

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Watershed Management

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TITLE: Locational Data Policy for Water Allocation Program and the Water Use Data System

EFFECTIVE DATE: November 4, 2006

AUTHORITY: Water Rights Law of 1939; Water Resources Planning Law of 2002; eFACTS locational data standards

POLICY: Locational data generated by Water Use Planning Program staff or locational data submitted for the Water Allocation Program, Act 220 Registration or Water Use Data System (WUDS) must meet the Department of Environmental Protection's (DEP) policy goal of a 10-meter/32.8 feet or better level of accuracy.

PURPOSE: The purpose of this policy is to standardize the minimum acceptable level of accuracy for locational data for water resources facilities.

APPLICABILITY: Applies to all locational data entered into eFACTS directly or through the WUDS interface for primary or subfacility locational data contained on Water Allocation Permit applications or Act 220 Registrations or other Division of Water Use Planning forms that collect locational data.

DISCLAIMER: The policies and procedures outlined in this guidance are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the rules in these policies that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 11 pages

LOCATION: Volume 15, Tab 9

Introduction

DEP has developed a policy establishing standards and requirements for collecting and documenting latitude and longitude coordinates and elevation data for facilities, sites, monitoring points, and other DEP regulated entities or locations (refer to the Locational Data Policy, Document ID: 013-0830-003 available on DEP's Web site at www.depweb.state.pa.us). Each DEP program is required to establish program-specific guidance necessary to facilitate the collection and distribution of this information. While the value of obtaining locational coordinates will vary according to individual program requirements, the method, accuracy and description of the coordinates is required to be documented. The Division of Water Use Planning has established the following procedure for obtaining the required locational information. The general locational procedures have been used by the Division since 1981. This technical guidance combines the general procedures with the advances in mapping technologies.

Locational Data Collection

Locational data generated by Water Use Planning Program staff or locational data submitted to the Water Allocation Program or an Act 220 Registration must meet DEP's policy goal of a 10-meter/32.8 feet or better level of accuracy.

All program forms requiring latitude and longitude data will be modified to include the method used to identify the location, the location reference point, horizontal reference datum code and description (if applicable), and the level of accuracy achieved (metadata).

The use of Global Positioning Systems (GPS) is the preferred method to obtain latitude and longitude to accurately locate the permit areas, facilities, and sub-facilities. Please note that the use of recreational GPS units do not meet this level of accuracy unless they employ Wide Area Augmentation Systems (WAAS) technology. However, if GPS technology is not available, the use of manual methods (i.e. mapping software or measurement of latitude and longitude coordinates on USGS 7.5 topographic maps) is acceptable. Manual methods should be used only when absolutely necessary and should ultimately be eliminated as a method for obtaining locational data.

The locational data for a primary or subfacility must be obtained for the locations identified in Appendix A. Appendix A contains a listing of all reference points collected for either a water allocation permit application or an Act 220 registration or primary or subfacility information collected for the Department's Water Use Data System (WUDS) and eFACTS.

Documentation

To implement this policy, managers must direct staff, to collect and document, at a minimum, the following required information. The information noted with a circled number corresponds to the input screen shown below.

General		Locational		Streams	
USGS	<input type="text"/>	<input type="button" value="↓"/>	Map Section	<input type="text"/>	
Latitude	<input type="text"/>	<input type="button" value="1"/>	South Offset	<input type="text"/>	Ft
Longitude	<input type="text"/>	<input type="button" value="2"/>	West Offset	<input type="text"/>	Ft
Hor Accuracy	<input type="text"/>	<input type="button" value="↓"/>	Hor Ref Datum	<input type="text"/>	<input type="button" value="4"/>
Hor Coll Meth	<input type="text"/>	<input type="button" value="3"/>	Reference Point	<input type="text"/>	<input type="button" value="5"/>
Altitude	<input type="text"/>	<input type="button" value="↓"/>	Altitude Datum	<input type="text"/>	<input type="button" value="↓"/>
Ver Loc Datum	<input type="text"/>	<input type="button" value="↓"/>	Geometric Type	<input type="text"/>	<input type="button" value="6"/>
Collection Date	<input type="text"/>	<input type="button" value="7"/>	Source Map Scale Number	<input type="text"/>	<input type="button" value="8"/>
			To	<input type="text"/>	<input type="button" value="↓"/>

1. Latitude Measure – The measure of the angular distance on a parallel north or south of the equator. **1**
2. Longitude Measure – The measure of the angular distance on a meridian east or west of the prime meridian. **2**
3. Horizontal Accuracy Measure – The measure of the accuracy in feet of the latitude and longitude coordinates. (Not required at this time)

The format for representing this information is:

+ DD MM SS.SSSS (latitude)
- DDD MM SS.SSSS (longitude)

Where:

- Latitude is always presented before longitude
- DD represents degrees of latitude; a two-digit decimal number ranging from 00 through 90
- DDD represents degrees of longitude; a three-digit decimal number ranging from 000 through 180
- MM represents minutes of latitude or longitude; a two-digit decimal number ranging from 00 through 60
- SS.SSSS represents seconds of latitude or longitude, with a format allowing possible precision to the ten-thousandths of seconds
- + specifies latitudes north of the equator and longitudes east of the prime meridian
- specifies latitudes south of the equator and longitudes west of the prime meridian

4. Horizontal Collection Method: **3**
 - Global Positioning System Differential (GPSDF)
 - Raindrop Tool GIS Application (RNDRP)
 - EMapPA GIS Application (EMAP)
 - EFACTS Spatial GIS Application (EFACT) – defunct
 - Map Interpolation of USGS 7.5 minute Topographic Map (ITPMP)
5. Horizontal Reference Datum – the name that describes the reference datum used in determining lat/long coordinates. **4**

WGS84 – World Geodetic System of 1984 (recommended) (formerly GEO84)
NAD83 (Conus) – North American Datum of 1983
NAD27 – North American Datum of 1927
6. Vertical Reference Datum/Altitude Datum Name – The name that describes the reference datum used in determining elevation. (not required at this time)
 - NAV88 – North American Vertical Datum of 1988
 - NGV29 – National Geodetic Vertical Datum of 1929

7. Reference point – A reference point describes either a primary or sub facility for which the user is collecting locational data. Appendix A contains a list of primary and subfacilities for which locational information is collected for WUDS. WUDS captures detailed information about various facilities. There are fewer eFACTS kind and type records than WUDS. For instance eFACTS only contains classification of SWW and GWW. In WUDS an eFACTS GWW is further classified according to its facility designation such as well, spring, quarry etc. **5**
8. Geometric Type – Point (default) – The point referenced by geographic coordinates **6**
9. Date of collection – This represents the date the locational information was recorded or determined. The date must be recorded for all locational determinations whether GPS or GIS. **7**
10. Primary or Subfacility name
11. Primary or Subfacility eFACTS ID – if known
12. Primary or Subfacility WUDS ID – if known.
13. Source Map Scale Number – The horizontal map scale of the paper if using Horizontal Collection Method (INTMP) **8**

Online Resources

User Manuals for eMapPA and the Raindrop Tool are incorporated by reference and available at:

EmapPA

http://epencogdc04/emappa/html/user_guide/emap_pa_UsersGuide_final.doc

Raindrop Tool

<http://intradep/bwm/The Raindrop Tool User Manual.pdf>

Appendix A

Type	eFACTS Kind/Type	Facility Type Description	Facility Designation Description	Metadata Code	Description
PF	WP	Water Purveyor	Unidentified Facility Type	UNK	Unknown
PF	WP	Water Purveyor	Authority	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Auth Leases Back To Municipality	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Municipal	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Private Investor Owned (PUC)	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Association - Co-Op	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Mobile Home Park	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Authority - (Purchases)	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Auth Leases Bk To Mun (Purchases)	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Municipal - (Purchases)	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Institutional Military	CTROD	Centroid of facility
PF	WP	Water Purveyor	Institutional Health	CTROD	Centroid of facility

Type	eFACTS Kind/Type	Facility Type Description	Facility Designation Description	Metadata Code	Description
PF	WP	Water Purveyor	Institutional Education	CTROD	Centroid of facility
PF	WP	Water Purveyor	Institutional Correctional	CTROD	Centroid of facility
PF	WP	Water Purveyor	Institutional Recreational	CTROD	Centroid of facility
PF	WP	Water Purveyor	Priv Investr Owned-(Purchases)	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Association (Purchases)	CTROD	Centroid of primary municipality service area
PF	WP	Water Purveyor	Apartments	CTROD	Centroid of facility
PF	WP	Water Purveyor	Bottled Water Plant	CTROD	Centroid of facility
PF	MU	Mineral Use	Unidentified Facility Type	UNK	Unknown
PF	MU	Mineral Use	Quarry	CTROD	Centroid of facility
PF	MU	Mineral Use	Deep Mine	ENTPE	Entrance to mine
PF	MU	Mineral Use	Surface Mine	CTROD	Centroid of facility
PF	MU	Mineral Use	Coal Preparation Plant	CNTER	Center of facility
PF	MU	Mineral Use	Sand And Gravel Wash	CNTER	Center of sand and gravel wash

Type	eFACTS Kind/Type	Facility Type Description	Facility Designation Description	Metadata Code	Description
PF	MU	Mineral Use	Mineral Use Facility	CNTER	Center of facility
PF	MU	Mineral Use	Mineral Mill	CNTER	Center of facility
PF	IU	Industrial Use	Unidentified Facility Type	UNK	Unknown
PF	IU	Industrial Use	Manufacture Facility	CNTER	Center of facility
PF	AU	Agricultural Use	Unidentified Facility Type	UNK	Unknown
PF	AU	Agricultural Use	Livestock Farm	CNTER	Center of primary feeding area
PF	AU	Agricultural Use	Dairy Farm	CNTER	Center of milk house
PF	AU	Agricultural Use	Orchard	CTROD	Centroid of structures used for business or storage
PF	AU	Agricultural Use	Truck Farm	CTROD	Centroid of structures used for business or storage
PF	AU	Agricultural Use	Nursery	CTROD	Centroid of structures used for business or storage
PF	AU	Agricultural Use	Aquaculture	CTROD	Centroid of structures used for business or storage
PF	CU	Commercial Use	Unidentified Facility Type	UNK	Unknown
PF	CU	Commercial Use	Commercial Facility	CNTER	Center of facility

Type	eFACTS Kind/Type	Facility Type Description	Facility Designation Description	Metadata Code	Description
PF	CU	Commercial Use	Golf Course	CNTAR	Center of land area
PF	CU	Commercial Use	Ski Resort	CNTAR	Center of land area
PF	EU	Electric Use	Unidentified Facility Type	CENTER	Unknown
PF	EU	Electric Use	Fossil Fuel Electric Generating Unit	CENTER	Center of generating unit
PF	EU	Electric Use	Hydroelectric Generating Unit	CENTER	Center of generating unit
PF	EU	Electric Use	Nuclear Electric Generating Unit	CENTER	Center of generating unit
PF	EU	Electric Use	Pumped Storage Generating Unit	CENTER	Center of generating unit
PF	ST	Sewage Treatment	Sewage Treatment Plant	CENTER	Center of facility
PF	ST	Sewage Treatment	Instream Discharge	H2OPI	Center of discharge pipe
PF	ST	Sewage Treatment	Collection System	CTROD	Centroid of primary municipality service area
SF	SWW	Surface Water Withdrawal	Unidentified Facility Type	UNK	Unknown
SF	SWW	Surface Water Withdrawal	Instream Diversion-River, Stream, Creek Intake	INPIP	Location where water enters intake on shore
SF	SWW	Surface Water Withdrawal	Reservoir Intake From Dam	INPIP	Location where water enters intake on shore or dam

Type	eFACTS Kind/Type	Facility Type Description	Facility Designation Description	Metadata Code	Description
SF	SWW	Surface Water Withdrawal	Natural Lake	INPIP	Location of intake pipe from lake
SF	SWW	Surface Water Withdrawal	Pond	INPIP	Location of intake pipe from pond
SF	SWW	Surface Water Withdrawal	Riverwell, Ranney Collector	H2OWL	Wellhead or collector center
SF	WA	Water Allocation	Unidentified Facility Type	UNK	Unknown
SF	WA	Water Allocation	Main Water Allocation Permit	WAPPS	Location of primary source based on average daily withdrawal under permit
SF	WA	Water Allocation	Subsidiary Water Allocation Permit	WAPPS	Location of primary meter pit or valve between public water supply systems
SF	GWW	Ground Water Withdrawal	Unidentified Facility Type	UNK	Unknown
SF	GWW	Ground Water Withdrawal	Well	H2OWL	Wellhead
SF	GWW	Ground Water Withdrawal	Spring	SPRNG	First occurrence at surface
SF	GWW	Ground Water Withdrawal	Quarry	INPIP	Location of intake pipe from quarry
SF	GWW	Ground Water Withdrawal	Infiltration Gallery	INPIP	Location of center of gallery
SF	GWW	Ground Water Withdrawal	Deep Mine	INPIP	Location of intake pipe from deep mine
SF	GWW	Ground Water Withdrawal	Surface Mine	INPIP	Location of intake pipe

Type	eFACTS Kind/Type	Facility Type Description	Facility Designation Description	Metadata Code	Description
SF	STR	Storage	Unidentified Facility Type	UNK	Unknown
SF	STR	Storage	Quarry Storage	CTROD	Centroid of surface area of quarry
SF	STR	Storage	Standpipe	STANK	Center of standpipe
SF	STR	Storage	Open Offstream Reservoir	INPIP	Location of intake pipe
SF	STR	Storage	Closed Offstream Reservoir	INPIP	Location of intake pipe
SF	STR	Storage	Instream Reservoir	CENTER	Center of breast of dam
SF	STR	Storage	Hydroelectric Dam	CENTER	Center of breast of dam
SF	STR	Storage	Natural Lake	DISPT	Primary discharge point
SF	STR	Storage	Pond	DISPT	Primary discharge point
SF	STR	Storage	Tank	STANK	Center of tank
SF	STR	Storage	Silt Dam	CENTER	Center of breast of dam
SF	STR	Storage	Hydroelectric Pumped Storage	H2OPI	Location of penstock
SF	DIS	Discharge	Unidentified Facility Type	UNK	Unknown

Type	eFACTS Kind/Type	Facility Type Description	Facility Designation Description	Metadata Code	Description
SF	DIS	Discharge	Sewage Treatment Plant	H2OPI	Location of discharge point
SF	DIS	Discharge	Instream Discharge	H2OPI	Location of discharge pipe
SF	DIS	Discharge	Spray Irrigation Discharge	CNTER	Center of discharge area
SF	DIS	Discharge	Groundwater Recharge	CNTER	Center of recharge well head
SF	DIS	Discharge	On-Lot Septic	CTROD	Centroid of drain field
SF	INTC	Interconnection	Unidentified Facility Type	INTC	Location of primary meter pit or valve between public water supply systems
SF	INTC	Interconnection	Buying Interconnection	INTC	Location of primary meter pit or valve between public water supply systems
SF	INTC	Interconnection	Selling Interconnection	INTC	Location of primary meter pit or valve between public water supply systems
SF	INTC	Interconnection	Bi-directional Interconnection	INTC	Location of primary meter pit or valve between public water supply systems