer	

sdate datetime year to hour  
 rdate datetime year to hour  
 value float not null  
 primary key  
 (id1,operid,keyword,subarea,sdate)

sdate datetime year to hour  
 rdate datetime year to hour  
 value float not null  
 primary key  
 (id1,operid,keyword,subarea,sdate)

	mod_ssarreg	modssarreg	
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id1 char(8)  
 id2 char(8) default 'DS'  
 operid char(8) default 'ALL'  
 keyword char(6) default 'SETQ'  
 sdate datetime year to hour  
 vdate datetime year to hour  
 rdate datetime year to hour  
 slot integer  
 timeint integer  
 no\_timeperiods integer  
 value float not null  
 primary key  
 (id1,id2,operid,keyword,sdate,slot)

id1 char(8)  
 id2 char(8) default 'DS'  
 operid char(8) default 'ALL'  
 keyword char(6) default 'SETQ'  
 sdate datetime year to hour  
 vdate datetime year to hour  
 rdate datetime year to hour  
 slot integer  
 timeint integer  
 no\_timeperiods integer  
 value float not null  
 primary key  
 (id1,id2,operid,keyword,sdate,slot)

	mod_bublshft	modbublshft	
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id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 stage float  
 flow float  
 lwrstage float  
 uprstage float  
 primary key (id1,operid,sdate,edate)

id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 stage float  
 flow float  
 lwrstage float  
 uprstage float  
 primary key (id1,operid,sdate,edate)

	mod_qcshift	modqcshift	
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id1 char(8)  
 id2 char(8) default 'NONE'

id1 char(8)  
 id2 char(8) default 'NONE'



operid char(8) default 'ALL'  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 stage float  
 flow float  
 primary key (id1,operid,sdate,edate)

operid char(8) default 'ALL'  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 stage float  
 flow float  
 primary key (id1,operid,sdate,edate)

	mod_qpshift	modqpshift	
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id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 stage float  
 flow float  
 primary key (id1,operid,sdate,edate)

id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 edate datetime year to hour  
 rdate datetime year to hour  
 stage float  
 flow float  
 primary key (id1,operid,sdate,edate)

	mod_rochng	modrochng	
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id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 vdate datetime year to hour  
 rdate datetime year to hour  
 slot integer  
 no\_timeperiods integer  
 value float  
 primary key (id1,operid,sdate,vdate,slot)

id1 char(8)  
 id2 char(8) default 'NONE'  
 operid char(8) default 'ALL'  
 sdate datetime year to hour  
 vdate datetime year to hour  
 rdate datetime year to hour  
 slot integer  
 no\_timeperiods integer  
 value float  
 primary key (id1,operid,sdate,vdate,slot)

		vfypairs	
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lid char(8) not null  
 pe1 char(1) not null  
 pe2 char(1) not null  
 dur char(1) not null  
 idur smallint not null

fcst\_t char(1) not null  
 fcst\_s char(1) not null  
 e char(1) not null  
 p char(1) not null  
 validtime datetime year to second not null  
 basistime datetime year to second not null  
 obs\_t char(1) not null  
 obs\_s char(1) not null  
 obstime datetime year to second not null  
 fcstvalue float  
 obsvalue float  
 quality\_code integer  
 primary key  
 (lid,pe1,pe2,dur,idur,fcst\_t,fcst\_s,e,p,  
 validtime, basistime)

Reservoir		reservoir	
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lid char(8) not null  
 sbd date not null  
 sed date  
 name char(20)  
 type char(10) not null  
 owner char(10) not null  
 deadpool float  
 conserpool float  
 floodpool float  
 spillway float  
 sill float  
 top float  
 surchg float  
 elev float  
 gates integer  
 impounded date  
 uses char(8)  
 primary key (lid,sbd)

		peoospe	
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lid char(8) not null

pe1	char(1)	not null
pe2	char(1)	not null
dur	char(1)	not null
idur	smallint	not null
t	char(1)	not null
s	char(1)	not null
e	char(1)	not null
p	char(1)	not null

obstime datetime year to second not null  
value float  
shef\_qualifier\_code char(1)  
quality\_code integer  
revision char(1)  
product\_id char(10)  
producttime datetime year to second  
postingtime datetime year to second  
primary key (lid,pe1,pe2,dur,idur,t,s,e,p,  
obstime)