



UNITED STATES ENVIRONMENTAL PROTECTION  
REGION IV  
345 COURTLAND STREET. N.E.  
ATLANTA. GEORGIA 30365

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NAS PENSACOLA  
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MAY 2 1994

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Commanding Officer  
Attn: Mr. Bill Hill - Code 1851  
Southern Division  
NAVFACENGCOM  
P.O. Box 190010  
North Charleston, South Carolina 29419-9010

SUBJ: Revised Draft Comprehensive Sampling and Analysis Plan  
NAS Pensacola, Florida; EPA Site ID No.: FL 9170024567

Dear Mr. Hill:

The Environmental Protection Agency (EPA) has completed its review of the Navy's Revised Draft Comprehensive Sampling and Analysis Plan (CSAP), which was received in this office in December 1993. Our comments are enclosed. EPA will consider the CSAP for approval upon receipt of a revised version of this document which adequately addresses our enclosed comments.

As mentioned in EPA's review of the initial draft of this document, the CSAP is a critical component of all RI/FS Work Plans. At present, all RI/FS Work Plans, most of which have been conditionally approved, contain numerous references to the previously-submitted, unacceptable Generic Quality Assurance Project Plan (GQAPP). As stated in correspondence dated June 1993 from EPA to the Navy, all final site-specific and generic SAPs will supersede the GQAPP. Therefore, final EPA approval of all RI/FS Work Plans is dependent upon EPA acceptance of the CSAP. This approval will provide the Navy with written assurance that the work being conducted is satisfactory for RI/FS purposes.

In order to facilitate rapid finalization of the CSAP, please submit the revised CSAP to this office within thirty (30) calendar days of your receipt of this letter.

Sincerely,

Allison W. Drew, RPM  
Department of Defense Remedial Section  
Federal Facilities Branch

Enclosure

TECHNICAL REVIEW AND COMMENTS  
COMPREHENSIVE SAMPLING AND ANALYSIS PLAN  
NAVAL AIR STATION (NAS) PENSACOLA  
PENSACOLA, FLORIDA

1. Pages 3-1 through 3-3, Section 3.1:

As agreed to at the March 29-31, 1994 Partnering Meeting, the well inventory should be expanded to include the following information for each well: a list of the parameters for which reliable analytical results can be obtained, given the construction, condition, etc. of the well.

2. Page 5-1, Section 5.0:

This section should be revised to reflect the decisions made by the Parties at recent Partnering Meetings to utilize temporary ground water sampling methods at some sites. EPA also continues to encourage the Navy to use temporary ground water sampling methods to delineate ground water contaminant plumes at additional sites where the delineation process could prove to be time-consuming and costly. Obtaining non-turbid, representative ground water samples from temporary wells may be more difficult. However, as stated in EPA's initial comment on this subject, these problems can be largely remedied through the use of appropriate purging techniques and innovative well construction procedures, such as the one presented by EPA at the March 29-31, 1994 Partnering Meeting.

3. Page 8-1, Section 8.0:

A. For clarification purposes, this introductory section should clearly state that: (i) an ecological assessment of some type will be performed for every RI/FS site which is identified at NAS Pensacola (including all terrestrial sites), and (ii) only those portions of Bayou Grande, NASP Wetlands and Pensacola Bay which have the potential to be impacted by an identified RI site shall be investigated during the subject ecological assessments. Please see comment 19B from EPA's initial review of this document for further clarification.

B. The text should briefly explain why "Wetlands are given high priority when evaluating ecological effects at each site."

C. "In these cases, the assessment procedure is modified for upland areas only." Section 8 fails to specify exactly which investigatory steps will be performed to complete an ecological assessment for the terrestrial sites (i.e. sites 1-39). The CSAP text must clearly identify the tasks which will be completed in order to achieve this goal.

4. Page 8-3, Paragraph 4:

It is assumed that much more detailed information on reference samples (i.e. locations, number, types, will be provided in the

RI/FS Work Plans and/or SAPs for these OUs.

5. Page 8-4, Section 8.1.1:

"This-section pertains only to those sites having associated wetlands." Presumably "sites" refers to the terrestrial sites at NASP. Since the driving force behind these wetlands investigations is the terrestrial sites, the goal of the wetlands investigation could be more clearly stated as follows: "This section pertains only to those wetlands which have potentially been impacted by one of the terrestrial sites at NASP which have been identified as requiring an RI/FS."

6. Page 8-5, Section 8.1.3:

"However, it is important to plan the sampling strategy during Phase I." EPA continues to question the feasibility of submitting a meaningful site-specific SAP for OUs 40-42 prior to completing a Phase I investigation for these sites, since the purpose of the SAP is to provide a sampling strategy. Much of the historical, terrestrial site and basic parameter information which will be compiled during Phase I can best be described as "scoping" material (i.e. material to be used in designing the actual sampling plans). It would therefore seem more appropriate to submit the site-specific SAP for OUs 40-42 upon the completion of Phase I. This would reduce the number of documents to be prepared and reviewed by the Parties (i.e. submit the site-specific SAP in place of the SAP and a technical memorandum). Finally, it is unclear what additional information the Navy could include in a site-specific SAP at this time which is not already presented in the RI/FS Work Plans for OUs 40-42.

7. Page 8-5, Section 8.1.4:

"It is possible at any given site Phase I will not need to be completed in its entirety." Does the word "site" here refer to a portion of one of the water bodies being investigated as OUs 40-423 Also, given this approach, it would appear that the universe of sites to be investigated as a part of OUs 40-42 will not be established until Phase I is completed. Again, EPA recommends delaying the preparation of site-specific SAPs until after the completion of Phase I.

8. Page 8-6, Section 8.2:

Please provide assurance in the text that the minimum number of sampling techniques possible will be utilized in sampling any one water body. This should ensure comparability of results.

9. Pages 8-7 through 8-8, Section 8.2.3:

Clarify that toxicity testing of reference area samples will be done at the same time as testing of samples from the corresponding areas of concern in order to lessen the potential for variability due to test conditions. (see comment 31A. from previous CSAP review)

10. Page 8-7, Section 8.2.1:  
Specify that contaminant delineation, as needed, will also be completed during Phase IIA.

11. Page 8-7, Sections 8.2.2 and 8.2.3:

A. Since the testing to be performed during Phases IIB and III will both be used to determine the effects of contaminants on organisms and will be performed only on an as-needed basis, it may be more appropriate to include all of these activities under Phase III. Also, specify that other types of testing, such as tissue analysis and bioaccumulation studies, may be performed during this portion of the investigation as appropriate.

B. As has been presented at previous RPM/Partnering Meetings, a great deal of information on toxicity and species diversity has been collected, and is continuing to be collected, for the NAS Pensacola area. All such information should be located and identified during Phase I. Any information which a group is continuing to compile should also be identified, and the time-frame for its release/availability provided. All such information should be presented in the document which presents the Phase I results. In general, Phase I should be regarded as an information-gathering phase, during which information on all known sites at NASP (including terrestrial) which could facilitate the investigations for OUs 40-42 is compiled and evaluated.

12. Page 8-10, Section 8.5:

EPA encourages the Navy to familiarize themselves with the implications of identifying any portion of the base as a wetland. State natural resource trustees and NOAA representatives may be consulted to determine what regulatory requirements (e.g. future land use restrictions) may apply to such areas.

13. Page 8-13, Section 8.5.4:

"...much of the base has been recently disturbed by human activities." The RI investigation for OU 41: NASP Wetlands should include only those wetlands which (i) are presently functioning as wetlands and (ii) have potentially been impacted by an identified terrestrial site. While wetland damage related to other factors (i.e. land development, construction) is a concern, assessment and remediation of such damage does not fall within the scope of this RI investigation. The Navy is encouraged to consult with the appropriate natural resource trustees on all such non-RI concerns.

14. Page 8-15, Section 8.6.1:

It is EPA's recollection that the Parties agreed to perform a less rigorous, more qualitative assessment of sediment grain size and TOC for the wetlands. Phase I grid sampling was to be performed only for Pensacola Bay and Bayou Grande. Please

recheck meeting minutes and revise the text as needed.

15. Page 8-16, Section 8.6.3:

Please provide clear definitions of the terms "sampling zone" and "sampling location" as they are used in this section. Also, will any replicate samples be collected?

16. Page 8-18, Paragraph 3:

"The samples will be sent to a laboratory for taxonomic identification." Add the words "and enumeration" to this sentence.

17. Page 13-1, Section 13.0:

As discussed at the March 29-31, 1994 Partnering Meeting, the Navy should consult with the district office of FDEP to ensure development of an adequate plan for handling and disposing of the IDW generated during these investigations.

18. Page 14-1 through 14-8, Section 14:

The text in this section must be expanded to state that all data collected during these investigations will be managed and submitted in accordance with EPA Region IV's data locational policy, as outlined in Attachment A.

**ATTACHMENT A**

The USEPA Region IV Federal Facilities Branch is utilizing the Interchange File Format (IFF) to electronically receive data generated during Remedial Investigations. The enclosure entitled Interchange File Format for Electronic Data Reports provides instructions and a data dictionary for the IFF format.

All basemaps should be provided in a digitized, ARC/INFO compatible format, which includes the .dxf format. A list of layer names and definitions, and necessary data to allow the basemaps to be projected into the "real world" should also be provided.

The enclosure entitled IFF Field Worksheet may be used to assist DDMT's contractor in recording the appropriate IFF data in the field. It is provided as an assistance to DDMT, and may be used as is, modified, or not utilized at all.

The Department of Defense is working with Region IV on a national level to comply with the requirements of the IFF and the delivery of digitized basemaps. Data generators should contact appropriate internal departments to obtain assistance in complying with EPA's request and to assure that internal compliance regarding electronic data requirements are met.

Questions may also be forwarded to Richard Hammond, FFB Database Manager, at (404) 347-3016.

**INTERCHANGE FILE FORMAT  
FOR  
ELECTRONIC DATA REPORTS**

This document establishes, for EPA Region IV, the required format for electronic reporting of monitoring data.

Data will be transported as a set of four ASCII files:

- STATION.DAT**      Contains basic information about monitoring station location and type.
- WELL.DAT**        Contains detailed information about construction and **characteristics** of groundwater monitoring stations.
- SAMPLE. DAT**     Contains basic information about the collection and **characteristics** of **samples**.
- PARAM. DAT**      Contains measured values and reporting units for **specific parameters**.

The first line of EACH of the four files **MUST** contain the following text starting with position one: 19901001

These files are to be transmitted in **ASCII** format using 5.25 inch flexible disk, nine-track magnetic tape (1600 or 6250 bpi) or, in the future, via **communications** channels yet to be defined. **Hardcopy reporting** requirements will continue as currently required until further notice. Additional files may be defined in the future for non-groundwater station types should the need arise.

Several of these files will contain data that is usually **static** in nature. For example, the basic information contained in **STATION.DAT** will not normally change for any single station; therefore, once the data has been submitted for a particular station, it will not be required to **resubmit** that information. If, however, the station record is updated or corrected, the record would have to be resubmitted. After the initial report then, **STATION.DAT** would be submitted

only when new stations are created, or when an old station record is modified, and need only continue the new or modified record. The same is true of file WELL.DAT. SAMPLE.DAT would, of course, be submitted each time one or more new samples were to be reported, or any sample record required updating. Again, the file need only contain the new or updated records. PARM.DAT is expected to be submitted at each required reporting interval, since it will contain the analytical results needed to determine compliance. It must contain all new results for the reporting interval, and may contain corrections and updates to older records. As may be observed, the format allows for synchronous reporting, provided that no sample may be reported before the station with which it is associated, and no parametric record before its sample record.

For each file described in the appendices, all fields must be reported. The null, or "no data", value for all fields is the pound sign (#), and must appear in the first column position of its field. Field values may be listed on per line in the export file, or multiple values may be reported on a single line, provided that field values are reported in the specified order, and each value is terminated by a comma (,). Lines containing multiple values may not exceed 80 characters in length, including the delimiters.

**DO NOT CREATE LINES LONGER THAN 80 CHARACTERS!  
EVEN THOUGH LONGER RECORDS MAY APPEAR TO LIST  
PROPERLY ON THE SCREEN, LINES LONGER THAN 80  
CHARACTERS WILL NOT BE ACCEPTED BY THE IFF POST  
PROCESSOR!**

Since the comma is used as a delimiter for data values, the values themselves may not contain any comma, even though the value may be a text stream.

Datafile STATION DAT

Field No.	Field Name	Field Description										
1	STATION_KEY	<p>Unique station identifier. Consists of a twenty-seven character ALPHANUMERIC field, left justified, containing:</p> <table border="0"> <tr> <td style="padding-right: 20px;">Column:</td> <td>Description:</td> </tr> <tr> <td>01-12</td> <td>Unique site identifier as assigned by EPA. Must be ALPHANUMERIC.</td> </tr> <tr> <td>13-17</td> <td>Unique rolid waste management unit designator. Must be ALPHANUMERIC.</td> </tr> <tr> <td>18</td> <td> <p>Media status indicator. Must contain one of the following:</p> <ul style="list-style-type: none"> <li>C - Compliance monitoring station</li> <li>B - Baseline monitoring station</li> <li>A - Ambient monitoring station</li> </ul> </td> </tr> <tr> <td>19-27</td> <td> <p>Unique station identifier. Must be ALPHANUMERIC. If this data is to be used with the Region IV Query Menu, the naming convention recommended for stations is as follow. Monitoring wells should contain 'MW, test pits 'TP', bore holes 'BH', surface soils 'SS'.</p> </td> </tr> </table>	Column:	Description:	01-12	Unique site identifier as assigned by EPA. Must be ALPHANUMERIC.	13-17	Unique rolid waste management unit designator. Must be ALPHANUMERIC.	18	<p>Media status indicator. Must contain one of the following:</p> <ul style="list-style-type: none"> <li>C - Compliance monitoring station</li> <li>B - Baseline monitoring station</li> <li>A - Ambient monitoring station</li> </ul>	19-27	<p>Unique station identifier. Must be ALPHANUMERIC. If this data is to be used with the Region IV Query Menu, the naming convention recommended for stations is as follow. Monitoring wells should contain 'MW, test pits 'TP', bore holes 'BH', surface soils 'SS'.</p>
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2	TYPE	Type of monitoring station. Consists of a four character										

ALPHANUMERIC field, left justified, containing one of the following: AIR, SWTR, GWTR, SOIL, SED, and SLDG. The meanings of these abbreviations are as follows:

AIR - N r sampling rtation  
SWTR - Surface water ramplng station

GWTR - groundwater ramplng station

SOIL - Soil ramplng atation

SED - Stream bed sediment

SLDG - Process sludge ramplng

3 **LATITUDE** Geographic position of the station in degrees north of equator. Must be in the format **DDMMSS.xxxx**, where DD represents degrees, MM represents minutes, and SS.xxxx represents recondr, with available precision to four decimal places.

4 **LONGITUDE** Geographic position of the station in degrees west of tho Prime Meridian. Must be in the format **DDMMSS.xxxx**, where DDD represents degrees, MM represents minutes, and SS.xxxx represents seconds, with available precision to four decimal places.

5 **LSDAT** Elevation in feet (MSL) of land rurface at tho location of the monitoring rtation. Must be a DECIMAL " ERICfield with a maximum of twelve characters (including the decimal pint) and may have up to two digits after the decimal point.

6 **RFDAT** Elevation in feet (MSL) of the point from which height above ground, water level and ramplng depth measurements are taken. DECIMAL NUMERIC field with a maximum of twelve characters (including the decimal point) and

may have up to two digits after the decimal point.

7     **CONDT**

Date construction of the station was completed. Eight character integer field consisting of:

<b>COLUMNS</b>	<b>CONTENT</b>
1-4	Year including century, e.g. 1989
5-6	Numeric month
7-8	Numeric day of month

Column numbers are relative to the beginning of the CONDT Field. Each subfield described above must be right justified, and may contain leading zeros.     ::

8     **ACCUR**

Estimated accuracy for the reported latitude and longitude, in meters, DECIMAL NUMERIC field with a maximum of six characters (including the decimal point) and may have up to two digits after the decimal point.

9     **LLMETH**

One character ALPHANUMERIC field which indicates the method used to determine the latitude and longitude. Contains one of the following:

- C - Calculated from map
- D - Digitized from a map
- G - Global Positioning System
- L - Loran-C
- U - unknown
- O - Other method not listed above

10    **OMETH**

Any method for which there is no code. This field consists of 32 character ALPHANUMERIC field, left justified. This field is REQUIRED if "O" is entered in the method field above.

11    **COMMENT**

Any additional information the user

—

feels is necessary, which may not  
be accommodated in a defined field.  
**Must** be ALPHANUMERIC consisting of  
up to 40 characters.

..

Datafile WELL.DAT

<u>FIELD</u>	<u>FIELD</u>	<u>FIELD DESCRIPTION</u>										
1	STATION_KEY	Unique station identifier. Consists of a twenty-seven character ALPHANUMERIC field, left justified, containing:										
		<table border="1"> <thead> <tr> <th><u>COLUMN</u></th> <th><u>DESCRIPTION</u></th> </tr> </thead> <tbody> <tr> <td>01-12</td> <td>Unique site identifier as assigned by EPA. Must be ALPHANUMERIC.</td> </tr> <tr> <td>13-17</td> <td>Unique solid waste management unit derignator. Must be ALPHANUMERIC.</td> </tr> <tr> <td>18</td> <td>Media status indicator. Must contain one of the following:  C - Compliance monitoring station. B - Baseline monitoring station. A - Ambient monitoring station.</td> </tr> <tr> <td>19-27</td> <td>Unique atation identifier. Must be ALPHANUMERIC.</td> </tr> </tbody> </table>	<u>COLUMN</u>	<u>DESCRIPTION</u>	01-12	Unique site identifier as assigned by EPA. Must be ALPHANUMERIC.	13-17	Unique solid waste management unit derignator. Must be ALPHANUMERIC.	18	Media status indicator. Must contain one of the following:  C - Compliance monitoring station. B - Baseline monitoring station. A - Ambient monitoring station.	19-27	Unique atation identifier. Must be ALPHANUMERIC.
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19-27	Unique atation identifier. Must be ALPHANUMERIC.											
2	AQNAM	USGS Aquifer Code for aquifer from which sampler are obtained. ALPHANUMERIC field with up to eight charactera .										
3	TOTDP	Total depth to which tho hole was drilled, bored or dug in feet below land rurface datum. DECIMAL NUMERIC field with a maximum of twelve charactera (including the decimal point) and may have up to two digits after the decimal point.										

4 **DRMTH**

Method by which well was constructed. Must be ALPHANUMERIC, consisting of a single character. The character must be one of the following:

- H - Hollow stem auger
- C - Cable tool
- V - Reverse rotary
- J - Water jet
- S - Solid stem auger
- R - Rotary
- D - Dug
- A - Air percussion
- O - Other

5 **DRFLD**

Fluid used to lubricate cutting tool and/or remove materials from hole. Must be ALPHANUMERIC, consisting of a single character. The character must be one of the following:

- A - Air
- B - Bentonite
- W - Water
- M - Other Mud
- N - None
- O - Other fluid

6 **DVMTB**

Method by which well was developed. Must be ALPHANUMERIC, consisting of a single character. The character must be one of the following:

- A - Air lift pump
- B - Bailed
- C - Compressed air
- J - Jetted
- P - Other pump
- S - surged
- 2 - Other method
- N - None

7 **DVHRS**

Time in hours during which well was developed. Must be INTEGER NUMERIC, consisting of up to 5 digits.

8 **SPLTRT** Any special treatment that was applied during the well development process. Must be ALPHANUMERIC, consisting of a single character, which must be one of the following:

- C - Chemicals
- D - Dry ice
- E - Explosives
- F - Deflocculant
- H - Hydrofracturing
- M - Mechanical
- Z - Other
- N - None

9 **LIFT** Type of lift indicator. Must be ALPHANUMERIC, consisting of a single character. The character must be one of the following:

- A - Air lift
- B - Bucket
- C - Centrifugal pump
- J - Jet pump
- P - Piston pump
- R - Rotary pump
- S - Submersible pump
- T - Turbine
- U - unknown
- Z - Other

10 **NOSEG** Number of bore hole sections. A bore hole section is defined as a length of bore hole of constant diameter. Bore hole sections are designated numerically from top to bottom of bore hole. INTEGER NUMERIC field containing a value of one, two, or three.

11 **SGDIA1** Diameter of first bore hole section, in inches.

12 **SGDIA2** Diameter of second bore hole section, in inches.

13 **SGDIA3** Diameter of third bore hole section, in inches.

Each of the SGDIAX fields is DECIMAL NUMERIC, containing up to twelve character6 (including the decimal point), and may have up to two digits following the decimal point.

- 14 STELV1 The depth to the top of the first bore hole section.
- 15 STELV2 The depth to the top of the second bore hole section.
- 16 STELV3 The depth to the top of the third bore hole section.

Each of the STELVx fields is DECIMAL NUMERIC with a maximum of twelve character8 (including the decimal point), and may have up to two digits after the decimal point. These depths are measured relative to land surface datum.

- 17 SBELV1 The depth to the bottom of the first bore hole section.
- 18 SBELV2 The depth to the bottom of the second bore hole section.
- 19 SBELV3 The depth to the bottom of the third bore hole section.
- 20 NOCAS Number of casing sections. A casing section is defined as a length of casing of constant diameter and uniform material. Casing sections are designated numerically from top to bottom of well. INTEGER NUMERIC field containing a value of one, two, or three.
- 21 TCELV1 The depth to the top of the first section of casing (in feet).
- 22 TCELV2 The depth to the top of the second section of casing (in feet).

- 23 **TCELV3** The depth to the top of the third section of casing (in feet).
- The TCELVx fields are DECIMAL NUMERIC, each with a maximum of twelve characters (including the decimal point) and may have up to two digits after the decimal point. These depths are measured relative to land surface datum.
- 24 **BCELV1** The depth to the bottom of the first section of casing, in feet.
- 2s **BCELV2** The depth to the bottom of the second section of casing, in feet,
- 26 **BCELV3** The depth to the bottom of the third section of casing, in feet.
- The BCELVx fields are DECIMAL NUMERIC, each with a maximum of twelve characters (including the decimal point) and may have up to two digits after the decimal point. These depths are measured relative to land surface datum,
- 27 **CIDIA1** Inside diameter of the first section of casing, in inches.
- 28 **CIDIA2** Inside diameter of the second section of casing, in inches.
- 29 **CIDIA3** Inside diameter of the third section of casing, in inches. The CIDIAx fields are DECIMAL NUMERIC, each with a maximum of twelve characters (including the decimal point) and may have up to two digits after the decimal point.
- 30 **CODIA1** Outside diameter of the first section of casing, in inches.
- 31 **CODIA2** Outside diameter of the second section of casing, in inches.

- 32 **CODIA3** . Outside diameter of the third section of casing, in inches.
- The CODIAx fields are DECIMAL NUMERIC, each with a maximum of twelve characters (including the decimal point) and may have up to two digits after the decimal point.
- 33 **CMATR1** Description or name of casing material from which the first section of casing is made.
- 34 **CMATR2** Description or name of casing material from which the second section of casing is made.
- 3s **CMATR3** Description or name of casing material from which the third section of casing is made.
- The CMATRx fields are ALPHANUMERIC, each with a maximum of eight characters.

**OPEN INTERVAL - Any portion of the well in which the interior of the well is not isolated from the surrounding soil and rock by unbreached casing.**

- 36 **OPTYP** Indicator of the type of opening in the open interval. The field is ALPHANUMERIC, consisting of a single character. The character must be one of the following:
- O - Open end
  - P - Perforated or slotted
  - S - Screened
  - T - Sand point
  - W - Walled
  - X - open hole
  - Z - Other
- 37 **TOELV** The depth to the top of the open interval. The TOELV field is DECIMAL NUMERIC with a maximum of twelve characters (including the

- decimal point) and may have up to two digits after the decimal point. Measured relative to land surface.
- 38 **BOELV** The depth to the bottom of the open interval. The **BOELV** field is **DECIMAL NUMERIC** with a **maximum** of **twelve** characters (including the decimal point) and may have up to two digits after the decimal point. Measured relative to land surface.
- 39 **OMATR** Description or name of material used to screen the open interval. The **OMATR** field is **ALPHANUMERIC** with a **maximum** of eight **characters**.
- 40 **OWIDT** Width or short dimension of slot or mesh of screen material for the open interval, in inches. The **OWIDT** field is **DECIMAL NUMERIC** with up to twelve characters (including the decimal point), and may have up to three digits following the decimal point. - - -
- 41 **OLENG** Length or long dimension of slot or mesh of screen material for the open interval, in inches. The **OLENG** field is **DECIMAL NUMERIC** with up to twelve characters (including the decimal), and may have up to three digits following the decimal point.

**FILTER PACK** - Material placed in the annulus of the well between the bore hole wall and the well screen to prevent formation material from entering through the well screen.

- 42 **FPMTM** Indicator for method of filter pack placement. **Must** be **ALPHANUMERIC** consisting of a **single** character. The character **must** be one of the following:
- A • dropping material down the hole and tamping

- B - dropping material down hollow-stem auger
- T - Tremie pipe
- O - Other

- 43 **FPMAT** Description or name of the material which forms the filter pack. Must be ALPHANUMERIC, consisting of up to eight characters.
- 44 **FPGRN** Grain size of the material which forms the filter pack, in mesh gauge. Must be INTEGER NUMERIC, with up to four characters.
- 45 **TFELV** The depth to the top of the filter pack. The TFELV field is DECIMAL NUMERIC with the maximum of twelve characters (including the decimal point) and may have up to two digits after the decimal point. Measured relative to land surface.
- 46 **BFELV** The depth to the bottom of the filter pack. The BFELV field is DECIMAL NUMERIC with a maximum of twelve characters (including the decimal point) and may have up to two digits after the decimal point. Measured relative to land surface.

**ANNULAR SEALANT** - Material used to seal the space between the bore hole and the casing of the well. The annular sealant is placed directly above the filter pack to prevent the migration of contaminants to the sampling zone from the surface or intermediate zones and prevent cross contamination between strata.

- 47 **SLMTH** Indicator for method of sealant placement. Must be ALPHANUMERIC consisting of a single character. The character must be one of the following:
- A - dropping material down the hole and tamping

B - dropping material down hollow-  
stem auger  
T - tremie pipe  
O - other

48 SLMATR Description or name of the material which forms the seal above the filter pack against entry of surface water. Must be ALPHANUMERIC, consisting of a single character. The character must be one of the following:

B - Bentonite  
C - Clay  
G - Cement  
Z - Other  
N - None

49 TSLELV The depth to the top of the annular seal. The TSLELV field is DECIMAL NUMERIC with a maximum of twelve characters (including the decimal point) and may have up to two digits after the decimal point. Measured relative to land surface.

50 BSLELV The depth to the bottom of the annular seal. The BSLELV field is DECIMAL NUMERIC with a maximum of twelve characters (including the decimal point) and may have up to two digits after the decimal point. Measured relative to land surface.

51 SRFSL Surface seal indicator. Indicates whether or not the upper portion of the bore hole is sealed to prevent inflow of surface water. Single character ALPHANUMERIC, containing "Y" if well is sealed. Otherwise, contains "N".

52 DNGRAD Downgradient indicator. Indicates whether or not the well has been installed hydraulically downgradient of the source of potential groundwater pollution,

and is capable of detecting the migration of contaminants. Single character ALPHANUMERIC containing "Y" if well is downgradient from waste disposal site. Otherwise, contains "N".

- 53 **DRLOG** Drillers log indicator. Indicates availability of drillers log. Single character ALPHANUMERIC, containing "Y" if log is available. Otherwise, contains "N".
- 54 **LTHLG** Lithologic log indicator. Lithologic log shows distribution of lithology with depth in the bore hole. Single character ALPHANUMERIC, containing "Y" if log is available. Otherwise, contains "N".
- 55 **WLUSE** Well use indicator. Must be ALPHANUMERIC, consisting of a single character. The character must be one of the following:
- D - Domestic (private) water supply
  - I - Industrial water supply
  - M - Monitoring well
  - P - Public water supply
  - O - Other
- 56 **COMMENT** Supplemental information as needed. May contain up to 80 ALPHANUMERIC characters.

Datafile **SAMPLE.DAT**

FIELD NO.	FIELD NAME	FIELD DESCRIPTION
1	SAMPLE_KEY	Unique sample identifier. Consists of forty-two character field, left justified, containing:.

**COLUMN DESCRIPTION**

01-12 Unique site identifier as assigned by EPA. **Must be ALPHANUMERIC.**

13-17 Unique solid waste management unit designator. **Must be ALPHANUMERIC.**

18 Media status indicator. **Must**

contain one of the following:

- C - Compliance monitoring station
- B - Baseline monitoring station
- A - Ambient monitoring station

19-27 Unique station identifier. **Must be ALPHANUMERIC.**

28-42 Unique sample identifier. **Must be ALPHANUMERIC.**

2	<b>DELTH</b>	Vertical displacement of sample from the reference elevation (in feet) of the sampling station. For surface water, soils, and groundwater stations, this would be the depth of the sample and for air monitoring stations, the height above ground. <b>Must be DECIMAL NUMERIC consisting of a maximum of six characters (including the decimal) and may have up to two</b>
---	--------------	---

digits after the decimal point.

- 3     **DATE**                   Date of sample collection. Eight character integer field consisting of:

<u>COLUMNS</u>	<u>CONTENT</u>
1-4	Year, including century, e.g. 1989
5-6	Numeric month
7-8	Numeric day of month

Column numbers are relative to the beginning of the DATE field. Each subfield described above **must** be right **justified**, and **may** contain leading zeros.

- 4     **TIME**                   **Time** (in **military** format) of sample collection. **INTEGER NUMERIC** consisting of four characters.

- 5     **SSTAT**                  Station status of condition. Used primarily for groundwater monitoring station.. **ALPHANUMERIC** consisting of one character. The character must be one of the following:

D - Dry  
F - Flowing  
O - Obstructed  
P - Pumping  
W - Destroyed  
S - Surficial inflow  
Z - Other

#### **FIELD MEASUREMENTS**

- 6     **TEMP**                   Sample temperature in degrees Celsius. **DECIMAL NUMERIC** consisting of **six** characters (including the decimal) and **may** have up to two digits after the

decimal point.

- 7    **PH**                    Sample pH in standard units. **DECIMAL NUMERIC** consisting of six characters (including the decimal) and may have one digit after the decimal point.
- 8    **COND**                   Specific Conductance in  $\mu\text{Mhos}$ , **INTEGER NUMERIC** consisting of a maximum of six characters.
- 9    **TURB**                   Turbidity. **INTEGER NUMERIC** consisting of a maximum of eight characters. May be reported in JTU or NTU, as required by program.
- 10   **WLEVEL**                Well water level, or stream gage height, in feet. Measured relative to the reference datum. Item is **DECIMAL NUMERIC** consisting of a maximum of six characters (including the decimal) and may have up to two digits following the decimal point.
- 11   **WINDSP**                Wind speed in km/h, **DECIMAL NUMERIC** consisting of a maximum of six characters (including the decimal), and may have up to two digits after the decimal point.
- 12   **WINDIR**                Wind direction in degrees, **INTEGER NUMERIC** consisting of a maximum of four characters.
- 13   **SAMMETH**                Method used to collect sample, **ALPHANUMERIC** field, left justified, consisting of up to 20 characters.
- 14   **SAMPLER**                Name of agency or organization that collected the sample. Must be **ALPHANUMERIC** consisting of up to 20 characters.
- 15   **COMMENT**                Any additional information the user feels necessary, which may not be accommodated in a defined field.

Must be ALPHANUMERIC consisting of  
up to 40 characters.

Datafile PARM.DAT

FIELD NO.	FIELD NAME	FIELD DESCRIPTION														
1	<u>PARAM_KEY</u>	<p>Unique data record identifier. Consists of fifty-four character field, left justified, containing:</p> <table border="1"> <thead> <tr> <th style="text-align: center;"><u>COLUMN</u></th> <th style="text-align: center;"><u>DESCRIPTION</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">01-12</td> <td>Unique site identifier as assigned by EPA. Must be ALPHANUMERIC .</td> </tr> <tr> <td style="text-align: center;">13-17</td> <td>Unique solid waste management unit designator. Must be ALPHANUMERIC.</td> </tr> <tr> <td style="text-align: center;">18</td> <td> <p>Media status indicator. Must contain one of the following:</p> <ul style="list-style-type: none"> <li>C - Compliance monitoring station</li> <li>B - Baseline monitoring station</li> <li>A - Ambient monitoring station</li> </ul> </td> </tr> <tr> <td style="text-align: center;">19-27</td> <td>Unique station identifier. Must be ALPHANUMERIC .</td> </tr> <tr> <td style="text-align: center;">28-42</td> <td>Unique 8—10 identifier. Must be ALPHANUMERIC.</td> </tr> <tr> <td style="text-align: center;">43-54</td> <td> <p>Parameter identifier. For chemical constituents for which CAS numbers exist, the CAS number will be the identifier. For other constituents, the identifier will be determined on an as-needed basis.</p> </td> </tr> </tbody> </table>	<u>COLUMN</u>	<u>DESCRIPTION</u>	01-12	Unique site identifier as assigned by EPA. Must be ALPHANUMERIC .	13-17	Unique solid waste management unit designator. Must be ALPHANUMERIC.	18	<p>Media status indicator. Must contain one of the following:</p> <ul style="list-style-type: none"> <li>C - Compliance monitoring station</li> <li>B - Baseline monitoring station</li> <li>A - Ambient monitoring station</li> </ul>	19-27	Unique station identifier. Must be ALPHANUMERIC .	28-42	Unique 8—10 identifier. Must be ALPHANUMERIC.	43-54	<p>Parameter identifier. For chemical constituents for which CAS numbers exist, the CAS number will be the identifier. For other constituents, the identifier will be determined on an as-needed basis.</p>
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43-54	<p>Parameter identifier. For chemical constituents for which CAS numbers exist, the CAS number will be the identifier. For other constituents, the identifier will be determined on an as-needed basis.</p>															

55-58 Replicate number.  
Identifies the value as one of two or more analytical results for the ~~same~~ parameter on the same sample. **INTEGER NUMERIC**, right justified, up to four characters. Not used unless replicate results are reported.

2 **QUALF** Qualifier field. **ALPHANUMERIC**, may contain up to four **STORET** qualifier codes .

3 **VALUE** The reported analytical result for the chemical. Must be **DECIMAL NUMERIC**, consisting of up to twelve characters (including the decimal), and may have up to four digits after the decimal point. --

4 **UNITS** The units of measurement in which analytical results are reported. **ALPHANUMERIC**, consisting of up to six characters .

5 **METHOD** The name or code of the analytical method or technique used to obtain the reported value. **ALPHANUMERIC**, containing up to fourteen characters .

6. **DATE** Date of analysis. Eight character **INTEGER** field consisting of:

<u>COLUMN</u>	<u>CONTENT</u>
1-4	Year, including century, e.g. 1989
5-6	Numeric month
7-8	Numeric day of month

Column numbers are relative to the beginning of the **DATE** field. Each subfield described above must be

right justified, and may contain leading zeros.

- 7     **DETLIM**     Detection limit. Must be in same units as the reported value. Must be DECIMAL NUMERIC, consisting of up to twelve characters (including the decimal), and may have up to four digits after the decimal point.
- 8     **LAB**         Name of lab that performed the analysis. ALPHANUMERIC field containing up to 28 characters.
- 9     **COMMENT**     Any additional information the user feels necessary, which may not be accommodated in a defined field. Must be ALPHANUMERIC consisting of up to 40 characters.

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IFF FIELD WORKSHEET

Sample Station Information

- 1. Site Identification No.                    \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ |
- 2. Waste Management Unit                   \_ | \_ | \_ | \_ | \_ |
- 3. Compliance, Baseline, or  
Ambient Monitoring (C, B, or A)       \_ |
- 4. Unique station identifier               \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ |
- 5. Unique sample identification           \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ |
- 6. Type of media collected                \_ | \_ | \_ | \_ |

AIR - Air sample station  
 SWTR - Surface water station  
 GWTR - Ground water station  
 SOIL - Soil sampling station  
 SED - Sediment sampling station  
 SLDG - Process sludge station  
 OTHR - Other type of sample station

- 7. Latitude                                   \_ | \_ | \_ | \_ | \_ | \_ | . \_ | \_ | \_ | \_ |
- 8. Longitude                                \_ | \_ | \_ | \_ | \_ | \_ | . \_ | \_ | \_ | \_ |
- 9. Elevation of land surface              \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | . \_ | \_ |
- 10. Reference elevation (i.e top  
of casing)                                 \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | . \_ | \_ |
- 11. Date of station installation         \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ |  
  y y y y m m d d
- 12. Estimated accuracy of the  
longitude and latitude                    \_ | \_ | \_ | \_ | . \_ | \_ |
- 13. Method used to determine  
longitude or latitude                     \_ |

C - Calculated from map                   L - Loran-C  
 U - Unknown                                D - Digitized from map  
 G - Global positioning system           S - Field survey  
 O - Other method not listed









Sit. ID # \_\_\_\_\_  
 Waste Man Unit \_\_\_\_\_  
 Station ID \_\_\_\_\_  
 Sample ID \_\_\_\_\_

- 71. name of filter pack material                    \_ \_ \_ \_ \_
- 72. Filter **pack** grain size                    \_ \_ \_ \_ \_
- 73. The depth to the top of the filter pack   \_ \_ \_ \_ \_ . \_ \_
- 74. The depth to the bottom of the filter pack   \_ \_ \_ \_ \_
- 75. Method of sealant placement                \_ |

- A - Dropping material **down** the hole
- B - Dropping material through hollow stem auger
- T - Tremie pipe
- O - Other

- 76. Description of sealant material            \_ |

- B - Bentonite
- G - Cement
- Z - Other
- N - None

- 77. Depth to the top of the annular seal       \_ \_ \_ \_ \_ . \_ \_
- 78. Depth to the bottom of the annular seal   \_ \_ \_ \_ \_ . \_ \_
- 79. Surface seal indicator                    \_ |
- 80. Downgradient indicator                    \_ |

- D = Downgradient
- U = Upgradient

- 81. Driller's log indicator                    \_ |
- 82. Lithologic log indicator                  \_ |
- 83. Well **use** indicator                       \_ |

- D - Domestic
- M - Monitoring well
- O - Other
- I - Industrial
- P - Public

